UNIVERGE SV9500

FP95-115 V5

Data Programming Manual - ISDN

NWD-165802-001
ISSUE 7.0

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UNIVERGE SV9500 ISDN (Gateway) - FEATURE LIST (1 / 6)

LEGEND

*** - There are some restrictions.**
X - Applicable
— - Not Applicable
N - Not Available

A - Administration Station for Hotel System
G - Guest Station for Hotel System
XX - Feature developed by NEC Corporation of America
Countries - Asia, Latin America, Middle East, Russia
SP Controlled Std.SIP - Connection test is required in advance.
SIP Handler-Controlled Std.SIP (Single/Multi Line) - Connection test is required in advance.
SIP Handler-Controlled Std.SIP (Multi Line) - North America ONLY

INDEX	FEATURE NAME	ISDN Category		PIR/ Peripheral Box	MARKET INFORMATION				Analog			Dterm / DT				PHS	PCS	Vo WLAN	SP Controlled Std.SIP	SIP Handler-Controlled Std.SIP (Single Line)	SIP Handler-Controlled Std.SIP (Multi Line)	Hotel	CCIS	FCCS	Location Diversity	SR-MGC(E)	REMARKS
		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												
[A-76/81]	ALTERNATE ROUTING-PRI/PRA	X	X		X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	X	-	-	
[A-88/89]	AUTOMATIC CALL DISTRIBUTION-PRI/PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	X	X	-	-	X	-	-	*: There are some restriction depending on the feature.
[A-92/93]	ANNOUNCEMENT SERVICE-PRI/PRA	X	X	PIR VS32	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	X	-	X	
[A-94/95]	AUTOMATIC CIRCUIT ASSURANCE-PRI/PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	A	-	X	-	-	
[A-110]	ATTENDANT CAMP-ON WITH TONE INDICATION-PRA	X	X	PIR	N	X	X	N	X	X	X	X	X	X	X	N	N	N	N	X	X	A	-	X	X	N (ATT)	
[A-111]	ATTENDANT OVERRIDE-PRA	X	X	PIR	N	X	X	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	X	X	N (ATT)	
[B-19/20]	BOSS-SECRETARY TRANSFER-PRI/PRA	X	X		X	X	N	X	-	-	-	X	X	X	X	-	-	-	-	N	N	A	-	N	N	N	
[B-22/23]	BOSS-SECRETARY OVERRIDE-PRI/PRA	X	X		X	X	N	X	-	-	-	X	X	X	X	-	-	-	-	N	N	A	-	N	N	N	*: The terminal of NEC proprietary protocol is not applicable
[B-25]	BROKERAGE HOT LINE-OUTSIDE-PRA	X	X		N	X	X	X	-	-	-	X	X	X	X	-	-	-	-	N	N	A	-	X	X	N	
[C-95/111]	CALL FORWARDING-ALL CALLS-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	A	-	X	X	X	*: Depends on terminal. Std. SIP terminal can't hear Tone(ex. SST)
[C-96/113]	CALL FORWARDING-BUSY LINE-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	A	-	X	X	X	*: Depends on terminal. Std. SIP terminal can't hear Tone(ex. SST)
[C-97/118]	CALL PICKUP-GROUP-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	X	X	X	
[C-98/122]	CALL TRANSFER-ATTENDANT-PRI/PRA	X	X	PIR	X	X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	N	X	-	X	X	N (ATT)	
[C-99/121]	CALL TRANSFER-ALL CALLS-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	N	X	-	X	X	X	*: Depends on terminal. Std. SIP terminal can't hear Tone(ex. SST)
[C-100/126]	CONSULTATION HOLD-ALL CALLS-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	N	X	-	X	X	X	*: Depends on terminal. Std. SIP terminal can't hear Tone(ex. SST)
[C-101/115]	CALL FORWARDING-INTERCEPT/ANNOUNCEMENT-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	X	X	X	
[C-102/117]	CALL PICKUP-DIRECT-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	X	X	X	

REMARKS

***1**: This list does not include availability of the cradle type of SIP Multiple Line terminal. Features available on the cradle type of SIP Multiple Line terminal differ depending on the application installed in it.

UNIVERGE SV9500 ISDN (Gateway) - FEATURE LIST (2 / 6)

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		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												
[C-113D]	CALL FORWARDING-BUSY LINE-D-PRA	X	X		N	X	X	X	-	-	-	X	X	X	X	-	-	-	-	X	X	A	-	X	X	X	
[C-114/116]	CALL WAITING-TERMINATING-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N	X	-	X	X	X	
[C-119/120]	CALL PARK-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	X	X	A	-	X	X	X	
[C-123/124]	CALL FORWARDING-ALL CALLS-ANNOUNCEMENT-PRI/PRA	X	X	PIR VS32	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	X	X*	X	*: Logical number of the user profile data needs to be set in ACDDN command.
[C-125/128]	CALL FORWARDING-INTER-CEPT-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	X	X	X	
[C-129/130]	CALL FORWARDING-DON'T ANSWER-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	A	-	X	X	X	*: Depends on terminal
[C-130D]	CALL FORWARDING-DON'T ANSWER-D-PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	X	X	A	-	X	X	X	
[C-137]	CALL HOLD-PRA	X	X		N	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	A	-	X	X	X	*: Depends on terminal
[C-138D]	CALL WAITING ANSWER-D-PRA	X	X		N	X	X	X	-	-	-	X	X	X	X	-	-	-	-	-	-	A	-	X	X	X	
[C-139]	CALL FORWARDING-ALL CALLS-OUTSIDE-PRA	X	X		N	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	A	-	X	X	X	*: Depends on your countries regulation *: Std. SIP terminal can't hear Tone(ex. SST)
[C-140]	CALL FORWARDING-BUSY LINE-OUTSIDE-PRA	X	X		N	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	A	-	X	X	X	*: Depends on your countries regulation *: Std. SIP terminal can't hear Tone(ex. SST)
[C-141]	CALL FORWARDING-DON'T ANSWER-OUTSIDE-PRA	X	X		N	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	A	-	X	X	X	*: Depends on your countries regulation *: Std. SIP terminal can't hear Tone(ex. SST)
[D-115/135]	DISTINCTIVE RINGING-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X*	X*	X	N	N	N	X	-	X	X	X	*: Depends on Terminal.
[D-116D/ 136D]	DO NOT DISTURB-D-PRI/PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	N	N	X	-	X	-	X	
[D-117/129]	DATA LINE SECURITY-PRI/PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	X	X	A	-	-	-	-	
[D-118/124]	DATA PRIVACY ON DEMAND-PRI/PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	X	X	A	-	-	X	-	
[D-137/138]	DIRECT-IN TERMINATION (DIT)-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	X	X	X	
[D-142]	DELAY ANNOUNCEMENT-UCD-PRA	X	X		N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	X	X	X	

REMARKS

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UNIVERGE SV9500 ISDN (Gateway) - FEATURE LIST (3 / 6)

LEGEND

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		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												
[E-14D/ 16D]	ELAPSED TIME DISPLAY-D-PRI/ PRA	X	X		X	X	X	X	-	-	-	X*	X*	X*	X*	-	-	-	-	N	N	X	-	X	X	X	*: LCD is required.
[F-21/23]	FLEXIBLE NUMBERING OF STA-TIONS-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	
[F-26/27]	FAULTY TRUNK REPORT-PRI/ PRA	X	X		X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	X	X	-	*: The terminal of NEC proprietary protocol is not applicable
[H-14D/ 17D]	HANDS-FREE ANSWER BACK-D-PRI/PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	N	N	-	-	X	-	X	X	X	
[H-15/21]	HOT LINE-OUTSIDE-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	N	N	A	-	X	-	N	
[I-24/31]	INCOMING CALL IDENTIFICA-TION-PRI/PRA	X	X	PIR	X	X	X	N	X	X	X	X	X	X	X	N	N	N	N	N	N	N	-	-	X	N (ATT)	
[I-25/32]	INCOMING ISDN CALL TO TIE LINE CONNECTION-PRI/PRA	X	X	PIR	X	X	X	N	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	
[I-26/33]	INDIALING THROUGH MAIN-PRI/ PRA	X	X		X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	A	X	X	X	-	
[I-27/35]	INTER-PBX COORDINATED STA-TION NUMBERING PLAN-PRI/ PRA	X	X		X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	A	X	X	X	X	
[I-36/37]	INTER-OFFICE OFF-HOOK QUEUING-PRI/PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	-	-	A	-	X	X	X	
[I-53]	ISDN SHARED ROUTE	X	X		X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	
[L-31/41]	LEAST COST ROUTING-3/6-DIGIT-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[L-32/40]	LCR-TIME OF DAY ROUTING-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	X	
[L-33/37]	LCR-ATTENDANT MANUAL OVERRIDE-PRI/PRA	X	X	PIR	X	X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	N (ATT)	
[L-34/38]	LCR-AUTOMATIC OVERFLOW TO DDD-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	-	
[L-35/39]	LCR-CLOCKED MANUAL OVER-RIDE-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	-	
[L-42/43]	LAST NUMBER CALL-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	X	

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UNIVERGE SV9500 ISDN (Gateway) - FEATURE LIST (4 / 6)

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		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												
[L-42D/ 43D]	LAST NUMBER CALLED -D -PRI/ PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	X	X	X	X	X	X	X	
[L-44/45]	LDN NIGHT CONNECTION-PRI/ PRA	X	X	PIR	X	X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N (ATT)	
[L-46/47]	LDN NIGHT CONNECTION-OUT-SIDE-PRI/PRA	X	X	PIR	X	X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N (ATT)	
[L-49/50]	LCR-SPECIAL LINE WARNING TONE-PRI/PRA	X	X	PIR	X	X	X	N	X	X	X	X	X	X	X	X	X	X	-	N	N	A	X	X	X	N	
[L-54]	LEAST COST ROUTING FOR MG-PRI	X	X	MG UG50	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[M-71/80]	MISCELLANEOUS TRUNK ACCESS-PRI/PRA	X	X		X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[M-72/81]	MISCELLANEOUS TRUNK RESTRICTION-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[M-73/86]	MUSIC ON HOLD-PRI/PRA	X	X	PIR VS32	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	
[M-75/83]	MULTIPLE CALL FORWARDING-ALL CALLS-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	X	
[M-93]	MULTIPLE CALL FORWARDING-BUSY LINE-PRA	X	X		N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	X	
[M-94]	MULTIPLE CALL FORWARDING-DON'T ANSWER-PRA	X	X		N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	X	
[M-106]	MEDIA GATEWAY ISDN PRI/PRA	X	-	MG UG50	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[M-116]	MEDIA GATEWAY ISDN BRI	X	X	MG	X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	X	
[N-20/24]	NIGHT CONNECTION-FIXED-PRI/ PRA	X	X	PIR	X	X	X	N	X	-	-	X	X	X	X	X	X	-	-	X	X	A	X	N	N	N	
[N-21/25]	NIGHT CONNECTION-FLEXIBLE-PRI/PRA	X	X	PIR	X	X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	N	X	N	
[N-22/27]	NON-DELAY OPERATION-PRI/ PRA	X	X	PIR	X	X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	-	N (ATT)	
[N-29/30]	NIGHT CONNECTION OUTSIDE-SYSTEM-PRI/PRA	X	X	PIR	X	X	X	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	X	N	

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[O-24/25]	OUTGOING TRUNK QUEUING-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	X	X	A	X	X	X	X	*: Depends on terminal
[O-25D]	OUTGOING TRUNK QUEUING-D-PRA	X	X		N	X	N	X	-	-	-	X	X	X	X	-	-	-	-	-	-	A	-	X	X	X	
[O-26/27]	OUTGOING TRUNK QUEUING-DELUXE-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	X	X	A	X	X	X	X	*: Depends on terminal
[O-28/29]	OFF-HOOK QUEUING-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	X	X	A	X	X	X	X	*: Depends on terminal
[O-30/31]	OUTGOING TRUNK QUEUING-ATTENDANT-PRI/PRA	X	X	PIR	X	X	X	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	X	X	X	N (ATT)	
[O-32/33]	OVERFLOW-UCD-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X*	X*	X*	-	X	X	A	X	X	X	X	*: There will be restriction when PS is in roaming state.
[O-35]	OUTGOING TRUNK BUSY-ANNOUNCEMENT-PRA	X	X	PIR VS32	N	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	N	
[P-37/41]	PEG COUNT-PRI/PRA	X	X		X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	N	-	
[P-38/43]	PRIMARY CALL RESTRICTION-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	X	-	
[P-39/42]	PRI/PRA TRUNK TO TIE LINE CONNECTION WITH PAD CONTROL	X	X		X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	N	-	
[P-47/48]	PAGING TRANSFER-PRI/PRA	X	X	PIR VS32	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	X	N	N	N	-	*: Depends on terminal
[P-49/50]	PRI/PRA FAILSAFE ROUTING	X	X		X	X	X	X	X	-	-	X	X	X	X	N	N	-	-	X	X	-	X	-	-	X	
[P-81]	PRESENTATION RESTRICTION OVERRIDE ISDN - PRI	X	-		XX	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	
[R-35/38]	RESTRICTION FROM OUTGOING CALLS-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[R-48]	REMOTE ACCESS TO SYSTEM-PRA	X	X		N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	-	X	X	X	*: This features for Hotel system is not available in countries listed as Note.
[S-82/104]	SPEED CALLING-SYSTEM-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	
[S-83/110]	STATION MESSAGE DETAIL RECORDING SYSTEM-RS232C-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

UNIVERGE SV9500 ISDN (Gateway) - FEATURE LIST (6 / 6)

LEGEND

*** - There are some restrictions.**
X - Applicable
— - Not Applicable
N - Not Available

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Countries - Asia, Latin America, Middle East, Russia
SP Controlled Std.SIP - Connection test is required in advance.
SIP Handler-Controlled Std.SIP (Single/Multi Line) - Connection test is required in advance.
SIP Handler-Controlled Std.SIP (Multi Line) - North America ONLY

INDEX	FEATURE NAME	ISDN Category		PIR/ Peripheral Box	MARKET INFORMATION				Analog			Dterm / DT				PHS	PCS	Vo WLAN	SP Controlled Std.SIP	SIP Handler-Controlled Std.SIP (Single Line)	SIP Handler-Controlled Std.SIP (Multi Line)	Hotel	CCIS	FCCS	Location Diversity	SR-MGC(E)	REMARKS
		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												
[S-84/102]	SPEED CALLING-STATION-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[S-85/103]	SPEED CALLING-GROUP-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	X	X	X	X	X	N	X	
[S-89/105]	SPEED CALLING OVERRIDE-SYSTEM-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	X	X	X	X	X	*: Depends on terminal
[S-107/108]	STATION INDIVIDUAL TRUNK ACCESS-PRI/PRA	X	X		X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	X	X	
[T-37/43]	TANDEM SWITCHING OF TIE TRUNKS-2/4-WIRE-PRI/PRA	X	X		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	X	X	A	X	X	X	-	
[T-38/45]	THREE-WAY CALLING-PRI/PRA	X	X	PIR VS32	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	X	X	X	-	X	X	X	*: Std.SIP terminal cannot be the conference leader and availability of this feature depends on the terminal.
[T-40/47]	TOLL DENIAL/TOLL DIVERSION-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X*	*: Under the usage of tenant basis route restriction, need to set the same number between UGN number and tenant number.
[T-41/48]	TOLL RESTRICTION-3/6-DIGIT-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[T-58]	TRUNK ANSWER FROM ANY STATION (TAS)-PRA	X	X		N	X	N	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	
[T-59]	TRUNK-TO-TRUNK CONNECTION-PRA	X	X		N	X	N	N	X	X	X	X	X	X	X	X	X	X	X*	X	X	A	X	X	X	X	*: Depends on terminal
[U-6/7]	UNIFORM CALL DISTRIBUTION (UCD)-PRI/PRA	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	X	X	X	-	X	X	X	

UNIVERGE SV9500 ISDN (Supplementary) - FEATURE LIST (1 / 5)

LEGEND

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SIP Handler-Controlled Std.SIP (Multi Line) - North America ONLY

INDEX	FEATURE NAME	ISDN Category		PIR/ Peripheral Box	MARKET INFORMATION				Analog			Dterm / DT				PHS	PCS	Vo WLAN	SP Controlled Std.SIP	SIP Handler-Controlled Std.SIP (Single Line)	SIP Handler-Controlled Std.SIP (Multi Line)	Hotel	CCIS	FCCS	Location Diversity	SR-MGC(E)	REMARKS
		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												
Service For Incoming Call																											
[C-103]	CALLING PARTY RECOGNITION SERVICE (CALL FORWARDING-All Calls/ Busy Line/Don't Answer)	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	N	X*	X	*: Forwarding destination needs to be set by logical number in User profile data.
[C-104]	CALLING PARTY RECOGNITION SERVICE (Direct-In Termination [DIT])	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	N	X*	X	*: Logical number of the user profile data needs to be set for the called party.
[C-170]	CALL REDIRECTION (FOR AT&T #4ESS)	X	N		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	X	
[C-171]	COLLECT CALL BLOCKING-PRI/BRI (for Brazil only)	X	N		N	N	X	N	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X	
[C-179]	CALLING LINE IDENTIFICATION RESTRICTION (CLIR)	X	X		N	N	X	X	-	-	-	X	X	X	X	N	N	N	-	X	X	A	X	X	X	X	
[D-123]	DIRECT INWARD DIALING (DID) ADDRESSING	X	X		X	X	X	X	-	-	-	-	-	-	-	X	X	X	X	-	-	X	-	-	X*	X	*: Logical number of the user profile data needs to be set in ACDDN command.
[E-32]	ETSI ISDN ADDRESSING	X	X	PIR(E1) BRI/ PRI(E1) card	N	N	N	X	-	-	-	X	X	X	X*1	-	-	-	-	X	X	N	-	X	X	X	*: Addressing via Tandem Connection is available since S03. *: Addressing/COLP with Phone is available since S05. *: Calling Party Numbers translated through Extended Addressing feature can be output to SMDR and MCI since S05. *1: Only Proprietary Protocol.
[I-28]	ISDN INDIVIDUAL CALLING LINE IDENTIFICATION (ICLID)	X	X		X	X	X	X	-	-	-	X	X*	X*	X*	-	-	-	-	X*	X*	A	X	X	X	X	The terminal of NEC proprietary protocol is not applicable
[O-40]	OVERSEAS COLLECT CALL ISDN DIVERSION	X	X		N	N	X	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	X	X	X	N	
[S-93]	SID TO TERMINATING USER-DISPLAY	X	X		X	X	X	X	-	-	-	X	X	X	X	X	X	-	-	X	X	A	X	X	X*	X	*: Depends on Data setting of Backup MGC
[S-95]	SUB ADDRESS-ADDRESSING	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	-	X*	X	*: Depends on Data setting of Backup MGC
[S-136]	SID TO TERMINATING USER (CALL-BY-CALL)-DISPLAY for AT&T (#4ESS)	X	-		X	N	N	N	-	-	-	X	X	X	X	-	-	-	-	X	X	A	X	X	X	X	
Service for Outgoing Call																											
[A-77]	ACCUNET ACCESS154	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	N	N	N	X	

REMARKS

***1**: This list does not include availability of the cradle type of SIP Multiple Line terminal. Features available on the cradle type of SIP Multiple Line terminal differ depending on the application installed in it.

UNIVERGE SV9500 ISDN (Supplementary) - FEATURE LIST (2 / 5)

LEGEND

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SIP Handler-Controlled Std.SIP (Multi Line) - North America ONLY

INDEX	FEATURE NAME	ISDN Category		PIR/ Peripheral Box	MARKET INFORMATION				Analog			Dterm / DT				PHS	PCS	Vo WLAN	SP Controlled Std.SIP	SIP Handler-Controlled Std.SIP (Single Line)	SIP Handler-Controlled Std.SIP (Multi Line)	Hotel	CCIS	FCCS	Location Diversity	SR-MGC(E)	REMARKS
		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												
[B-27]	B-CHANNEL SERVICE CONTROL	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	X	
[C-105]	CALL-BY-CALL SERVICE SELECTION	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	X	
[C-106]	CALL-BY-CALL POOL MANAGEMENT	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	X	
[C-164]	CCIS TANDEM CALL-CALLING PARTY NUMBER (CPN) DELIVERY TO ISDN AND Q.SIG NETWORKS	X	X		XX	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	X	-	-	N	
[C-165]	CALLING PARTY CLIR/CLIP CONTROL	X*	X*		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	N	*: Some services are only for EMEA.
[D-152]	D-CHANNEL BACKUP-PRI	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	X	
[E-34]	ETSI ISDN CONNECTED LINE IDENTIFICATION PRESENTATION/RESTRICTION (COLP/COLR)	X	X	PIR(E1) BRI/PRI(E1) card	N	N	N	X	-	-	-	X	X	X	X	-	-	-	-	X	X	N	-	-	X	X	*: COLP via Tandem Connection is available since S3.
[E-35]	ETSI OVERLAP SENDING AND RECEIVING	X	X	PIR(E1) BRI/PRI(E1) card	N	N	N	X	X	X	X	X	X	X	X	-	-	-	-	X	X	N	-	-	X	X	
[I-50]	ISDN CLI WITH CALL FORWARDING OUTSIDE	X	N		N	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	-	-	-	-	
[M-76]	MEGACOM ACCESS	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	N	N	N	X	
[M-77]	MEGACOM800 SERVICE	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	N	N	N	X	
[N-40]	NON-FACILITY ASSOCIATED SIGNALING-PRI	X	-	PIR	X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	N	N	N	X	
[Q-5]	Q.SIG/ISDN INTERNATIONAL GATEWAY SWITCHING	X	-		X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	A	N	N	-	-	
[Q-7]	Q.SIG LOOK AHEAD ROUTING (ETSI ETS 300-172)	X	-	PIR	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	A	N	N	-	-	
[Q-8]	Q.SIG LOOK AHEAD ROUTING (ISO IS-11571)	X	-	PIR	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	A	N	N	-	-	
[S-90]	SDN ACCESS	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	N	N	N	X	

REMARKS

***1**: This list does not include availability of the cradle type of SIP Multiple Line terminal. Features available on the cradle type of SIP Multiple Line terminal differ depending on the application installed in it.

UNIVERGE SV9500 ISDN (Supplementary) - FEATURE LIST (3 / 5)

LEGEND

*** - There are some restrictions.**
X - Applicable
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SIP Handler-Controlled Std.SIP (Multi Line) - North America ONLY

INDEX	FEATURE NAME	ISDN Category		PIR/ Peripheral Box	MARKET INFORMATION				Analog			Dterm / DT				PHS	PCS	Vo WLAN	SP Controlled Std.SIP	SIP Handler-Controlled Std.SIP (Single Line)	SIP Handler-Controlled Std.SIP (Multi Line)	Hotel	CCIS	FCCS	Location Diversity	SR-MGC(E)	REMARKS
		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												
[S-91]	SID TO NETWORK-PRESENT/SID TO NETWORK-PRIVACY	X	N		X	X	N	N	X*	X*	X*	X	X	X	X	X	X	X	X*2	X	X	A	-	-	X*3	X	*: Only sending the caller telephone number for analog terminal, *2: Depends on the terminal. *3: Logical number of the user profile data needs to be set in ACNNN command.
[S-92]	SID TO NETWORK-PRESENT/SID TO NETWORK-PRIVACY	X	N		X	X	N	N	X*	X*	X*	X	X	X	X	X	X	N	N	X	X	A	-	-	X*2	X	*: Only sending the caller telephone number for analog terminal, *2: Depends on Data setting of Backup MGC
[S-96]	SUB ADDRESS-PRESENT	X	X		X	X	N	N	X	X	X	X	X	X	X	X	X	N	N	X	X	A	X	X	X*	X	*: Depends on Data setting of Backup MGC
[T-42]	TRUNK PROVISIONING SERVICE SELECTION	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	X	
[W-9]	WIDE BAND SWITCHING FOR AT&T #4ESS	X	-		X	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	A	-	-	-	N	
Service for Network																											
[C-112/ T-44]	CALLING PARTY INFORMATION TRANSFER/TRANSFER MESSAGE (TRM)	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	X	-	-	-	
[E-30]	E911-LOCATION IDENTIFICATION NUMBER (LIN)	X	N		X	N	N	N	X	X	X	X	X	X	X	N	N	N	N	X	X	X	N	N	N	X	
[I-51]	ISDN BOTHWAY NAME DISPLAY WITH NORTEL CO OR NI2	X	-		XX	N	N	N	X	X	X	X	X	X	X	X	X	N	N	X	X	X	X	X	X	N	
[N-39]	NI-1 BRI TERMINAL SUPPORT	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	N	
[N-42]	NATIONAL-ISDN2-PRI	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	X	
[N-47]	NETWORK NAME DISPLAY (NI-2 PRI)	X	-		X	N	N	N	-	-	-	X	X*	X*	X	-	X	-	-	X*	X*	A	X	X	X	X	*: The terminal of NEC proprietary protocol is not applicable
[P-58]	PRI TERMINAL SUPPORT	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	N	-	X*	-	-	*: This feature is not available for Peer-to-Peer FCCS Network.
[P-73]	PRI TWO B-CHANNEL TRANSFER (NATIONAL ISDN-98)	X	-		X	N	X	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	X	
[R-53]	RETURN MESSAGE IN THE TANDEM CONNECTION	X	N		N	X	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	X	-	-	X	

REMARKS

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UNIVERGE SV9500 ISDN (Supplementary) - FEATURE LIST (4 / 5)

LEGEND

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		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												***1**: This list does not include availability of the cradle type of SIP Multiple Line terminal. Features available on the cradle type of SIP Multiple Line terminal differ depending on the application installed in it.
Special Network																											
[D-132/ P-44]	DEMAND ESTABLISHED ISDN-CCIS NETWORK/ PERMANENT ISDN-CCIS NETWORK/SEMI-PERMANENT CONNECTION	X	-		N	X	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	X	-	-	-	
[V-18]	VIRTUAL TIE LINE	X	-		X	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	A	X	-	-	-	
[E-23]	EVENT BASED CCIS - ISDN TRANSPORT	X	-	PIR	X	X	X	N	-	-	-	-	-	-	-	N	N	-	-	-	-	A	X	-	X*	-	*: Depends on Data setting of Backup MGC
[E-24]	EVENT BASED CCIS - Q.SIG TRANSPORT	X	-	PIR	X	X	X	N	-	-	-	-	-	-	-	N	N	-	-	-	-	A	X	-	X*	-	*: Depends on Data setting of Backup MGC
Private Network																											
[C-148]	CALL COMPLETION TO BUSY SUBSCRIBER (CCBS)	X	-	PIR	X	N	X	X	X	X	X	X	X	X	X	N	N	N	N	X	X	A	-	-	X*	-	There are some limitation in each system and markets. *: Depends on Data setting of Backup node for SFC in User profile data
[C-152]	CALL COMPLETION ON NO REPLY (CCNR)	X	-	PIR	X	N	X	N	X	X	X	X	X	X	X	N	N	N	N	X	X	-	-	-	X*	-	*: Depends on Data setting of Backup node for SFC in User profile data
[C-153]	CALLING NAME IDENTIFICATION PRESENTATION (CNIP)/ CONNECTED NAME IDENTIFICATION PRESENTATION (CONP)	X	-	PIR	X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	X	X	-	-	-	-	-	
[C-158]	CALL FORWARDING SUPPLEMENTARY SERVICE (SS-CF) WITH REROUTING	X	-	PIR	X	X	X	X	X	X	X	X	X	X	X	N	N	N	N	X	X	-	-	-	X*	-	*: Depends on Data setting of Backup node for SFC and RSC in User profile data
[C-159]	CALL TRANSFER SUPPLEMENTARY SERVICE (SS-CT) WITH REROUTING	X	-	PIR and MG (PRI)	X	X	X	X	X	X	X	X	X	X	X	N	N	N	N	X	N	-	-	-	X*	-	*: Depends on Data setting of Backup MGC
[I-42]	IS-11572 (LAYER 3 SPECIFICATIONS FOR INTER-PBX SIGNALING PROTOCOL)	X	-	PIR	X	N	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	
[P-82]	PRIVATE TELECOMMUNICATION NETWORK Q-SIG ADDRESSING	X	-	PIR(E1) / MG(PRI)(E1)	N	N	N	X	X*	X*	X*	X	X	X	X	-	-	X*	X*	X	X	-	-	-	-	-	*: This feature is not provided to the terminal without Call Line Identification Display.
[Q-4]	Q-SIG CIRCUIT SWITCHED BASIC CALL - ETSI VERSION	X	-	PIR MG	X*	X*	X*	X*	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	There are some limitation depend on market technical spec.

UNIVERGE SV9500 ISDN (Supplementary) - FEATURE LIST (5 / 5)

LEGEND

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XX - Feature developed by NEC Corporation of America
Countries - Asia, Latin America, Middle East, Russia
SP Controlled Std.SIP - Connection test is required in advance.
SIP Handler-Controlled Std.SIP (Single/Multi Line) - Connection test is required in advance.
SIP Handler-Controlled Std.SIP (Multi Line) - North America ONLY

INDEX	FEATURE NAME	ISDN Category		PIR/ Peripheral Box	MARKET INFORMATION				Analog			Dterm / DT				PHS	PCS	Vo WLAN	SP Controlled Std.SIP	SIP Handler-Controlled Std.SIP (Single Line)	SIP Handler-Controlled Std.SIP (Multi Line)	Hotel	CCIS	FCCS	Location Diversity	SR-MGC(E)	REMARKS
		PRI/PRA	BRI		North America	Australia	Countries	EMEA	PIR	UG50	MC	Digital Terminal	UG50	IP Terminal *1	Soft Phone												***1**: This list does not include availability of the cradle type of SIP Multiple Line terminal. Features available on the cradle type of SIP Multiple Line terminal differ depending on the application installed in it.
[Q-10]	Q-SIG FORWARDING STATION INFORMATION	X	-	PIR / MG	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Available since S3.
[R-56]	RECALL WITH CONNECTED NUMBER DISPLAY	X	-	PIR	X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	-	-	A	-	-	X*	-	*: Depends on Data setting of Backup MGC
Supplement																											
[A-90]	ADVICE OF CHARGE DISPLAY	X	X		N	X	X	N	-	-	-	X	X	X	X	-	-	-	-	N	N	A	X	X	X	X	
[A-91]	ADVICE OF CHARGE SMDR	X	X		N	X	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
[A-136]	ADVICE OF CHARGE (AOC) - RECEIPT AND DISPLAY OF AOC FROM A FOREIGN Q-SIG NETWORK	X*	X*		X	X	X	X	-	-	-	X	X	X	X	-	-	-	-	N	N	-	-	X*	X*2	-	There are some limitation in each system and markets. *: Some services are only for EMEA. *2: Depends on Data setting of Backup node for SFC in User profile data
[A-138]	ADVICE OF CHARGE - SMDR PRINT-OUT	X	X		N	N	X	N	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	N	
[E-33]	ETSI ADVICE OF CHARGE: CHARGING INFORMATION AT THE END OF THE CALL (AOC-E)	X	X	PIR(E1) BRI/ PRI(E1) card	N	N	N	X	X*	X*	X*	X	X	X	X	-	-	-	-	X	X	X	-	-	X	X	There are some limitation in each system and markets. *: LCD terminal is required.
[E-36]	ETSI ADVICE OF CHARGE: CHARGING INFORMATION DURING THE CALL (AOC-D)	X	X	BRI/ PRI(E1) card	N	N	N	X	N	N	N	X	X	X	X	N	N	N	N	X	X	-	X	X	X	X	There are some limitation in each system and markets.
[I-38]	ISDN SUPPLEMENTARY SERVICE SELECTION	X	N		N	X	N	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	
[M-98/ 100]	MALICIOUS CALL TRACE - PRA/MALICIOUS CALL IDENTIFICATION - PRI	X	N		X	X	X	N	-	-	-	X	X	X	X	-	-	-	-	X	N	A	X	X	X*	X	*: Depends on Data setting of Backup node for SFC in User profile data
[P-70]	PRI INTERFACE WITH ETSI/VN4 (for Chile)	X	N	PIR / MG	N	N	X	N	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	

NWD-165802-001
ISSUE 7.0
OCTOBER, 2017

UNIVERGE SV9500
Data Programming Manual - ISDN

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CHAPTER 1
INTRODUCTION

1. GENERAL

This manual describes the general information for ISDN, the office data design of ISDN and ISDN service.

2. HOW TO FOLLOW THE MANUAL

2.1 Configuration of This Manual

This manual is comprised as follows.

CHAPTER 2 GENERAL INFORMATION
1. HARDWARE CONFIGURATION
2. BASIC KNOWLEDGE

CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN
1. ISDN AND Q-SIG LINE ACCESS CODE ASSIGNMENT
2. ISDN TRUNK DATA ASSIGNMENT
3. Q-SIG TRUNK DATA ASSIGNMENT
4. CALLING NUMBER PATTERN DATA (CNP) ASSIGNMENT
5. ETSI ISDN DATA ASSIGNMENT
6. ETSI CHANNEL NEGOTIATION
7. Q-SIG CHANNEL NEGOTIATION

CHAPTER 4 COMMANDS CONCERNING ISDN DATA ASSIGNMENT
1. GENERAL
2. COMMANDS

CHAPTER 5 GATEWAY SERVICE

CHAPTER 6 SUPPLEMENTARY SERVICE

Note: FCCS stands for Fusion Call Control Signaling.

Note: WATS, FX and CCSA are services available in North America only. For more details, refer to the Data Programming Manual - Business.

CHAPTER 2
GENERAL INFORMATION

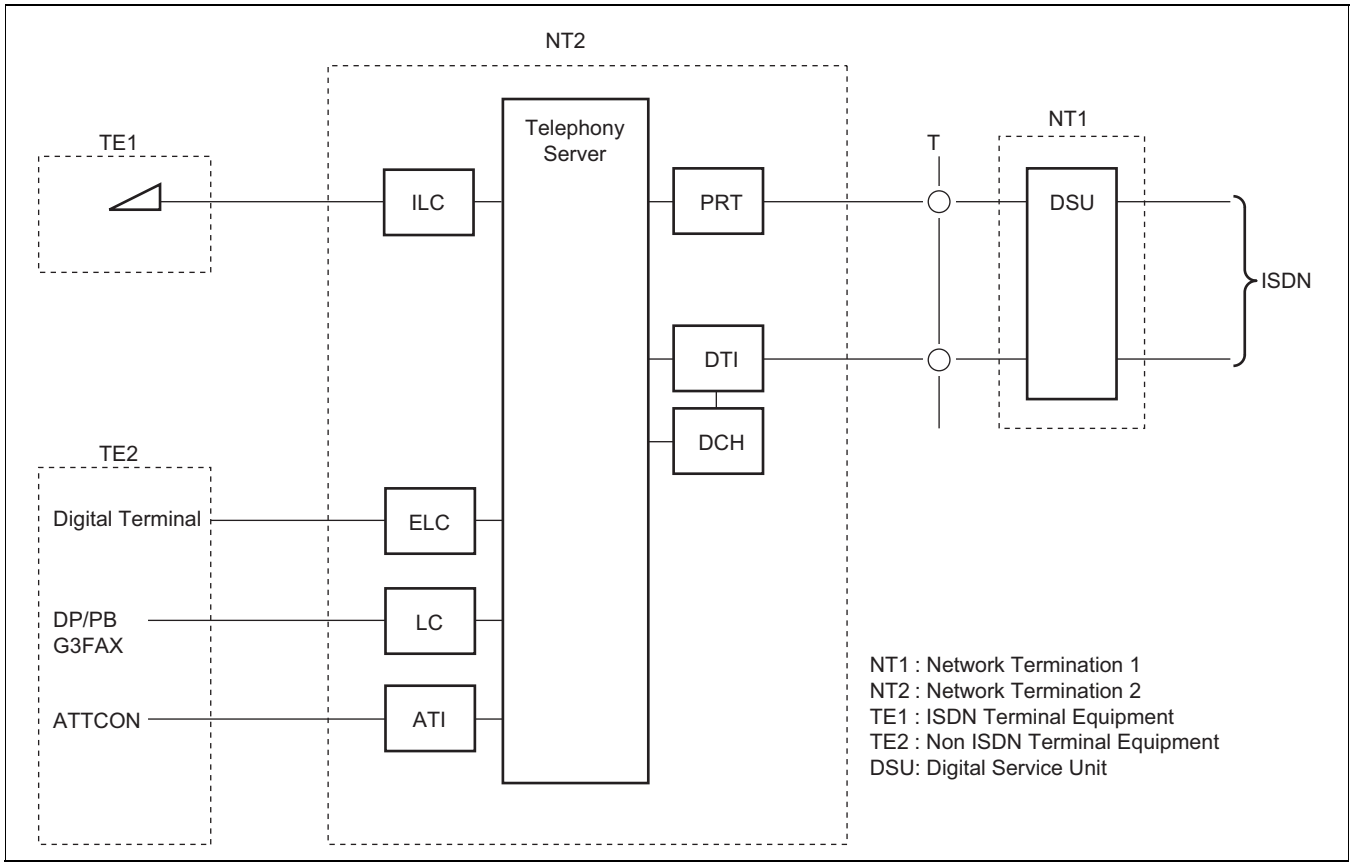
This chapter explains hardware configuration and basic knowledge for ISDN.

1. HARDWARE CONFIGURATION

1.1 ISDN with PRT Circuit Card

The system provides PRT as a primary rate ISDN interface; and DTI with DCH is also available. The hardware configuration is shown in the figure below.

Hardware Configuration (ISDN with PRT)



Hardware

SYMBOL	HARDWARE	REMARKS
PRT	CH-PRTA	ISDN Primary Rate Interface
	PA-PRTC	
DCH	PA-2DCHA	D-Channel Handler
DTI	CH-PRTA	Digital Trunk Interface
	PA-PRTC	
ILC	PA-8ILCE-A	ISDN Terminal Line Circuit

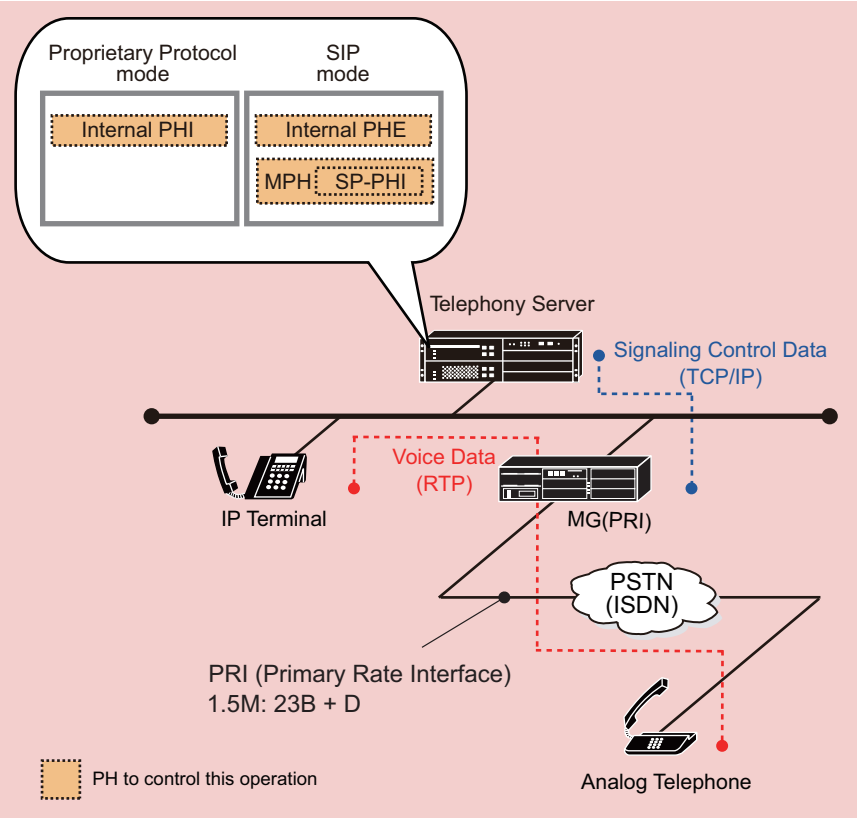
1.2 ISDN with Media Gateway

Media Gateway (MG) is used to connect IP network with ISDN, exchanging voice data ⇔ IP packets.The system provides MG(PRI) as a primary rate ISDN interface and MG(BRI) as basic rate ISDN interface. The following types of MG are used in Telephony Server.

GENERIC DESIGNATION	MODE	MG TYPE
MG (PRI)	SIP mode	MG(PRI) (1.5M) Card [SCA-24PRIA]
		MG(PRI) (1.5M) [MG-24PRIA]
		MG(PRI) (2M) Card [SCA-30PRIA]
		MG(PRI) (2M) [MG-30PRIA]
		UG50 (PRT 1.5M)
		UG50-24PRIA
		UG50 (PRT 2M)
		UG50-30PRIA
	Proprietary protocol mode	MG(PRI) (1.5M) Card [SCA-24PRIA]
		MG(PRI) (1.5M) [MG-24PRIA]
		MG(PRI) (2M) Card [SCA-30PRIA]
		MG(PRI) (2M) [MG-30PRIA]
		UG50 (PRT 1.5M)
		UG50-24PRIA
		UG50 (PRT 2M)
		UG50-30PRIA
MG (BRI)	SIP mode	MG(BRI) Card [SCA-2BRIA-B/SCA-2BRIA]
		MG(BRI) [MG-2BRIA]

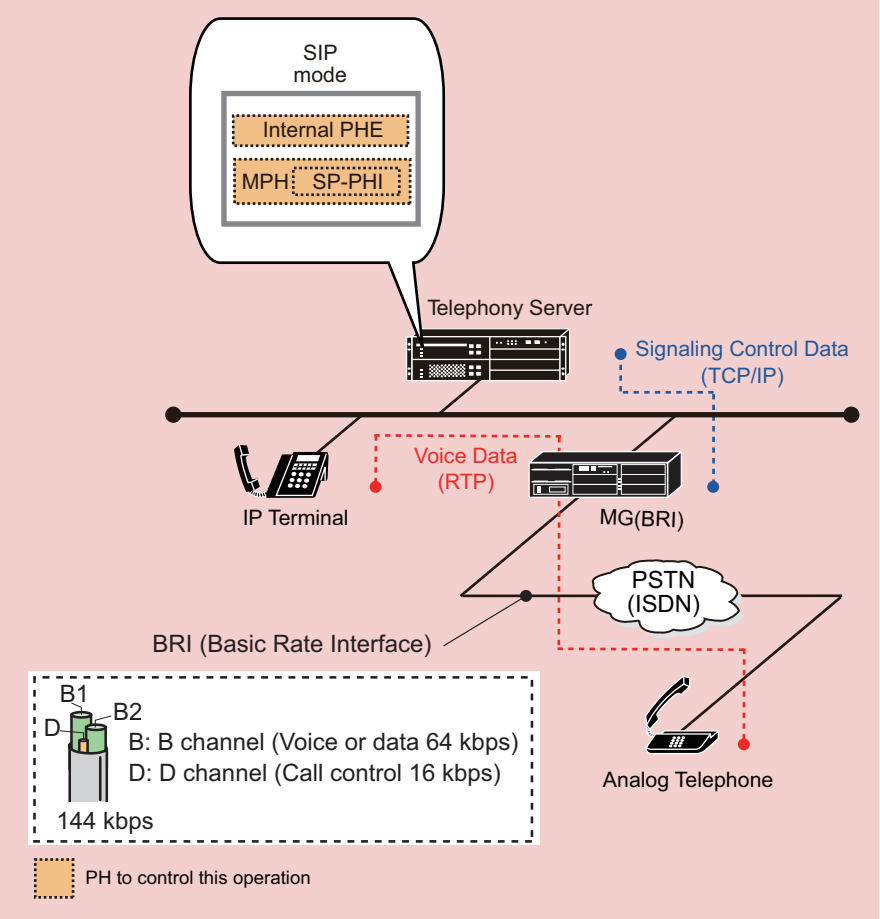
The network configuration using MG-PRI and MG-BRI is shown in “Network Configuration (ISDN with MG-PRI)” and “Network Configuration (ISDN with MG-BRI)” respectively.

Network Configuration (ISDN with MG-PRI)



Note: PH whose function controls ISDN signaling is installed in Telephony Server and used to handle MG-PRIs.

Network Configuration (ISDN with MG-BRI)



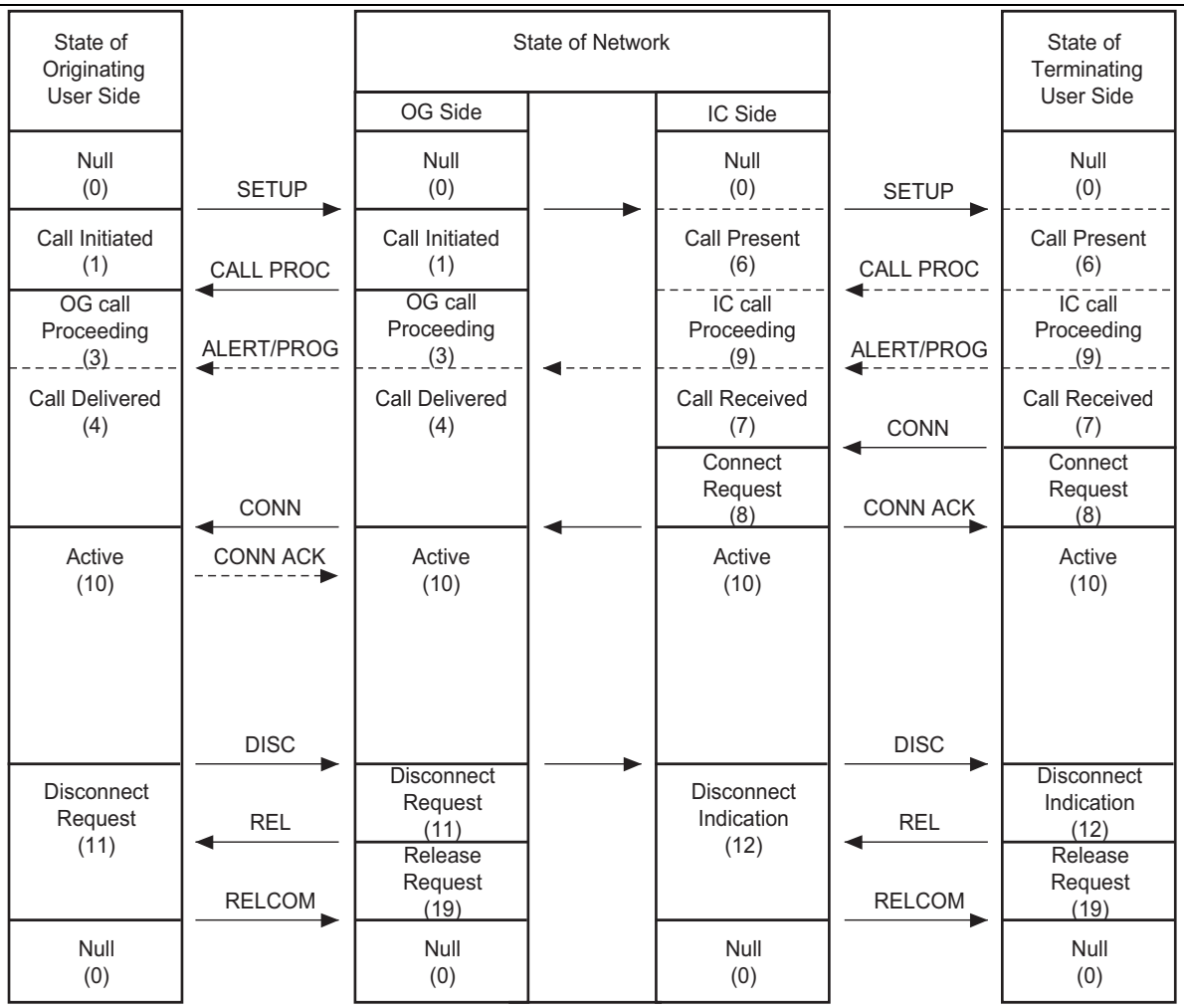
Note: PH whose function controls ISDN signaling is installed in Telephony Server and used to handle MG-BRIs.

2. BASIC KNOWLEDGE

2.1 Message Sequences for Layer3

The message sequence for call establishment and clearing is shown in the figure below.

Message Sequences for Layer3



Note: <Call established message><Call clearing message>

ALERT:	Alerting	DISC:	Disconnect
CALL PROC:	Call Proceeding	REL:	Release
CONN:	Connect	RELCOM:	Release Complete
CONN ACK:	Connect Acknowledge		
PROGRESS:	Progress		
SETUP:	Setup		

Note: The number in ( ) shows Call state value for User or Network.

2.2 Bearer Capability (BC) Information Element

The purpose of the Bearer Capability (BC) information element is to indicate a bearer service to be provided by the network (ISDN). It contains only information which may be used by the network.
The Bearer Capability information element is used for compatibility checking in the connection as well as Low Layer (LLC)/High Layer (HLC) Capability.
The following shows the relation between a terminal and BC.

Kind of Terminal	BC
Analog single line telephone	Speech
Digital telephone (Desktop terminal)	Speech
G3 (Group 3) Fax	3.1 kHz audio
Modem	3.1 kHz audio
DTE via Data Module/Adaptor	Unrestricted digital
G4 (Group 4) Fax	Unrestricted digital

Note: A maximum of 460 ISDN lines can be used simultaneously.

2.3 Virtual Register and Virtual Sender

For incoming/originating calls via ISDN lines, virtual registers/senders are used.

The sum total of virtual registers and other registers (RT=902, RT=903, RT=906, and RT=933) per LP cannot exceed 64 channels. If all the channels are occupied by RT=902, RT=903, RT=906, and RT=933, there is no channel left for virtual registers to use. Be careful because this can cause incoming calls to ISDN lines unavailable.

The sum total of virtual senders and other senders (T=905 and RT=937) per LP cannot exceed 64 channels. If all the channels are occupied by RT=905 and RT=937, there is no channel left for virtual senders to use. Be careful because this can cause originating calls from ISDN lines unavailable.

CHAPTER 3
BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG

ISDN/Q-SIG Related Services Availability

No.	Standard	Service Name	Availability	
			ISDN	Q-sig
1	EN300 172 (v.1.4.1)	Basic Call	Yes	Yes ETS 300 172 2nd Edition
2	EN 300 239 (2 issue.)	Generic Functional Procedures	Yes	Yes ETS 300 239 2nd edition
3	EN 300 238 (2 issue.)	Name Identification	No	ETS300-238 2nd edition
		CNIP - Name Identification of calling party.	No	Yes
		CNIR - restrict of Name Identification of calling party.	No	No
		CONP - Name Identification of answered party.	No	Yes
		CONR - restrict of Name Identification of answered party.	No	No
4	EN 300 261 (2 issue)	Call Transfer - CT	No	Yes ETS 300 261 2nd edition
5	EN 300 257 (2 issue)	Call Diversion - CD	No	ETS 300 257 2nd edition
		CPB - diversion if busy	No	Yes
		CFNR - diversion if no answer	No	Yes
		CFU - diversion of all calls	No	Yes
6	ETS300 173	Number Identification	Yes	ETS 300 173 1st edition
		CLIP - send calling party number and sub address to called party.	Yes	Yes
		CLIR - restrict of identification of calling party.	Yes	No
		COLP - send answered party number and sub address to calling party.	Yes	Yes
		COLR - restrict of identification of calling party.	Yes	No
7	ETS300 047	Transit Counter **Note:** This feature is allowed to disconnect a line if a Transit Counter value becomes 31.	No	Yes ETS 300 047 1st edition
8	ETS 300 189	Addressing	Yes	Yes ETS 300 189 1st edition
9	Others	Others	Yes Overlap Sending/Receiving	No

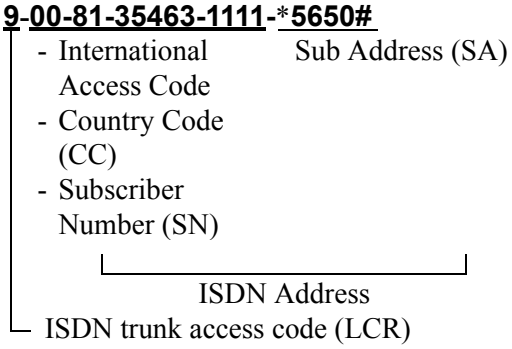
1. ISDN AND Q-SIG LINE ACCESS CODE ASSIGNMENT

To initiate seizure of an outgoing trunk, one of four methods - OGC, OGCA, LCR, LCRS - can be used in the system. Among the four methods, however, "LCR" method alone can access an ISDN line. For this reason, be sure to assign "LCR: Least Cost Routing" as "Kind of service (SRV)" in the ASPA command. The following explains how to program LCR data.

STEP 1: ANPD-Assign the first digit of the LCR access code for the ISDN line.

STEP 2: ASPA-Assign the LCR access code for a dummy route number.

- Any dummy route number can be used if the route number is not duplicated.
- When Sub Address Dialing is desired, assign SUB=1. (Refer to Feature "SUB ADDRESS-PRESENT")
- An example "Sub Address Dialing" from a station is shown below.



- A station user may dial the Sub Address when he/she uses the ISDN trunk access code with SUB=1. The call will be originated after Register Inter Digit Timer value if the station user does not dial Sub Address.
- The Register Inter Digit Timer is determined by ASYD SYS1 INDEX 129. (Default data = 6 sec.)

STEP 3: AMND-Assign the Maximum Necessary Digits (MND) for each Area/Office code (DC).

- DC must include ISDN trunk access code and ISDN address but not a Sub Address (SA).
- Analog/Digital Line Data (A/D) must be assigned as "Digital" for the DC which includes ISDN trunk access code.
  A/D = Digital

STEP 4: ARNP-Assign the ISDN trunk access code to the ISDN Bch route number, but not a dummy route number.

STEP 5: ARTD-Assign the following CDN data for the dummy route number.

TCL (CDN 6) = 1 or 4 (depending on the requirement)
L/T (CDN 7) = 1
AC (CDN 13) = 1

- The other CDNs may be left default (data 0) for the dummy route.

STEP 6: AFRS-Assign Number Pattern Code (NPC) and Outgoing Route Selection Pattern Number (OPR) for the dummy route number.

- NPC may include ISDN trunk access code and ISDN address but not a Sub Address (SA).
- OPR is a kind of intermediator between AFRS and AOPR. Therefore any number may be used from 1 through 4,000. (Be careful not to assign duplicated OPR.)

STEP 7: AOPR-Assign ISDN Bch route number to the OPR which has been assigned in the AFRS command.

- Since the system should transmit only ISDN address, skip the ISDN trunk access code.
- Route advance is available by programming RA, E and RT. OVFT is also available.
- ACMO is available with programming PNL.
- ATCP and/or ASDC is available with programming TDPTN.

STEP 8: ARSC-Assign RSC that allows RRIs for both ISDN Bch trunk route and the dummy route but not for ISDN Dch trunk route.

Note: For the Bearer Capability (BC) in ISDN;

Caller should provide the following service class data:
ASFC - SFI48 = 1 (for 3.1 kHz audio) ---- Group 3 Fax. Modem
SFI48 = 0 (for speech)

2. ISDN TRUNK DATA ASSIGNMENT

This section describes the setting procedure for ISDN trunk data when using PRT/DCH circuit card. For MG(PRI), refer to MG(PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]/MG(PRI) (2M) [SCA-30PRIA/MG-30PRIA], and for MG(BRI), refer to MG(BRI) [SCA-2BRIA-B/SCA-2BRIA/MG-2BRIA] in Peripheral Equipment Description (IP Devices). Also, for UG50 (PRT1.5M), UG50 (PRT 2M), UG50-24PRIA and UG50-30PRIA, refer to Peripheral Equipment Description (UG 50).

STEP 1: ASYD-Assign the following indexes.

SYS1 Index 91: Single PLO

b7	b6	b5	b4
0	1	0	0

Dual PLOs

b7	b6	b5	b4
1	1	0	0

SYS1 Index 186: CCIS/ISDN in service

b6
1

SYS1 Index 187: always 00 (hex)

SYS1 Index 220: ISDN is in service

b6

0 (When b6=1, ISDN service is invalid.)

STEP 2: ARTD-Assign the route data for both Bch and Dch.

B-channel route data

CDN	2	(ONSG)	= 2
	4	(INSG)	= 2
	5	(TF)	= 3
	6	(TCL)	= 1
	7	(L/T)	= 1
	8	(RLP)	= 2
	10	(SMDR)	= 1
	15	(LSG)	= 12
	28	(ANS)	= 1
	30	(PAD)	= 4
	31	(OGRL)	= 1
	32	(ICRL)	= 1
	34	(GUARD)	= 1
	45	(A/D)	= 1
	50	(DPLY)	= 1
	63	(LYER1)	= 0/1 **Note 1**
	65	(INT)	= **Note 2**
	66	(DC)	= **Note 3**

D-channel route data

CDN	2	(ONSG)	= 2
	4	(INSG)	= 2
	6	(TCL)	= 1
	7	(L/T)	= 1
	8	(RLP)	= 2
	15	(LSG)	= 13
	28	(ANS)	= 1
	30	(PAD)	= 7
	63	(LYER1)	= 0/1 **Note 1**
	65	(INT)	= **Note 2**
	66	(DC)	= **Note 3**

The other data should be “0” (default data).

Note 1: LYER1 (CDN63):
0 23B+D
1 30B+D

Note 2: INT (CDN65):
1 N-ISDN2
2 Australia
3 INS 1500
4 PRI (ITU-T/ETSI)
5 AT&T (#4/#5 ESS)
6 BRI (ITU-T/ETSI)
7 NT DMS 100 / DMS 250
8 Not used
9 TTC Q931a protocol Tie Line (Japan)
10 Q-sig. (ETS 300 172)/IS-11572

Note 3: In the case of "SUB ADDRESS - ADDRESSING", assign "0". (Refer to "SUB ADDRESS-ADDRESSING" in Chapter 6.)
In the case of "DID ADDRESSING", refer to "DID ADDRESSING" in Chapter 6.

Note: When CMRT (CDN115) is assigned to use ISDN SHARED ROUTE [I-53], skip the following data assignment.
- ADPC: Assignment of Determinate Point Code Data (STEP 5)
- ACSC: Assignment of CSC Data (STEP 6)
- ACIC1: Assignment of CIC Code Data 1 (STEP 7)

STEP 3: ARTI -Assign Route Data. (For EMEA only)
CDN89 (REGION) = 1 (EMEA-ISDN)

Note: For details, refer to "5. ETSI ISDN DATA ASSIGNMENT".

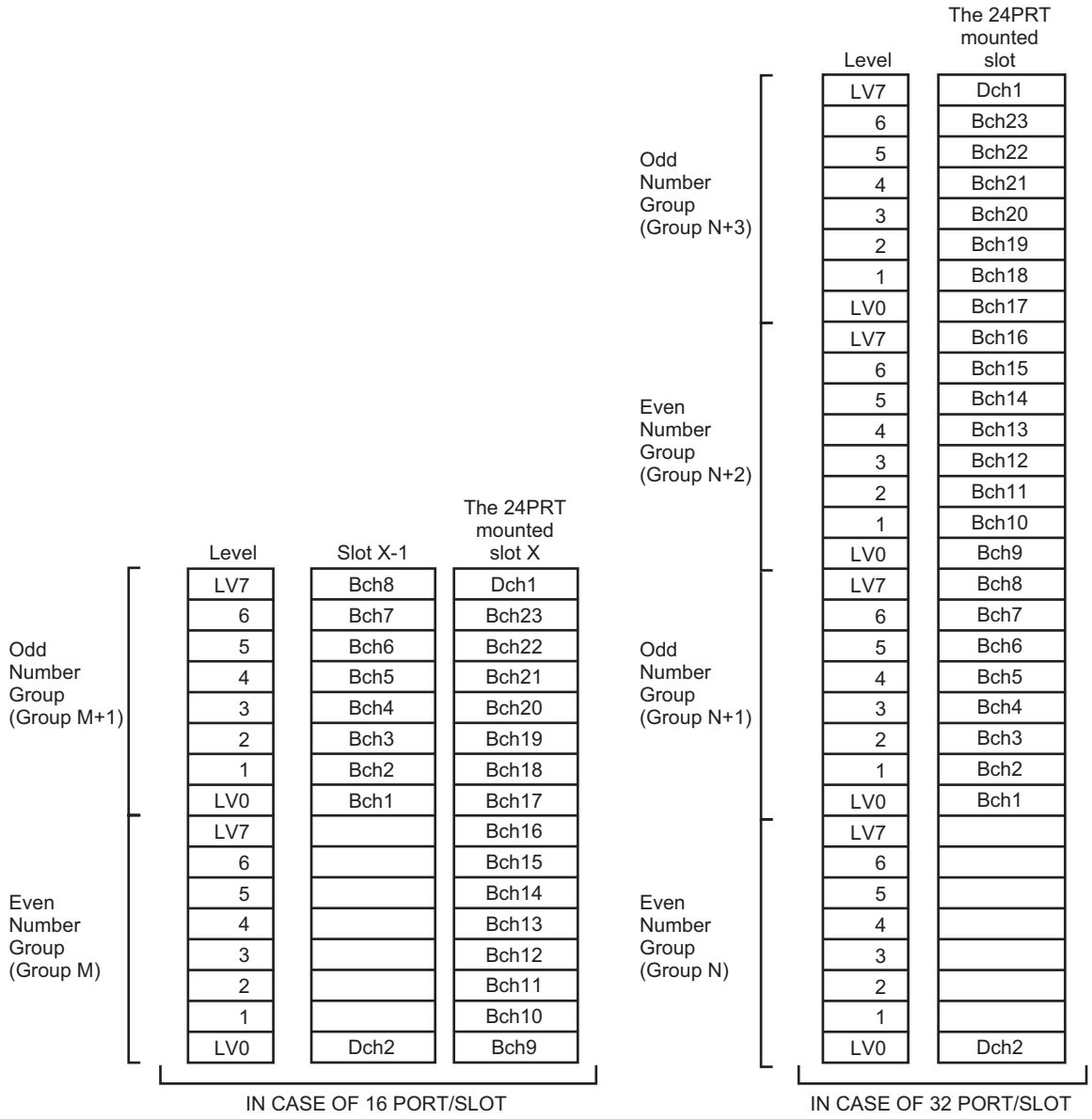
STEP 4: ATRK-Assign the trunk data for Bch only here. Note that the data setting for Dch must be performed after the ACIC1 command assignment.

- How Bch and Dch LENS appear in PIR is shown in ATRK for 24PRT through ATRK for 30DTI + 2DCH.
  ATRK for 24 PRT: ATRK for 24PRT
  ATRK for 24 DTI + 2 DCH: ATRK for 24DTI + 2DCH
  ATRK for 30 PRT: ATRK for 30PRT
  ATRK for 30 DTI + 2 DCH: ATRK for 30DTI + 2DCH
- As seen from those Figures, the number of B-channels and D-channels are:
  24 PRT (B channel × 23, D channel × 2)
  30 PRT (B channel × 30, D channel × 2)
- With respect to the route number of the Bch assigned by the ARTD command, assign the Bch's trunk number and Line Equipment Numbers (LENS).

Note: Above data are for the basic (minimum) data. Refer to "CHAPTER 4 COMMANDS CONCERNING ISDN DATA ASSIGNMENT" for others.

Note: The total number of B-channels must not exceed 460 per two Module Group (MG) pair.
i.e. MG2/3, MG4/5 and MG6/7

ATRK for 24PRT

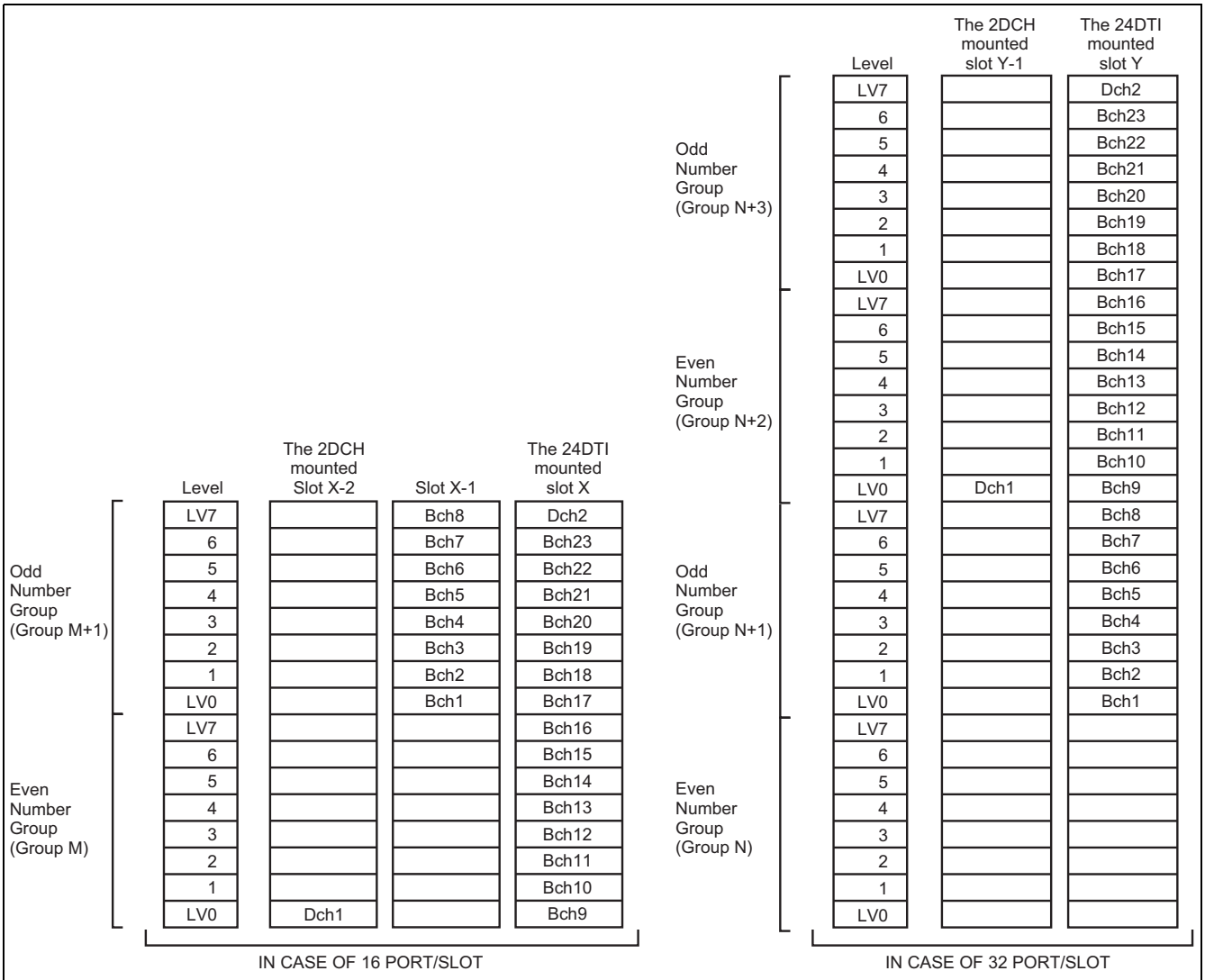


Note: Both Dch1 and Dch2 should be assigned as a Dch route.

Note: Slot X and X-1 must be in the same highway for the 8U-PIR.

Note: The even numbered module group, unit 0, group 0 can not be assigned as Dch LENS data.

ATRK for 24DTI + 2DCH

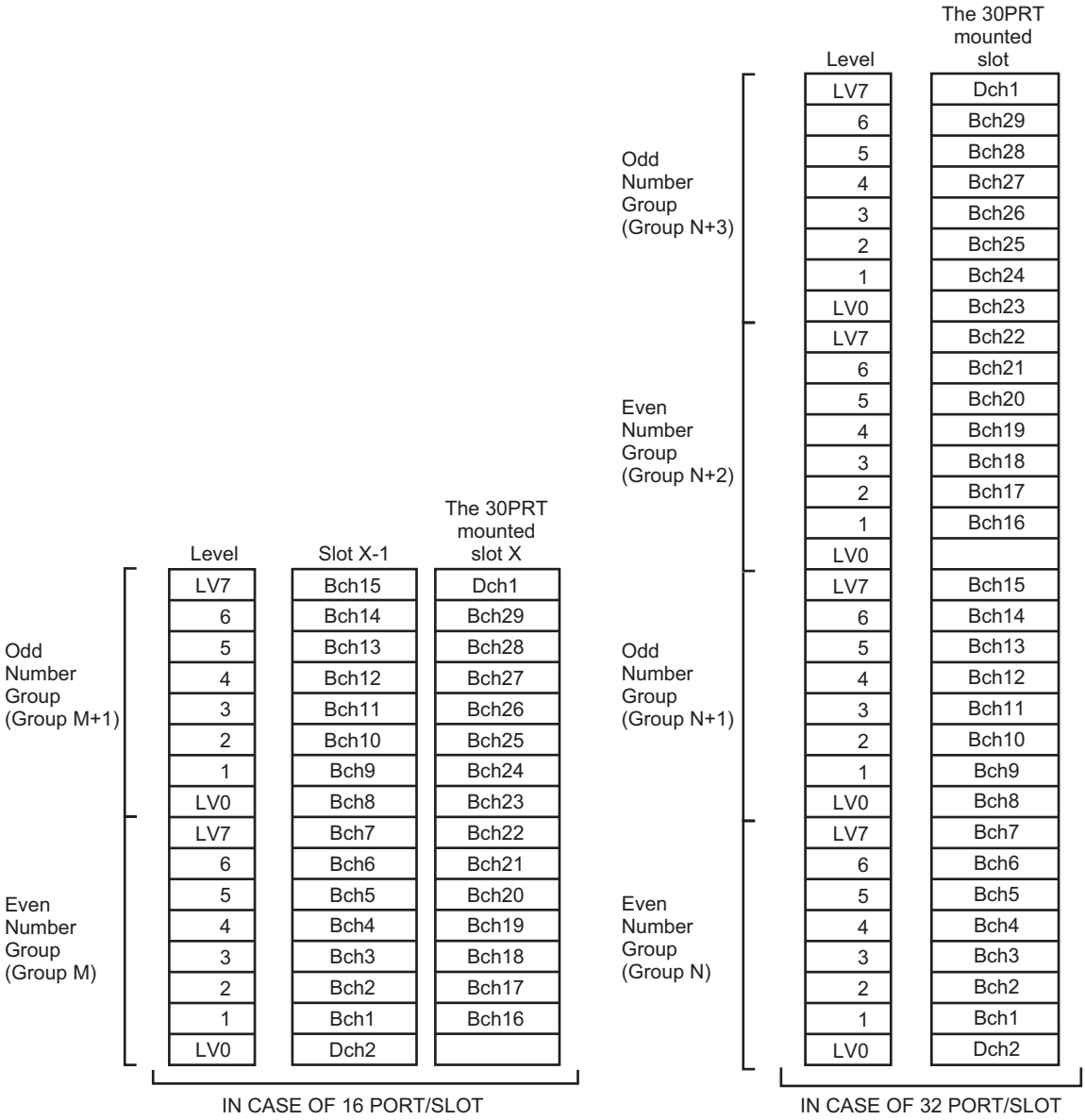


Note: Both Dch1 and Dch2 should be assigned as a Dch route.

Note: Slot X, X-1 and X-2 must be in the same highway for the 8U-PIR.

Note: The even numbered module group, unit 0, group 0 can not be assigned as Dch LENS data.

ATRK for 30PRT

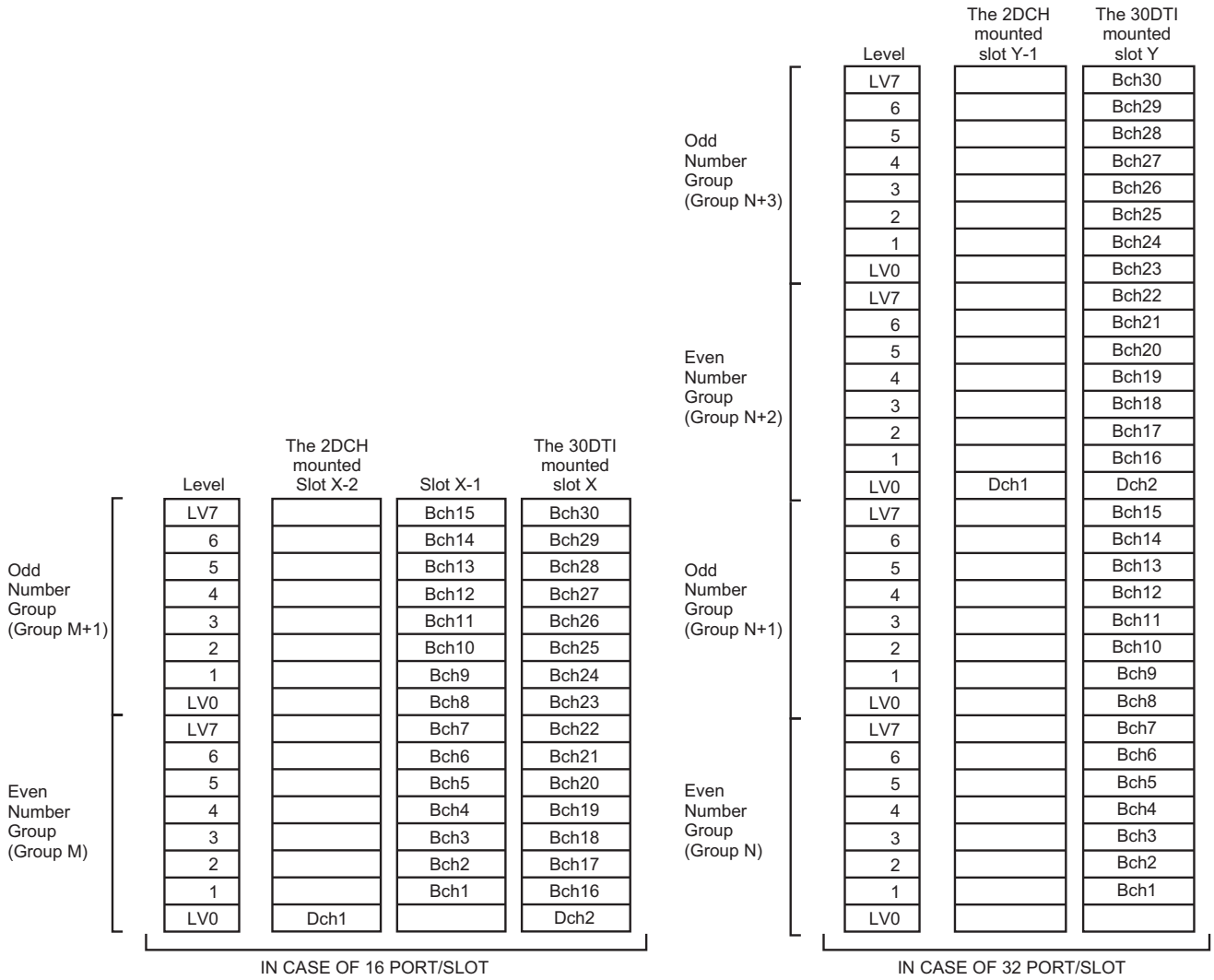


Note: Both Dch1 and Dch2 should be assigned as a Dch route.

Note: Slot X and X-1 must be in the same highway for the 8U-PIR.

Note: The even numbered module group, unit 0, group 0 can not be assigned as Dch LENS data.

ATRK for 30DTI + 2DCH



Note:

Both Dch1 and Dch2 should be assigned as a Dch route.

Note: Slot X and X-1 must be in the same highway for the 8U-PIR.

Note: The even numbered module group, unit 0, group 0 can not be assigned as

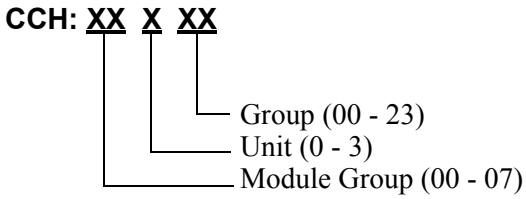
STEP 5: ADPC-Assign Point Code for both Bch route and Dch route.

- The values for a Point Code are 1 through 16383. You can assign any number as the Point Code. For these, however, do not duplicate the Point Code which is used for No. 7 CCIS.

Note: Do not use NDM command (ADPCN) for ISDN data setting.

STEP 6: ACSC-Assign Dch and Bch location for CSCG.

- The value for CSCG is 130 through 255.
- Even number CSCGs are used for Dch location and odd number CSCGs are used for Bch location although Bch location is the same as Dch location when PRT is used.
- CCH, which represents Dch and Bch location, is assigned as shown below.



- CCH must be assigned as the first group in the highway to which PRT is mounted.
- CCH=00000 is prohibited.
- Assign the same LENS in CIC GROUP (0~7) for a CSCG when PRT is used for 23B+D or 30B+D
- Examples of ACSC assignment are shown below

00-03	04	05	06	07	08	09
	01	03	05	07	09	11
	00	02	04	06	08	10
		HW0		HW1		HW2

(1) Condition: When 24PRT/30PRT is mounted in slot 07 of PIR0, ACSC data is as follows.

CSCG	CCH	CIC GROUP
130 (for Dch)	00004	0
	00004	1
	00004	2
	00004	3
	00004	4
	00004	5
	00004	6
	00004	7

CSCG	CCH	CIC GROUP
131 (for Bch)	00004	0
	00004	1
	00004	2
	00004	3
	00004	4
	00004	5
	00004	6
	00004	7

Note: The location of DCH (Dch Handler) which is built in PRT must be assigned in the parameter “CCH” of this command.

(2) Condition: 24DTI/30DTI is mounted in slot 07 of PIR0 and 2DCH is mounted in slot 05 of PIR0, ACSC data is as follows.

CSCG	CCH	CIC GROUP
130 (for Dch)	00002	0
	00002	1
	00002	2
	00002	3
	00002	4
	00002	5
	00002	6
	00002	7

CSCG	CCH	CIC GROUP
131 (for Bch)	00004	0
	00004	1
	00004	2
	00004	3
	00004	4
	00004	5
	00004	6
	00004	7

Note: The location of DCH (Dch Handler) must be assigned in the parameter “CCH” of this command.

Note: Above is an example when PA-2DCHA circuit card is used.

Note: Do not use NDM command (ACSCN) for ISDN data setting.

STEP 7: ACIC1-With respect to PC assigned in the ADPC command, assign CSCG of the Dch assigned in the ACSC command.

Note: Do not use NDM command (ACIC1N) for ISDN data setting.

STEP 8: ATRK-Assign the trunk data for Dch, referring to ATRK for 24PRT and ATRK for 30DTI + 2DCH.

ATRK for 24 PRT:	ATRK for 24PRT
ATRK for 24 DTI + 2 DCH:	ATRK for 24DTI + 2DCH
ATRK for 30 PRT:	ATRK for 30PRT
ATRK for 30 DTI + 2 DCH:	ATRK for 30DTI + 2DCH

STEP 9: MBTK-Cancel Make Busy Status of all B channels in the PRT card.

Note: Circuit card must be initialized after this assignment.

3. Q-SIG TRUNK DATA ASSIGNMENT

This section describes the setting procedure for Q-SIG trunk data when using PRT/DCH circuit card. For MG(PRI), refer to MG(PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]/MG(PRI) (2M) [SCA-30PRIA/MG-30PRIA] in Peripheral Equipment Description (IP Devices). Also, for UG50 (PRT1.5M), UG50 (PRT 2M), UG50-24PRIA and UG50-30PRIA, refer to Peripheral Equipment Description (UG50).

STEP 1: ASYD-Assign the following data.

SYS-1
Index 186 Bit6=1 (ISDN/CCIS is in service)
Index 187=00 Hex
Index 220 Bit6=0 (ISDN is in service)

STEP 2: Assign the numbering plan data for call origination.

Note: For the detail, refer to ISDN AND Q-SIG LINE ACCESS CODE ASSIGNMENT.

Note: Closed Numbering without office code is not allowed in Q-SIG Network.

STEP 3: ARTD-Assign the route data for Bch and Dch at each physical interface.

B-channel route data

CDN	2	(ONSG)	= 2	
	4	(INSG)	= 2	
	5	(TF)	= 3	
	6	(TCL)	= 4	
	7	(L/T)	= 1	
	8	(RLP)	= 2	
	15	(LSG)	= 12	
	28	(ANS)	= 1	
	30	(PAD)	= 4	**Note 1**
	31	(OGRL)	= 1	
	32	(ICRL)	= 1	
	34	(GUARD)	= 1	
	45	(A/D)	= 1	
	49	(TRKS)	= 0/1	**Note 2**
	50	(DPLY)	= 1	**Note 3**
	63	(LYER1)	= 0/1	**Note 4**
	65	(INT)	= 10	
	66	(DC)	= 15	**Note 5**
	113	(UUI)	= 1	**Note 6**
	118	(BOB)	= 1	**Note 7**

D-channel route data

CDN	2	(ONSG)	= 2	
	4	(INSG)	= 2	
	5	(TF)	= 3	
	6	(TCL)	= 4	
	7	(L/T)	= 1	
	15	(LSG)	= 13	
	30	(PAD)	= 7	
	31	(OGRL)	= 1	
	32	(ICRL)	= 1	
	34	(GUARD)	= 1	
	45	(A/D)	= 1	
	65	(INT)	= 10	
	118	(BOB)	= 1	**Note 7**

The other data should be “0” (default data).

Note 1: Depending on the level diagram of the network, data “4” is standard.

Note 2: Each office must be assigned a different value to avoid collision at the time of call origination.

Note 3: Assign “1” when the number display on LCD of terminal is required.

Note 4: Assign “0” when Layer 1 is 23B+D. Or assign “1” when Layer 1 is 30B+D.

Note 5: ACDD is not available if DC = 15.

Note 6: Assign “1” when the User-to-User Signaling notification is required.

Note 7: Assign “1” when the multi-rate bearer service is used.

Note: To provide the system with channel negotiation, see Q-SIG CHANNEL NEGOTIATION.

Note: CMRT (CDN115) does not work for Q-SIG network.

STEP 4: ATRK-Assign Bch trunk data. Note that Dch trunk data should be assigned after STEP 8: ACIC 2 command assignment.

Note: For the channel allocation, refer to ATRK for 24PRT - ATRK for 30DTI + 2DCH.

STEP 5: ADPC-Assign PC (Point Code) for both Bch and Dch at each physical interface.

Note: Same PC (not existing PC for CCIS) must be assigned for both Bch and Dch.

STEP 6: ACSC-Assign the location of DCH (Dch Handler).
(Refer to the following example)

PIR0

	PRT

CSCG=130 (Even No.)	CICG No.=	CCH=
	0	00004
	1	00004
	2	00004
	3	00004
	4	00004
	5	00004
	6	00004
	7	00004

Group No.

05	07
04	06

Note: Bch location is not necessary. (DCH location only)

STEP 7: ACIC 1-Assign CSCG
PC=xxx CSCG=Even No. (130-254)

STEP 8: ACIC 2-Assign CIC No.
PC=xxx CIC (1~999) LENS (for speech channel)

STEP 9: ATRK-Assign the LENS of Dch trunk.

Note: The following data is available if necessary.
ASFC - SFI 139: SID to Network - Privacy [COLR] for Q-SIG.
0 = –
1 = SID to Network - Privacy

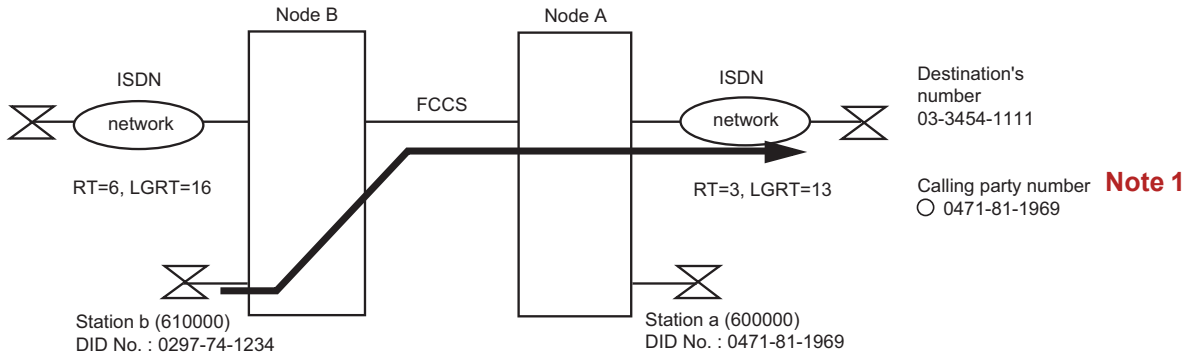
STEP 10: MBTK-Cancel the Make-Busy of Virtual Speech Path.

Attention: The Circuit card initial is required after changing data.

4. CALLING NUMBER PATTERN DATA (CNP) ASSIGNMENT

Calling party number can be transmitted included in the ISDN messages through ISDN network. This function provides the PBX user with a variety of ISDN services. This section describes some conditions for programming data related with this function in the case of interworking with the FCCS link as shown in the figure below.

Example)



Note 1: Since station A originates a call via the ISDN line established in Node A in this example, the calling party number to be received by the destination station is the DID No. programmed at Node A.

With ACNPN and ACNDN commands, Calling Number Pattern and Calling Number data can be programmed at one time and it prevents that the different data is assigned at each node.

(1) This data should be assigned at NCN.

(2) Calling Number Pattern (CNP) for the outgoing call (CALLING PARTY RECOGNITION) and that for the incoming call (SID TO NETWORK-PRESENT) should be separated.

(3) The services to be related with this feature are shown below.

- CALL PARTY RECOGNITION SERVICE (DIRECT-IN-TERMINATION)
- CALL PARTY RECOGNITION SERVICE (CALL FORWARDING-ALL CALLS/BUSY LINE/ DON'T ANSWER)
- SID TO NETWORK-PRESENT/SID TO NETWORK-PRIVACY

Programming

ACNPN and ACNDN command must be used in pairs. The use of other pairs, for example ACNP and ACNDN, is not recommended.

(a) Originating from the non-ISDN terminal

STEP 1: ACNPN-Apply the Calling Number Pattern number to the logical route to be provided SID to Network-Present.

IC/OG = OG: Outgoing Call; SID to Network-Present)
LGRT = Logical Route Number; the route used for SID to Network -Present
CNP = Calling Number Pattern (1-1023)
*The detail for the pattern is programmed with the ACNDN command.

STEP 2: ACNDN-Assign the number of digits to be added to or omitted from the calling party number data for each Calling Number Pattern programmed in ACNPN.

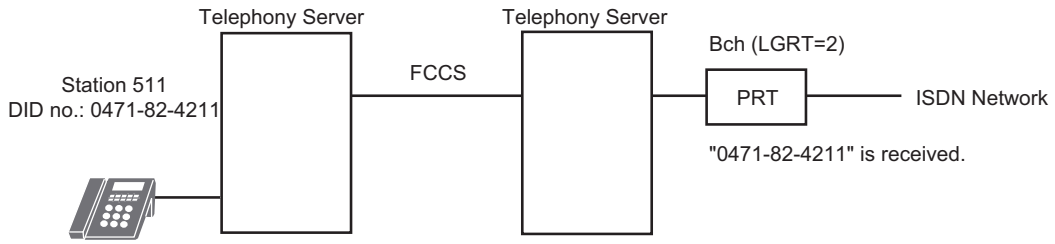
CNP = Calling Number Pattern assigned with ACNPN command.
SKIP = Number of Skip Digits; the number of digits to be skipped.
ADD = Number of Digits of the Additional Number; the number of digits to be added.
DC = Additional Digit Information; the number to be skipped or added.

Note: Do not assign “0” at both “SKIP” and “ADD” parameter.

[Example Data]

Programmed Data

ACNPN: IC/OG=OG, LGRT=2, CNP=2
ACNDN: CNP=2, SKIP=0, ADD=6, DC=047182
In this case, 0471-82-4211, the DID number for the station (station no. 511), is sent to the terminating node.



(a) Originating from the ISDN terminal

STEP 1: ACNPN-Apply the Calling Number Pattern data to the logical route to be provided SID to Network-Present.

IC/OG = OG: Outgoing Call; SID to Network-Present)
LGRT = Logical Route Number; the route for SID to Network -Present
CNP = Calling Number Pattern (1~1023)
*The detail for the pattern is programmed with the ACNDN command.

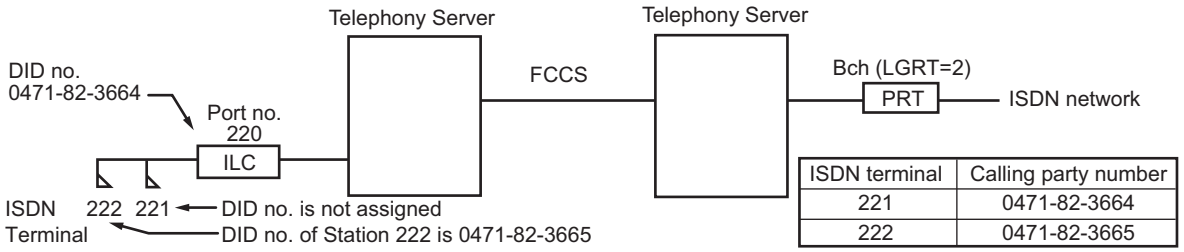
STEP 2: ACNDN-Assign the Calling Number data.
CNP = Calling Number Pattern assigned with ACNPN command.
SKIP = Number of Skip Digits; the number of digits to be skipped.
ADD = Number of Digits of the Additional Number; the number of digits to be added.
DC = Additional Digit Information; the number to be skipped or added.

[Example Data]

Programmed Data

ACNPN: IC/OG=OG, LGRT=2, CNP=2
ACNDN: CNP=2, SKIP=0, ADD=6, DC=047182

- When ISDN terminal 221 (DID no. is not assigned) originates a call
  DID no. assigned to the ILC port no. 220 is sent
- When ISDN terminal 222 (DID no. is 0471-82-3665) originates a call
  DID no. of ISDN terminal 222 is sent



ISDN terminal	Calling party number
221	0471-82-3664
222	0471-82-3665

5. ETSI ISDN DATA ASSIGNMENT

This section explains how to assign ETSI ISDN specific data. Please refer to other sections in this manual for the remaining ISDN data. The following shows the conditions of ETSI ISDN.

(1) ETSI ISDN Basic Rate Interface (BRI) and ETSI ISDN Primary Rate Interface (PRI) are supported.

(2) ETSI ISDN can be allowed or restricted on a route basis.

(3) When originating a call from one of the following, Progress Indicator Information Element is added to the SETUP message. Note that the information is not added for a call that is originated from Desktop terminal, PS, Attendant Console:

- Analog Terminal
- ISDN Terminal
- Tie Line Trunk

(4) When receiving RESTART message for BRI interface, one of the following occurs depending on the contents of the received messages:

- When a single channel is specified, the specified channel only is restarted.
- When multiple channels are specified, both B1 and B2 channels are restarted.
- When a single interface is specified, both B1 and B2 channels are restarted.
- When all interfaces are specified, both B1 and B2 channels are restarted.

Programming

The following shows data programing specific to ETSI ISDN data only.

STEP 1: Assign the Basic Data for ISDN.

Note: ARTD/ARTDN CDN 65 (INT) must be set ETSI PRI (INT=4) or ETSI BRI (INT=6).

STEP 2: ARTI/ARTIN - Assign Route Data.
CDN 89 (REGION) =1 (ETSI ISDN) *Required for Euro-ISDN ETSI (EMEA) only.

When Non-automatic Connection is used, assign the following.

STEP 3: ARTI/ARTIN-Assign Route Data.

CDN: 1 (RST)
0: Restart Send per Individual Channel
3: Restart Not Send **Note 1**

Note 1: When Non-automatic Connection is used, CDN 1 = 3 (Restart Not Send).

CDN: 91 (EU_OPT)
0: Automatic Connection / Point-to-Point Connection
1: Non-automatic Connection / Point-to-Point Connection
2: Automatic Connection / Point-to-Multipoint Connection
3: Non-automatic Connection / Point-to-Multipoint Connection

STEP 4: ASYDL - System Data 1, Index 1088, Bit 3

Preference for the timing of a RELEASE message when a DISCONNECT message with Progress Indicator = 1 or 8 is received and Fault Cause No. is either 16 (Normal clearing) or 17 (User busy) or no Fault Cause data exists. **Note 2**, **Note 3**

0: After 30 seconds

1: Immediately

Note 2: In the case other than the above, a RELEASE message is sent immediately after a DISCONNECT message is received.

Note 3: Available for EMEA only.

6. ETSI CHANNEL NEGOTIATION

This feature provides the system with B-channel negotiation feature for connecting ISDN that conforms to ETSI standard. And it prevents B channels from conflict with each other.

This feature is available for EMEA only. The following are Service Conditions for ETSI Channel Negotiation.

(1) This feature is available only for ETSI-standard interfaces (user side). Other protocols are not supported.

(2) This feature is provided in the following table:

TYPE OF CONNECTION	KIND OF CHANNEL NEGOTIATION	AVAILABILITY OF FEATURE
Outgoing Connection (System → ISDN)	Any	Not provided
	Exclusive	Available
	Preferred	Available
Incoming Connection (ISDN → System)	Any	Available
	Exclusive	Available
	Preferred	Available

(3) This feature is available in SCA-30PRIA/MG-30PRIA (Proprietary protocol mode only) and SCA-2BRIA-B/SCA-2BRIA/MG-2BRIA (SIP mode only).

(4) The required firmware for this feature is as follows:
SCA-30PRIA/MG-30PRIA: SP-3884 Issue 5A or later
SCA-2BRIA/MG-2BRIA: SP-3826 Issue 2A or later

(5) This feature cannot coexist with [N-40] Non-Facility Associated Signaling - PRI.

(6) This feature is not available when CCIS and ETSI-standard ISDN are connected through tandem connections. To use the tandem connections between CCIS and ETSI-standard ISDN, disable this feature by setting ARTD CDN116 to 0.

(7) If response to SETUP message is CONN, this feature is not provided. If the response is CALLPROC, SETP ACK, or ALERT, this feature is provided.

(8) In the case that SETUP message is CONN, assign ARTD CDN116 to 0 and disable this feature.

(9) This feature is not available when H0 and H11 are used as information-bearer channel. This feature is available only when it is 64kbps.

(10) If a channel specified by network side is busy, the call using the channel will be released by #6 channel unacceptable release message.

(11) This feature is not available in B/D channel packets. (Packet communication via Media Gateway are not provided.)

(12) This feature is not available in Event Based CCIS.

Programming

The following shows data programing that is specific to ETSI ISDN data only.

STEP 1: Assign the Basic Data for ISDN.

STEP 2: ARTD - Assign the following CDN data for the channel negotiation.
PREF (CDN 116) = 1 (Channel negotiation is in service.)

7. Q-SIG CHANNEL NEGOTIATION

This feature provides the system with Q-sig B-channel negotiation feature, by which B channel collision can be avoided between Q-sig network and the system. Channel negotiation processing is used for both incoming calls and outgoing calls.

This feature is available for EMEA only. The following are service conditions for Q-sig Channel Negotiation.

(1) The availability of this feature is as follows:

TYPE OF CONNECTION	KIND OF CHANNEL NEGOTIATION	AVAILABILITY OF FEATURE
Outgoing Connection (System → ISDN)	Exclusive	No Channel Negotiation
	Preferred	Available
Incoming Connection (ISDN → System)	Exclusive	No Channel Negotiation
	Preferred	Available

(2) For incoming calls, no specific data assignment is required to use channel negotiation.

(3) This feature is available in SCA-30PRIA/MG-30PRIA (Proprietary protocol mode only) and SCA-2BRIA-B/SCA-2BRIA/MG-2BRIA (SIP mode only).

(4) The required firmware for this feature is as follows:
SCA-30PRIA/MG-30PRIA: SP-3884 Issue 5A or later
SCA-2BRIA/MG-2BRIA: SP-3826 Issue 2A or later

(5) This feature is available for Q-sig interface only. Other protocols are not intended.

(6) If a channel specified by network side is unavailable due to such as busy, the call attempting to use the channel will be released by REL message (Reason Code #6 Channel Unacceptable).

(7) In Q-sig outgoing call, channel negotiation is performed when the first response to SETUP message is CALLPROC, ALERT, CONN, or SETUPACK.

(8) When using [N-40] Non-Facility Associated Signaling - PRI, B-channel can be selected among those are controlled by the same Dch.

(9) This feature is not available for H0 and H11. Available only for 64kbps.

Programming

The following shows data programing that is specific to this feature only.

STEP 1: Assign the Basic Data for Q-sig (Refer to [Q-4] Q-SIG CIRCUIT SWITCHED BASIC CALL - ETSI VERSION).

STEP 2: ARTD - Assign the following CDN data to the Bch route for the channel negotiation.
PREF (CDN 116) = 1 (Channel negotiation is in service.)

CHAPTER 4
COMMANDS CONCERNING ISDN DATA ASSIGNMENT

1. GENERAL

This chapter explains commands concerning ISDN as follows. Commands explained in CHAPTER 3 “BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG” are not included in this chapter.

- ASYD: Assignment of System Data **Note 1**
- ASYDL:Assignment of System Data for LDM
- ASFC: Assignment of Service Feature Restriction Class Data **Note 1**
- ARTD: Assignment of Route Class Data **Note 1**
- ARTI: Assignment of Trunk Application Data

Note 1: This chapter covers only Index (data) related to ISDN.

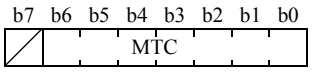
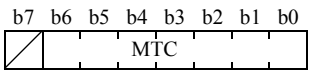
2. COMMANDS

2.1 ASYD: Assignment of System Data

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0-511	DATA (DATA) 00-FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS	
			DATA 0/1	BIT		
1	76		0	b_0	Not used	Table Development: Common or Separate Day/Night Data Tables. **Note:** When data tables are designated as "Common", the Day mode designation must be used in the respective commands.
				b_1	Same Number Special Access Code Data (ASPS command) 0/1 = Common/Separate	
				b_2	**Call Forwarding Service by Calling Number Data (AFCP command)** **0/1 = Common/Separate**	
			0	b_3	Not used	
			0	b_4		
			0	b_5		
			0	b_6		
			0	b_7		
	186			b_0	0/1 = Link Re-Connection Enabled/Disabled **Note:** An Interoffice transfer service is available. For example, with No. 7 CCIS, a caller has called outside their own office but is actually talking with somebody in their own office. This bit is used to reconfigure links so they are not wasted in call transfer service.	
				b_1	Restriction check based on the caller's restriction class when the outgoing trunk is using the No. 7 CCIS in a tandem connection. 0/1 = No Check/Check	
			0	b_2	0/1 = -/No. 7 CCIS Loop-Back Test in progress	
			0	b_3	Not used	
				b_4	Serial Call-Loop Release: 0/1 = Out (CCSA key)/In Service (No CCSA key)	
				b_5	Clearing of the buffer memory for use in the centralized management report (For CCIS). 0/1 = not necessary/necessary	
				b_6	**CCIS/ISDN:** **0/1 = Out/In Service**	
				b_7	Centralized IC Billing Office Code: 0/1 = Ineffective/Effective	
	187	**00**			**Data Bus used for CCIS/ISDN cards (Assign 00Hex)**	

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0-511	DATA (DATA) 00-FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS	
			DATA 0/1	BIT		
1	220			b_0	**Protocol of ISDN Terminal (BRI station)** **0: Japan (INS64)** **1: U.S.A. (5ESS)** **2: Australia (TPH 1962)** **3: Not used** **4: Not used** **5: N-ISDN1** **6-15: Not used**	
				b_1		
				b_2		
				b_3		
				b_4	**RA (Rate Adaptation) for ISDN Terminal** **0: RA designated by ADA2 command** **1: V.110/X.30** **2: Not used** **3: Not used**	
				b_5		
			0	b_6	**ISDN service (When Index 186 bit6 = 1)** **0/1 = In Service/Out of Service**	
				b_7	**ISDN Trunk Layer3 Timer** **Note 1** **0/1 = Stop/Activate**	
	226			b_0	**Call Forwarding Service by Calling Number Data ("AFCP" command)**	Separate or Common Tenant Data Table development for the respective commands 0/1 = Separate/Common **Note:** When data "1" is assigned, data must be assigned for Tenant 1 (TN = 1) in the respective commands.
			0	b_1	Not used	
			0	b_2		
			0	b_3		
			0	b_4		
			0	b_5		
			0	b_6		
			0	b_7		

Note 1: Normally assign "0". (Only specific service needs data "1" in this bit.)
Related Layer3 Timer: T303, T310, T313.

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0-511	DATA (DATA) 00-FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS
			DATA 0/1	BIT	
1	230		0	b_0-b_6	Not used
				b_7	**Timing for receiving or sending ISDN/CCIS message. 0/1 = 32ms/128ms**
	248			b_0-b_3	Maximum Digits for Call Forwarding External Restriction (for Australia only) 0: 12 digits A: 10 digits 1-8: 8 digits B: 11 digits 9: 9 digits C-F: 12 digits
			0	b_4	Not used
				b_5	**Malicious call (ISDN) Service** **Note 2** **0/1 = Out/In Service**
			0	b_6	Not used
				b_7	Tone to be sent out when the handset has been lifted off-hook at the station on which C.F.-All Calls service is set. 0/1 = Dial Tone (DT)/Special Dial Tone (SPDT)
	368		0	b_0-b_1	Not used
				b_2	**PRI Failsafe Routing to No.7 CCIS Line 0/1 = Restricted/Allowed**
			0	b_3-b_7	Not used
	478				**T321 Timer (SERV ACK receiving Timer)** **Note 3**  **Timer Value = MTC × 1 sec. (Default data 00 Hex: 30 sec.)**
	479				**Timer for Dch Back up** **Note 3** **Waiting Timer for a changeover when an ACT Dch detects Layer2 down in a self or facing office.**  **Timer Value = MTC × 1sec. (Default data 00 Hex: 0 sec.)**

Note 2: Available in Australia and U.A.E.

Note 3: For AT&T/Northern Telecom in U.S.A.

2.2 ASYDL: Assignment of System Data

SYSTEM DATA TYPE (SYS)	SYSTEM DATA INDEX (INDEX) 0-511	DATA (DATA) 00-FF (Hex)	BIT CORRESPONDING DATA		SYSTEM DATA CONTENTS
			DATA 0/1	BIT	
1	818		0	b_0-b_1	Not used
				b_2	External Music On Hold for IP terminal 0/1=-/VS IP External Music On Hold takes precedence
			0	b_3-b_4	Not used
				b_5	Dial Plan to support IP Centrex Functionality 0/1=Out of service/In service
				b_6	**ETSI-ISDN (BRI) is supported 0/1=Out of service/In service**
			0	b_7	Not used
	880			b_0	SP-PHD activation 0/1=Not valid/Valid
				b_1	**Internal PHI-PRI/BRI activation 0/1=Not valid/Valid**
				b_2	Internal PHC activation 0/1=Not valid/Valid
				b_3	**Internal PHE activation 0/1=Not valid/Valid**
				b_4	Internal PHF activation 0/1=Not valid/Valid
			0	b_5-b_7	Not used
	885		0	b_0-b_6	Not used
				b_7	**SP (Signaling Processor) Implementation 0/1=Invalid/Valid**

2.3 ASFC: Assignment of Service Feature Restriction Class Data

SFI 31: For SID to Terminating User-DTE
0 = –
1 = SID to Terminating User-DTE

SFI 48: For Bearer Service
0 = Speech
1 = 3.1 KHz Audio (Modem, G3 Fax)

SFI 94: For SID to Network - Privacy [CLIR]
0 = –
1 = SID to Network - Privacy

SFI 149: Remove Display of AOC on Dterm
0 = Dterm stations requiring Advice of Charge (AOC) display
1 = Dterm stations masking the AOC information

SFI 172: Calling Party CLIR/CLIP Control
0 = Out of Service
1 = In Service

SFI 175: For Advice of Charge (AOC) - Receipt and Display of AOC from a Foreign Q-SIG NETWORK
0 = Out of Service
1 = In Service

2.4 ARTD: Assignment of Route Class Data

H1 (CDN96) ISDN H1 Switching
0 = -
1 = In Service

TC/EC (CDN60) Transcoder (MPC)/Echo Canceller (EC) Control
1 = EC is ON

INT (CDN65) Interface Specification for ISDN
1 = N-ISDN2
2 = Australia
4 = PRI (ITU-T/ETSI)
5 = AT&T (#4/#5 ESS)
6 = BRI (ITU-T/ETSI)
7 = NT DMS 100/DMS 250
10= Q-sig, (ETS 300 172)/IS-11572

CI (CDN98) ISDN transmitting information
0 = –
1 = 16-Digit Caller Number service, Attribute Information Notification service (BC, LLC, HLC) and Calling Sub-Address Transfer service
2-15 = –

ADVPRA (CDN111) ISDN PRI Failure Routing Service
0 = –
1 = In Service

Note: This data is valid for dummy routes.

DCH (CDN114) DCH recognition
0 = –
1 = Channel Integration is ON

BOB (CDN118) Broad Band
0 = 64K
1 = N × 64K

2.5 ARTI: Assignment of Trunk Application Data

RST (CDN1) Assignment of Restart
- 0 = Restart Send per Individual Channel
- 1 = –
- 2 = –
- 3 = Restart not Send

HMT (CDN2) When assigning this data, zero (0) should always be entered.

TRCRST (CDN3) Call Restriction by Information transfer rate in Bearer Capability Information Element
- 0 = No restriction
- 1 = Data call restriction (Unrestricted digital, Restricted digital and Video data calls are restricted.)
- 2 = Speech call restriction (Speech, 3.1 KHz audio and 7 KHz audio calls are restricted.)
- 3-15 = –

TRSRST (CDN4) Call Restriction by Information transfer rate in Bearer Capability Information Element
- 0 = No restriction
- 1 = 384 Kbps (H0) call is restricted
- 2 = 1536 Kbps (H11)/1920 Kbps (H12) call is restricted
- 3 = 384 Kbps and 1536 (H11)/1920 (H12) Kbps calls are restricted
- 4-15 = –

T309LNK (CDN5) Assignment of Timer T309 for Data Link Failure
- 0 = Layer 2 Alarm with T309 is Disabled
- 1 = Layer 2 Alarm [Temporary] with T309 is Enabled
- 2 = Layer 2 Alarm [Permanent] with T309 is Enabled
- 3 = –

T309CON (CDN6) Assignment of Timer T309 for Layer 1 Failure
- 0 = Layer 1 Alarm with T309 is Disabled
- 1 = Layer 1 Alarm [Temporary] with T309 is Enabled
- 2 = Layer 1 Alarm [Permanent] with T309 is Enabled
- 3 = –

LLCRST (CDN7) Call restriction by user rate in Low Layer Capability Information Element
- 0 = No restriction
- 1-31 = Call which includes this user rate value is restricted

Note: User rate value is based on ITU-T Q-931.

DTRT (CDN11) Detection of ALL 1 alarm signal (DTI Layer 1 alarm)
- 0 = –
- 1 = Detection of ALL 1 alarm signal as a Layer 1 alarm

TMPRT (CDN12) Temporary Route Information over CCIS
0 = –
1 = In CCIS, the route information can be transferred by the call control messages. Moreover, the call restriction can be checked referring to this route information.

IRL (CDN15) Clear call when DTI alarm is detected.
0 = –
1 = Clear call when DTI alarm is detected **Note 1**

Note 1: This data should be set when there is no Dch in the physical DTI.

MTC (CDN16) Assignment of Timer T309 Value. Restoration timer (TC×MTC) sec.
0-15 =TC (CDN18)×MTC (Restart timer value)

TC (CDN17) Timer T309 Counter Value
0 = – 4 = 30sec.
1 = 64 msec. 5 = 5 min.
2 = – 6 = 1 sec.
3 = 2 sec. 7 = –

DVRST (CDN20) Call restriction while Tie Line is backed up on ISDN.
0 = No Restriction
1 = Speech call restriction (Speech. 3.1kHz audio, 7kHz audio calls are restricted.)
2 = Data call restriction (Unrestricted digital, restricted digital and Video data are restricted.)
3 = Both Speech and Data calls are restricted.

RSCT (CDN21) Call restriction by Temporary Route Information **Note 2**
0 = No Restriction
1 = Restriction

Note 2: This data is effective when TMPRT = 1.

ROCG (CDN22) Outgoing Call Account by Temporary Route Information **Note 3**
0 = –
1 = Effective

Note 3: This data is effective when TMPRT = 1.

RICG (CDN23) Incoming Call Account by Temporary Route Information **Note 4**
0/1 = Out of Service/In Service

Note 4: This data is effective when TMPRT = 1.

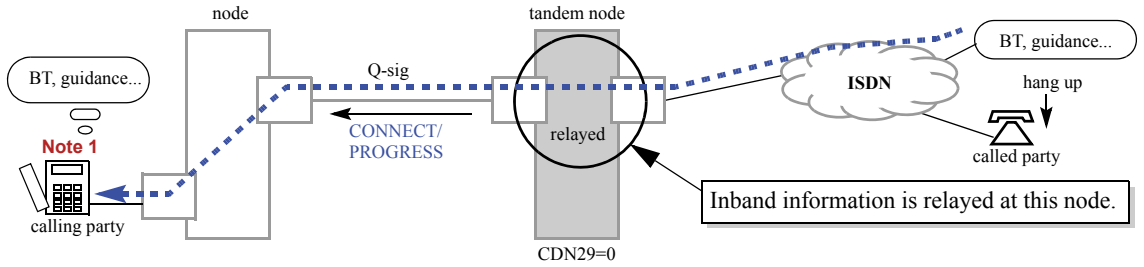
STSENQ (CDN24) Status Inquiry Message Send **Note 5**
0/1 = Out of Service/In Service

Note 5: This data is not effective in Australia.

INBAND (CDN29) Inband information is relayed or not **Note 6**
0/1 = Relayed/Not relayed

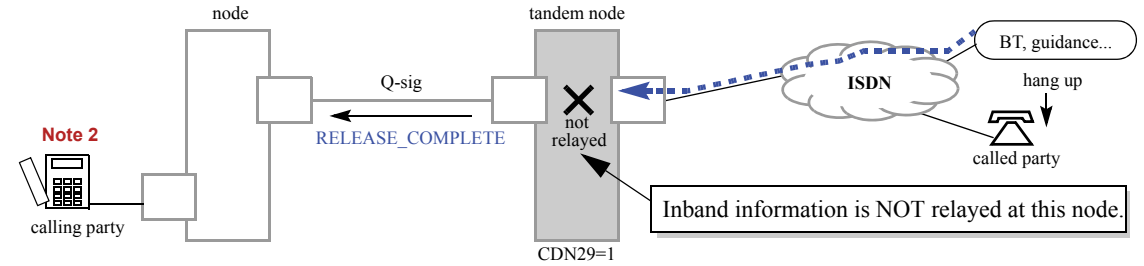
Note 6: In tandem connection, inband information such as Busy Tone, guidance from public ISDN is relayed to the next node (calling party) when CDN29 is 0.

CDN29 (INBAND) = 0 Inband information such as BT, guidance can be heard from public ISDN.



Note 1: No BUSY message on Desktop terminal LCD when CDN29=0.

CDN29 (INBAND) = 1 Inband information is not relayed at tandem node. The call is immediately disconnected without sending the inband information from the public ISDN to the calling party.



Note 2: BUSY message on Desktop terminal LCD for a short time when CDN29=1.

inband information: ⇠

RETMSG (CDN30) Return Message for Connect ISDN LINE with Analog Trunk
0 = CALL PROC. + ALERT
1 = CALL PROC. + ALERT or CALL PROC. + PROGRESS

ANI (CDN31) Timing to demand ANI Information
0 = There is no ANI demand at Incoming call
1 = After receiving 1st digit
2 = After receiving 2nd digit
3 = After receiving 3rd digit
4 = After receiving 4th digit
5 = After receiving 5th digit
6 = After receiving 6th digit
7 = After receiving 7th digit

SRV (CDN32) Additional Service Selection **Note 7**

Bit0: Advice of Charge (AOC)
0 = Valid
1 = Invalid
Bit1: Malicious Call Trace (MCT)/Malicious Call Identification (MCID)
0 = Valid
1 = Invalid
Bit2-Bit6: –
Bit7: For TON (CDN33) and/or NPI (CDN34)
0 = Invalid
1 = Valid

Note 7: Input this data by a decimal.

TON (CDN33) Type of Number **Note 8**
0 = Unknown
1 = International Number
2 = National Number
3 = Network Special Number
4 = Subscriber Number
5 = –
6 = Abbreviated Number
7 = Reserved for Extension

Note 8: This data is effective when ARTD CDN65 (INT) = 4 and SRV (CDN32) bit7 = 1.

NPI (CDN34) Numbering Plan Identification **Note 9**
0 = Unknown
1 = ISDN/Telephony Numbering Plan
2 = –
3 = Data Numbering Plan
4 = Telex Numbering Plan
5-7 = –
8 = National Standard Numbering Plan
9 = Private Numbering Plan
10-14 = –
15 = Reserved for Extension
Others = –

Note 9: This data is effective when ARTD CDN65 (INT) = 4 and ARTI SRV (CDN32) bit7 = 1.

L/T (CDN35) Local/Toll **Note 10**
0 = Local
1 = Toll

Note 10: Only for Russia.

ECCIS (CDN36) Event Based CCIS (E-CCIS) for the public ISDN Line
0/1 = Out of Service/In Service

ECCISTM (CDN37) Release timer for E-CCIS Line
0 = 3 minutes (Default setting)
1 = 15 seconds
2 = 30 seconds
3 = 1 minute
4 = 2 minutes
5 = 5 minutes
6 = 10 minutes
7 = 15 minutes
8 = 30 minutes
9 = 1 hour
10-13 = Not used
14 = Immediately after call completion
15 = Not released

ECCISOB (CDN38) OG Billing for E-CCIS Line
0/1 = Out of Service/In Service

ECCISIB (CDN39) IC Billing for E-CCIS Line
0/1 = Out of Service/In Service

SPMET (CDN40) Meter Pulse Observation Control
0 = –
1 = Low to High Transition
2 = High to Low Transition
3 = Low to High & High to Low Transition

ECCISTD (CDN42) Addressing Information used in E-CCIS
0 = Called DID Number
1 = Called Sub Address

MFCG2 (CDN43) Calling Party Category
0 = Subscriber with Priority
1 = Subscriber without Priority

OPCC (CDN44) Optimal Call Control
0/1 = In Service/Out of Service

INTD (CDN47) Interface Detail
0 = Q-SIG
1 = IS-11572

JECCIS (CDN48) Common Use with E-CCIS RT
0/1 = Out of Service/In Service

ECCIS2 (CDN49) E-CCIS System
0 = Fixed Channel System
1 = Common Channel System
2 = Not used
3 = Not used

CTCF (CDN52) Call Transfer Supplementary Service/Call Forwarding Supplementary Service
0/1 = Out of Service/In Service

RERT (CDN53) Rerouting function (used in conjunction with SS-CT/SS-CF service)

CTCF (CDN68) Virtual Trunk Data
2 = MG Connection

For the other CDNs in trunk application data, zero (0) should always be entered.

CHAPTER 5
GATEWAY SERVICE

This chapter explains data assignment for ISDN gateway service.

[A-76/81] ALTERNATE ROUTING-PRI/PRA

1. GENERAL DESCRIPTION

This feature is provided with LCR that automatically routes ISDN outgoing on-net calls over alternate facilities when the first-choice trunk group is busy. The user selects the first-choice route by dialing the corresponding Access Code, and the equipment then routes the call through alternate trunk groups only if the first is busy. The Telephony Server will also add or delete digits when necessary, to complete the call to the desired station.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: Assign ISDN Line Access Code data referring to BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG in Chapter 3 and the data for the alternate trunk access.

STEP 2: AOPR - Assign ISDN Bch Route Number and the alternate Route Number to the OPR.

STEP 3: ARSC - Assign Route Restriction Class that allows RRIs (Route Restriction Index) for ISDN Bch trunk route, the dummy route and the alternate trunk route.

STEP 4: Assign ISDN Trunk data referring to 2. ISDN TRUNK DATA ASSIGNMENT in Chapter 3 and the data for the alternate trunk.

[A-88/89] AUTOMATIC CALL DISTRIBUTION-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows Automatic Call Distribution (ACD) features to be activated for Incoming Calls from ISDN trunks.

ACD Features (1/2)

× : Available

CODE NO.	FEATURE NAME	AVAILABILITY
A-31	Abandoned Call Search	×
A-34	Assistance-ACD Agent	×
A-35	Automatic Answer	×
A-37	Availability-ACD Position	×
A-80	Announcements	×
B-21	Break Mode	Not Applicable
C-35	Call Distribution to Agents	×
C-67	Call Transfer to Split Queue	×
C-68	Call Waiting Indication-LCD Display/CW Lamp	×
C-70	Calling Party Identification	×
C-108	Call Control Vector	Not Applicable
C-127	Call Forwarding-Split	×
E-6	Emergency/Recorder	×
F-10	Function Groups (Splits)	Not Applicable
F-25	Flexible ID Codes	Not Applicable
H-20	Holidays Scheduling	Not Applicable
L-19	Logon/Logoff	Not Applicable
M-28	Monitoring-ACD Supervisor	×
M-29	Multiple Customer Groups	Not Applicable
M-79	Multiple Supervisors	Not Applicable

ACD Features (2/2)

× : Available

CODE NO.	FEATURE NAME	AVAILABILITY
N-12	Night Service-ACD	×
N-14	Non-ACD Call	Not Applicable
O-19	Overflow Outside-ACD	×
P-21	Priority Queuing	×
P-40	Pilot Numbers	Not Applicable
P-45	Personal Emergency and Assist	×
Q-1	Queuing-ACD	×
R-19	Release-ACD Position	×
S-97	Split Display-ACD Position	Not Applicable
S-98	Split Selection	Not Applicable
T-24	Trunk Trouble Report-MIS	×
T-49	Tally Count	×
T-50	Time of Day/Week Routing	Not Applicable
Z-1	Zip Tone-ACD Position	×

Note: When Announcement Service - PRI/PRA is provided, billing starts from the beginning of the announcement.

Note: The features indicated Not Applicable are the features not related to trunks.
1. ACD features are not available for incoming data calls from ISDN trunk.
2. The call is automatically released when an incoming call placed in a queue remains in the queue for more than 90 seconds.
3. When activating this feature via the FCCS network, only a physical telephone number may be used.

2. OPERATING PROCEDURE

Refer to Data Programming Manual - ACD.

3. PROGRAMMING

STEP 1: Assign the basic data for ISDN. Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG.

STEP 2: Assign ACD data referring to Data Programming Manual - ACD.

[A-92/93] ANNOUNCEMENT SERVICE-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user from the ISDN trunk to hear an arranged announcement when the user dials a determined Access Code.

Note: This feature requires an announcement machine or a Digital Announcement Trunk (DAT).

2. OPERATING PROCEDURE

1. Lift the handset. Receive Dial Tone.
2. Dial the announcement trunk Access Code. The system receives the announcement trunk Access Code.
   a. If a multiple connection is made, the announcement is repeatedly sent out.
   b. If a single connection is made, the announcement is sent out only once and then the announcement trunk is released. If the system data specifies “Ringback Tone is to be sent”, Ringback Tone is returned to the caller after the announcement finishes.
3. The office data is checked for the following.
   a. Multiple or single connection.
   b. 30-second forced disconnection.
   c. Ringback Tone to be sent or not to be sent after the announcement finishes.
   d. Remote office answer signal to be sent or not to be sent.
4. The call is connected to the Announcement Trunk. The caller hears announcement.
5. If 30-second. forced disconnection is specified, the Announcement Trunk is released 30 seconds after the call has been connected to the Announcement Trunk, and the caller receives Busy Tone. Otherwise, the call remains connected to the Announcement Trunk until the caller hangs up.

3. PROGRAMMING

STEP 1: Assign the basic data for ISDN (refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG).

STEP 2: Assign the announcement data (refer to ANNOUNCEMENT SERVICE [A-15] in the Data Programming Manual - Business.)

[A-94/95] AUTOMATIC CIRCUIT ASSURANCE-PRI/PRA

1. GENERAL DESCRIPTION

This feature generates System Message [6-N: Abnormal Call Duration Data], indicating that the duration of a call is less than or greater than a predetermined time. The message contains information about the calling and called parties, such as a station number (**Note 1**) or trunk number.

Note 1: For a Desktop terminal, its My Line number is shown on PCPro.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

<Important>

This feature is not activated for Station-to-Station or Station-to-Attendant calls under the following conditions:

- When the station performs a switch hook flash.
- When the station presses a Desktop terminal Line/Feature key programmed as the HOLD, FLASH, or TRANSFER key.
- When the Attendant presses the HOLD key.
- When the call is overridden by another call.
- When the station answers Call Waiting or Attendant Camp-On call.

<Interactions with Other Features>

This feature cannot be activated without Station Message Detail Recording System (SMDR)[S-10].

<Hardware/Software>

None.

<Interactions with Network Features>

None.

<Conditions Specific to This Feature>

System Message [6-N: Abnormal Call Duration Data] is generated at the end of a call of an extremely short or long duration.

4. PROGRAMMING

STEP 1: Assign the basic data for ISDN (refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG).

STEP 2: Assign *Station Message Detail Recording System* (SMDR) data.

STEP 3: ASYD - System Data 1, Index 44 : Bit 0=1 (Automatic Circuit Assurance is in service)
Index 45 : Short duration timer
Index 46 : Long duration timer

[A-110] ATTENDANT CAMP-ON WITH TONE INDICATION-PRA

1. GENERAL DESCRIPTION

This feature permits the Attendant, when a desired station is busy, to hold an incoming ISDN network call in a special waiting mode. The Attendant sends a distinctive camp-on tone indication to the busy station. When that station becomes idle, it is automatically rung and connected to the waiting trunk party upon answering.

2. OPERATING PROCEDURE

To activate Camp-On from the Attendant Console:
1. ATTENDANT CONSOLE [A-3] indicates Incoming Call.
2. Press the ANSWER key or INCOMING CALL IDENTIFICATION Feature key.
3. Dial the busy station number. Receive Busy Tone.
4. Press the RELEASE key. Warning Tone is sent and Camp-On is set.

To cancel Camp-On from the Attendant Console:
1. Press the LOOP key corresponding to the held call. Connect to the waiting trunk party.
2. Press the DEST key. Receive Busy Tone.
3. Press the CANCEL key, automatically return to the trunk party.

3. PROGRAMMING

STEP 1: ASFC - Assign to the telephone a Service Feature Restriction Class that allows Attendant Camp-On [SFI 11]. Data must be “1”. Also allow Call Hold [SFI 10].

STEP 2: ASYD - System Data 1, Index 64, Bit 6, leave as “0”.

STEP 3: System Data 1, Index 145. This index provides timer for Camp-On call to recall to the Attendant Console. For normal operation assign 00H. (RAM data is 3F [Hex] = 30 seconds.)

Note: All System Data 1 timers, Indexes 128-159, usually operate on values set via the system RAM. Always assign “00H”. The RAM default values will be noted beside each system timer.

STEP 4: System Data 2, Index 0, Bit 4 must be assigned as data “1”, BUSY VERIFICATION.

[A-111] ATTENDANT OVERRIDE-PRA

1. GENERAL DESCRIPTION

This feature permits an Attendant activating INDIVIDUAL TRUNK ACCESS [I-4] to enter a busy trunk connection within the system, via the ATTENDANT CONSOLE [A-3]. Upon activation, Warning Tone will be heard by the connected parties, after that they will be connected with the Attendant in a three-way bridge.

2. OPERATING PROCEDURE

To activate ATTENDANT OVERRIDE:

1. Press the TKSL key.
2. Dial the desired trunk route (two or three digits) and identification numbers (three digits).
3. Upon receiving Busy Tone, press the BV key.
4. A two-burst tone is sent to the connected parties.
5. The Attendant can now monitor or join the connection.
6. Press the RELEASE key to disengage.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 78, Bit 0 and 1.
System Data 1, Index 60, Bit 5. Is the two-burst Warning Tone to be disabled? No/Yes.
System Data 1, Index 68, Bit 4. Trunk Select (TKSL) key must be enabled. Assign data “1.”
System Data 2, Index 0, Bit 3, assign as data “1.”
System Data 1, Index 158, timer between tones.

STEP 2: ATRK - Assign the LENS as Route 909, Digital Conference Trunk. LENS consists of the following: Group and Level Numbers for the Digital Conference Trunk are 210, 213, 216, 221, 224, 227, 232 and 235.

STEP 3: ASFC - For stations susceptible to ATTENDANT OVERRIDE, assign a class of service that allows Executive Right-of-Way [SFI 4], and Attendant Camp-On with Tone Indication [SFI 11].

STEP 4: ARTD - When a station is connected to a trunk, CDN 44-PRV of the route must be assigned as data “0” for Attendant Override to be allowed.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

[B-19/20] BOSS-SECRETARY TRANSFER-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a secretary to voice-announce a call to a boss when the secretary answers a call from an ISDN trunk on the boss' line.

2. OPERATING PROCEDURE

1. Call terminates to boss' line.
2. Secretary answers the call on boss' line of secretary's Desktop terminal.
3. Secretary presses boss' Line key. Incoming Call is placed on hold, a signal tone is transmitted over the speaker of boss' station, and boss and secretary can talk by VOICE CALL [V-2] **Note 1**
   The LCD displays (boss and secretary) as follows.



4. If the MIC key of boss' station is on, boss can talk HANDS FREE-D [H-4D].
5. Secretary hangs up **Note 2**. A signal tone is transmitted over the speaker of boss' station again, and boss' line is placed on hold. At this time, boss' line of secretary's Desktop terminal is also placed on hold, too, and secretary can answer the held call at any time. **Note 3**
6. Boss lifts the handset, presses the boss' Line key, and answers the call. The LCD displays as follows.



Note 1: If the boss is talking on another line or has a single-line telephone, boss' station rings and VOICE CALL [V-2] cannot be activated.

Note 2: If the boss answers before the secretary hangs up, the boss will talk to the secretary. The secretary can talk either to the Incoming Call or to the boss by pressing the boss' Line key or the TRANSFER key.

Note 3: If the boss does not answer the held call in a determined time, the secretary will be re-called by the held call.

3. PROGRAMMING

STEP 1: ASFC - Assign Boss-Secretary features [SFI 51] =1 to the secretary station.

STEP 2: AKYD - boss' My Line must be assigned as a Sub Line on the secretary's phone.

Note: The secretary must have a Desktop terminal for this operation. The boss may have a single line telephone.

[B-22/23] BOSS-SECRETARY OVERRIDE-PRI/PRA

1. GENERAL DESCRIPTION

This feature enables a secretary to voice-announce a call from an ISDN trunk to a boss when he is currently on his My Line.

2. OPERATING PROCEDURE

Example: Station 200 is Boss
Station 201 is Secretary

Boss is currently connected to Trunk A. Call from an ISDN trunk (Trunk B) terminates to Station 201, intended for 200.

1. Secretary answers Station 201.
2. Secretary asks the caller to hold and presses CALL HOLD [C-6] Feature key or TRANSFER key and dials CALL HOLD [C-6] code (CALL WAITING-ORIGINATING [C-31] Feature key can also be used). Secretary hears Dial Tone.
3. Secretary presses SPEED CALLING-ONE TOUCH [S-26D] Feature key on which BOSS-SECRETARY OVERRIDE tone code, RECALL key and boss' telephone number (200) has been programmed.
4. Secretary hears Ringback Tone. Boss receives three bursts of Waiting Tone.

<BOSS' RESPONSE OPTIONS>

Operations when the boss talks with Trunk A while talking with Trunk B.

1. Boss presses the TRANSFER key. If boss has a single line telephone, flashes hook switch.
2. Boss talks with Trunk A and Trunk B receives a hold tone (MUSIC ON HOLD [M-7]).
3. Boss presses the TRANSFER key again. In the case of a single-line telephone, flashes hook switch again.
4. Boss talks with Trunk B. (THREE-WAY CALLING [T-2] is not available).

Other operations while boss and secretary are talking.

Case 1:

1. Boss or secretary presses the TRANSFER key
2. The boss and secretary are disconnected. Boss talks with Trunk A, secretary talks with Trunk B respectively.

Case 2:

1. Boss hangs up and secretary talks with Trunk B again.
2. Boss' station rings and Trunk A receives Ringback Tone.
3. Boss lifts the handset and talks with Trunk A again.

Operations when the boss answers the secretary.

Case 1:

1. Boss presses the ANSWER key or TRANSFER key. If boss has a single-line telephone, flashes hook switch.
2. Boss talks with secretary (Trunk A is placed on hold).
3. Secretary hangs up, boss is speaking with Trunk B.

Case 2:

1. Boss presses the ANSWER key or TRANSFER key. If boss has a single line telephone, flashes hook switch.
2. Boss talks with secretary (Trunk A is placed on hold).
3. Boss presses 201 key and talks with Trunk A, secretary hears Reorder Tone.

Case 3:

1. Boss hangs up, boss' station rings and secretary hears Ringback Tone.
2. Boss lifts the handset and talks with secretary.
3. The rest of operations are same as number 3. of *Case 1* or *Case 2*.

Case 4:

If boss does not respond to 3 bursts of Waiting Tone, the Secretary presses CALL HOLD Feature key to resume talking to Trunk B.

3. PROGRAMMING

STEP 1: ASYD - System Data 2, Index 10, Bit 4: 1 = Dialing ACC Code + Station Number is available.
(Call Waiting-Originating)
Bit 7: Call Waiting Tone 0/1=Once/At Intervals.

STEP 2: ANPD - Assign a number level for feature Access Code.

STEP 3: ASPA - Assign an Access Code to Boss Secretary Override, SRV="SSCA: Service Code Appendix", SIDA=53

STEP 4: ASFC - Allows the following restrictions. Calling Waiting - Originating (Calling) [SFI 5], Calling Waiting - Originating (Called) [SFI 6], Call Hold [SFI 10], Data Line Privacy = 0/Attendant Camp-On = 1 [SFI 11], and Boss-Secretary Features [SFI 51].

STEP 5: AKYD - Boss' My Line must be assigned as a Sub Line on the secretary's phone.

[B-25] BROKERAGE HOT LINE-OUTSIDE-PRA

1. GENERAL DESCRIPTION

This feature provides a HOT LINE - OUTSIDE [H-9] function for a Desktop terminal.

2. OPERATING PROCEDURE

To access a Brokerage Hot Line - Outside from a Desktop terminal:

1. Lift the handset or press the SPEAKER key.
2. Press the Sub Line button associated with a predetermined desired outside party. The destination station is automatically dialed. Ringback Tone is heard. The destination station answers.
3. After completion of the conversation, hang up or press the SPEAKER key.

To immediately make another Brokerage Hot Line - Outside call, press another Sub Line button associated with another station without going on/off-hook.

3. PROGRAMMING

STEP 1: ASDT - Assign to a 16ELC circuit the following data.

TN: Tenant Number
STN: Station Number
LENS: Line Equipment Numbers (six digits)
TEC: Telephone Class (1-31)
1: DP (10 PPS)
2: PB
3: DP/PB
12: Dterm
13: Data terminal via Dterm
14: Hotline
15: CAS Line
18: Virtual Circuit
RSC: Route Restriction Class (0-15)
SFC: Service Feature Restriction Class (0-15)

STEP 2: AHLS - Assign the station number programmed above for the following parameters.

HOT TN: Hotline Tenant Number
HOT STN: Hotline Station Number
TYPE:2=Outside party (ADC)
3=Trunk Line
CON TN: Destination Tenant Number
CON STN: Destination Station Number
CON ADC: Speed Calling Code
CON RT: Destination Route Number
CON TK: Destination Trunk Number

[C-95/111] CALL FORWARDING-ALL CALLS-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits all calls from an ISDN network destined for a particular station to be routed to another station (or to the Attendant) regardless of the busy or idle status of the called station. Activation and cancellation can be accomplished by either the individual user or the Attendant.

This feature can be set or canceled by the user for all Multi Line appearances on the Desktop terminal. In this way, a user can set this feature for all Sub Lines on the Desktop terminal.

2. OPERATING PROCEDURE

To activate and cancel Call Forwarding-All Calls-PRI/PRA from an Individual Station using the same Access Code: **Note 2**

- For setting:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-PRI/PRA entry Access Code. Receive Special Dial Tone.
3. Dial the desired Forwarding Destination Number. Receive Service Set Tone.

- For cancellation:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-PRI/PRA entry Access Code. Receive Service Set Tone.

Note 2: Available from FP95-114 V4 Issue 2.0 with system data ASYDL, SYS1, Index 686, Bit 0= 1.

To activate and cancel Call Forwarding-All Calls-PRI/PRA from an Individual Station using different Access Codes:

- For setting:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-PRI/PRA entry Access Code. Receive Special Dial Tone.
3. Dial the desired Forwarding Destination Number. Receive Service Set Tone.

- For cancellation:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-PRI/PRA cancel Access Code. Receive Service Set Tone.

To activate Call Forwarding-All Calls-PRI/PRA from the ATTENDANT CONSOLE [A-3].

1. Press an idle LOOP key.
2. Dial the Call Forwarding-All Calls-PRI/PRA entry Access Code. Receive Special Dial Tone.
3. Dial the TENANT [T-12] number (2/3 digits).
4. Dial the originating station number.
5. Dial the desired target station number. Receive Service Set Tone.

To cancel Call Forwarding-All Calls-PRI/PRA from the ATTENDANT CONSOLE [A-3].

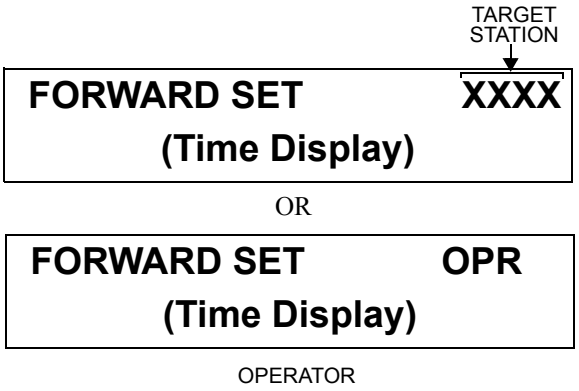
1. Press an idle LOOP key.

2. Dial the Call Forwarding-All Calls-PRI/PRA cancel Access Code. Receive Special Dial Tone.
3. Dial the TENANT [T-12] number (2/3 digits).
4. Dial the originating station number. Receive Service Set Tone.

<The following procedures are applied for Desktop terminal only.>

To set CALL FORWARDING-ALL CALLS-PRI/PRA from My Line using Line/Feature key:

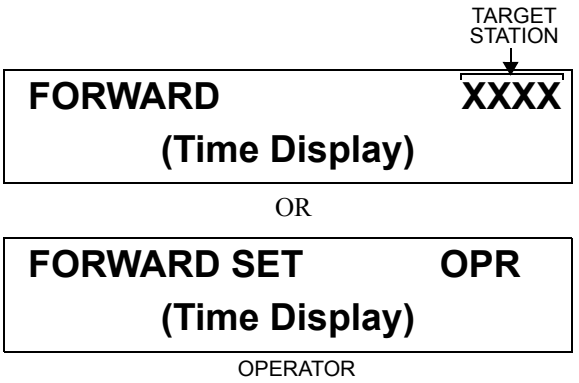
1. Lift the handset or press the SPEAKER key. Receive Dial Tone.
2. Press the CALL FORWARDING-ALL CALLS-PRI/PRA Feature key. Receive Special Dial Tone.
3. Dial the desired Forwarding Destination Number. Receive Service Set Tone. The LED lights and the LCD displays as follows.



4. Replace the handset or press the SPEAKER key.

To monitor CALL FORWARDING-ALL CALLS-PRI/PRA from My Line:

1. Press the CALL FORWARDING-ALL CALLS-PRI/PRA Feature key. The LCD displays as follows.



To cancel CALL FORWARDING-ALL CALLS-PRI/PRA from My Line using Line/Feature key:

1. Lift the handset or press the SPEAKER key. Receive Dial Tone.
2. Press the CALL FORWARDING-ALL CALLS-PRI/PRA Feature key. Receive Service Set Tone. The LED of the associated Feature key will go out. The LCD displays as follows.



3. Replace the handset or press the SPEAKER key.

To set CALL FORWARDING-ALL CALLS-PRI/PRA for Multi Line appearance other than the My Line:

1. Lift the handset or press the SPEAKER key.
2. Press the Multi Line appearance. Receive Dial Tone. Then press CALL FORWARDING-ALL CALLS-PRI/PRA Feature key. Receive Special Dial Tone.
3. Dial the desired target station number. Receive Service Set Tone. The LED of the associated Feature key does not light at the station setting the service. If the Multi Line appearance is another Desktop terminal's My Line, that station's Feature key LED will light. The setting station's LCD displays as follows.

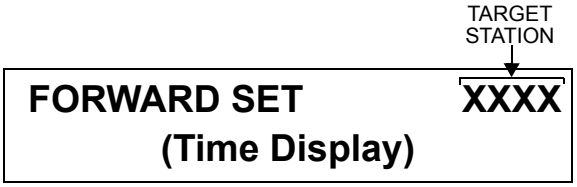


4. Replace the handset or press the SPEAKER key.
5. If the target station is the Attendant, the LCD displays as follows.



To monitor Call Forwarding-All Calls-PRI/PRA for a Multi Line appearance other than the My Line:

1. Press the Multi Line appearance. Then press the CALL FORWARDING-ALL CALLS-PRI/PRA Feature key. The LCD displays as follows.



To cancel CALL FORWARDING-ALL CALLS-PRI/PRA for a Multi Line appearance other than the My Line:

1. Lift the handset or press the SPEAKER key. Receive Dial Tone.
2. Press the Multi Line appearance. Receive Dial Tone. Then press the CALL FORWARDING-ALL CALLS-PRI/PRA Feature key. Receive Service Set Tone. The LCD displays as follows.

FORWARD CANCEL
(Time Display)

The associated LED that is lit at another station goes out.

3. Replace the handset or press the SPEAKER key.

3. SERVICE CONDITIONS

1. By registering the Call Forwarding - All Calls Access Code + the desired Forwarding Destination Number to the CF Setting button of a Line/Feature key on a Desktop terminal, it is possible to enable and disable CALL FORWARDING-ALL CALLS-PRI/PRA [C-95/111] just by pressing the CF Setting button. For a detailed explanation, see CALL FORWARDING (CF) BUTTON - ONE TOUCH [C-208] in Business Features chapter of Data Programming Manual - Business.

Note: CALL FORWARDING (CF) BUTTON - ONE TOUCH [C-208] is available from FP95-114 V4 Issue 2.0.

4. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 4, Bit 6: One burst of ringing at the forwarding station when CALL FORWARDING-ALL CALLS is in service? 0/1: No/Yes. (single-line station only)

Index 248, Bit 7: Dial Tone to be sent out when a station on which CALL FORWARDING-ALL CALLS is set, goes off-hook to place and outgoing call 0/1: Dial Tone/Special Dial Tone.

Index 69, Bit 1: A burst of Ringback Tone to alert the person receiving a call that this is a Call Forwarding-All Calls call. In service? 0/1: No/Yes. Normally assigned as data "0".

Bit 2: Send short tone when a recalled C.F.-All Calls call is answered. 0/1: Not Required/Required.

System Data 2, Index 6, Bit 4: Call Origination Restriction of a station upon setting Call Forwarding-All Calls. 0/1=Restricted/Allowed.

STEP 2: ASYDL/N- System Data 1, Index 686, Bit 0: Disabling Call Forwarding - All Calls with entry Access Code is in service.

Note: Available from FP95-114 V4 Issue 2.0.

STEP 3: ANPD - Reserve a number level for feature access and cancel (**Note 1**). Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 4: ASPA - Assign an Access Code to Call Forwarding-All Calls entry SID = 8. And to Call Forwarding-All Calls cancel SID = 9 (**Note 1**). Assign Connection Status Index (CI) = "N: Normal".

Note 1: When SYS1, Index 686, Bit 0=1 (Disabling Call Forwarding - All Calls with entry Access Code is in service), Call Forwarding - All calls cancel is not required because the cancellation can be performed with the entry Access Code.

STEP 5: ASFC - Assign a Service Feature Restriction Class that allows Call Forwarding - All Calls [SFI = 7] to the Class of stations that will activate Call Forwarding-All Calls.

STEP 6: AKYD - For Desktop terminals, Call Forwarding - All Calls may be assigned to a programmable Line/ Feature key. Assign KYI = 1 and FKY = 2.

STEP 7: ATNR - Allow tenant-to-tenant connection for Inter- and Intra-tenant connections. Assign Tenant Restriction Index (TRI) = 1. For this feature to be set by the Attendant Console, assign Inter- and Intra-Tenant Connection TRI = 3, via the Attendant Console. Also allow TRI = 0, station-to-station calling.

[C-96/113] CALL FORWARDING-BUSY LINE- PRI/PRA

1. GENERAL DESCRIPTION

This feature permits a call to a busy station to be immediately forwarded to a designated station, or to the ATTENDANT CONSOLE [A-3].

If a called station is in a hunt group and forwards calls to another hunt group, it can be determined by system data, whether the calling party is directed to the called parties hunt group or the terminating parties hunt group when all of the forwarded stations are busy.

2. OPERATING PROCEDURE

To set Call Forwarding-Busy Line-PRI/PRA from an Individual Station:

1. Lift the handset. Receive Dial Tone.
2. Dial the specific Call Forwarding-Busy Line-PRI/PRA Access Code. Receive Special Dial Tone.
3. Dial the desired target station number. Receive Service Set Tone.

To cancel Call Forwarding-Busy Line-PRI/PRA from an Individual Station:

1. Lift the handset, receive Dial Tone.
2. Dial the specific Call Forwarding-Busy Line-PRI/PRA Cancel Code. Receive Service Set Tone.

To set Call Forwarding-Busy Line-PRI/PRA from the ATTENDANT CONSOLE [A-3]:

1. Press an idle LOOP key.
2. Dial the specific Call Forwarding-Busy Line-PRI/PRA Access Code. Receive Special Dial Tone.
3. Dial the TENANT SERVICE [T-12] number (two digits).
4. Dial the originating station number.
5. Dial the desired target station number. Receive Service Set Tone.

To cancel Call Forwarding-Busy Line-PRI/PRA from the ATTENDANT CONSOLE [A-3]:

1. Press an idle LOOP key.
2. Dial the specific Call Forwarding-Busy Line-PRI/PRA Cancel Code.
3. Dial the TENANT SERVICE [T-12] number (2 digits).
4. Dial the originating station number. Receive Service Set Tone.

3. SERVICE CONDITIONS

1. The forwarding destination for this feature can be assigned with the ACFO/ACFOL/ACFON command on a route basis since FP95-114 V4 Issue 2.0 (earlier than FP95-114 V4 Issue 2.0, the destination can be assigned on a tenant basis only). For details, see CALL FORWARDING DESTINATION PER TRUNK ROUTE - INCOMING CALL [C-209] in Data programming Manual- Business.

4. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 5,

Bit 0: Access Codes for Call Forwarding-Busy Line and Call Forwarding-Don't Answer are same or separate? 0/1: Same/Separate.

Bit 5: Hunting Group when transferred party is busy (Station Hunting after C.F.-Busy Line) 0/1: Hunt in Transferring Party's Group/Hunt in Transferred Party's Group

Bit 7: Multiple Call Forwarding Service 0/1: Out/In Service

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assign an Access Code to Call Forwarding-Busy Line Entry, SID=10 and to Call Forwarding-Busy Line Cancel, SID=11. Assign Connection Status Index (CI) for "N: Normal".

STEP 4: ASFC - Assign the stations to receive Call Forwarding-Busy Line a Service Feature Restriction Class that allows SFI=9.

STEP 5: AKYD - For Desktop terminals, Call Forwarding-Busy Line may be assigned to a programmable Line/ Feature key. Assign KYI=1 and FKY=1.

STEP 6: ATNR - Allow tenant-to-tenant connection for Inter- and Intra-tenant connections. Assign Tenant Restriction Index (TRI)=1. For this feature to be set by the Attendant Console assignment, assign TRI=3 for Inter- and Intra-tenant connection via the Attendant Console. This allows a station in one tenant to be Call Forwarded to a station in the same or different tenant. Also assign TRI=0, station-to-station calling.

STEP 7: ACFO - For tenant-wide Call Forwarding-Busy Line of an incoming DID and DIT calls, assign CF=1 for a destination (CFI) of either the Attendant Console or a station.

Note: STEP 7 is necessary for CALL FORWARDING on a tenant basis only.

[C-113D] CALL FORWARDING-BUSY LINE-D-PRA

1. GENERAL DESCRIPTION

This feature permits an ISDN network Incoming Call to a busy station to immediately be forwarded to a designated station, or to the Attendant.

CALL FORWARDING - BUSY LINE -D may be set or canceled by the user for all Multi Line appearances on the Desktop terminal. In this way, a single line user may set Call Forwarding-Busy Line LINE -D for all Sub Lines on the Desktop terminal.

2. SERVICE CONDITIONS

1. The forwarding destination for this feature can be assigned with the ACFO/ACFOL/ACFON command on a route basis since FP95-114 V4 Issue 2.0 (earlier than FP95-114 V4 Issue 2.0, the destination can be assigned on a tenant basis only). For details, see CALL FORWARDING DESTINATION PER TRUNK ROUTE - INCOMING CALL [C-209] in Data programming Manual- Business.

3. OPERATING PROCEDURE

To set Call Forwarding-Busy Line LINE -D:

1. Lift the handset or press the SPEAKER key. Receive Dial Tone.
2. Press the CALL FORWARDING-BUSY LINE FORWARD-BY Feature key. Receive Special Dial Tone.
3. Dial the desired target station number. Receive Service Set Tone. The LED of the associated Feature Key lights and the LCD displays as follows.

Target Station

F O R W A R D S E T X X X X
(Time Display)

4. Replace the handset or press the SPEAKER Key.
5. If the target station is the Attendant Console, the LCD displays as follows.

F Call Forwarding-Don’t Answer
(Time Display)

To monitor Call Forwarding-Busy Line-D:

1. Press the CALL FORWARDING-BUSY LINE FORWARD-BY Feature key.

The LCD displays as follows.

Target Station

F O R W A R D X X X X
(Time Display)

If the target station is the Attendant Console:

F O R W A R D O P R
(Time Display)

To cancel Call Forwarding-Busy Line-D:

1. Lift the handset or press the SPEAKER key. Receive Dial Tone.
2. Press the CALL FORWARDING-BUSY LINE FORWARD-BY Feature key. Receive Service Set Tone. The LCD displays as follows.

F O R W A R D C A N C E L
(Time Display)

   The associated LED goes out.
3. Replace the handset or press the SPEAKER key.

To set Call Forwarding-Busy Line-D to a Desktop terminal Multi Line:

1. Press the Multi Line key for that Call Forwarding-Busy Line-D feature is to be set.
2. Lift the handset or press the SPEAKER key. Receive Special Dial Tone.
3. Dial the desired target station number. Receive Service Set Tone.
   The LCD displays as follows.

Target Station

F O R W A R D S E T X X X X
(Time Display)

   The LED of the associated Feature key lights on the Desktop terminal for that this Multi Line is My Line.
4. If the target station is the Attendant Console, the LCD displays as follows.

F W D S E T O P R
(Time Display)

5. Replace the handset or press the SPEAKER key.

To monitor CALL FORWARDING - BUSY LINE to a Desktop terminal Multi Line:

1. Press the Multi Line key for which CALL FORWARDING - BUSY LINE -D is to be monitored.

2. Press CALL FORWARDING-BUSY LINE FORWARD-BY key. The LCD displays as follows.

Target Station

F O R W A R D X X X X
(Time Display)

If the target station is the Attendant Console:

F W D S E T O P R
(Time Display)

To cancel Call Forwarding-Busy Line to a Desktop terminal Multi Line:

1. Press the Multi Line key for that Call Forwarding-Busy Line-D feature is to be canceled.
2. Lift the handset or press the SPEAKER key. Receive Dial Tone.
3. Press the CALL FORWARDING-BUSY LINE FORWARD-BY key. Receive Service Set Tone. The LED of the associated Feature key will go out on the Desktop terminal for that this Multi Line is My Line. The LCD displays as follows.

F O R W A R D C A N C E L
(Time Display)

4. Replace the handset or press the SPEAKER key.

4. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 5, Bit 0. Access Codes for Call Forwarding-Busy Line-D and CALL FORWARDING - DON'T ANSWER [C-3] are same or separate? 0/1: Same/Separate.
System Data 1, Index 69, Bit 5, Index 69, Bit 7.

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assign an Access Code to CALL FORWARDING - BUSY LINE -D entry, SID = 10 and to Call Forwarding-Busy Line-D cancel SID = 11. Assign Connection Status Index (CI) for "N: Normal".

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows SFI = 9 to the stations that receive Call Forwarding-Busy Line-D.

STEP 5: AKYD - For Desktop terminals, Call Forwarding-Busy Line-D may be assigned to a programmable Line/Feature key. Assign Type: Function: Call Forwarding-Busy Line [1].

STEP 6: ADSL - Assign SN=1 (Originating: DT Connection) and FKY=1 (Call Forwarding - Busy Line: FDB) This command is required only for assigning the function to each Soft key.

STEP 7: ATNR - Allow tenant-to-tenant connection for Inter and Intra-tenant connections. Assign Tenant Restriction Index (TRI) = 1. For this feature to be set, assign Inter and Intra-Tenant connection TRI = 3 from the Attendant Console. This allows a station in one tenant group to be call forwarded to a station in the same or different tenant group. Also assign TRI = 0, station-to-station calling.

STEP 8: ACFO - For tenant-wide Call Forwarding-Busy Line -D of incoming DID and DIT calls, assign CF = 1 for a destination (CFI) of either the Attendant Console or a station.

Note: STEP 8 is necessary for Call Forwarding on a tenant basis only.

[C-97/118] CALL PICKUP-GROUP-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits a user to answer ISDN network calls directed to other lines in a preset CALL PICKUP-GROUP simply by dialing a pickup code or using a programmable Line/Feature key.

This feature may be used by seizing Dial Tone from any Multi Line appearance on the Desktop terminal.

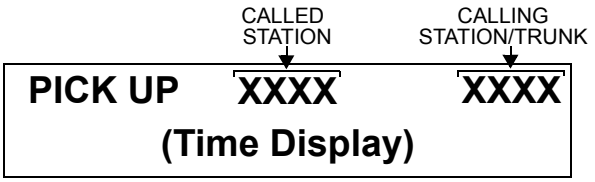
2. OPERATING PROCEDURE

Picking up an incoming ISDN call using Access Code:
1. A call from the ISDN network terminates to a trunk.
2. Stations within the same CALL PICKUP-GROUP-PRI/PRA ring.
3. Lifts the handset. Receives Dial Tone.
4. Dials the call pickup code. The call is connected to the station.

Picking up an Incoming Call (Consultation Hold) using Access Code:
1. A call from the ISDN network terminates to a trunk.
2. The station within the same CALL PICKUP-GROUP-PRI/PRA ring.
3. The station flashes the switchhook. Receives Special Dial Tone.
4. Dials the call pickup code. The call is connected to the station.
5. The first party is put on CALL HOLD [C-6] status.

<The following procedures are applied for Desktop terminal only.>

Picking up an Incoming Call using a Line/Feature key:
1. An Incoming Call from the ISDN network terminates to a trunk.
2. The stations within the same call pickup group ring.
3. Lifts the handset. Receives Dial Tone.
4. Press the CALL PICKUP GROUP Feature key. The call is connected to the station. The LCD displays the following.



Picking up an Incoming Call (Consultation Hold) using a Line/Feature key:
1. An Incoming Call from the ISDN network terminates to a trunk.
2. The stations within the same call pickup group ring.
3. Press the TRANSFER/CALL HOLD Feature key. Receives Special Dial Tone.
4. Press the CALL PICKUP GROUP Feature key. The call is connected to the station.
5. The first party is put on CALL HOLD [C-6] status.

3. PROGRAMMING

STEP 1: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N) or Hooking Service (H) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 2: ASPA - Assign an Access Code for the CALL PICKUP GROUP, SID = 7 for Connection Status Index (CI) of "N: Normal" and "H: Hooking".

STEP 3: ACPG - Assign members of CALL PICKUP GROUP. If two stations are ringing simultaneously, the station that was programmed first will be picked up first.

Note: A maximum of 100 stations per group are allowed. There is no limit to the number of groups per system. Stations must belong to the same tenant.

STEP 4: AKYD - Optional. For Desktop terminal, assign a programmable Line/Feature key as a CALL PICKUP Feature key. Assign KYI = 1 and FKY = 12.

[C-98/122] CALL TRANSFER-ATTENDANT-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits a user, while connected to an ISDN network call, to signal the Attendant and have the Attendant transfer the call to another station within the system.

2. OPERATING PROCEDURE

Calling the Attendant:
1. While engaged in a PRI/PRA trunk call, press the switchhook. Receive Special Dial Tone.
2. Dial the Operator/Access Code.
3. a. ATTENDANT CONSOLE [A-3] Recall lamp flashes and buzzer sounds.
   b. The station receives Ringback Tone.

Answering by the Attendant:
1. Refer to ATTENDANT CONSOLE USER'S GUIDE.

If the station wishes to return to the Central Office trunk call while the Attendant is being called:
1. Press the switchhook. The Recall lamp goes out. The buzzer stops.
2. Ringback Tone stops. The station returns to PRI/PRA trunk call.

3. PROGRAMMING

STEP 1: ASYD - System Data 2, Index 1, Bit 0 and 1: Assign a data to allow Consultation Hold. All types of connections.

STEP 2: ATNR - Allow tenant restriction. Assign Tenant Restriction Index (TRI) 0, and 4 on an intra-and Inter-tenant basis.

[C-99/121] CALL TRANSFER-ALL CALLS-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits a user to transfer incoming or outgoing ISDN calls to another station within the system without Attendant assistance.

2. OPERATING PROCEDURE

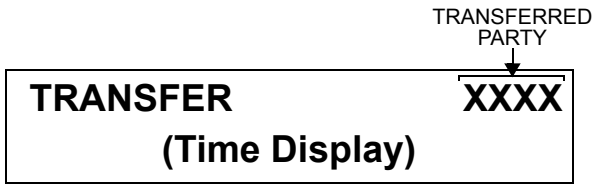
To transfer a call in progress:
1. While connected with the first party, press the switchhook. Receive Special Dial Tone.
2. Dial the third party. Receive Ringback Tone.
3. At this point, the user can either:

   a. Hang up before the third party answers. The first and third parties will be connected when third party answers.

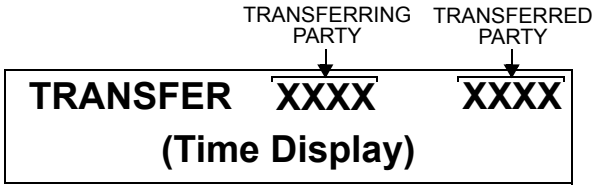
   b. Wait for the third party to answer and announce the transfer while keeping the first party in a CONSULTATION HOLD-ALL CALLS-PRI/PRA [C-100/C-126] condition. When the user hangs up, the first and third parties will be automatically connected.

The following Operating Procedures are applied for Desktop terminal only.

To transfer a call in progress:
1. While connected with the first party, press the TRANSFER key. Receive Special Dial Tone.
2. Dial the third party. Receive Ringback Tone.
3. At this point, the user can either wait and announce the call or hang up before the transfer is completed. The LCD display for an announced transfer will be as follows.



The LCD display for an unannounced transfer will be as follows.



3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 69, Bit 0: Return transferred call to transferring party after the elapse of the Recall Timer. Only applicable to blind transfers.
Bit 2: Short tone on recall of CALL TRANSFER-ALL CALLS. Ringback Tone is briefly heard by the person answering the

recall.

Index 140: (if ASFC SFI 103 = 0)/Index 247 (if ASFC SFI 103 = 1). Assign the Recall Timer for a station-to-station CALL TRANSFER-ALL CALLS. For 30 seconds, assign data 00H. (TC3 = 2 seconds, TC7 = 8 seconds) RAM data 3FH for 30 seconds.

System Data 2, Index 1,Bits 0 and 1:Assign a data to allow CONSULTATION HOLD [C-17].

STEP 2: ATNR - Allow tenant-to-tenant connection for Intra- and Inter-tenant connections. Assign Tenant Restriction Index (TRI) 0 and 4 on an Intra- and Inter-tenant basis.

STEP 3: ARSC - The station receiving the call must be assigned a Route Restriction Class (RSC) that will allow the station to be connected to the trunk, if a trunk is involved.

[C-100/126] CONSULTATION HOLD-ALL CALLS-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits a user to hold any incoming or outgoing ISDN network call or any intra-office calls, while originating a call to another station within the system.

2. OPERATING PROCEDURE

To hold the original call and place the second call using switchhook:
1. Press the switchhook. Receive Special Dial Tone.
2. The original call is held.
3. Dial the second station number. Receive Ringback Tone.
4. The second station answers. The Consultation Hold state has been entered.

To return to the original call using switchhook:
1. In any of the following cases, the Calling Station can return to the original call by pressing the switchhook:
   a. The second station called for consultation is busy.
   b. The Calling Station cannot access to second station due to restriction or another reason.
   c. Second station does not answer.
2. If the second party hangs up, the Calling Station will automatically be returned to the original call.

If the Originating Station flashes the switchhook, THREE-WAY CALLING [T-2] will be initiated.

<The following procedures are applied for Desktop terminal only.>

To hold the original call and place second call using the TRANSFER key:
1. Press the TRANSFER key. Receive Special Dial Tone.
2. The original call is held.
3. Dial the second station number. Receive Ringback Tone.
4. The Second station answers. The Consultation Hold state has been entered.

To return to the original call using the TRANSFER key:
1. In any of the following cases, the Calling Station can return to the original call by pressing the TRANSFER key:
   a. Second station called for consultation is busy.
   b. Calling Station cannot gain access to the second station due to a restriction or some other reason.
2. If the second station hangs up, the Calling Station will automatically be returned to the original call.
3. If the second station stays on, pressing the TRANSFER key returns the original call to the Desktop terminal while the second call is being held.

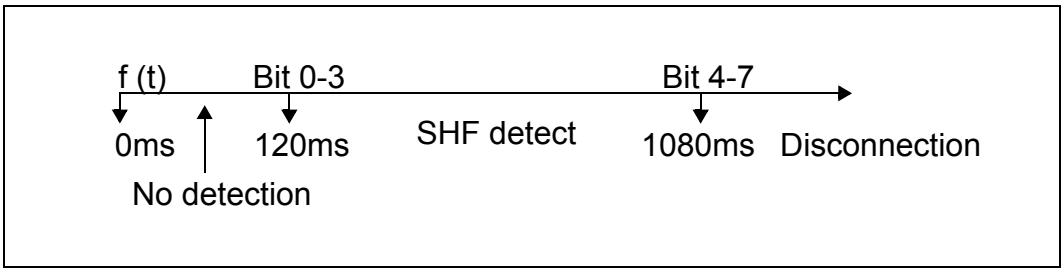
Pressing the CONF key initiates THREE-WAY CALLING [T-2].

3. PROGRAMMING

STEP: ASYD-System Data 2, Index 1,Bits 0 and 1:Consultation Hold allowed or denied? 00: Denied; 01: Originating and Terminating Calls allowed, Tandem Call Denied; 11: All calls allowed. Usually assign data “11”.

System Data 3, Index 2,Bits 0-3:Switchhook flash starts timer. To calculate this value:
(1-FH) × 120 milliseconds = Timer.

Bits 4-7:Switchhook flash ends timer. To calculate this value:
(1-FH) × 120 milliseconds = Timer. For both beginning and ending timers, assign 91H for 120-1080 milliseconds.



[C-101/115] CALL FORWARDING-INTERCEPT/ANNOUNCEMENT-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides for the interception of a called party number received via ISDN by DIRECT INWARD DIALING [D-8] calls that cannot be completed (unassigned station, level, etc.). These calls are automatically routed to a recorded announcement, informing the caller that an inoperative number was reached and giving the listed directory number for information.

This feature permits a station originated call, upon encountering a restricted outgoing number, to automatically be routed to a recorded announcement informing the caller that the dialed number is restricted for this station.

This feature permits a station originated call, upon encountering a trunk busy condition, to automatically be routed to a recorded announcement informing the caller that all the outgoing trunks are busy.

Note: This feature requires an announcement trunk and an announcement machine or a Digital Announcement Trunk (DAT).

2. OPERATING PROCEDURE

No manual operation is required once this feature has been programmed in system data.

3. SERVICE CONDITIONS

1. When ISDN trunk call terminates, the originating party keeps receiving RBT from the network if the parameter A=0 (No Answer from Incoming Trunk) is assigned in AAED command.
2. The forwarding destination for this feature can be assigned with the ACFO/ACFOL/ACFON command on a route basis since FP95-114 V4 Issue 2.0 (earlier than FP95-114 V4 Issue 2.0, the destination can be assigned on a tenant basis only). For details, see CALL FORWARDING DESTINATION PER TRUNK ROUTE - INCOMING CALL [C-209] in Data programming Manual- Business.

4. PROGRAMMING

STEP 1: ACFO - Enable this feature by allowing CF = CALL FORWARDING-INTERCEPT/ANNOUNCEMENT. The CFI parameter will come up for assignment. An Attendant Console may be programmed so that intercepted calls can terminate at the CALL FORWARD INTERCEPT Feature key. If no assignment is made, the SV700 program goes to the AAED command for announcement trunk information because the destination of the transfer is a trunk and not a station or Attendant Console.

STEP 2: ARTD - Assign the announcement route (in the case of DAT) as shown below:

RT: 1

1-OSGS : 2 2-ONSG : 2 6-TCL : 4 7-L/T : 1 15-LSG : 0*

*If a TLT circuit card is used, assign as 5; E & M.

The other data than above must be set “0” (default data).

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: ATRK - Assign the LENS, Announcement Trunk Route Number, Trunk Number, and Tenant Number.

STEP 4: MBTK - Assign the Make Idle status to the Announcement Trunk.

STEP 5: ARRC - If TIE Line or REMOTE ACCESS TO PBX [R-2] connection to the Announcement Service Trunk is required, allow trunk-to-trunk connection using ARI: D-RES, Direct Connection.

STEP 6: AAED - Used to assign Announcement equipment. Assign:
TN: Tenant Number
EQP: Announcement Equipment Number
0: Dead Level
1: Unused Number (LCR OPR not programmed)
2: Available
3: Available
4: Outgoing Trunk Group Busy Announcement
5: Available
6: Available
7: Outgoing Route Restriction Announcement
8-15:Available for ANNOUNCEMENT SERVICE [A-15] applications.
RT, TK:Route and Trunk Number of the trunk connected to the Announcement Equipment.
C: Duration of Connection, 0/1: Disconnection occurs in 30 seconds/the connection is held until the station releases. See the requirements of the announcement equipment.
R: Sending RBT, 0/1: Sending RBT/Not sending RBT. Normally assign data "0". **Note 1**
A: Answer Signal Sending, 0/1: No answer from Incoming trunk/Answer from Incoming trunk. Normally assign data "1"(When A=0 the calling party keeps on receiving RBT from the network).
M: Multiple Connection 0/1: Single Connection/Multiple Connection. See the requirements of the announcement equipment.

Note 1: Be sure to assign R=1 (Not sending RBT) if the parameter M=0 (Single Connection) is selected.

STEP 7: ACFR - Assignment of Call Forwarding Restriction. Upon determining which types of Call Class Indexes (CCI) will be answered via Call Forwarding-Intercept; for example, a DID call. Allow that CCI a Transfer Service Feature Index of "1", for Call Forwarding-All Calls, Don't Answer, Busy Line.

[C-102/117] CALL PICKUP-DIRECT-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user to pick up an ISDN call to any other station in the system by dialing a specific call pickup code.

2. OPERATING PROCEDURE

To pickup an Incoming Call:
1. Lift the handset. Receive Dial Tone.
2. Dial the Call Pickup-Direct-PRI/PRA code. Receive Second Dial Tone.
3. Dial the specific telephone Number to be picked up. The Incoming Call is connected to your station.

3. PROGRAMMING

STEP 1: ASYD - System Data 2, Index 1, Bits 0 and 1:CONSULTATION HOLD-ALL CALLS [C-17] allowed or denied. 00: Denied; 01: Originating and Terminating Calls allowed, Tandem Call Denied. 11: All calls allowed.

STEP 2: ANPD - Reserve a number level for feature access. Select Normal Service (N) from the combo box for Connection Indexes.

STEP 3: ASPA - Assign an Access Code to CALL PICKUP-DIRECT, SRV = “SSC: Service Code”, SID = 35 for CI = “N: Normal”.

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows Direct Call Pickup [SFI 29] to the stations.

[C-114/116] CALL WAITING-TERMINATING-PRI/PRA

1. GENERAL DESCRIPTION

This feature enables a busy station to receive a second Incoming Call from the DID Trunk of ISDN network. A Call Waiting Tone is sent to the busy station. The user can use CALL HOLD [C-6] to answer the second call. CALL HOLD [C-6] can be used to alternate between the two calls.

2. OPERATING PROCEDURE

To activate CALL WAITING-TERMINATING on an incoming ISDN trunk call:

1. The system receives the called telephone number.
2. If the called station is busy, CALL WAITING-TERMINATING is automatically set.
   Calling Station receives Call Waiting Ringback Tone.
   Call Waiting Tone (two beeps) is sent to the busy station. If the called station is a Desktop terminal LED of the ANSWER key flashes.

To answer a CALL WAITING-TERMINATING call:

1. Call Waiting Tone is heard during the call in progress.
2. Flash the switchhook or press the ANSWER key on the Desktop terminal to hold the existing call.
3. CALL WAITING-TERMINATING is automatically connected.
4. By another switchhook flash or pressing the ANSWER key, the user is returned to the original call and the second call is placed on hold.

OR

1. Call Waiting Tone is heard during call in progress.
2. The called station hangs up. Priority ringing is sent.
   Priority ringing = 0.4 seconds ON 0.2 seconds OFF 0.8 seconds ON
   0.2 seconds OFF 0.4 seconds ON 0.4 seconds OFF
3. Lift the handset to answer.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG.)

STEP 2: ASYD - System Data 2 Index 10, Bit 6: Call Waiting-Terminating Service 0/1=Out/In Service.

STEP 3: ASFC - Assign Call Waiting - Originating (Called) [SFI 6] = 1. Also assign Data Line Privacy [SFI 11] = 1.

STEP 4: ARTD - For DID Trunk (Bch) of ISDN, assign CDN46 (CW)=1.

Note: To change the data for existing route (RT), initialize the circuit card.

[C-119/120] CALL PARK-PRI/PRA

1. GENERAL DESCRIPTION

This feature enables an Attendant or Station to park calls from the ISDN network against their own telephone numbers. Calls can be easily retrieved from any station within the system.

2. OPERATING PROCEDURE

When an ISDN trunk party and ATTENDANT CONSOLE [A-3] are talking:

1. The Attendant presses the CALL PARK Feature key. The CALL PARK number is automatically selected and displayed at the ATTENDANT CONSOLE [A-3].
2. The Attendant receives Service Set Tone.
3. The Attendant presses either the RELEASE or CANCEL key.

Note: If no Call Park numbers are available, Attendant receives Busy Tone and no number is displayed.

When an ISDN trunk party and a user are talking:

1. The user momentarily presses the switchhook. Receives Special Dial Tone.
2. Dial the Call Park Access Code (the ISDN trunk connected to the called station is placed in Call Park state). Receives Service Set Tone.
3. Replaces the handset.

To retrieve a Parked Call from the Originating Station:

1. Dial the Call Park local retrieval code. The parked call is reconnected.

To retrieve a Parked Call from a Different Station:

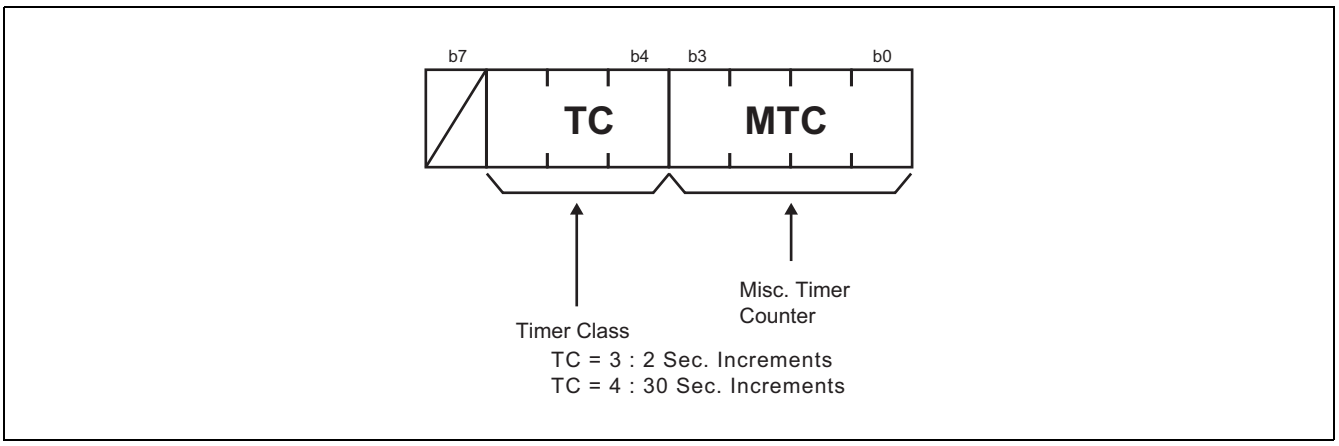
1. Dial the Call Park remote retrieval code and the number of the station that parked the call. The parked call is reconnected.

To retrieve a parked call set by ATTENDANT CONSOLE [A-3] from the user.

1. Dial the Call Park remote retrieval code and call park number. The parked call is reconnected.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 142: For CALL PARK recall, the Miscellaneous Timer Counter is assigned in Bits 0-3. The Timer Class is assigned in Bits 4-6. Timer Class of 3 = 2 seconds. Timer Counter of 4 = 30 seconds. (the default value is 450 seconds.)



System Data 2, Index 1, Bits 0 and 1:CONSULTATION HOLD-ALL CALLS [C-17] allowed or denied.
00: Denied. 01:Originating and Terminating Calls allowed, 10:Tandem Call Denied 11:All calls allowed.

STEP 2: ANPD - Reserve a number level for feature access and retrieval. Select Normal Service (N) or Hooking Service (H) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assign an Access Code to:

(a) CALL PARK Access Code, SRV = "SSC: Service Code", SID = 61, Connection Index (CI) of "H: Hooking".

(b) CALL PARK local retrieval code, SRV = "SSC: Service Code", SID = 62, Connection Index (CI) of "N: Normal".

(c) CALL PARK remote retrieval code, SRV = "SSC: Service Code", SID = 63, NND = number of digits in the Access Code, and assign a Connection Index (CI) of "N: Normal".

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows Call Park Access and Answer [SFI 67] to the applicable stations. This allows the station to park a call and to retrieve a parked call. Assign stations a Service Feature Restriction Class the allows Call Park - Called [SFI 68]. This allows a station to be parked by another station or Attendant Console.

STEP 5: ASAT - This command must be assigned to designate a specific station number to the Attendant Console. This number is used to identify the Attendant Console when parking a call.

[C-123/124] CALL FORWARDING-ALL CALLS-ANNOUNCEMENT-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits all calls from ISDN trunks destined for a particular station to be routed to a recorded announcement. Activation and cancellation can be accomplished either by the individual user or via the ATTENDANT CONSOLE [A-3].

Note: This feature requires “Digital Announcement Trunk (DAT).”

2. OPERATING PROCEDURE

To activate and cancel Call Forwarding-All Calls-Announcement-PRI/PRA from an Individual Station using the same Access Code: **Note 2**

- For setting:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-Announcement entry Access Code (same as CALL FORWARDING-ALL CALLS [C-5]). Receive Special Dial Tone.
3. Dial the desired announcement trunk entry Access Code (same as ANNOUNCEMENT SERVICE [A-15]). Receive Service Set Tone. (If activation is not possible, receive the Busy Tone.)

- For cancellation:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-Announcement entry Access Code (same as CALL FORWARDING-ALL CALLS [C-5]). Receive Service Set Tone.

Note 2: Available from FP95-114 V4 Issue 2.0 with system data ASYDL, SYS1, Index 686, Bit 0= 1.

To activate and cancel Call Forwarding-All Calls-Announcement-PRI/PRA from an Individual Station using different Access Codes:

- For setting:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-Announcement entry Access Code (same as CALL FORWARDING-ALL CALLS [C-5]). Receive Special Dial Tone.
3. Dial the desired announcement trunk Access Code (same as ANNOUNCEMENT SERVICE [A-15]). Receive Service Set Tone.
   (If activation is not possible, receive the Busy Tone.)

- For cancellation:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-Announcement cancel Access Code (same as CALL FORWARDING-ALL CALLS [C-5]). Receive Service Set Tone.

3. SERVICE CONDITIONS

1. When ISDN trunk call terminates, the originating party keeps receiving RBT from the network if the parameter A=0 (No Answer from Incoming Trunk) is assigned in AAED command.
2. When a SIP Handler Controlled SIP terminal is in Multiple Mode, the Call Forwarding setting applies to the seized line while setting. In normal case, where My Line is not used by another station, the Call Forwarding setting applies to My Line. To set the Call Forwarding to Sub Line, use the ACFS/ACFS_T commands.
3. By registering the Call Forwarding - All Calls Access Code + the desired trunk Access Code to the CF Setting button of a Line/Feature key on a Desktop terminal, it is possible to enable and disable CALL FORWARDING-ALL CALLS-ANNOUNCEMENT - PRI/PRA [C-123/124] just by pressing the CF Setting button. For a detailed explanation, see CALL FORWARDING (CF) BUTTON - ONE TOUCH [C-208] in Business Features chapter of Data Programming Manual - Business.

Note: CALL FORWARDING (CF) BUTTON - ONE TOUCH [C-208] is available from FP95-114 V4 Issue 2.0.

4. PROGRAMMING

Call Forwarding-All Calls

STEP 1: ASYD -	System Data 1,	Index 4,	Bit 6:	One burst of ringing at forwarding station when CALL FORWARDING-ALL CALLS [C-5] is in service? 0/1: No/Yes. (for a single line station only)
		Index 69,	Bit 1:	A burst of Ringback Tone to alert the person receiving a call that this is a CALL FORWARDING-ALL CALLS [C-5] call. In service? 0/1: No/Yes. Normally assigned as data “0”.
	System Data 2,	Index 6,	Bit 4:	Enable station set for CALL FORWARDING-ALL CALLS [C-5] to be allowed to use their phones normally If data “0” is assigned, the station will only be able to call the Attendant Console. Assign on a per-tenant basis.

STEP 2: ASYDL/N- System Data 1, Index 686,Bit 0:Settings disabled with special settings of call transfer 1: In service.

Note: Available from FP95-114 V4 Issue 2.0.

STEP 3: ANPD - Reserve a number level for feature access and cancel (**Note 1**). Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with the numbering plan.

STEP 4: ASPA - Assign an Access Code to CALL FORWARDING-ALL CALLS [C-5] entry SID = 8, and to CALL FORWARDING-ALL CALLS [C-5] cancel SID = 9 (**Note 1**). Assign CI = “N: Normal”.

Note 1: When SYS1, Index 686, Bit 0=1 (Disabling Call Forwarding - All Calls with entry Access Code is in service), Call Forwarding - All calls cancel is not required because the cancellation can be performed with the entry Access Code.

STEP 5: ASFC - Assign the stations to activate CALL FORWARDING-ALL CALLS [C-5] a Service Feature Restriction Class that allows SFI = 7.

STEP 6: AKYD - For Desktop terminal sets, CALL FORWARDING-ALL CALLS [C-5] may be assigned to a programmable Line/Feature key. Assign KYI = 1 and FKY = 2.

STEP 7: ATNR - Allow tenant-to-tenant connection for Inter-and Intra-tenant connections. Assign Tenant Restriction Index (TRI) = 1. For this feature to be set by the Attendant Console, assign Inter- and Intra-Tenant connection via the Attendant Console TRI = 3. Also allow TRI = 0, station-to-station calling.

Announcement Service

STEP 1: ANPD - Reserve a number level for Trunk Access. Select Normal Service (N) from the combo box for Connection Indexes. Assign NND values in accordance with the numbering plan.

STEP 2: ASPA - Assign an Access Code to the announcement trunk. Assign SRV = "ANNC: Announcement Service - Single Announcement" and the EQP number assignment should be as assigned with the AAED command.

STEP 3: ARTD - Assign the announcement route (in the case of DAT) as shown below.

RT: 1

1-OSGS : 2 2-ONSG : 2 6-TCL : 4 7-L/T : 1

The other data must be set "0" (default data).

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 4: ATRK - Assign the LENS, Announcement Trunk Route Number, Trunk Number, and Tenant Number. Assign one or more trunks to a specific route used as an announcement trunk.

STEP 5: MBTK - Assign the Make Idle status to the announcement trunk.

STEP 6: ARRC - Allow trunk-to-trunk connection (Bch route (ISDN) to Announcement Trunk route) using ARI: D-RES, Direct Connection.

STEP 7: AAED - Assign announcement equipment.

TN: Tenant Number
EQP: Announcement Equipment Number
0: Dead Level
1: Unused Number (LCR OPR not programmed)
2: Available
3: Available
4: Outgoing Trunk Group Busy Announcement
5: Available
6: Available
7: Outgoing Route Restriction Announcement
8-15:Available for ANNOUNCEMENT SERVICE [A-15] applications.
RT, TK: Route and Trunk Number of the trunk connected to the announcement equipment.
C: Duration of Connection, 0/1: Disconnection occurs in 30 seconds/the connection is held until the station releases. See the requirements of the announcement equipment.
R: Sending RBT, 0/1: Sending Ring Back Tone/Not sending Ring Back Tone. Normally assign data “0”.
A: Answer Signal Sending, 0/1: No answer from Incoming trunk/Answer from Incoming trunk. Usually assign data “0”. No answer signal is sent to the Central Office. Therefore, calling party will not be billed for the call.
M: Multiple Connection 0/1: Single connection/Multiple connection. See the requirements of the announcement equipment.

[C-125/128] CALL FORWARDING-INTERCEPT-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides for interception of Incoming Calls from ISDN trunk that cannot be completed (unassigned station, level, etc.). These calls are automatically routed to a station or Attendant.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

Refer to CALL FORWARDING-INTERCEPT-PRI/PRA [C-101/C-115] in this manual.

[C-129/130] CALL FORWARDING-DON'T ANSWER-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits a call from an ISDN network to an unanswered station to be forwarded to a designated station, or to the Attendant, when the called station does not answer after a specific time interval.

2. SERVICE CONDITIONS

1. The forwarding destination for this feature can be assigned with the ACFO/ACFOL/ACFON command on a route basis since FP95-114 V4 Issue 2.0 (earlier than FP95-114 V4 Issue 2.0, the destination can be assigned on a tenant basis only). For details, see CALL FORWARDING DESTINATION PER TRUNK ROUTE - INCOMING CALL [C-209] in Data programming Manual- Business.

3. OPERATING PROCEDURE

To set Call Forwarding-Don't Answer-PRI/PRA from an individual station:
1. Lift the handset. Receive Dial Tone.
2. Dial the specific Call Forwarding-Don't Answer-PRI/PRA Access Code. Receive Special Dial Tone.
3. Dial the desired target telephone number. Receive Service Set Tone.

To cancel Call Forwarding-Don't Answer-PRI/PRA from an individual station:
1. Lift the handset. Receive Dial Tone.
2. Dial the specific Call Forwarding-Don't Answer-PRI/PRA Cancel Code. Receive Service Set Tone.

To set Call Forwarding-Don't Answer-PRI/PRA from the ATTENDANT CONSOLE [A-3]:
1. Press an idle LOOP key.
2. Dial the specific Call Forwarding-Don't Answer-PRI/PRA Access Code. Receive Special Dial Tone.
3. Dial the TENANT SERVICE [T-12] number (two digits).
4. Dial the originating station number.
5. Dial the desired target telephone number. Receive Service Set Tone.

To cancel Call Forwarding-Don't Answer-PRI/PRA from the ATTENDANT CONSOLE [A-3]:
1. Press an idle LOOP key.
2. Dial the specific Call Forwarding-Don't Answer-PRI/PRA Cancel Code. Receive Special Dial Tone.
3. Dial the TENANT SERVICE [T-12] number (two digits).
4. Dial the originating telephone number. Receive Service Set Tone.

4. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 5, Bit 0: Are the Access Codes for CALL FORWARDING-BUSY LINE [C-2] and Call Forwarding-Don't Answer the same or separate? 0/1: Same/Separate.

Index 69, Bit 1: Send short tone when a call forwarded via C.F.-ALL Calls service is answered. 0/1: Not Required/Required

Bit 2: Send short tone when a recalled Call Forwarding - All Calls call is answered. 0/1: Not Required/Required

Index 139: Assign the No Answer timer for station-to-station, DID and TIE Line calls. Default is 30 seconds.

Index 141: Assign the No Answer timer for Incoming Calls via the

Attendant Console. It will then be forwarded to the next station according to SYS1, Index 145 timer. Default is 10sec.

Index 145: Assign the time an Incoming Call via the Attendant Console will ring at the CALL FORWARD-DON'T ANSWER station before recalling to the Attendant Console. Default is 32 seconds.

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with the numbering plan.

STEP 3: ASPA - Assign an Access Code to Call Forwarding-Don't Answer entry, SID = 12, and to Call Forwarding-Don't Answer cancel, SID = 13. Assign Connection Status Index (CI) for "N: Normal".

STEP 4: ASFC - Assign the Stations a Service Feature Restriction Class that allows Call Forwarding - Don't Answer [SFI 8].

STEP 5: AKYD - For Desktop terminals, Call Forwarding-Don't Answer may be assigned to a programmable Line/Feature key. Assign KYI = 2 and FKY = 22.

STEP 6: ATNR - Allow tenant-to-tenant connection for Inter- and Intra-tenant connections. Assign Tenant Restriction Index (TRI) = 1. For this feature to be set by the Attendant Console, assign Inter- and Intra-Tenant connection via the Attendant Console, TRI = 3. Also assign TRI = 0, station-to-station calling.

STEP 7: ACFO - For tenant-wide Call Forwarding-Don't Answer, assign CF = CF-Don't Answer for a destination
(CFI) of either the Attendant Console or a station.

Note: STEP 7 is necessary for Call Forwarding on a tenant basis only.

STEP 8: ACFS - Call Forwarding-Don't Answer can also be assigned via the ACFS command.

[C-130D] CALL FORWARDING-DON'T ANSWER-D-PRA

1. GENERAL DESCRIPTION

This feature permits an ISDN network Incoming Call to an unanswered station to be forwarded to a designated station or to the Attendant, if the called station does not answer within a certain period of time.
CALL FORWARDING - DON'T ANSWER -D may be set or cancelled by the user for all Multi Line appearances on the Desktop terminal. In this way, a single user may set CALL FORWARDING - DON'T ANSWER -D for all Sub Lines on the Desktop terminal.

2. OPERATING PROCEDURE

To set CALL FORWARDING - DON'T ANSWER from My Line:
1. Lift the handset or press the SPEAKER key. Receive Dial Tone.
2. Press the CALL FORWARDING - DON'T ANSWER FORWARD-NA Feature key. Receive Special Dial Tone.
3. Dial the desired target station number. Receive Service Set Tone. The LCD displays as follows.

Target Station

F O R W A R D S E T X X X X
(Time Display)

OR

Operator

F W D S E T O P R
(Time Display)

To monitor Call Forwarding-Don't Answer from a Desktop terminal My Line:
1. Press the Call Forwarding-Don't Answer FORWARD-NA Feature key. The LCD displays as follows.

F O R W A R D X X X X
(Time Display)

OR

F O R W A R D O P R
(Time Display)

To set Call Forwarding-Don't Answer for a Multi Line appearance other than My Line:

1. Lift the handset or press the SPEAKER key.
2. Press the Multi Line appearance. Receive Dial Tone. Then press the Call Forwarding-Don't Answer FORWARD-NA Feature key. Receive Special Dial Tone.
3. Dial the desired target station number. Receive Service Set Tone. The LED of the associated Feature key does not light at the station setting the service. If the Multi Line appearance is another Desktop terminal's My Line, that station's Feature key LED will light. The setting station's LCD displays as follows.

Target Station

F O R W A R D S E T X X X X
(Time Display)

4. Replace the handset or press the SPEAKER key.
5. If the target station is the Attendant Console, the LCD displays as follows.

Operator

F W D S E T O P R
(Time Display)

To monitor CALL FORWARDING - DON'T ANSWER for a Multi Line appearance other than My Line:

1. Press the Call Forwarding-Don't Answer FORWARD-NA Feature key. The LCD displays as follows.

Target Station

F O R W A R D X X X X
(Time Display)

To cancel Call Forwarding-Don't Answer from My Line:

1. Lift the handset or press the SPEAKER key. Receive Dial Tone.
2. Press the Call Forwarding-Don't Answer FORWARD-NA Feature key. The associated LED goes out. Receive Service Set Tone. The LCD displays as follows.

F O R W A R D C A N C E L
(Time Display)

To cancel Call Forwarding-Don't Answer for a Multi Line appearance other than My Line:

1. Lift the handset or press the SPEAKER key.
2. Press the Multi Line appearance. Receive Dial Tone. Then press the Call Forwarding-Don't Answer FORWARD-NA Feature key. Receive Service Set Tone. The LCD displays as follows.

F O R W A R D C A N C E L **(Time Display)**

   The associated LED that is lit at another station goes out.
3. Replace the handset or press the SPEAKER key.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 5, Bit 0. Access Codes for CALL FORWARDING-BUSY LINE [C-2] and CALL FORWARDING - DON'T ANSWER-D are same or separate? 0/1: Same/Separate.
System Data 1, Index 69, Bits 1 and 2 use a short tone to alert the person receiving the call that this is a Call Forwarding-Don't Answer-D call? 0/1: No/Yes.
System Data 1, Index 139. Assign the No Answer timer for station-to-station, DID and TIE Line calls. For 30 seconds, assign 00H, (RAM data is 3FH).
System Data 1, Index 141. Assign the No Answer time for Incoming Calls via the Attendant Console. It will then be forwarded to the next station according to System Data 1, Index 145 timer. For 10 seconds, assign 00H. [RAM data is 3FH].
System Data 1, Index 145. Assign the time an Incoming Call via the Attendant Console will ring at the CALL FORWARD-DON'T ANSWER-D station before recalling to the Attendant Console. For 30 seconds, assign 00H. [RAM data is 9FH.] Index 145 must be longer than Index 141.
System Data 2, Index 6, Bit 0. Enable Call Forwarding-Don't Answer-D on a per-tenant basis.
System Data 2, Index 6, Bit 7. Enable Call Forwarding-Don't Answer-D via the Attendant Console.

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes. Assign NND in accordance with the numbering plan.

[C-137] CALL HOLD-PRA

1. GENERAL DESCRIPTION

This feature permits any user to hold a call from the ISDN network in progress by flashing the hookswitch and dialing a preprogrammed hold code or pressing a Line/Feature key, thus allowing that line to be used for originating another call or returning to a previously held call.

2. OPERATING PROCEDURE

To hold a call in progress using the Access Code:
1. Press the switchhook. Receive Special Dial Tone.
2. Dial Call Hold code. Receive normal Dial Tone.
3. The call in progress is held. The user may initiate a new call.

To release a new call and return to the original call:
1. Replace the handset, releasing the new call.
2. The original call rings back to the station.
3. Lift the handset and continue with the original call.

To hold a new call and return to the original call:
Note: By repeating the following steps, users can talk alternately with two parties.
1. Press the switchhook. Receive Special Dial Tone.
2. Dial the CALL HOLD code. The new call is now held.
3. The original call is automatically returned.

<The following procedures are applied for Desktop terminal only.>

To hold a call in progress without using the Hold key:
1. Press the TRANSFER key. Receive Special Dial Tone. The LCD displays as follows.

TRANSFER
(Time Display)

2. Dial the Call Hold code. Receive Dial Tone.
3. The call in progress is held. The user may initiate a new call.

To release a new call and return to the original call:
1. Go on-hook, releasing the new call, or press the RECALL key.
2. The original call will ring back to the Desktop terminal.

To hold a new call and return to the original call:
Note: By repeating the following steps, users can talk alternately with two parties.
1. Press the TRANSFER key. Receive Special Dial Tone.
2. Dial the CALL HOLD code. The new call is now held, and the original call is automatically returned.

To hold a call using the Line/Feature key programmed as a Hold key:
1. While a call is in progress, press the Hold key. The call is placed on hold, and Dial Tone is heard.
2. Dial the second station number.
3. To return to the original call, press the RECALL key.

On a Desktop terminal, a SPEED CALLING - ONE TOUCH Feature key may be used to place a call on hold:

1. Press a SPEED CALL - ONE TOUCH Feature key. The LCD will display any previously stored data.
2. Press the RECALL key. The LCD displays as follows.

```
                    !
(Time Display)
```

This acts as a switchhook flash. See Flash Entry -D [F-4D] in Data Programming Manual - Business.

3. Dial the Call Hold Access Code.
4. Press the SPEED CALL- ONE TOUCH Feature key. The LCD displays as follows.

```
SPEED SET
(Time Display)
```

This key may now be used to access the Call Hold feature.

5. When engaged in a conversation, press the SPEED CALLING - ONE TOUCH Feature key with the stored Call Hold Access Code.
6. Dial Tone is restored to the phone, and the user is free to make another call.

To operate a Desktop terminal via the FLASH BUTTON [F-3D]:

1. When engaged in a conversation, press the programmable Line/Feature key programmed as a FLASH key. The LCD will display as follows.

```
TRANSFER
(Time Display)
```

2. Dial the Call Hold Access Code. The LCD goes blank and Dial Tone is restored to the user.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 139. No Answer Timer for Call Hold. (When Station A places Station B on hold, and hangs up, Station A will ring after a preset period of time has elapsed. If Station A does not answer, then Station B goes from Ringback Tone to Reorder Tone.)
System Data 2, Index 1, Bits 0 and 1. CONSULTATION HOLD [C-17] allowed or denied.
00: Denied; Originating and Terminating Calls allowed, Tandem Calls Denied; 11: All calls allowed.

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes. Assign NND in accordance with the numbering plan.

STEP 3: ASPA - Assign an Access Code for Call Hold, SID = 1 for Connection Status Index (CI) of "H: Hooking".

STEP 4: ASFC - Assign the Station a Service Feature Restriction Class that allows Call Hold [SFI = 10].

STEP 5: AKYD - Assign Call Hold to a programmable Line/Feature key. Assign a Feature key Call Hold [10]. (The operation of TRANSFER key and Access Code is also available). Assign Feature key Flash Button [21].

STEP 6: ADSL - Assign SN=4 (Communication is in Progress) and Feature key Call Hold [10].
This command is required only for assigning the function to each Soft key.
To operate a Desktop terminal via the FLASH BUTTON [F-3D], assign SN=4 (Communication is in Progress) and Feature key Flash Button [21].

[C-138D] CALL WAITING ANSWER-D-PRA

1. GENERAL DESCRIPTION

This feature allows a Desktop terminal user to answer a CAMPED-ON [A-1] or CALL WAITING [C-12, C-31] ISDN network Incoming Call while putting an existing call on HOLD [C-6], by pressing the ANSWER key.

2. OPERATING PROCEDURE

CAMP-ON [A-1] or CALL WAITING [C-12, C-31] to a busy Desktop terminal is activated:

1. The user hears Warning Tone during the call in progress. The LCD of the Desktop terminal displays as follows.

Trunk/Station Number

C A M P O N X X X X X X X
(Time Display)

Trunk/Station Number

C W A I T X X X X X X X
(Time Display)

2. The user presses the ANSWER key and is connected to the waiting call.
3. To return to the original call, the Desktop terminal user represses the ANSWER key.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 152. Timer Class 3 = 2 seconds. MTC × TC = Interval for CALL WAITING. MTC assigned in hexadecimal to Bits 0 ~ 3 of this index. Default value is 10 seconds.

System Data 2, Index 10, Bit 6. Should CALL WAITING - ORIGINATING [C-31] operation be automatic upon encountering a busy station? 0/1: No/Yes. Assign on a per tenant basis.
System Data 2, Index 10, Bit 7. Should the warning tone set in System Data 1, Index 152 be periodically sent? 0/1: No/Yes. Assign on a per tenant basis.

STEP 2: ASFC - Assign a Service Feature Restriction Class that allows Call Waiting - Originating (Calling) [SFI 5], Call Waiting - Originating (Called) [SFI 6], and Attendant Camp-On [SFI 11].

Commands related to CALL WAITING - ORIGINATING [C-31]:

STEP 3: ANPD - Reserve a number level for feature access. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes. Assign NND in accordance with the numbering plan.

STEP 4: ASPA - Assign an Access Code to CALL WAITING - ORIGINATING [C-31], SRV = “SSC: Service Code”, SID = 5 for Connection Status Index (CI) of “B: Busy”. Assign the NND value as equal to the digits in the feature Access Code.

[C-139] CALL FORWARDING-ALL CALLS-OUTSIDE-PRA

1. GENERAL DESCRIPTION

This feature allows a call that originates from a station, trunk, or ISDN trunk, and is destined for a station, to be routed to another station outside the system via the appropriate trunk or ISDN trunk line. This feature can also be activated from a Desktop terminal Multi Line.

2. OPERATING PROCEDURE

To activate and cancel Call Forwarding-All Calls-Outside-PRA using the same Access Code:**Note 2**

- For setting:

1. Lift the handset. Receive Dial Tone.
2. Dial the CALL FORWARDING - ALL CALLS - OUTSIDE entry Access Code (same as CALL FORWARDING - ALL CALLS [C-5] Access Code). Receive Special Dial Tone.
3. Dial the desired Forwarding Destination Number (or Speed Calling Access Code and abbreviated code). If the ATTENDANT CONSOLE [A-3] is setting this feature, dial the entry Access Code, Tenant Number, originating station number, and then the Forwarding Destination Number. Receive Service Set Tone.

- For cancellation:

1. Lift the handset. Receive Dial Tone.
2. Dial the CALL FORWARDING - ALL CALLS - OUTSIDE entry Access Code, (same as CALL FORWARDING - ALL CALLS [C-5] Cancel Code). Receive Service Set Tone.
   If the ATTENDANT CONSOLE [A-3] is canceling this feature, dial the cancel Access Code, Tenant Number, and then the originating station number. Receive Service Set Tone.

Note 2: Available from FP95-114 V4 Issue 2.0 with system data ASYDL, SYS1, Index 686, Bit 0= 1.

To activate and cancel Call Forwarding-All Calls-Outside-PRA different Access Codes:

- For setting:

1. Lift the handset. Receive Dial Tone.
2. Dial the CALL FORWARDING - ALL CALLS - OUTSIDE entry Access Code (same as CALL FORWARDING - ALL CALLS [C-5] Access Code). Receive Special Dial Tone.
3. Dial the desired Forwarding Destination Number (or Speed Calling Access Code and abbreviated code). If the ATTENDANT CONSOLE [A-3] is setting this feature, dial the entry Access Code, Tenant Number, originating station number, and then the desired outside number. Receive Service Set Tone.

- For cancellation:

1. Lift the handset. Receive Dial Tone.
2. Dial the CALL FORWARDING - ALL CALLS - OUTSIDE cancel Access Code, (same as CALL FORWARDING - ALL CALLS [C-5] Cancel Code). Receive Service Set Tone.
   If the ATTENDANT CONSOLE [A-3] is canceling this feature, dial the cancel Access Code, Tenant Number, and then the originating station number. Receive Service Set Tone.

To set Call Forwarding-All Calls-Outside from a Multi Line Desktop terminal:

1. Press the Multi Line Feature key to be used for CALL FORWARDING - ALL CALLS - OUTSIDE.

2. Lift the handset or press the SPEAKER key. Receive Dial Tone.
3. Press CALL FORWARDING - ALL CALLS - OUTSIDE Feature key. Receive Special Dial Tone.
4. Dial the desired Forwarding Destination Number (or Speed Calling Access Code and the abbreviated code). Receive Service Set Tone. The LED will light. The LCD displays as follows.

F O R W A R D S E T **(Time Display)**

5. Replace the handset or press the SPEAKER key.

To monitor Call Forwarding-All Calls-Outside from a Multi Line Desktop terminal:

1. Press the Multi Line appearance, then, press the CALL FORWARDING-ALL CALLS-OUTSIDE Feature key. The LCD displays as follows.

Outside Number

F O R W A R D X X X X X X X X **(Time Display)**

To cancel Call Forwarding-All Calls-Outside from a Multi Line Desktop terminal:

1. Lift the handset or press the SPEAKER key. Receive Dial Tone.
2. Press the CALL FORWARDING-ALL CALLS-OUTSIDE Feature key. Receive Service Set Tone. The LED of the associated Feature key will go out. The LCD displays as follows.

F O R W A R D C A N C E L **(Time Display)**

3. Replace the handset or press the SPEAKER key.

3. SERVICE CONDITIONS

1. By registering the Call Forwarding - All Calls Access Code + the desired Forwarding Destination Number to the CF Setting button of a Line/Feature key on a Desktop terminal, it is possible to enable and disable CALL FORWARDING-ALL CALLS- OUTSIDE- PRA [C-139] just by pressing CF Setting the button. For a detailed explanation, see CALL FORWARDING (CF) BUTTON - ONE TOUCH [C-208] in Business Features chapter of Data Programming Manual - Business.

Note: CALL FORWARDING (CF) BUTTON - ONE TOUCH [C-208] is available from FP95-114 V4 Issue 2.0.

4. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 4, Bit 6. One burst of ringing on call forwarded phone when CALL FORWARDING - ALL CALLS [C-5] in service? 0/1: No/Yes. System Data 1, Index 20, Bit 7. Calling or forwarded party show on SMDR? 0/1: Calling/forwarded.
System Data 2, Index 6, Bit 4. Call-forwarded station restricted from making calls? 0/1: Yes/No.

STEP 2: ASYDL/N- System Data 1, Index 686, Bit 0= 1 (Disabling Call Forwarding - All Calls with entry Access Code is in service).

Note: Available from FP95-114 V4 Issue 2.0.

STEP 3: ANPD - Reserve a number level for feature access and cancel (**Note 1**). Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 4: ASPA - Assign an Access Code to CALL FORWARDING - ALL CALLS [C-5] set SID = 8, and to CALL FORWARDING - ALL CALLS [C-5] cancel SID = 9 (**Note 1**). Assign Connection Index (CI) for "N: Normal".

Note 1: When SYS1, Index 686, Bit 0=1 (Disabling Call Forwarding - All Calls with entry Access Code is in service), Call Forwarding - All calls cancel is not required because the cancellation can be performed with the entry Access Code.

STEP 5: ASFC - Assign the station a Service Feature Restriction Class that allows Call Forwarding - All Calls [SFI 7].

STEP 6: ARRC - Allow a trunk-to-trunk connection between the incoming trunks and the outgoing trunks that will be involved with this application. The incoming trunks include calls extended by the Attendant Console and DID calls. The outgoing trunks would be DDD or trunks seized when using SPEED CALLING - GROUP [S-23] or SPEED CALLING - SYSTEM [S-3]. If LCR is used, allow trunk-to-trunk connection to the outgoing LCR flag route, usually Route 31.

STEP 7: AKYD - For Desktop terminals, CALL FORWARDING - OUTSIDE may be assigned to a programmable Line/Feature key. Assign KYI = 1 and Feature key CALL FORWARDING - ALL CALLS [2].

STEP 8: ADSL - Assign SN=1 (Originating; DT Connection) and FKY=2 (Call Forwarding - All Calls; FDA).

STEP 9: ATNR - Allow tenant-to-tenant connection for Inter- and Intra-tenant connections. TRI = 1. For this feature to be set by the Attendant Console, assign Inter- and Intra-tenant connection via the Attendant Console, TRI = 3.

STEP 10: AMND - Local outgoing Destination Codes (DC) must be programmed to allow local outgoing calls such as 92, 93, 94, etc.

STEP 11: ACFS - Call Forwarding can also be assigned, displayed, or deleted by the ACFS command.

[C-140] CALL FORWARDING-BUSY LINE-OUTSIDE-PRA

1. GENERAL DESCRIPTION

This feature allows a call that originates from a station, trunk or ISDN trunk, and is destined for a station to be routed to another station outside the system via the appropriate trunk or ISDN trunk line. This feature can also be activated from a Desktop terminal Multi Line.

2. OPERATING PROCEDURE

To set Call Forwarding-Busy Line-Outside:

1. Lift the handset. Receive Dial Tone.
2. Dial the CALL FORWARDING - BUSY LINE - OUTSIDE Access Code (same as CALL FORWARDING - BUSY LINE [C-2] Access Code). Receive Special Dial Tone.
3. Dial the desired target telephone number (or Speed Calling Access Code and the abbreviated code). If the ATTENDANT CONSOLE [A-3] is setting this feature, dial the Access Code, Tenant Number, originating station number, and then the desired outside number. Receive Service Set Tone.

To cancel Call Forwarding-Busy Line-Outside:

1. Lift the handset. Receive Dial Tone.
2. Dial the CALL FORWARDING - BUSY LINE - OUTSIDE Cancel Code (same as CALL FORWARDING - BUSY LINE [C-2] Cancel Code). Receive Service Set Tone.
   If the ATTENDANT CONSOLE [A-3] is canceling this feature, dial the Cancel Code, Tenant Number, and then the originating station number. Receive Service Set Tone.

To set CALL FORWARDING-BUSY LINE-OUTSIDE from a Multi Line Desktop terminal:

1. Press the Multi Line Feature key to be used for CALL FORWARDING - BUSY LINE - OUTSIDE.
2. Lift the handset or press the SPEAKER key. Receive Dial Tone.
3. Press CALL FORWARDING-BUSY LINE-OUTSIDE Feature key. Receive Special Dial Tone.
4. Dial the desired target number (or Speed Calling Access Code and the abbreviated code). Receive Service Set Tone. The LED will light. The LCD displays as follows.

F O R W A R D S E T **(Time Display)**

5. Replace the handset or press the SPEAKER key.
6. The LED of the associated Feature key lights on the Desktop terminal for which this Multi Line is the My Line.

To monitor CALL FORWARDING-BUSY LINE-OUTSIDE from a Desktop terminal My Line:

1. Press the Multi Line key of the station CALL FORWARDING-BUSY LINE-OUTSIDE is to monitor.
2. Press CALL FORWARDING - BUSY LINE - OUTSIDE Feature key.
3. The LCD displays as follows.

Target Number **Note 1**

F O R W A R D X X X X X X X X
(Time Display)

Note 1: An entered abbreviated number is translated into the forwarding number and the first eight digits are displayed even if a maximum of 12 or 24 digits can be stored.

To cancel CALL FORWARDING-BUSY LINE-OUTSIDE from a Multi Line Desktop terminal:

1. Press the Multi Line key of the station to which CALL FORWARDING - BUSY LINE - OUTSIDE is to be canceled.
2. Lift the handset or press the SPEAKER key. Receive Dial Tone.
3. Press the CALL FORWARDING - BUSY LINE - OUTSIDE Feature key. Receive Service Set Tone. The LED of the associated Feature key will go out. The LCD displays as follows.

F O R W A R D C A N C E L
(Time Display)

4. Replace the handset or press the SPEAKER key.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 5, Bit 0. Are Access Codes for Call Forwarding-Busy Line and Call Forwarding-Don't Answer the same or separate? 0/1: Same/Separate.
System Data 1, Index 69, Bit 7, and System Data 1, Index 5, Bits 1~3 for MULTIPLE CALL FORWARDING.

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes (applicable to any feature assigned to this level). Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assign an Access Code to Call Forwarding-Busy Line Entry, SID = 10 and to Call Forwarding-Busy Line Cancel, SID = 11. Assign Connection Status Index (CI) for "N: Normal".

STEP 4: ASFC - Assign the stations to receive Call Forwarding-Busy Line a Service Feature Restriction Class that allows SFI = 9.

STEP 5: AKYD - For Desktop terminals, Call Forwarding-Busy Line may be assigned to a programmable Line/Feature key. Assign Type: Function: CALL FORWARDING-BUSY LINE [1].

[C-141] CALL FORWARDING-DON'T ANSWER-OUTSIDE-PRA

1. GENERAL DESCRIPTION

This feature allows a call, which originates from a station or trunk and is destined for a station, to be routed to another station outside the system via the appropriate ISDN network trunk line. This feature can also be activated from a Desktop terminal Multi Line.

2. OPERATING PROCEDURE

To set CALL FORWARDING - DON'T ANSWER - OUTSIDE:
1. Lift the handset. Receive Dial Tone.
2. Dial the CALL FORWARDING - DON'T ANSWER - OUTSIDE Access Code (same as CALL FORWARDING - DON'T ANSWER [C-3] Access Code). Receive Special Dial Tone.
3. Dial the desired target telephone number (or speed calling Access Code and the abbreviated code). If this feature is being set from the ATTENDANT CONSOLE [A-3], dial the Access Code, Tenant Number, originating station number, and then the desired outside number. Receive Service Set Tone.

To cancel CALL FORWARDING - DON'T ANSWER - OUTSIDE:
1. Lift the handset. Receive Dial Tone.
2. Dial the CALL FORWARDING - DON'T ANSWER - OUTSIDE Cancel Code (same as CALL FORWARDING - DON'T ANSWER [C-3] Cancel Code). Receive Service Set Tone.

To set CALL FORWARDING - DON'T ANSWER - OUTSIDE from a Multi Line Desktop terminal:
1. Press the Multi Line Feature key to be used for CALL FORWARDING - DON'T ANSWER - OUTSIDE.
2. Lift the handset or press the SPEAKER key. Receive Dial Tone.
3. Press CALL FORWARDING - DON'T ANSWER - OUTSIDE Feature key. Receive Special Dial Tone.
4. Dial the desired target number (or speed calling Access Code and the abbreviated code). Receive Service Set Tone. The LED will light. The LCD displays as follows.

F O R W A R D S E T **(Time Display)**

5. Replace the handset or press the SPEAKER key.
6. The LED of the associated Feature key lights on the Desktop terminal to which the call is forwarded.

To monitor CALL FORWARDING - DON'T ANSWER - OUTSIDE from a Desktop terminal My Line:

1. Press the Multi Line key for the station CALL FORWARDING - DON'T ANSWER - OUTSIDE is to monitor.
2. Press the CALL FORWARDING - DON'T ANSWER - OUTSIDE Feature key.
   The LCD displays as follows.

Target Number **Note 1**

F O R W A R D X X X X X X X X
(Time Display)

Note 1: A dialed abbreviated number is translated into the forwarding number and the first eight digits are displayed even if a maximum of 12 or 24 digits can be stored.

To cancel CALL FORWARDING - DON'T ANSWER - OUTSIDE from a Multi Line Desktop terminal:

1. Press the Multi Line key for the station CALL FORWARDING - DON'T ANSWER-OUTSIDE is to be canceled.
2. Lift the handset or press the SPEAKER key. Receive Dial Tone.
3. Press the CALL FORWARDING - DON'T ANSWER - OUTSIDE Feature key. Receive Service Set Tone. The LED of the associated Feature key will go out. The LCD displays as follows.

F O R W A R D C A N C E L
(Time Display)

4. Replace the handset or press the SPEAKER key.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 20, Bit 7. Charging to a call transferred by Call Forwarding-Outside Service 0/1: Charging is made to the caller of the transferred call/Charging is made to the station that has set Call Forwarding-Outside Service.

STEP 2: ASFC - See [C-129/130] CALL FORWARDING-DON'T ANSWER-PRI/PRA.

[D-115/135] DISTINCTIVE RINGING-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides distinctive station ringing patterns so that the user can distinguish between internal and external Incoming Calls.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG.)

STEP 2: ASYD - System Data 1, Index 72, Bit 6: Is DISTINCTIVE RINGING applied to calls handled via the Attendant Console? 0/1: No/Yes. Otherwise these calls will ring as station-to-station calls.

Note: This system data is also available in the following case.

- *Trunk line → CCIS → Intermediate Party (Station or Attendant Console) → Station*

RINGER PATTERN 0
Normally used for Central Office Calls.
System Data 3, Index 0. Assign data 21H for Central Office Calls to ring 1 second ON, 2 seconds OFF. Assign 42H for 2 seconds on, 4 seconds off, on a per-route basis. Go to ARTD CDN 12.
System Data 3, Index 3, Bit 0. Should Ringer Pattern 0 be assigned interrupted ringing capability? 0/1: No/Yes.

RINGER PATTERN 1
Normally used for Station-to-Station Calls.
System Data 3, Index 1. Assign data 42H for station-to-station calls to ring for 2 seconds ON and 4 seconds OFF.
System Data 3, Index 3, Bit 1. Should ringer pattern 1 be assigned interrupted ringer pattern 1 ringing capability? 0/1: No/Yes.

RINGER PATTERN 5
System Data 3, Index 3, Bit 5. Enable ringer pattern 5? 0/1: No/Yes. This ringer pattern is applicable to CALL BACK [C-1], OUTGOING TRUNK QUEUING [O-2], and CALL WAITING-ORIGINATING [C-31].
System Data 3, Index 7. Assign data 24H for 4 seconds ON, 2 seconds OFF. (Ringer pattern 5.)

STEP 3: ARTD - To provide a distinctive ring to specific routes, assign data “1” to CDN 12 (follows the ringer pattern assigned by ASYD SYS 3, Index 0, Bit 0 and ASYD SYS 3, Index 3, Bit 0), Distinctive Ring (DR).

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows SFI48, Burst Ringing, to PA-16LC port stations that will not operate using DISTINCTIVE RINGING. With this feature, the system does not look at ASYD, System Data 3, Index 3 Bits 0 and 1 to determine how this telephone will ring. Telex, FAX machines, and OPX stations may require a longer ringing signal. Digital Terms will not respond to this feature.

[D-116D/136D]DO NOT DISTURB-D-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user to set Do Not Disturb status. Incoming ISDN calls will be denied access to the My Line while DND status is in effect.

2. OPERATING PROCEDURE

To set Do Not Disturb:
Press the Do Not Disturb ("DND") key. The associated LED will light. The LCD displays as follows.

DND SET XXXXXXXX
(Time Display)

To cancel Do Not Disturb:
Press the Do Not Disturb ("DND") key. The LED will go out. The LCD displays as follows.

DND CANCEL XXXXXXXX
(Time Display)

3. PROGRAMMING

STEP 1: AKYD - Assign the following key data for the Dterm.

TN: 1
STN: Station Number
TP: Type of Dterm (0~3)
KYN: Key Number (1-40)
KYI: Service Index
0: Key Not Used
1: Feature Key
2: Multi Line Key
KD: Not assigned for Feature Key
FKY: Function Key Number
FKY=50, DO NOT DISTURB.

STEP 2: ASFC - Select an indication type (RST/DND) on the display of a Desktop terminal when it terminates to a station which has been set DO NOT DISTURB.

SFI= 114 Calling Party DND Indication (Dterm)
0/1: RST/DND

[D-117/129] DATA LINE SECURITY-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows those line circuits used for ISDN DATA transmission to be protected from interruptions such as ATTENDANT CAMP-ON [A-1], BUSY VERIFICATION [B-3], EXECUTIVE RIGHT OF WAY [E-1], and ATTENDANT OVERRIDE [A-7].

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP: ASFC - Set the Data Line Security to a data terminal.
SFI 11=0

[D-118/124] DATA PRIVACY ON DEMAND-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user to prevent interruptions to ISDN data calls by ATTENDANT CAMP-ON [A-1], BUSY VERIFICATION [B-3], CALL WAITING-TERMINATING [C-12], or ATTENDANT OVERRIDE [A-7] by dialing a DATA PRIVACY feature code. This feature is set automatically when a data connection is established.

2. OPERATING PROCEDURE

To activate DATA PRIVACY ON DEMAND-PRI/PRA from a single line:
1. Lift handset. Receive Dial Tone.
2. Dial desired number.
3. Before beginning data communications, flash switchhook. Receive Special Dial Tone.
4. Dial DATA PRIVACY ON DEMAND-PRI/PRA Access Code. Receive Service Set Tone.
5. Flash switchhook to return to original connection, or wait 30 seconds to return automatically.
6. To cancel Data Privacy, flash switchhook. Receive Special Dial Tone.
7. Dial DATA PRIVACY ON DEMAND-PRI/PRA Cancel Code. Receive Service Set Tone.
8. To return to original connection, flash switchhook momentarily, or wait 30 seconds to return automatically.

To activate DATA PRIVACY ON DEMAND-PRI/PRA from a Desktop terminal.
1. Lift handset. Receive Dial Tone.
2. Dial desired number.
3. Before beginning data communications, press the “DND” key.
4. The display shows “PRV SET” for 3 seconds and returns to original connection. The “DND” lamp flashes as long as DATA PRIVACY ON DEMAND-PRI/PRA is set.
5. If the DND key is pressed again, “PRV CNCL” is displayed for 3 seconds and DATA PRIVACY ON DEMAND-PRI/PRA will be canceled.

Data connection (Desktop terminal/Data Adapter).
1. No manual operation is required. When a Data Call (Data Adapter) is originated, DATA PRIVACY ON DEMAND-PRI/PRA is set automatically. When the data call is disconnected, DATA PRIVACY ON DEMAND-PRI/PRA is canceled automatically.

3. PROGRAMMING

STEP 1: ANPD - Reserve a number level for Access Code.

STEP 2: ASPA - Assign CI=“H: Hooking” SRV= “SSCA: Service Code Appendix” SIDA=48 (Data Privacy on Demand; Entry)
Assign CI=“H: Hooking” SRV=“SSCA: Service Code Appendix” SIDA=49 (Data Privacy on Demand; Cancel)

STEP 3: AKYD - Assign FKI=1, FKY=50 (Do Not Disturb)

[D-137/138] DIRECT-IN TERMINATION (DIT)-PRI/PRA

1. GENERAL DESCRIPTION

This feature automatically routes incoming network exchange calls from an ISDN network and Public/Private Telecommunication network directly to a preselected station without Attendant assistance. The call can then be processed by the called party. THREE-WAY CALLING [T-2], CALL TRANSFER [C-10], etc., are handled in the same manner as any normal trunk call.

2. OPERATION PROCEDURE

The calling party, outside the system, dials the telephone number as usual. However, the call is answered directly at a predetermined station, bypassing the ATTENDANT CONSOLE [A-3].

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG.)

STEP 2: ASYD - System Data 1, Index 147 (**Note 1**): DIT supervisory timer for a busy station.
System Data 2, Index 11,Bit 7:Will the DIT call to a busy station be routed to ATT (**Note 2**) or queue to the busy station?
0/1=ATT/Queue

Note 1: This index works when System Data 2, Index 11, Bit 7=1.

Note 2: If the call goes to ATT, it will ring in on the BUSY or ICPT key.

STEP 3: ARSC - The DIT target station receiving the call must be assigned a Route Restriction Class (RSC), allowing the station to be connected to the trunk. The DIT route must be allowed via Route Restriction Indexes (RRI) 0 and 1.

STEP 4: ACFR - Designate the type of Incoming Call Class Indexes (CCI) which require a Transfer Service Feature Index (TSFI) = 3, DIRECT-IN TERMINATION. The type of CCI must match CDN 6 of the DIT route. For Night DIT (NIGHT CONNECTION-FIXED [N-1]), allow the CCI a TSFI = 2, NIGHT CONNECTION-FIXED [N-1].

For Day and Night DIT Service-Same Station

STEP 5: ACSI - Assign the External Route Number, Trunk Number, and Connection Service Index = 3 for DIT. Then assign the Tenant Number and station number to serve as the DIT station.

For Day DIT Service

STEP 6: ACSA - Assign the External Route Number, Trunk Number, Connection Service Index A = 2 for DIT. Then assign the Tenant Number and station number to serve as the DIT station.

For Day and Night DIT service-Different Stations

STEP 7: ACSA - Assign the External Route Number, Trunk Number, Connection Service Index A = 2 for DIT. Then assign the Tenant Number and station number to serve as the DIT station.

ACSI - Assign the External Route Number, Trunk Number, Connection Service Index = 4 for NIGHT CONNECTION-FIXED (DIT) [N-1]. Then assign the Tenant Number and station number to serve as the DIT station.

Night DIT Only

STEP 8: ACSI - Assign the External Route Number, Trunk Number, Connection Service Index = 4 for NIGHT CONNECTION-FIXED (DIT) [N-1]. Then assign the Tenant Number and station number to serve as the DIT station.

[D-142] DELAY ANNOUNCEMENT-UCD-PRA

1. GENERAL DESCRIPTION

This feature provides the recorded announcement service for an ISDN network directed to a busy UNIFORM CALL DISTRIBUTION (UCD) [U-1] group and placed in a waiting queue. The recorded announcement occurs after a predetermined time in the queue.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 70, Bit 6. Are DELAY ANNOUNCEMENT-UCD common or separate for all UCD groups? 0/1: Common/Separate.

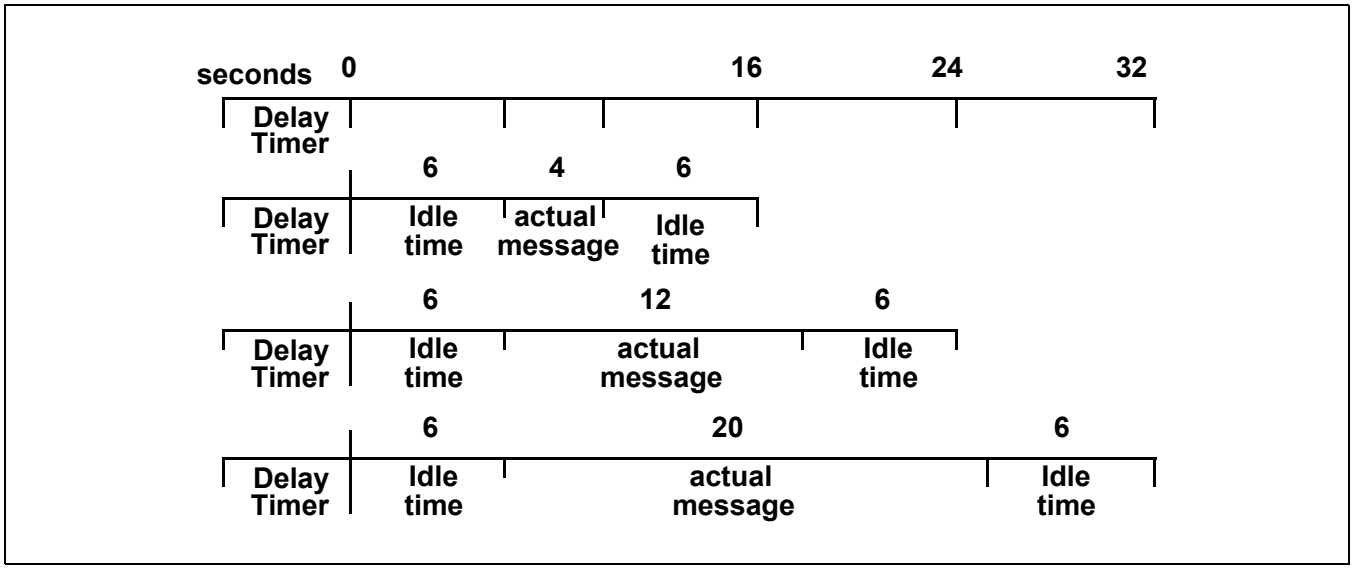
STEP 2: ARTD - Assign the Announcement Route for pathway TIE Line trunks as follows:
1-OSGS: 2 2-ONSG: 3 3-ISGS: 2 4-INSG: 3 5-TF: 3 6-TCL: 4 7-L/T: 1 8-RLP: 2
15-LSG: 5

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: ATRK - Assign the LENS, Announcement Route Number, Trunk Number, and Tenant Number.

STEP 4: MBTK - Assign the Make Idle status to the announcement trunks.

STEP 5: AUAD - This command is used to assign the DELAY ANNOUNCEMENT-UCD.
Assign the following information:
TN: Tenant Number of UCD Control Station
STN: Station Number of UCD Control Station
DLYT: Delay Timer (0-30 seconds: 2 seconds, even-number increments)
MSGT: Message Timer (0-30 seconds: 2 seconds, even-number increments)
RP: Announcement Output Reply
0 = Only One
1 = Replay
INT: Replay Interval
CNT: Number of Announcement Trunks
RT: Route Number
TK: Trunk Number
The Tenant and Station parameters will be prompted only if ASYD calls for separate announcements for UCD groups. The Delay timer, DLYT, is the time that the Delay Announcement trunk will ring and collect other Incoming Calls that will listen to the DELAY ANNOUNCEMENT-UCD. The Message timer, MSGT, should include both the DELAY ANNOUNCEMENT-UCD time plus idle time before and after the announcement. The following patterns are available.


seconds
0
16
24
32
Delay Timer
6
4
6
Delay Timer
Idle time
actual message
Idle time
6
12
6
Delay Timer
Idle time
actual message
Idle time
6
20
6
Delay Timer
Idle time
actual message
Idle time

[E-14D/16D] ELAPSED TIME DISPLAY-D-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides an LCD display of the time elapsed while a Desktop terminal is connected to a PRI trunk.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

No programming is required.

[F-21/23] FLEXIBLE NUMBERING OF STATIONS-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides the ability to assign voice station numbers and data station numbers, to any corresponding instrument location depending solely upon numbering plan limitations.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 16: Enable one- to five-digit station numbering for the system. Assign 3FH.
Index 92, Bit 3: Must be assigned as data "1".

STEP 2: ANPD - Reserve an Access Code for station numbering. Only the stations with the NND assigned here will appear on the BLF.

STEP 3: ASPA - Assign the station numbering in such a way that the system will differentiate the station numbering via the Access Codes programmed here. For the example shown, the following data is programmed:

For station 31;	For station 321;	For station 322;
TN: 1	TN: 1	TN: 1
ACC: 31	ACC: 321	ACC: 322
CI: "N: Normal", "H: Hooking	CI: "N: Normal", "H: Hooking	CI: "N: Normal", "H: Hooking
SRV: "STN: Station Number"	SRV: "STN: Station Number"	SRV: "STN: Station Number"
NND: 2	NND: 3	NND: 4

STEP 4: ASDT - Assign the station number.

[F-26/27] FAULTY TRUNK REPORT-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a station to report a noisy or faulty ISDN Trunk Number by dialing a special Access Code before hanging up. The FAULTY TRUNK REPORT consists of Trunk Number, station number, associated Time Division Switch and reported time. This information is displayed at PCPro and/or fault printer.

2. OPERATING PROCEDURE

To enter a FAULTY TRUNK REPORT:

1. Switchhook flash before disconnecting. Receive Special Dial Tone.
2. Dial the FAULTY TRUNK REPORT Access Code. Receive Service Set Tone.
3. PCPro records the FAULTY TRUNK REPORT and returns the line to the original connection.

3. PROGRAMMING

STEP 1: ANPD - Reserve a number level for feature Access Code.
Select Hooking Service (H) from the combo box for Connection Indexes. NND=Number of digits for an Access Code.

STEP 2: ASPA - Assign an Access Code.
CI="H: Hooking", SRV="SSC: Service Code", SID=46 (FAULTY TRUNK REPORT)

STEP 3: ASFC - Allow this service restriction. SFI46=1

[H-14D/17D] HANDS-FREE ANSWER BACK-D-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows the user to respond to a VOICE CALL [V-2] without lifting the handset.

2. OPERATING PROCEDURE

To answer a VOICE CALL [V-2]:
1. Press the MIC key. The LED lights.
2. Respond to call hands-free.

3. PROGRAMMING

No programming is required.

[H-15/21] HOT LINE-OUTSIDE-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user to access an outside ISDN destination party in the HOT LINE [H-l] service.

2. OPERATING PROCEDURE

To place a HOT LINE-OUTSIDE-PRI/PRA call using a single line telephone:
1. Station A lifts the handset. Station A hears Sender Tone first, and then Ringback Tone.
2. Outside party B lifts the handset. The conversation proceeds.

To place a HOT LINE-OUTSIDE-PRI/PRA call using BROKERAGE HOT LINE [B-12]:
1. Station A presses the BROKERAGE HOT LINE Feature key.
2. Station A lifts the handset or presses the SPKR key. Station A hears Sender Tone first, and then Ringback Tone.
3. Outside party B lifts the handset. The conversation proceeds.

3. PROGRAMMING

STEP 1: ASYD - System Data 2, Index 1, Bit 7: Does TOLL RESTRICTION apply to SPEED CALLING-SYSTEM [S-3]? 0/1: Yes/No. If TOLL RESTRICTION applies, construct an RSC that will allow the station access to the outgoing number.

STEP 2: ASFC - Construct a Service Feature Restriction Class that allows Service Feature Index (SFI) 12; SPEED CALLING-SYSTEM [S-3]. Assign this SFC to the Hotline station.

If using a Virtual Circuit (TEC = 18) for the hotline, SFI: 36 (Special Common Battery/ Hotline) must be set to “1” for the Virtual Circuit’s SFC.

STEP 3: ASDT - Assign the HOTLINE-OUTSIDE station as a TEC = 18, Virtual Circuit, or TEC = 14, Hotline.
TN: Tenant Number
STN: Station Number
LENS: Line Equipment Numbers (6 digits)
TEC: Telephone Class (1-31)
1: DP (10 PPS)
2: PB
3: DP/PB
12:Dterm
13:Data terminal Via Dterm
14:Hotline
15:CAS Line
16:Data Terminal Via Data Module
18:Virtual Circuit
RSC: Route Restriction Class (0-15)
For assignment of RSC, ARSC command.
SFC: Service Feature Restriction Class (0-15)
For assignment of SFC, ASFC command.

STEP 4: ASPD - Enter Tenant Number (TN), Abbreviated Digit Code (ADC) and Called Number (CD). Include the Access Code of the route in the CD.

STEP 5: AHLS - Assign the HOTLINE-OUTSIDE station with the following parameters:
HOT TN: Hotline Tenant Number
HOT STN: Hotline Station Number
TYPE:2=Outside party (ADC)
CON TN: Destination Tenant Number
Assign same CON TN # as in HOT TN:
CON ADC: Speed Calling Code

[I-24/31] INCOMING CALL IDENTIFICATION-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows an ATTENDANT CONSOLE [A-3] to visually identify the type of service and/or trunk group which is arriving or waiting to be answered.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: ASYD - System data 2, Indexes 8 and 9, flag the type of Incoming Calls the Attendant Console should expect.*

Index 8
Bit 0: Listed Directory Number
Bit 1: Incoming Station Call
Bit 2: Attendant Recall
Bit 3: FX
Bit 4: WATS
Bit 5: CCSA (DID)
Bit 6: TIE Line
Bit 7: Call Forwarding Busy Line

Index 9
Bit 0: Call Forwarding Don't Answer
Bit 1: Call Forwarding Intercept
Bit 2: Special Common Battery Station
Bit 3: Interposition Transfer

* *System Data 2, Index 8, Bits 6 and 7, and System Data 2, Index 9, Bits 0-3 can be assigned different meanings via the AAKP command.*

STEP 2: ARTD - Flag the type of route in CDN 6, Trunk Class (TCL).
0: Not used
1: DDD Line (LDN)
2: FX Line (FX)
3: WATS Line (WATS)
4: TIE Line (TIE)
5: CCSA Line (CCSA)
6: Toll Line
7: CAS Line
8: Paging
9: Not used
10: Not used
11: General page
12: Radio page

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: AAKP - This command may be used to change the meaning of the top six keys of the CALL IDENTIFICATION Feature keys of the Attendant Console. (See System Data 2, Indexes 8 and 9.)

The Following functions may be assigned to Key Numbers (KYN) 1-6.

Function:

a: CAS
b: Off-Hook Alarm
c: Priority Call 1
d: Priority Call 2
e: Priority Call 3

[I-25/32] INCOMING ISDN CALL TO TIE LINE CONNECTION-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits an Attendant to connect an incoming ISDN network call, via a TIE Line, to a station at a distant node.

2. OPERATING PROCEDURE

To Connect an Incoming Call:

1. The Attendant presses the LDN key and answers the incoming PRI/PRA trunk call.
2. Dial the TIE Line Access Code. Receive Dial Tone from distant node. (in the case of 2nd DT signaling)
3. Dial the distant node extension number.
4. Press the RELEASE key.
5. The TIE Line and trunk call are connected.

3. PROGRAMMING

STEP 1: ARTD - Assign TIE Line route data.

<Example>

RT: 1

1-OSGS	: 2	2-ONSG	: 3	3-ISGS	: 2	4-INSG	: 3	5-TF	: 3
6-TCL	: 4	7-L/T	: 1	8-RLP	: 2	15-LSG	:**Note 1**	28-ANS	: 1

Note 1: CDN15 (LSG)=4 (for LDT), 5 (for E&M)

The other data must be set "0" (default data).

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ATRK - Assign the LENS, TIE Line Route Number, Trunk Number, and Tenant Number.

STEP 3: MBTK - Assign the Make Idle status to the trunks.

STEP 4: ANPD - Reserve a number level for trunk access. Select Normal Service (N) or Hooking Service (H) from the combo box for Connection Indexes. Number of Necessary Digits is usually 1 or 2. Busy Lamp Field is not activated.

STEP 5: ASPA - Assign the Access Code as assigned in ANPD above. Type of Service, SRV = "OGC: Outgoing Call"/"LCR: Least Cost Routing" for Outgoing Trunk. Assign the Route Number associated with this Access Code.

STEP 6: ARSC - For the incoming PRI/PRA (Bch) route, allow for RRI: 0, Incoming Call via the Attendant Console (with Call Transfer). This Route Restriction Class (RSC) is to be assigned for the Attendant Console in ATRK. (RSC 0).
For outgoing TIE Line route and for RSC 0, allow for RRI: 2 Outgoing Call via the ATTCON (with Call Transfer). RSC 0 is to be assigned to the ATTCON in ATRK.

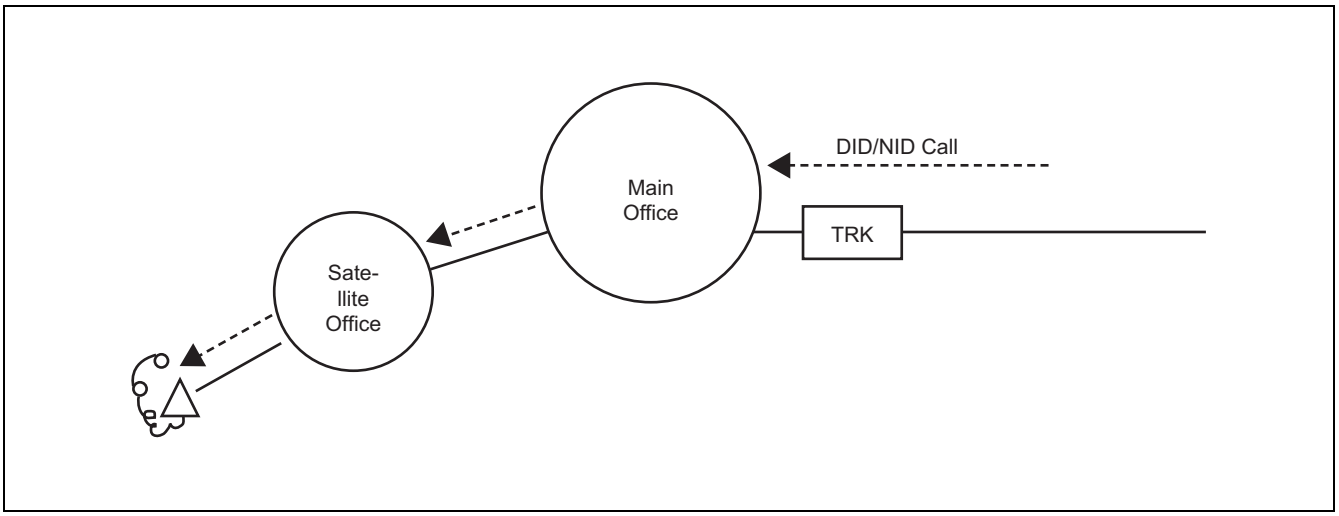
STEP 7: ARRC - Assign for Alternative Route Index (ARI): A, Incoming Route to Outgoing Route via the ATTCON/station. Allow the Incoming Route Number (ICRT) of the incoming PRI/PRA (Bch) route to be connected to the Outgoing Route Number (OGRT) of the Outgoing TIE Line route.

Note: When the TIE Line is CCIS No.7 link, assign CDN98 (CI)=1 of the ARTD command to all speech route of CCIS No.7 link.

[I-26/33] INDIALING THROUGH MAIN-PRI/PRA

1. GENERAL DESCRIPTION

With this feature a call destined for a satellite office via DID or Network Inward Dialing (NID) will automatically be routed to the satellite station by the main office over a tie trunk.



2. OPERATING PROCEDURE

1. A 4-digit number is received via DID or NID at a main office.
2. One or more sets of one thousand digits or more are designated for each satellite location. A main office checks the digits and routes the call over a tie trunk to the appropriate satellite.
3. The other three digits are then transmitted to the satellite, where the call is switched to the proper station.
4. When a satellite office is assigned more than one thousand digits, each set of a thousand digits will refer to a separate trunk group, while each trunk group will be assigned to a separate incoming switch.
5. When a Telephony Server is used as a main PBX, the thousands of digits may be deleted or left intact when the dialed digits are pulsed out to the satellite. All four digits may be transmitted to a satellite. A system may also employ separate trunk groups for each thousand digits assigned to a satellite.

3. PROGRAMMING

STEP 1: ANPD - Reserve a number level for LCR/LCRS Access Code.

STEP 2: ASPA - Assign an Access Code for LCR/LCRS.
RT=Dummy Route

STEP 3: AMND - Assign Destination Code and the necessary number of digits.

STEP 4: ARNP - Assign Reversed Numbering plan data.
You don’t need this data for the dummy route.

STEP 5: ARTD - Assign TIE Line route data and the dummy route data.
For Dummy RT, CDN 6 (TCL)=4, CDN 7 (L/T)=1 and CDN 13 (AC)=1 are necessary.

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 6: ATRK - Assign the LENS data of each trunk.

STEP 7: MBTK - Make Idle the trunks.

STEP 8: AFRS - Assign NPC (Number Pattern Code) and OPR (Outgoing Route selection pattern Number) to the dummy route.

STEP 9: AOPR - Make the route selection data using the parameter OPR, SKIP, etc.

STEP 10: ARSC - Allow the route restriction for each trunk.
For Dummy RT, the data assignment of only RRI3 is necessary.

STEP 11: ARRC - Release the tandem connection restriction between the Main Office and the satellite office.

Note: When the satellite office is connected to Main office via CCIS No.7, assign CDN98 (CI)=1 of the ARTD command to the speech route of CCIS No.7 link. (Refer to [T-44] TRANSFER MESSAGE (TRM))

[I-27/35] INTER-PBX COORDINATED STATION NUMBERING PLAN-PRI/PRA

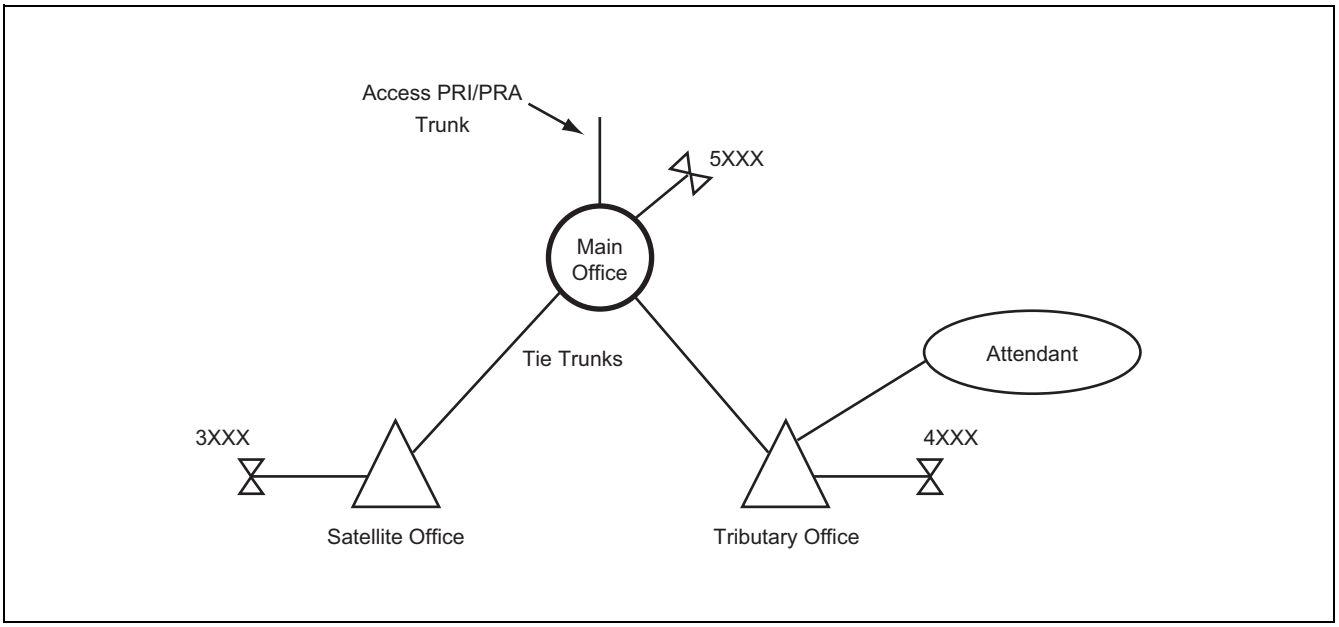
1. GENERAL DESCRIPTION

The INTER-PBX COORDINATED STATION NUMBERING PLAN-PRI/PRA [I-27/I-35] feature enables the Main-Satellite network to coordinate the numbering plan for stations in the network. This feature allows a station at one switch to call a station at another switch by dialing a unique 3- to 7-digit number with no Access Codes or pauses for Dial Tone.

This feature can also be arranged to provide a centralized exchange network capability, which channels access to and from the public network through a single system switch in the coordinated group.

2. OPERATING PROCEDURE

This feature is used for the Main/Satellite configuration and may also be provided with main/tributary configuration. Stations at the main and satellite may dial each other without an intervening Dial Tone. The dialing plan for an inter-PBX call is the same as for an intra-PBX call. With this arrangement different initial digits are assigned to stations on different systems.



All switches have a coordinated station numbering feature.

Example 1: A user at the satellite switch dials 5XXX to call a station at the Main switch.

Example 2: A user at the Main switch dials 3XXX to call a station at the Satellite switch and 4XXX to call a station at the Tributary switch.

3. PROGRAMMING

Refer to “[I-26/I-33] INDIALING THROUGH MAIN-PRI/PRA” in this manual.

[I-36/37] INTER-OFFICE OFF-HOOK QUEUING-PRI/PRA

1. GENERAL DESCRIPTION

This feature can be employed in a Main-Satellite configuration to allow a satellite user to queue for LEAST COST ROUTING-3/6-DIGIT-PRI/PRA [L-31/L-41] at the main location. This feature can also be used when all outgoing ISDN trunks are concentrated at the main location.

Note: There are a maximum of 32 "Queuing" per Module Group (MG) available in the system. Therefore, only 32 stations/MG may utilize OFF-HOOK QUEUING [O-7],-PRI/PRA [O-28/O-29], OUTGOING TRUNK QUEUING [O-2], and-PRI/PRA [O-24/O-25] simultaneously.

Note: The connecting patterns available for this service are shown below:

- Non-ISDN trunk to ISDN trunk
- CCIS trunk to ISDN trunk
- ISDN trunk to Non-ISDN trunk
- ISDN trunk to CCIS trunk
- ISDN trunk to ISDN trunk

2. OPERATING PROCEDURE

Operation at the Main location:

1. The Main location receives dialed digits from the Satellite location via ISDN trunk (a TANDEM TIE TRUNK [T-1]).
2. The Main location determines that no ISDN trunks are available and places the call in an available "Hold on Queue".
3. The Main location returns Service Set Tone to the Satellite caller.
4. The Satellite caller remains off-hook, and waits for the call to be completed. (When an ISDN trunk becomes available, the Satellite caller will be connected.)

   Note: If the Incoming Tie trunk is a "Loop" signal trunk, the caller will hear Service Set Tone while waiting in queue for a maximum of 3 minutes. After this period, the trunk will automatically be released.
5. If there are no "Hold on Queue" available, the Main location will return Reorder Tone to the Satellite caller.
6. If the Satellite caller goes on-hook (ISDN trunk releases) while in queue, the assigned "Hold on Queue" is cleared.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 42, Bit 7: This Bit must be assigned as data "0", continuous Service Set Tone.

STEP 2: ARTD - Assign the incoming TIE Line route.

<Example of 2 - WIRE E&M/4 - WIRE E&M>
RT: 2
1-OSGS :7/6 2-ONSG : 3 3-ISGS :7/6 4-INSG : 3 5-TF : 3

6-TCL : 4 7-L/T : 1 8-RLP : 2 15-LSG : 5 41-TDMQ : 1

The other data than above should be set “0” (default data).

<LCR (S) DUMMY ROUTE>

RT: 31

6-TCL : 4 7-L/T : 1 9-TQ : 1 13-AC : 1 41-TDMQ : 1

The other data than above should be set “0” (default data).

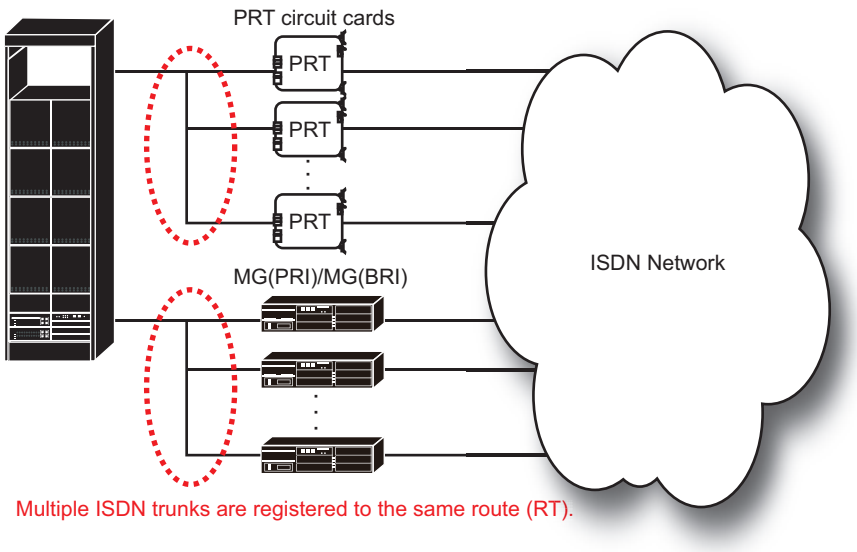
Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: ARRC - Allow trunk-to-trunk connection between the incoming route and the outgoing route in which INTER-OFFICE OFF-HOOK QUEUING will apply. Also allow trunk-to-trunk connection between the incoming route and the LCR (S) dummy route. Assign both of these for ARI: D. The outgoing route and the LCR (S) dummy route must be programmed to allow OUTGOING TRUNK QUEUING [O-2]. Ensure that CDN 9, TQ = 1 (Trunk Queuing) is set for that outgoing route.

[I-53] ISDN SHARED ROUTE

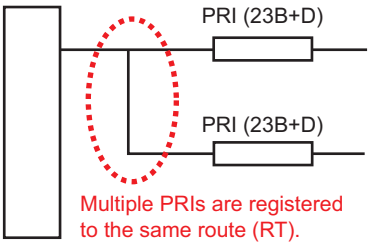
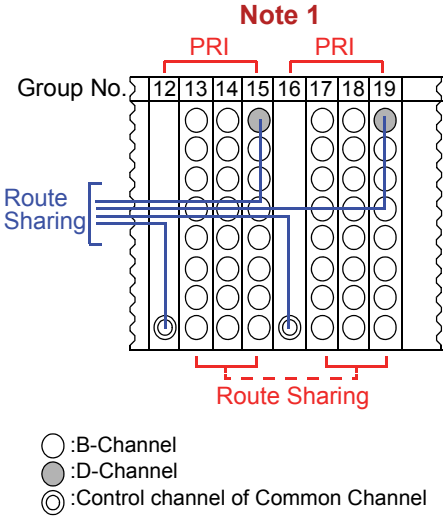
1. GENERAL DESCRIPTION

This feature allows multiple ISDN trunks that can be controlled by a single route (RT).

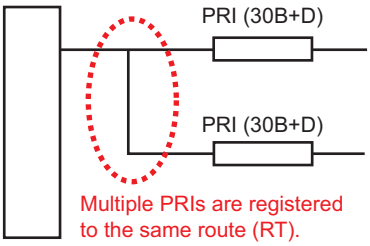
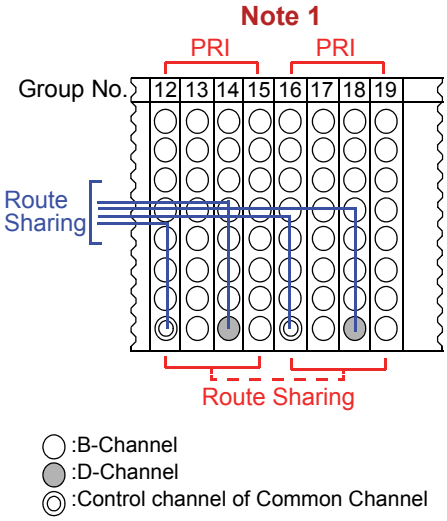


The table below shows the configuration examples for the ISDN Shared Route.

< Example 1 >

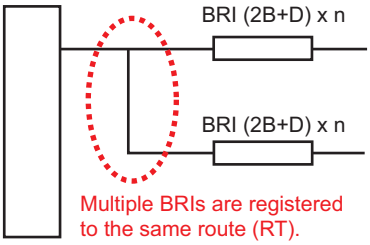
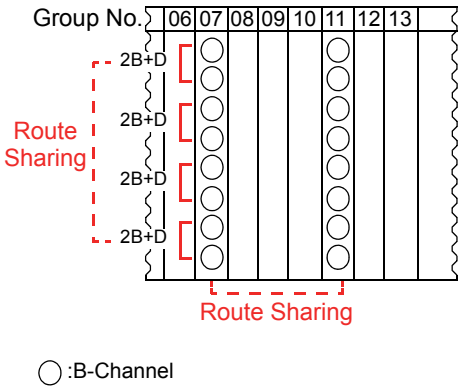
CONNECTION	CONFIGURATION	EXAMPLE OF ACCOMMODATION
PRT circuit card/ MG(PRI) (23B+D) × 2		

< Example 2 >

CONNECTION	CONFIGURATION	EXAMPLE OF ACCOMMODATION
PRT circuit card/ MG(PRI) (30B+D) × 2		

Note 1: Other PRT circuit cards or MG (PRI) cannot accommodate in the same HW (Group No. 14 and 15 in the figures of < Example 1 > and < Example 2 >).

< Example 3 >

CONNECTION	CONFIGURATION	EXAMPLE OF ACCOMMODATION
MG(BRI) (2B+D) × n		

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

1. This feature supports voice, 3.1KHz Audio and unrestricted digital data.
2. PRT (1.5M) and PRT (2M) cannot share a single route.
3. PRT circuit card and MG(PRI) cannot share a single route.
4. PRT and BRT cannot share a single route.
5. DTI circuit card (1.5M/2M) + 2DCH circuit card cannot share a single route.
6. Multiple PRI devices that share a single route need to be accommodated in the same LP.
7. Multiple MG(BRI) devices that share a single route need to be accommodated in the same LP.
8. Up to 255 channels can share a single route.

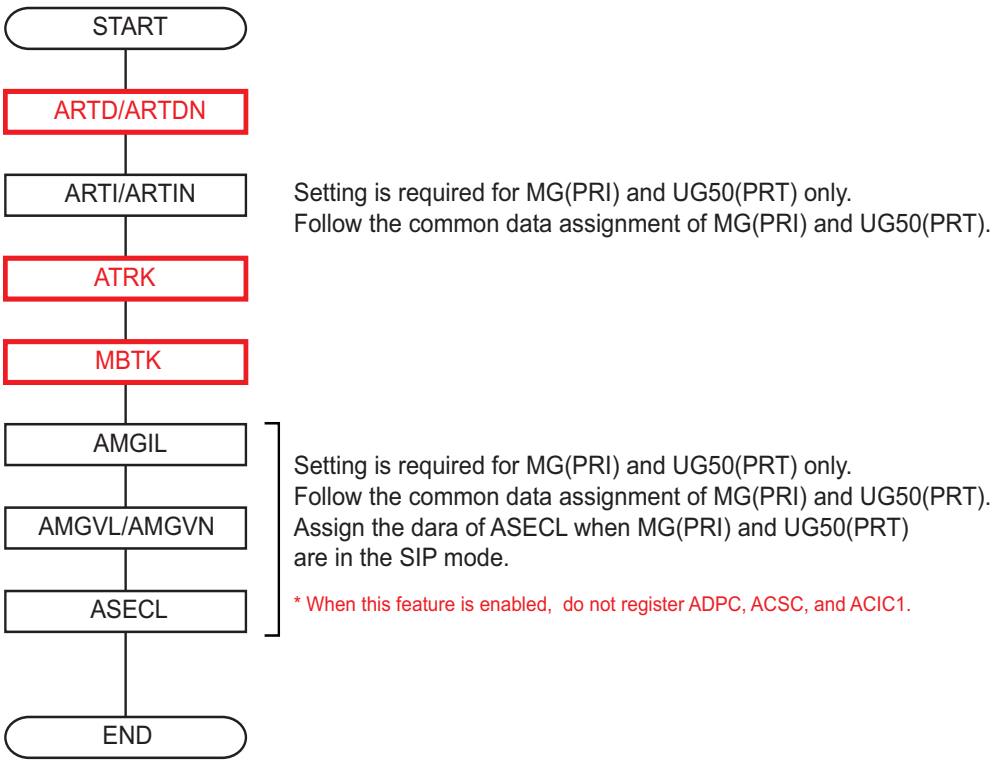
4. PROGRAMMING

4.1 Route Sharing by PRT

Be sure to assign the data in the following order. The following figure in red shows the required programming for this feature after ISDN basic office data programming.

Note: For information about the common data assignment, see the following sections:

- About PRT circuit card, see Section 2. ISDN TRUNK DATA ASSIGNMENT of this manual.
- About MG(PRI), see “MG(PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]” and “MG(PRI) (2M) [SCA-30PRIA/MG-30PRIA]” in Chapter 2, IP devices in Peripheral Equipment Description - IP Devices.
- About UG50(PRT), see “Office Data Settings on Telephony Server” in Chapter 3, Startup in Peripheral Equipment Description (UG50).



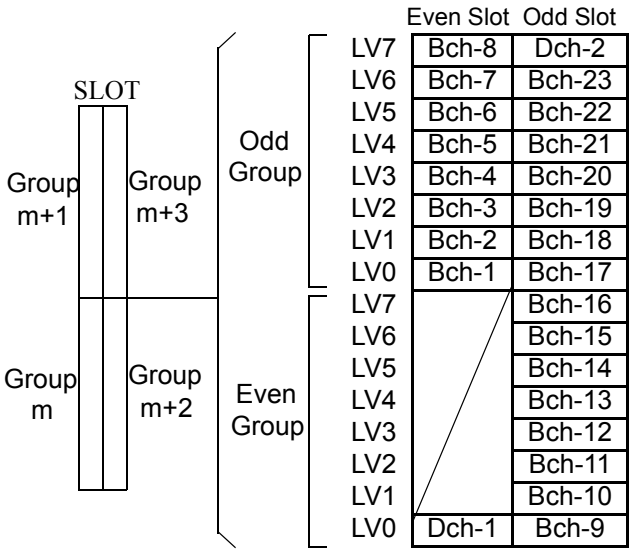
Note: Be aware that there are the following conditions:
- Following are the system commands that differ from the programming when ISDN Shared Route is not used. For details of the common programming, refer to ISDN basic office data programming.
- Do not assign the ADPC, ACSC, and ACIC1 commands when ISDN Shared Route is used. Delete if such settings exist.

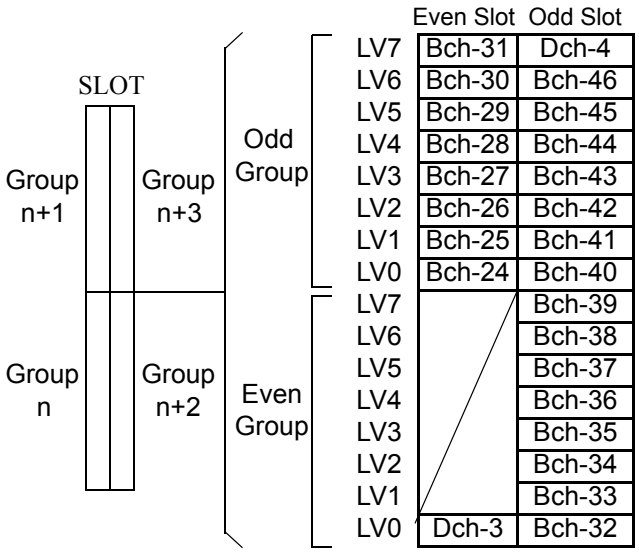
STEP 1: ARTD - Assign the Route Class Data for the B-channel and the D-channel. For details of Route Class Data, refer to Examples of Route Class Settings (ARTD) in Command Manual.
CMRT (CDN115) = 1

Note: Be aware that there are the following conditions:
- To change the data for existing route (RT), initialize or reboot the circuit card or MG.
- To set the data with logical route number, assign the ALRTN command.

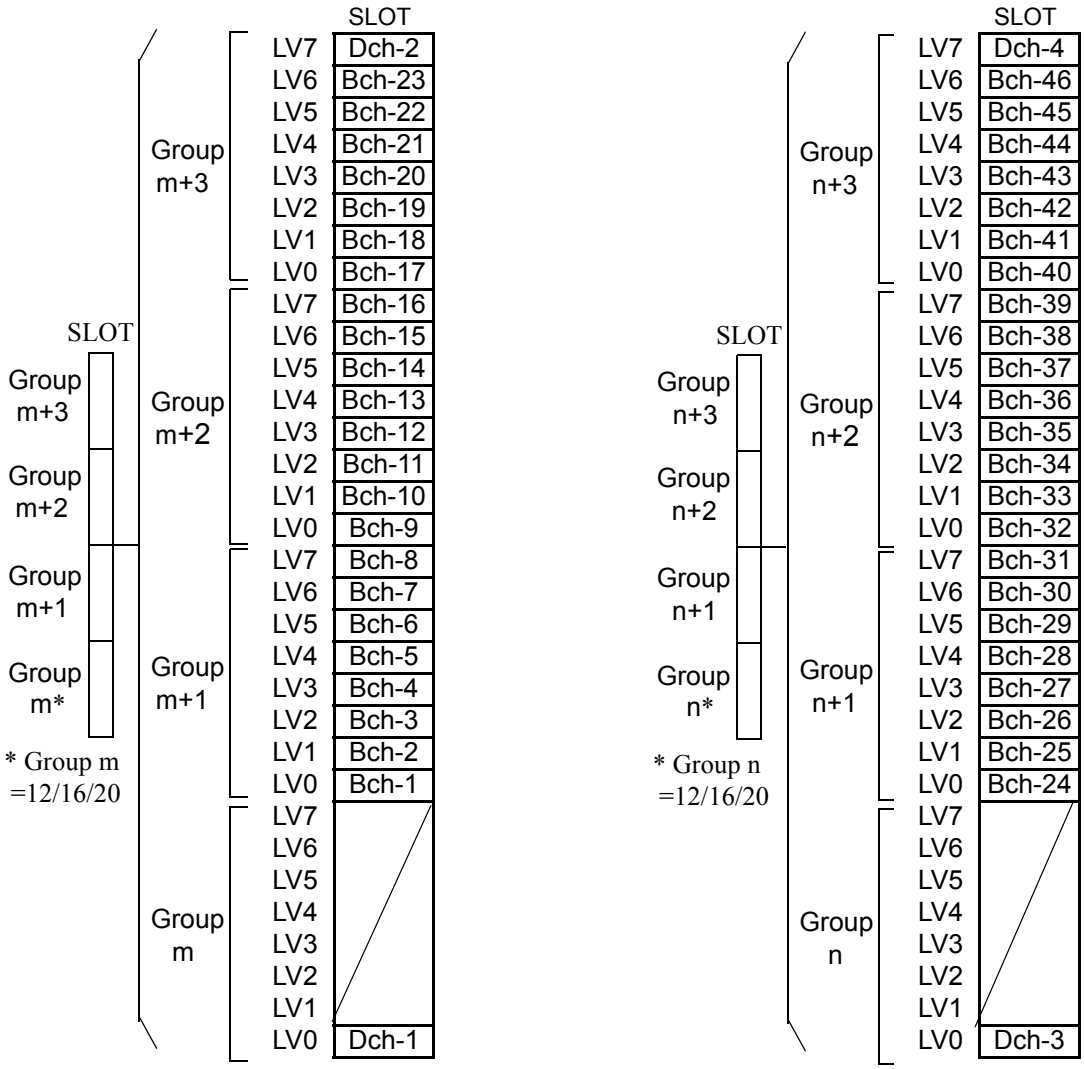
STEP 2: ATRK - Assign the LENS for Bch of PRT to the Bch route, and assign the LENS for Dch of PRT to the Dch route.
Refer to the example below.

- 24PRI for 16-port Slot

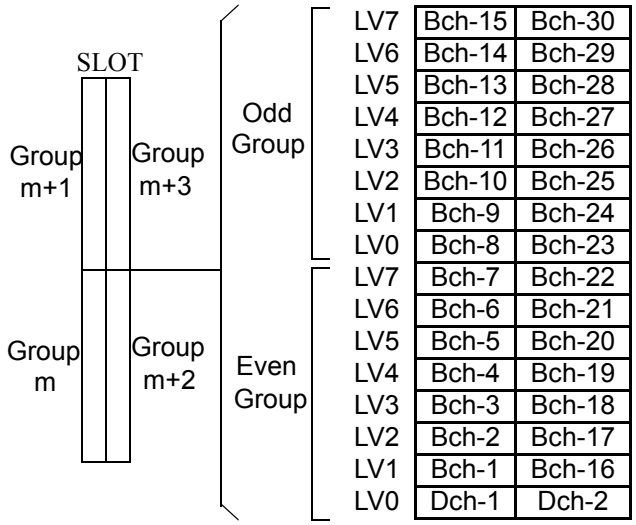




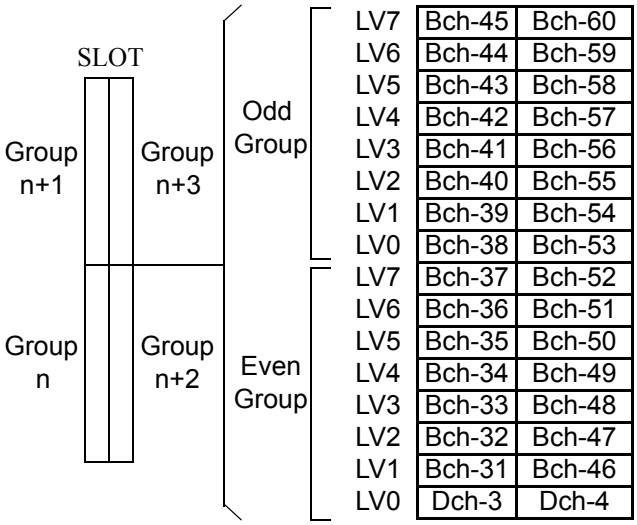
- 24PRI for 32-port Slot



- 30PRI for 16-port Slot

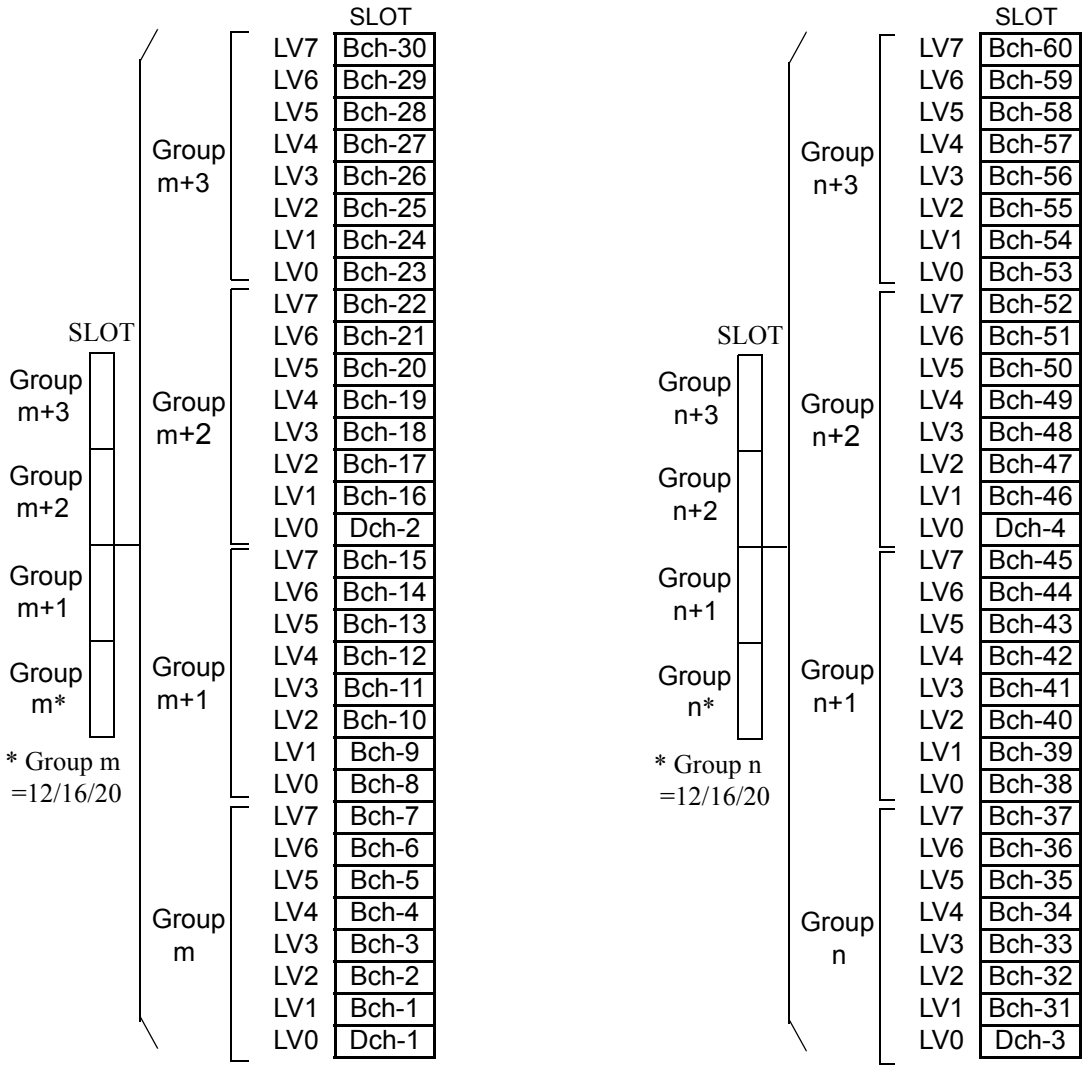


	Even Slot	Odd Slot
LV7	Bch-15	Bch-30
LV6	Bch-14	Bch-29
LV5	Bch-13	Bch-28
LV4	Bch-12	Bch-27
LV3	Bch-11	Bch-26
LV2	Bch-10	Bch-25
LV1	Bch-9	Bch-24
LV0	Bch-8	Bch-23
LV7	Bch-7	Bch-22
LV6	Bch-6	Bch-21
LV5	Bch-5	Bch-20
LV4	Bch-4	Bch-19
LV3	Bch-3	Bch-18
LV2	Bch-2	Bch-17
LV1	Bch-1	Bch-16
LV0	Dch-1	Dch-2



	Even Slot	Odd Slot
LV7	Bch-45	Bch-60
LV6	Bch-44	Bch-59
LV5	Bch-43	Bch-58
LV4	Bch-42	Bch-57
LV3	Bch-41	Bch-56
LV2	Bch-40	Bch-55
LV1	Bch-39	Bch-54
LV0	Bch-38	Bch-53
LV7	Bch-37	Bch-52
LV6	Bch-36	Bch-51
LV5	Bch-35	Bch-50
LV4	Bch-34	Bch-49
LV3	Bch-33	Bch-48
LV2	Bch-32	Bch-47
LV1	Bch-31	Bch-46
LV0	Dch-3	Dch-4

- 30PRI for 32-port Slot

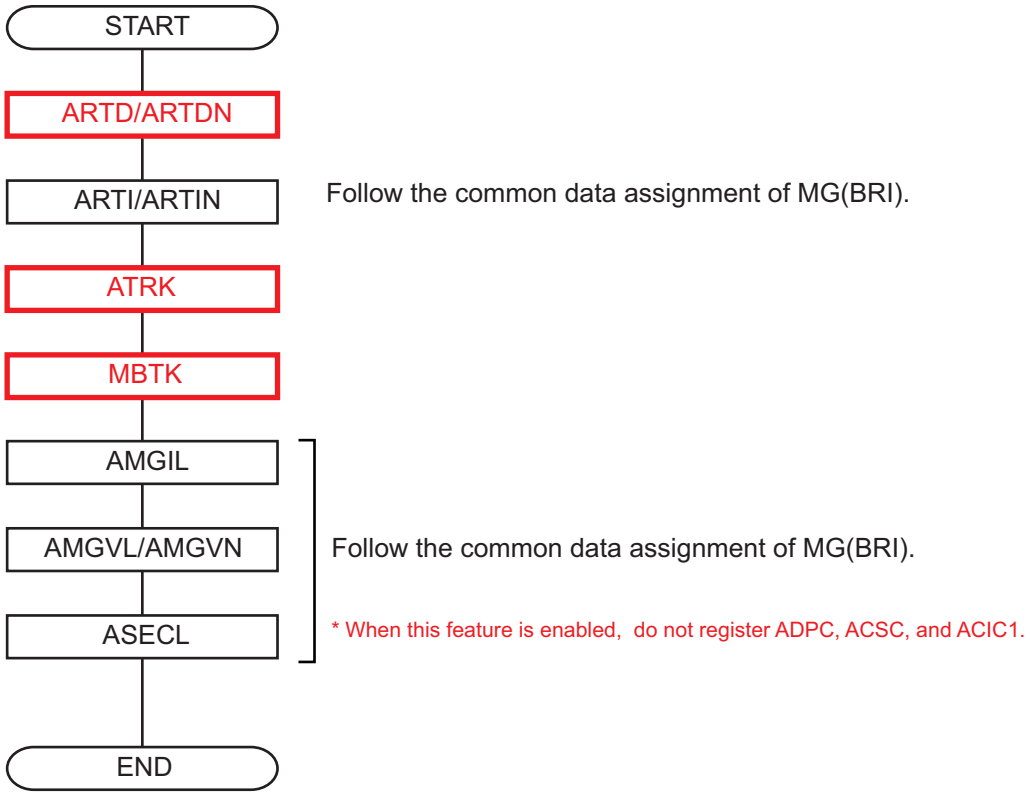


STEP 3: MBTK - Cancel Make Busy status of B channels in the PRT.

4.2 Route Sharing by BRT

Be sure to assign the data in the following order. The following figure in red shows the required programming for this feature after programming MEDIA GATEWAY ISDN BRI [M-116].

Note: For information about the common data assignment of MG(BRI), see “MG(BRI) [SCA-2BRIA/MG-2BRIA/SCA-2BRIA-B]” in Chapter 2, IP devices in Peripheral Equipment Description - IP Devices.

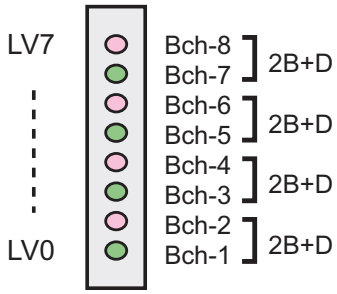


Note: Be aware that there are the following conditions:
- Following are the system commands that differ from the programming when ISDN Shared Route is not used. For details of the common programming, refer to MEDIA GATEWAY ISDN BRI [M-116].
- Do not assign the ADPC, ACSC, and ACIC1 commands when ISDN Shared Route is used. Delete if such settings exist.

STEP 1: ARTD - Assign the Route Class Data for the B-channel. For details of Route Class Data, refer to Examples of Route Class Settings (ARTD) in Command Manual.
DCH (CDN114) = 1
CMRT (CDN115) = 1

Note: Be aware that there are the following conditions:
- To change the data for existing route (RT), reboot the MG.
- To set the data with logical route number, assign the ALRTN command.

STEP 2: ATRK - Assign the LENS of Bch for the Bch route referring to the example below.



STEP 3: MBTK - Cancel Make Busy status of B channels in the MG(BRI).

[L-31/41] LEAST COST ROUTING-3/6-DIGIT-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows the system to be programmed to route outgoing calls over the most economical facility (DDD). Based on the area code and office code dialed (6-digit analyzing), the system examines the programming tables and chooses the facilities in the order specified. This service is the only way to access PRI/PRA interface into ISDN.

2. OPERATING PROCEDURE

To operate:

1. Lift the handset. Receive Dial Tone.
2. Dial the Access Code (usually "9"). Receive Second Dial Tone. (When you assigned 2nd DT= "1: 2nd DT" in the ASPA command.)
3. Dial the area code, office code and telephone number.
4. The system automatically completes the call via the most economical route.

3. PROGRAMMING

STEP 1: Assign the Basic Data For ISDN. (Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG)

STEP 2: ASYD - System Data 1, Index 6, Bit 0: Should special Sender Tone be sent to station when connected to a sender? 0/1: No/Yes. (Optional)

Bit 2: Should special Sender Tone be sent to the Attendant Console when connected to a sender? 0/1: No/Yes. (Optional)

Index 65: Assign the number of routes in the system.

System Data 2, Index 2, Bit 0: What is the sender type for an OG trunk connection to a station? 0/1: Dial Pulse/Push Button. This data is valid only when CDN 2, ONSG of Route data is assigned as data "3", PB/DP.

Bit 1: What is the sender type for an OG trunk to the Attendant Console?
0/1=Dial Pulse /PB (DTMF)
(This data is valid only when CDN2 (ONSG) of ARTD is "3". (PB/DP.)

STEP 3: ARTD - Assign the LCR (S) route as shown below. In CDN 13, include the LCR (S) Access Code in LCR (S) development.

Assign the LCR (S) Dummy route as shown below:

RT: 31
6-TCL : 4 7-L/T : 1 13-AC : 1

The other data than above should be set "0" (default data).

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 4: ATRK - Set Originating Register Trunks (ORT) to the system in a quantity calculated from expected traffic. Registers are located on levels 0-3 of any 8RST circuit card.

Senders must be assigned to the system in a quantity calculated from expected traffic. Senders are located on levels 4-7 of any 8RST circuit card.

RT: Route Number
Trunk Route Number
Intra-office Route Number (901-931)
901-ATT 912-ORT for ATT
902-ORT 913-TCFT for ATT
903-IRT 915-
905-Sender 916-MFCR
909-DCFT 917-MFCR
919 to 926-Modem
TK: Trunk Number
TN: Tenant Number
RSC: Route Restriction Class
SFC: Service Feature Restriction Class

STEP 5: MBTK - Set the Make Idle status to all register sender trunks.

STEP 6: ANPD - Reserve a level, usually "9", for LCR or LCR (S) access. Select Normal Service (N) or Hooking Service (H) from the combo box for Connection Indexes. Number of Necessary Digits is 1. Busy Lamp Field is not activated.

STEP 7: ASPA - Assign the LCR (S) Access Code, Type of Service, SRV = "LCR: Least Cost Routing" or SRV = "LCRS: Register Sender LCR". Assign Route Number for a dummy route associated with this Access Code.
Assign Connection Indexes, CI = "N: Normal" and "H: Hooking" (hookswitch). Assign data "1: 2nd DT" for second Dial Tone, parameter (2nd DT). Assign data "1" to AH parameter if Procedure II is used for AUTHORIZATION CODE [A-20].

STEP 8: ARNP - Assign the physical Route Numbers as assigned in ARTD and relate these routes to the LCR (S) Access Code as assigned in ASPA for SRV = "LCR: Least Cost Routing"/"LCRS: Register Sender LCR". The LCR (S) Access Code is usually "9". The routes to be assigned will be those routes listed in the various OPRs of the AOPR command.

Note: These same routes may also be listed in ASPA for SRV = "OGC: Outgoing Call". In that case, these routes may also be available via direct dial Access Codes. In ARNP, these Access Codes are not assigned to implement the LCRS service in this command. This digit code is the first digit used when assigning ATDP table.

STEP 9: ARSC - LCR (S) utilizes only Bothway or Outgoing Only routes. For these routes, construct allow, deny, or Toll Restriction applicable tables (Route Restriction Index RRI 2 and 3). Toll Restriction will be applied to the available route chosen by the LCR (S) selection. Therefore, if a user dials a long distance number and is restricted in Toll Restriction for a DDD and the only available route is a DDD, the call will be denied. Toll Restriction acts upon the LCR (S) selection. Also, remember to allow the dummy route, the LCR (S) Dummy Route to all RSCs. Do not toll restrict the dummy route.

STEP 10: AMND - Assign the Maximum Necessary Digit (MND) the system must translate for a proper route selection.

STEP 11: AFRS - List the dialing patterns in groups that will be served by a specific sequence of routes. This determination of routes is labeled as an Outgoing Pattern Route (OPR). In AFRS, program the Tenant, Route Number (Dummy Route), The Number Code or dialing patterns, and the OPR to be chosen when these digits are dialed.

STEP 12: AOPR - The AFRS command designates the dialing sequence and the OPR to be selected. The AOPR defines the routes and in what order these routes will be selected. Assign the following:

TDPTN No.: Time of Day Pattern Change. If an AFRS assignment, different OPRs will be required as a function of time. Designate 1-7 for the Time-of-Day Pattern Change Number (TDPTN) to which this OPR is assigned.

OPR No.: Outgoing Pattern Route. The number referenced in AFRS, consisting of a series of routes to be chosen based on number dialed.

Route Advance Number (RA): The order in which a route will be selected (0-7).

Route Advance End Display (E): The last route in the route advance group is indicated with data "0". All others are indicated with data "1".

Route Number: The physical Route Number to be selected as programmed in ARTD.

Skip Digits: The digits to be skipped when translating the dialed digits in AFRS.

Pattern Number Location: If digits are to be added after translating the dialed digits in AFRS, assign a PNL. The digits to be added are programmed to the respective PNLs in the AADC command. If no digits are to be added, PNL = 0 should be assigned.

Overflow Tone: Assign if a tone is wanted for the Last Choice Route. If so, assign data "1" for DDD.

Priority Restriction Class: If this is required, assign PRSC here, using classes 1-15. For all other systems, always assign PRSC as data "0".

STEP 13: AADC - If additional digits are required, assign the digits of a Pattern Number Location (PNL) here. For additional digits totaling 24, use PNL 1-999.

STEP 14: ATCP - A maximum of eight Time-of-Day Pattern changes (0-7) are available whereby the system will refer to different OPR assignments as a function of time.

Times Setting
TO:
FROM: (In Military Time, and only on the half-hour and hour.)
PATTERN NUMBER: (0-7).

[L-32/40] LCR-TIME OF DAY ROUTING-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides automatic routing of outgoing ISDN calls over alternative customer facilities based on the DDD number. The system will select the most economical route available at the time of connection. The pattern of alternate routing can be changed up to 8 times per day based on a pre-arranged time schedule.

2. OPERATING PROCEDURE

1. Lift the handset. Receive Dial Tone.
2. Dial the Access Code (usually “9”). Receive Second Dial Tone. (When you assigned 2nd DT=“1: 2nd DT” in the ASPA Command.)
3. Dial the area code, office code, and telephone number.
4. The system automatically completes the call via the most economical route available.

3. PROGRAMMING

Refer to “[L-31/41] LEAST COST ROUTING-3/6-DIGIT-PRI/PRA” in this manual.

[L-33/37] LCR-ATTENDANT MANUAL OVERRIDE-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides an ATTENDANT CONSOLE [A-3] to override the LCR-TIME OF DAY ROUTING-PRI/PRA [L-32/L-40] pattern and then an alternate routing pattern group will be selected.

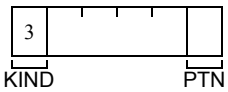
2. OPERATING PROCEDURE

To set LCR-ATTENDANT MANUAL OVERRIDE-PRI/PRA:
1. Press an idle LOOP key.
2. Dial the LCR-ATTENDANT MANUAL OVERRIDE-PRI/PRA Access Code. Receive Special Dial Tone.
3. Dial the LCR-TIME OF DAY ROUTING-PRI/PRA [L-32/L-40] pattern number (1 to 7) (**Note 1**). Receive Service Set Tone.
4. Press the RELEASE key.

To cancel LCR-ATTENDANT MANUAL OVERRIDE-PRI/PRA:
1. Press an idle LOOP key.
2. Dial the LCR-ATTENDANT MANUAL OVERRIDE-PRI/PRA Access Code. Receive Special Dial Tone. The display of the LCR-TIME OF DAY ROUTING-PRI/PRA [L-32/L-40] pattern number is shown.
3. Dial 0 to cancel. Receive Service Set Tone.
4. Press the RELEASE key.

Note 1: TDPTN of the AOPR/PTN of the ATCP command.

Note: During this operation, the following is displayed on the display of the ATTCON.



KIND: *3 is displayed in this service.*
PTN: *0=Cancel*
1-7=PTN

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG)

STEP 2: ANPD - Reserve a number level for an Access Code for this service.

STEP 3: ASPA - Assign Access Code, CI="N: Normal", SRV="SSC: Service Code" and SID=60

STEP 4: ATCP - Assign the Time of Day Pattern data.

[L-34/38] LCR-AUTOMATIC OVERFLOW TO DDD-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides optional routing of ISDN network calls via off-network facilities from a point on the network where all on-network routes are busy or none are provided.

2. OPERATING PROCEDURE

No manual operation is required.

3. ASSIGNMENT PROCEDURE

Refer to “[L-31/41] LEAST COST ROUTING-3/6-DIGIT-PRI/PRA” in this manual.

[L-35/39] LCR-CLOCKED MANUAL OVERRIDE-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits the system to override the LCR-TIME OF DAY ROUTING-PRI/PRA [L-32/L-40] pattern during the pre-determined time assigned through PCPro.

2. OPERATING PROCEDURE

No manual operation is required.

3. ASSIGNMENT PROCEDURE

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG)

STEP 2: ACMO - Assign the specific data and time.

[L-42/43] LAST NUMBER CALL-PRI/PRA

1. GENERAL DESCRIPTION

When a user originates an ISDN trunk call, this feature allows the calling user to recall the same destination by dialing only the special code instead of dialing all the digits of the number.

Note: The number of dial digits to which this service is applicable is 18 maximum.

2. OPERATING PROCEDURE

To operate:
1. Lift the handset. Receive Dial Tone.
2. Dial the desired party's number.
3. The call has not been established. Busy Tone or Recorder Tone is heard.
4. Lift the handset. Receive Dial Tone.
5. Dial the LAST NUMBER CALL Access Code (max. 3 digits).
6. The system will automatically redial the last number dialed from that station.

3. ASSIGNMENT PROCEDURE

STEP 1: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 2: ASPA - Assign an Access Code to LAST NUMBER CALLED, SID = 44. Assign Connection Status Index (CI) for "N: Normal".

STEP 3: ASFC - Assign the stations to receive the feature LAST NUMBER CALLED a Service Feature Restriction Class that allows SFI = 44.

[L-42D/43D] LAST NUMBER CALLED -D -PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a Desktop terminal user to redial the telephone numbers previously dialed from the terminal. With this feature, the Desktop terminal user can choose any destination out of the latest 5 calls, which have been stored in the memory of the system, being able to place a call without having to redial the full number.

Note: The maximum digits of the destination is 32 digits.

2. OPERATING PROCEDURE

(1) How to check the dialed numbers stored in the memory (up to 5 destinations):

(a) Press the LINE/SPD key on a Desktop terminal.

- The Prime Line lights Green.
- The Speaker Lamp lights Green.
- Receive Dial Tone from the speaker with the following display on the Desktop terminal.

```
LNR [#]SPEED [   ] – 1
          811625643
```

(b) Press the LINE/SPD key on the Desktop terminal again.

- The Prime Line lights Green.
- The Speaker Lamp lights Green.
- Receive Dial Tone from the speaker with the following display on the Desktop terminal.

```
LNR [#]/SPEED [   ] – 2
          25191
```

Note: The indication on the display is changed in sequence by pressing the LINE/SPD key. Once the stored telephone number display reaches “LNR[#]/SPD[ ]-5”, “LNR[#]/SPD[ ]-1” appears again by pressing the LINE/SPD key.

(2) How to originate a call:

(a) Press the LINE/SPD key on a Desktop terminal.
- The Prime Line lights Green.
- The Speaker Lamp lights Green.
- Receive Dial Tone from the speaker with the following display on the Desktop terminal.

```
LNR [#]/SPEED [   ] – 1
          811625643
```

(b) Repeat the above procedure until you reach your desired destination.

```
LNR [#]SPEED [   ] – 4
          82625191
```

(c) Press # to originate your call while the desired destination is being displayed on the Desktop terminal.
- The Prime Line lights Green.
- The Speaker Lamp lights Green.
- Receive Ringback Tone from the speaker with the following display on the Desktop terminal.

```
          82625191
10:24  AM   FRI   15
```

(d) The called party answers the call.
- The Prime Line lights Green.
- The Speaker Lamp is OFF.

```
          82625191
10:24  AM   FRI   15
```

3. PROGRAMMING

STEP 1: ASDT - Assign a Desktop terminal with TEC (= Telephone Equipment Class) 12.

STEP 2: AKYD - Assign a programmable Line/Feature key as the LAST NUMBER CALLED Feature key, if necessary.
KYI: Service Index 1 (= Feature Key)
FKY: Function Key Number 8 (= LAST NUMBER CALLED)

[L-44/45] LDN NIGHT CONNECTION-PRI/PRA

1. GENERAL DESCRIPTION

This feature routes Listed Directory Number (LDN) calls from both ISDN/non-ISDN network to a preselected station within the system, when the Night mode has been entered.

2. OPERATING PROCEDURE

To answer LDN NIGHT CONNECTION calls:

1. An incoming LDN call in Night mode is automatically routed to a preselected LDN NIGHT CONNECTION station within the system.
2. The calling party receives Ringback Tone.
3. The ringing signal is sent to the LDN NIGHT CONNECTION station.
4. The LDN NIGHT CONNECTION station goes off-hook to answer the Incoming Call. If necessary, this station can transfer the Incoming Call to another station within the system using the CALL TRANSFER - ALL CALLS [C-11] service.

3. PROGRAMMING

STEP 1: ALDN - Assign LDN number and its transfer destination.

TN: Tenant Number
LDN: Listed Directory Number (must match station numbering plan)
Night Transfer: Y/N
If no, then LDN will only go to Attendant.
If yes, then the following parameters will be enabled:
Type: Night Transfer Type
1:Station Number
2:Outside (up to 8 digits)
3:ADC (when more than 8 digits are required)
For Type 1, assign station number here.

STEP 2: ACFR - Assign the TSFI: 2 (Night Connection-Fixed) to be allowed CCI: 1 (LDN). This allows LDN to go to night transfer destination.

[L-46/47] LDN NIGHT CONNECTION-OUTSIDE-PRI/PRA

1. GENERAL DESCRIPTION

This feature routes Listed Directory Number (LDN) calls from both ISDN/non-ISDN network to a preselected station outside the system when the system is in Night mode.

2. OPERATING PROCEDURE

To answer LDN NIGHT CONNECTION calls:

1. An incoming LDN call in Night mode is automatically routed to a preselected LDN NIGHT CONNECTION station outside the system.
2. The calling party receives Ringback Tone.
3. The call is sent out to the outside station.
4. The outside station answers the call.

3. PROGRAMMING

STEP 1: ALDN - Assign LDN number and its transfer destination.

TN: Tenant Number
LDN: Listed Directory Number (must match station numbering plan)
Night Transfer: Y/N
If no, then LDN will only go to Attendant.
If yes, then the following parameters will be enabled:
TYPE: Night Transfer Type
1:Station Number
2:Outside (up to 8 digits)
3:ADC (when more than 8 digits are required)
STN: For Types 1 and 2.
For type 2, assign Access Code and outside number here.
(A CCIS remote office station number can be input here also).
ADC: For Type 3.
Input ADC number desired as assigned in ASPD command.

STEP 2: ASPD - Assign an Access Code and outside number to an ADC (000-999). This step is required only if Access Code and outside number are greater than eight digits.

STEP 3: ACFR - Assign TESFI:2 (Night Connection-Fixed) to be allowed CCI:1(LDN). This allows LDN to go to Night transfer destination.

STEP 4: ARRC - The incoming route of the LDN must allow trunk-to-trunk connection to the outgoing destination route and to the LCR dummy route: ARI: D. (Direct Connection.)

[L-49/50] LCR-SPECIAL LINE WARNING TONE-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user or an Attendant to receive a Warning Tone that indicates an expensive ISDN trunk line is in use.

2. OPERATING PROCEDURE

No manual operation is required.

3. ASSIGNMENT PROCEDURE

STEP: Assign the Basic Data for ISDN.
(Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG)

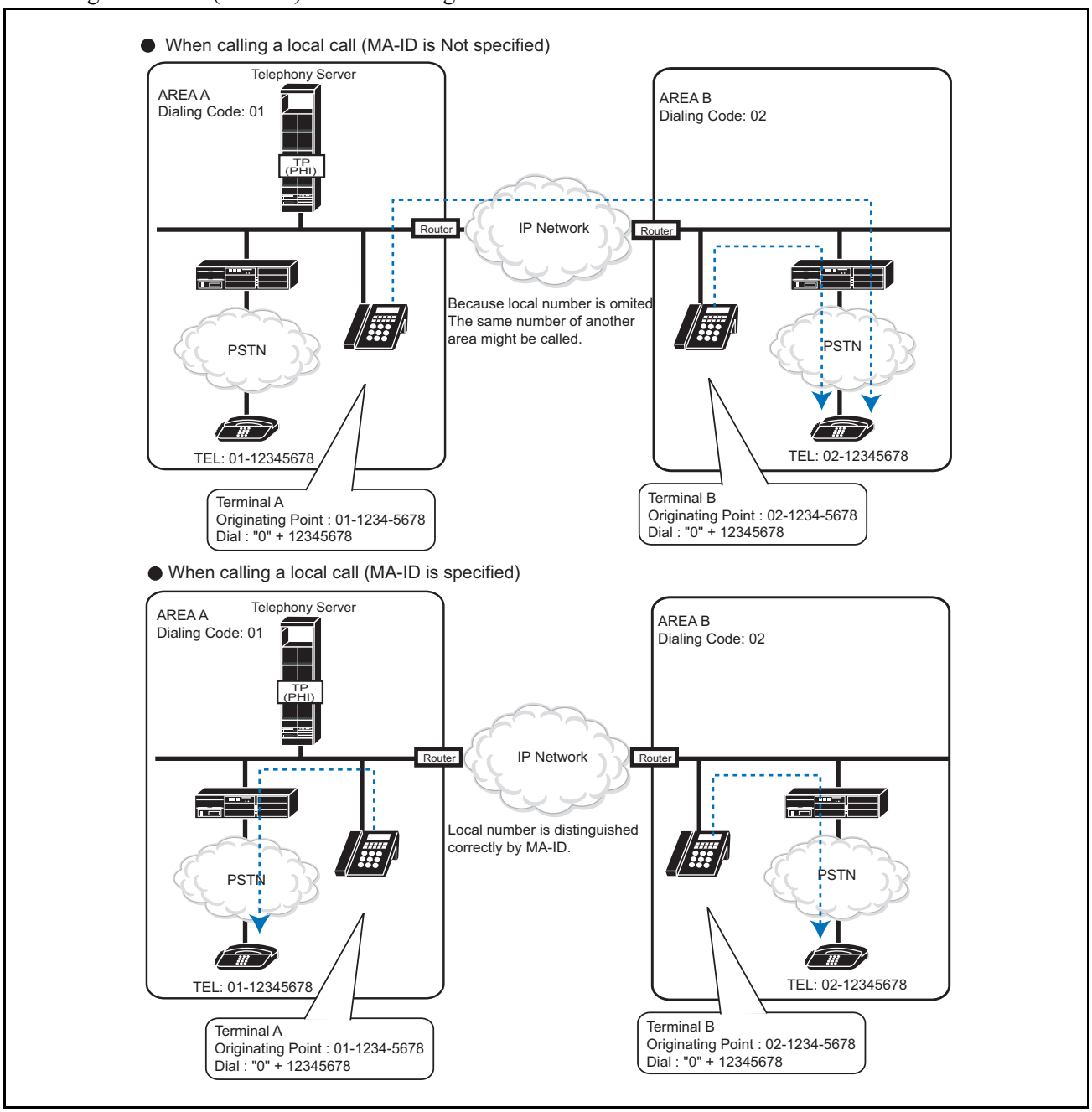
Note: AOPR - Assign OVFT = 1 to PRI/PRA (Bch) route.

[L-54] LEAST COST ROUTING FOR MG-PRI

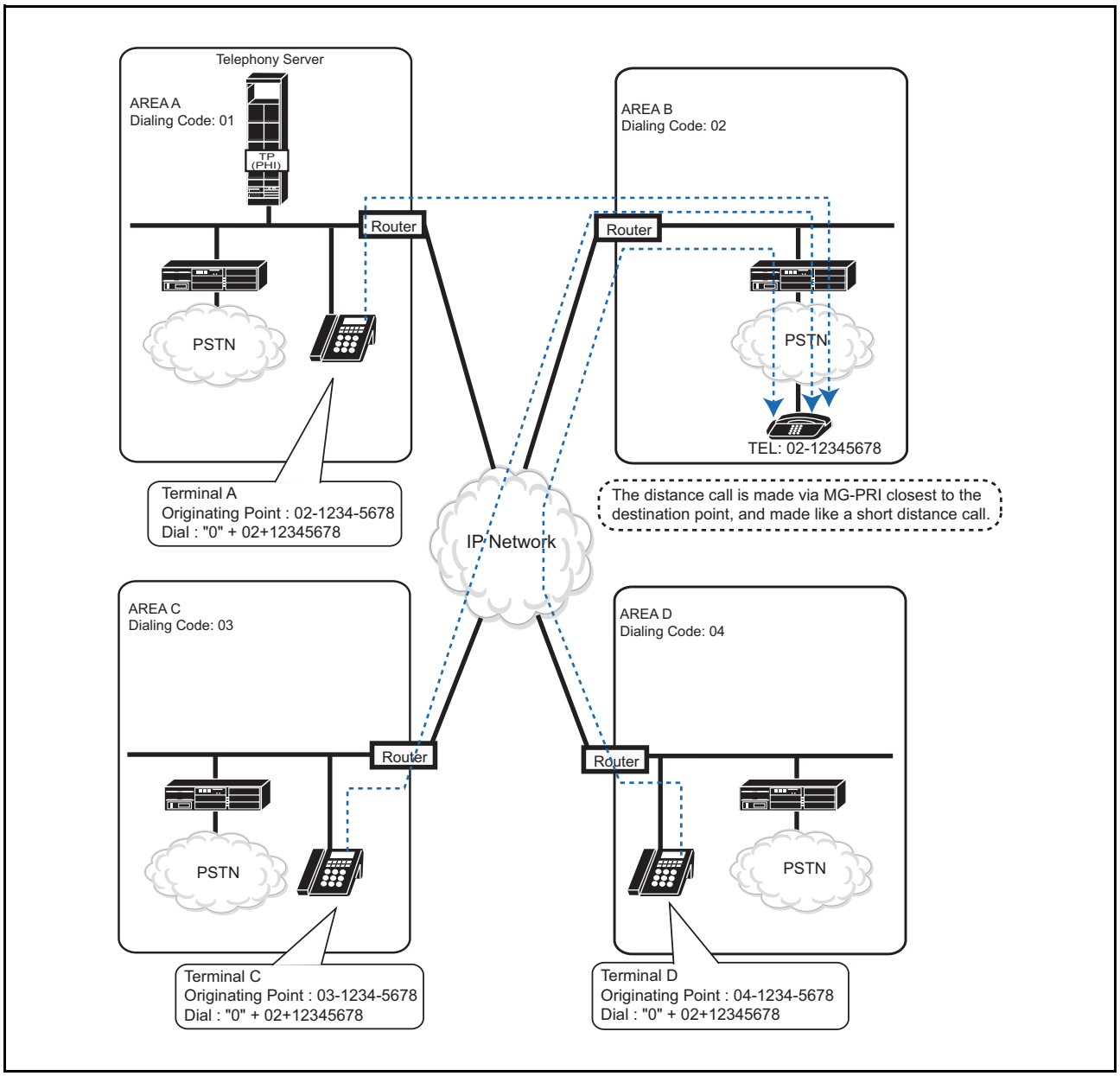
1. GENERAL DESCRIPTION

When single MGC connects multiple MG-PRIs, a Station can select the best-suited route to originate an outside call by adding Message Area ID to the MG-PRIs.

When single MGC connects multiple MG-PRIs, it causes a dialing mistake if the dialing numbers with which a local phone call is made by different IP terminals are overlapped. To avoid this problem, it is strongly recommended to add Message Area IDs (MA-ID) to these managed MG-PRIs.



Besides, registering MA-ID enables a network administrator to manage the routes, which might cause cost-effective phone calls from stations using a MG-PRI near the destination, and it will decrease communication cost. In this case, the network administrator needs to consider the effective routes and specify the settings in advance.



2. OPERATING PROCEDURE

Refer to Peripheral Equipment Description (IP Devices).

3. ASSIGNMENT PROCEDURE

Refer to Peripheral Equipment Description (IP Devices).

[M-71/80] MISCELLANEOUS TRUNK ACCESS-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides access to all types of external and customer provided equipment/facilities such as Tie [T-3], and Exchange Network along with PAGING [P-1].

2. OPERATING PROCEDURE

MISCELLANEOUS TRUNK ACCESS-PRI/PRA is accomplished via System Data at PCPro.

3. ASSIGNMENT PROCEDURE

STEP 1: ARTD - Refer to the Feature listing for the type of trunk route to be accessed.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 2: ATRK - Assign the LENS, Route Number, Trunk Number, and Tenant Number.

STEP 3: MBTK - Assign the Make Idle status to the trunks.

STEP 4: ANPD - Assign a level for trunk access. Select Normal Service (N) or Hooking Service (H) from the combo box for Connection Indexes. Number of Necessary Digits is assigned according to a predetermined numbering plan. Busy Lamp Field is not activated.

STEP 5: ASPA - Assign the Access Code as indicated by the level assigned in ANPD. Type of Service, SRV = “OGC: Outgoing Call” for Outgoing trunks.

STEP 6: ARSC - Assign a Route Restriction Class (RSC) that is allowed in Route Restriction Indexes (RRI) 0, 1, 2 and 3 to the station that is allowed access to these trunks.

STEP 7: ASDT - Assign an RSC to the stations which allows access to these trunks.

[M-72/81] MISCELLANEOUS TRUNK RESTRICTION-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides for incoming PRI/PRA trunks to be denied access to particular trunk groups such as Tie [T-3], Exchange Network, or PAGING [P-1].

2. OPERATING PROCEDURE

MISCELLANEOUS TRUNK RESTRICTION-PRI/PRA is accomplished via System Data at PCPro.

3. PROGRAMMING

STEP 1: ASYD - System Data 2, Index 1, Bits 4 and 5:Should a restricted station be routed to the Attendant Console or receive Reorder Tone?
Reorder Tone: Bit 4 = 0, Bit 5 = 0
Attendant Console: Bit 4 = 1, Bit 5 = 0.

STEP 2: Follow the procedure for MISCELLANEOUS TRUNK ACCESS [M-2]. By assigning the ARSC command, restrict RSCs from receiving certain routes. RRI-3 RES must be “2” if call restriction to go to ATTCON. Then assign the restricted RSCs to stations via the ASDT or ASCL command. When assigning the ARRC command, restrict incoming TIE Lines from accessing certain routes.

[M-73/86] MUSIC ON HOLD-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a party to hear music while in the HOLD [C-6], TRANSFER [C-10,C-11], or CAMP-ON [A-1] conditions.

2. OPERATING PROCEDURE

No manual operation is required for this software-controlled feature.

3. PROGRAMMING

STEP: ASYD- System Data 1, Index 64, Bit 7 = 1 (MUSIC-ON-HOLD is in service.)

[M-75/83] MULTIPLE CALL FORWARDING-ALL CALLS-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits a call from the ISDN network to a station set to CALL FORWARDING-ALL CALLS-PRI/PRA [C-95/C-111] to be forwarded multiple times to a designated idle station.

2. OPERATING PROCEDURE

To set and cancel CALL FORWARDING-ALL CALLS-PRI/PRA [M-75/83] from an individual station with the same Access Code: **Note 2**

- For setting:

1. Lift the handset. Receive Dial Tone.
2. Dial the Call Forwarding-All Calls-PRI/PRA entry Access Code. Receive Special Dial Tone.
3. Dial the desired Forwarding Destination Number. Receive Service Set Tone.

Note 2: Available from FP95-114 V4 Issue 2.0 with system data ASYDL, SYS1, Index 686, Bit 0= 1.

- For canceling:

1. Lift the handset. Receive Dial Tone.
2. Dial the specific Call Forwarding-All Calls-PRI/PRA entry Access Code. Receive Service Set Tone.

To set and cancel CALL FORWARDING-ALL CALLS-PRI/PRA [M-75/83] from an individual station with different Access Codes:

- For setting:

1. Lift the handset. Receive Dial Tone.
2. Dial the specific Call Forwarding-All Calls-PRI/PRA entry Access Code. Receive Special Dial Tone.
3. Dial the desired Forwarding Destination Number. Receive Service Set Tone.

- For canceling:

1. Lift the handset. Receive Dial Tone.
2. Dial the specific Call Forwarding-All Calls-PRI/PRA cancel Access Code. Receive Service Set Tone.

To set CALL FORWARDING-ALL CALLS-PRI/PRA [M-75/83] from the ATTENDANT CONSOLE [A-3]:

1. Press an idle LOOP key.
2. Dial the Call Forwarding-All Calls-PRI/PRA entry Access Code. Receive Special Dial Tone.
3. Dial the TENANT [T-12] number (two or three digits).
4. Dial the originating station number.
5. Dial the desired target station number. Receive Service Set Tone.

To cancel CALL FORWARDING-ALL CALLS-PRI/PRA [M-75/83] from the ATTENDANT CONSOLE [A-3]:

1. Press an idle LOOP key.
2. Dial the Call Forwarding-All Calls-PRI/PRA cancel Access Code. Receive Special Dial tone.
3. Dial the TENANT [T-12] number (2 or 3 Digits).

4. Dial the originating station number. Receive Service Set Tone.

3. SERVICE CONDITIONS

1. By registering the Call Forwarding - All Calls Access Code + the desired Forwarding Destination Number to the CF Setting button of a Line/Feature key on a Desktop terminal, it is possible to enable and disable MULTIPLE CALL FORWARDING-ALL CALLS-PRI/PRA [M-75/83] just by pressing the CF Setting button. For a detailed explanation, see CALL FORWARDING (CF) BUTTON - ONE TOUCH [C-208] in Business Features chapter of Data Programming Manual - Business.

Note: CALL FORWARDING (CF) BUTTON - ONE TOUCH [C-208] is available from FP95-114 V4 Issue 2.0.

4. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 4, Bit 6: One burst of ringing at forwarding station when Multiple Call Forwarding-All Calls is in service? 0/1: No/Yes.

Index 69, Bit 1: A burst of Ringback Tone to alert the person receiving a call that this is a MULTIPLE Call Forwarding-All Calls call. In service? 0/1: No/Yes. Normally assigned as data "0".

System Data 2, Index 6, Bit 4: Enable stations set for Multiple Call Forwarding-All Calls be allowed to use their phones normally. If data "0" is assigned, the station will only be able to call the Attendant Console. Assign on a per-tenant basis.

STEP 2: ASYDL/N- System Data 1, Index 686, Bit 0= 1 (Disabling Call Forwarding - All Calls with entry Access Code is in service).

Note: Available from FP95-114 V4 Issue 2.0.

STEP 3: ANPD - Reserve a number level for feature access and cancel (**Note 1**). Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 4: ASPA - Assign an Access Code to Multiple Call Forwarding-All Calls entry, SID = 8 and to Multiple Call Forwarding-All Calls cancel SID = 9 (**Note 1**). Assign a Connection Status Index (CI) for "N: Normal".

Note 1: When SYS1, Index 686, Bit 0=1 (Disabling Call Forwarding - All Calls with entry Access Code is in service), Call Forwarding - All calls cancel is not required because the cancellation can be performed with the entry Access Code.

STEP 5: ASFC - Assign the stations to activate Multiple Call Forwarding-All Calls a Service Feature Restriction Class that allows SFI = 7.

STEP 6: AKYD - For Desktop terminals, Multiple Call Forwarding-All Calls may be assigned to a programmable Line/Feature key. Assign KYI = 1 and FKY = 2.

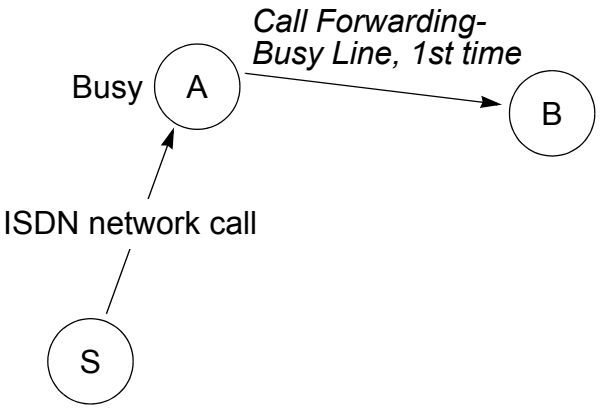
STEP 7: ATNR - Allow tenant-to-tenant connection for Inter- and Intra-tenant connections. Assign Tenant

Restriction Index (TRI) = 1. For this feature to be set by the Attendant Console, assign Inter- and Intra-Tenant connection via the Attendant Console TRI = 3. Also allow TRI = 0, station-to-station calling.

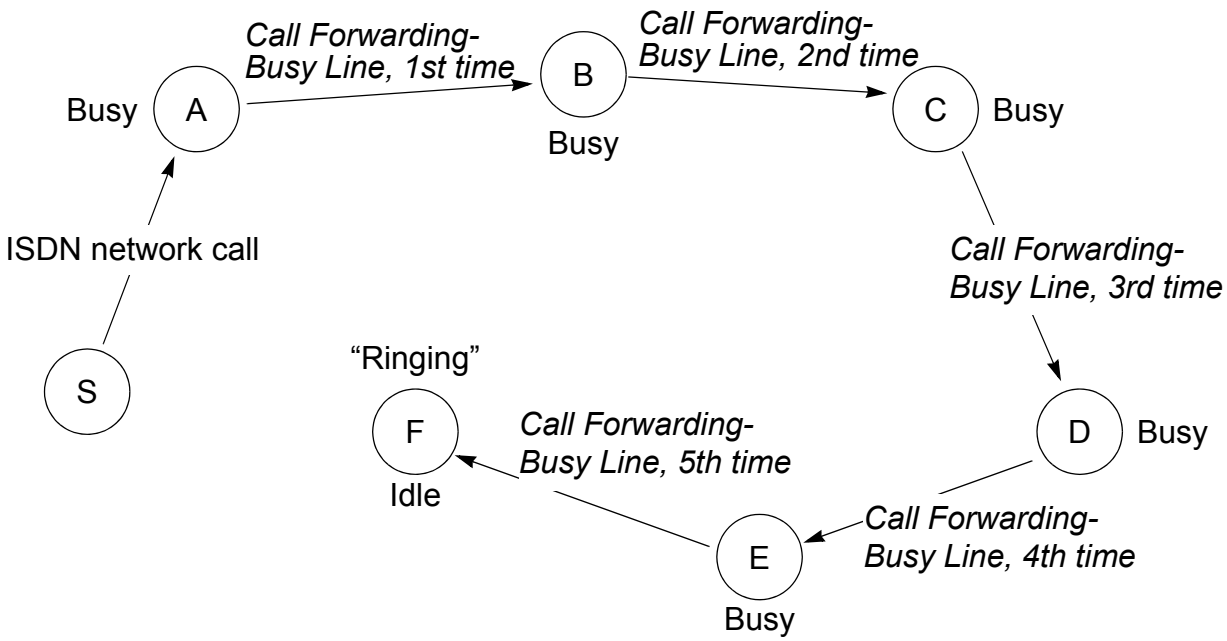
[M-93] MULTIPLE CALL FORWARDING-BUSY LINE-PRA

1. GENERAL DESCRIPTION

This feature permits a call from the ISDN network to a busy station to be forwarded, up to five times, to preprogrammed idle stations.
Existing CALL FORWARDING - BUSY LINE [C-2] service:



MULTIPLE CALL FORWARDING - BUSY LINE [M-24] service:



2. OPERATING PROCEDURE

To set CALL FORWARDING - BUSY LINE [C-2] from an individual station:
1. Lift the handset. Receive Dial Tone.
2. Dial the specific CALL FORWARDING - BUSY LINE Access Code. Receive Special Dial Tone.
3. Dial the desired target station number. Receive Service Set Tone.

To cancel CALL FORWARDING - BUSY LINE [C-2] from an individual station:
1. Lift the handset. Receive Dial Tone.
2. Dial the specific CALL FORWARDING - BUSY LINE [C-2] Cancel Code. Receive Service Set Tone.

To set CALL FORWARDING - BUSY LINE [C-2] from the ATTENDANT CONSOLE [A-3]:
1. Press an idle LOOP key.
2. Dial the CALL FORWARDING - BUSY LINE [C-2] Access Code. Receive Special Dial Tone.
3. Dial the Tenant Number (two or three digits).
4. Dial the originating station number.
5. Dial the desired target station number. Receive Service Set Tone.

To cancel CALL FORWARDING - BUSY LINE [C-2] from the ATTENDANT CONSOLE [A-3]:
1. Press an idle LOOP key.
2. Dial the CALL FORWARDING - BUSY LINE [C-2] Cancel Code. Receive Special Dial Tone.
3. Dial the Tenant Number (two or three digits).
4. Dial the originating station number. Receive Service Set Tone.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 5, Bit 0. Are the Access Codes for CALL FORWARDING-BUSY LINE [C-2] and CALL FORWARDING-DON'T ANSWER [C-3] the same or separate? 0/1: Same/ Separate.
System Data 1, Index 5, Bits 3, 2 and 1. Maximum number of MULTIPLE CALL FORWARDING-ALL CALLS [M-44], -BUSY LINE [M-24] occurrences.)
System Data 1, Index 69, Bit 5. Station Hunting after CALL FORWARDING-BUSY LINE [C-2]. Data "0": Hunting takes place in forwarding station's group. Data "1": Hunting takes place in destination station's group.
System Data 1, Index 69, Bit 7. MULTIPLE CALL FORWARDING-BUSY LINE, -ALL CALLS [M-44], in service? 0/1: No/Yes.
System Data 2, Index 6, Bit 1. Enable CALL FORWARDING-BUSY LINE [C-2] on a per-tenant basis.

Bit 3	Bit 2	Bit 1	Max. No. of Jumps
0	0	0	1
0	0	1	1
0	1	0	2
0	1	1	3
1	0	0	4
1	0	1	5
1	1	0	5
1	1	1	5

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assign an Access Code to CALL FORWARDING-BUSY LINE [C-2] entry, SID = 10 and to CALL FORWARDING-BUSY LINE [C-2] cancel SID = 11. Assign a Connection Status Index (CI) for “N: Normal”.

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows SFI = 9 to the stations that have CALL FORWARDING-BUSY LINE [C-2].

STEP 5: AKYD - For Desktop terminals, CALL FORWARDING-BUSY LINE [C-2] may be assigned to a programmable Line/Feature key. Assign KYI=1 and FKY=1.

STEP 6: ADSL - Assign SN=1 (Originating; DT Connection) and FKY=1 (Call Forwarding - Busy Line). This command is used for assigning the function to a Soft key.

[M-94] MULTIPLE CALL FORWARDING-DON'T ANSWER-PRA

1. GENERAL DESCRIPTION

This feature permits an ISDN network call to an unanswered station to be forwarded, multiple times, to preprogrammed idle stations that do not have Call Forwarding set.

2. OPERATING PROCEDURE

To set CALL FORWARDING - DON'T ANSWER [C-3] from an individual station:
1. Lift the handset. Receive Dial Tone.
2. Dial the specific CALL FORWARDING - DON'T ANSWER [C-3] Access Code. Receive Special Dial Tone.
3. Dial the desired target station number. Receive Service Set Tone.

To cancel CALL FORWARDING - DON'T ANSWER [C-3] from an individual station:
1. Lift the handset. Receive Dial Tone.
2. Dial the specific CALL FORWARDING - DON'T ANSWER [C-3] Cancel Code. Receive Service Set Tone.

To set CALL FORWARDING - DON'T ANSWER [C-3] from the ATTENDANT CONSOLE [A-3]:
1. Press an idle LOOP key.
2. Dial the specific CALL FORWARDING - DON'T ANSWER [C-3] Access Code. Receive Special Dial Tone.
3. Dial the Tenant Number (two or three digits).
4. Dial the originating station number.
5. Dial the desired target station number. Receive Service Set Tone.

To cancel CALL FORWARDING - DON'T ANSWER [C-3] from the ATTENDANT CONSOLE [A-3]:
1. Press an idle LOOP key.
2. Dial the specific CALL FORWARDING - DON'T ANSWER [C-3] Cancel Code. Receive Special Dial Tone.
3. Dial the Tenant Number (two or three digits).
4. Dial the originating station number. Receive Service Set Tone.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 5, Bit 0. Access Codes for CALL FORWARDING-BUSY LINE [C-2] and CALL FORWARDING-DON'T ANSWER [C-3] are same or separate? 0/1: Same/Separate.
System Data 1, Index 69, Bit 2. Is a short tone set to alert person receiving the call that this is a CALL FORWARDING-DON'T ANSWER [C-3] call? 0/1: No/Yes.
System Data 1, Index 69, Bit 7. MULTIPLE CALL FORWARDING-BUSY [M-24], -ALL CALLS [M-44], in service? 0/1: No/Yes.
System Data 1, Index 139. Assign the No-Answer timer for station-to-station, DID and TIE Line calls. For 30 seconds, assign 00H. (RAM data is 3FH.)
System Data 1, Index 141. Assign the No Answer timer for Incoming Calls via the Attendant Console. It will then be forwarded to the next station according to the System Data 1, Index145 timer. For 10 seconds, assign 00H. (RAM data is 35H.)

System Data 2, Index 6, Bit 2. Enable CALL FORWARDING-DON'T ANSWER [C-3] on a per-tenant basis.
System Data 2, Index 6, Bit 7. Enable CALL FORWARDING-DON'T ANSWER [C-3] via Attendant Console.

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assign an Access Code to CALL FORWARDING-DON'T ANSWER [C-3] entry, SID = 12 and to CALL FORWARDING-DON'T ANSWER [C-3] cancel SID = 13. Assign Connection Status Index (CI) for "N: Normal".

STEP 4: ASFC - Assign the stations to activate CALL FORWARDING-DON'T ANSWER [C-3] a Service Feature Restriction Class that allows SFI = 8.

STEP 5: AKYD - For Desktop terminals, CALL FORWARDING-ALL CALLS [C-5] may be assigned to a programmable Line/Feature key. Assign KYI = 1 and FKY= 22.

STEP 6: ADSL - Assign SN = 1 (Originating; DT Connection) and FKY= 22 (Call Forwarding - Don't Answer). This command is used for assigning the function to a Soft key.

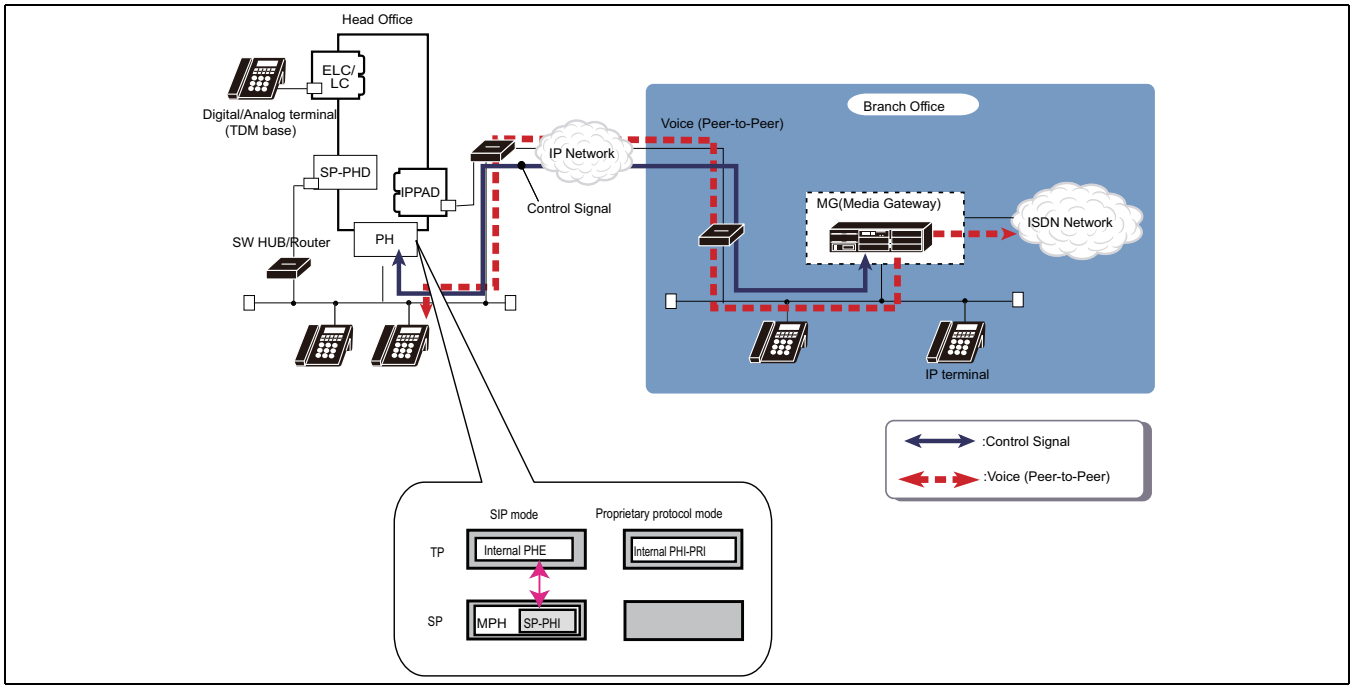
[M-106] MEDIA GATEWAY ISDN PRI/PRA

1. GENERAL DESCRIPTION

Media Gateway-Primary Rate Interface (MG(PRI)) enables IP terminal to connect to the ISDN network (E1/T1). Voice packet is sent/received with peer-to-peer connection. “Peer-to-Peer” is a direct calling connection between IP terminals/IP stations with each other without the use of a PBX line card.
When a call is to be made to/from MG and the opposite party is a TDM-based station/trunk (such as Digital terminals and Analog terminals), the system requires the IPPAD Card. The IPPAD Card provides media conversion between LAN-side IP packets and TSW-side TDM signals.
Protocol Handler (PH) control MG(PRI) and is stored in Telephony Server. (**Note 1**)

Telephony Server supports two types of MG(PRI) depending on the control signaling protocol; Proprietary protocol mode and SIP mode. The following hardware is provided.

MODE	MG NAME
Proprietary protocol mode	MG(PRI) (1.5M) Card [SCA-24PRIA]
	MG(PRI) (1.5M) [MG-24PRIA]
	MG(PRI) (2M) Card [SCA-30PRIA]
	MG(PRI) (2M) [MG-30PRIA]
	UG50 (PRT 1.5M)
	UG50 (PRT 2M)
	UG50-24PRIA
	UG50-30PRIA
SIP mode	MG(PRI) (1.5M) Card [SCA-24PRIA]
	MG(PRI) (1.5M) [MG-24PRIA]
	MG(PRI) (2M) Card [SCA-30PRIA]
	MG(PRI) (2M) [MG-30PRIA]
	UG50 (PRT 1.5M)
	UG50 (PRT 2M)
	UG50-24PRIA
	UG50-30PRIA



Note 1: PH handles a control signal between MG-PRI and Telephony Server. Control signal is handled with LAN cable.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This feature has also been available in 16-IMG system since Feature Package 8800 (Release 15).

(2) A maximum of 32 MG-PRIs can be connected to one system. Maximum Speech Channel number that can be operated at the same time by 1 LP is 460 channels per 1 LP including other ISDN channels.

(3) The Highway to which a Virtual Speech Channel of MG-PRI has been assigned cannot be used for other channels. Because Virtual Speech Channel occupies 4 Groups (1 Highway). (Virtual speech Channel of PHC in CCIS networking via IP service cannot be assigned to the same Highway.)

(4) Both Virtual Speech Channel (B Channel) and Virtual Signal Channel (D Channel) can be assigned to the Virtual PIR (ASYDL, SYS 1, Index 556-563).

(5) Assign ASYDL, SYS 1, Index 880, Bit 1=1 to activate Internal PHI-PRI. When the setting of this system data is modified, initialize the Internal PHI-PRI module with the ADPM command.

(6) Dch cannot be shared by multiple MG-PRIs.

(7) Voice communication and unrestricted digital data transmission in supported by MG-PRI. Only 64kbps data transmission is supported. 128kbps data transmission, H0 switching, Dch packet, and Bch packet are not supported.

(8) Assign following parameter in ARTI command when using FAX via MG-PRI.
CDN71: IP FAX data
CDN72: Jitter Buffer Size for IP FAX
CDN73: Payload Type for IP FAX
CDN74: Payload Size for IP FAX

(9) The connection via Network Address Translation (NAT), IP masquerade, internet connection, and dial up access are not supported.

(10) The available interface is:

In North America:
- Bellcore NI-2
- AT&T NO5ESS DMS-100

In Australia:
- ETSI ETS300.102.1

These interfaces are useful only in ISDN network, not in ISDN TIE Line.

(11) Error detection at Layer 1 and Layer 2 is performed as a conventional ISDN Line. In the line error state, Outgoing/Incoming Call is not allowed.

(12) Quality of Service (QoS) setting to MGC (Internal PHI-PRI) is assigned by AMGIL command on MG-PRI basis.

(13) CODEC is assigned by AMGVL command. G.711 and 40 milliseconds are at default. Payload type and size need to be assigned after you confirm the setting condition of MG-PRI. (Contact your local NEC dealer for further information.)

(14) Route Number for MG-PRI should be different from Route Number for ordinary PRT circuit card.

(15) Conventionally, Guard Timer for Originating Call is performed by circuit card. In this service, Guard Timer is performed by MGC. Timer setting is assigned with ASYD command (ASYD, SYS 1, Index 474).

(16) If you add any trunk to MG running in a network by using ATRK command, it will cause re-registration and disconnect the lines made via the MG.

(17) Serial Call -D [S-127D] cannot be used to the call termination via MG-PRI.

(18) Use DIMG command to display the MG-PRI registration status.

(19) The following are peculiar to Proprietary protocol mode:

- Alternate routing is proceeded according to the LCR programming in case of TCP/IP failure.

- Echo Canceller setting on ARTD command is applied.

- PAD setting on ARTD or APAD command is applied.

- System Message [33-R/33-S] is output in the case of MG-PRI failure.

- System Message [33-R/33-S] is output when TCP link failure between Internal PHI-PRI and MG-PRI is detected. When the TCP link failure continues more than one minutes, System Message 3-D (Lock-up Failure) is output.

- MGC (PHI-PRI) and MG-PRI are connected via TCP/IP connection. In the case of failure in TCP connection, error messages are output [33-R/33-S]. System Message [3-D] is output when failure in TCP connection keeps occurring for 1 minute or more.

(20) The following are peculiar to SIP mode:

- To use MG-PRI in SIP mode, assign ASYDL, SYS1, Index 885, bit=1 to enable SP function.

- Echo Canceller setting on AMGVL or AIVCL command takes priority over the setting by ARTD command.

- The following are applied when Automated Attendant is set:

1) If any virtual register cannot be used, physical register (ORT, IRT, and PBR for Automated Attendant Service) will be used. If all the register cannot be used, Busy Tone will be transmitted.

2) The maximum number of virtual registers that can be used in a single LP is 64.

Note: This number is the sum total that includes the following registers:
- Originating register trunk (RT: 902)
- Incoming register trunk (RT: 903)
- PBR for Automated Attendant Service (RT: 906)
- CRT (RT: 933)

<Conditions Specific to UMGi/RNIP System>

Service conditions in the UMGi/RNIP system are described below.

(1) Virtual Speech/Signal Channel can be assigned to the Virtual PIR.
(2) Internal PHI-PRI is stored in the CCN.
(3) Internal PHI-PRI handles a control signal between MG-PRI and PHI-PRI. Control signal is handled with TCP/IP port on the CCN.
(4) There are following restrictions when using Incoming Call with REMOTE ACCESS TO SYSTEM [R-2] or AUTOMATED ATTENDANT [A-82].

- Virtual Register in the node to which Virtual Speech Channel is registered is seized. Register in other node cannot be seized. If Virtual Register cannot be seized, Physical Register in the node to which Virtual Speech Channel is registered is seized (i.e. ORT, IRT, PBR for Automated Attendant Service).

- When Virtual/Physical Register cannot be seized, calling party hears Busy Tone.

4. PROGRAMMING

Refer to the following:

- About MG (PRI), see “MG (PRI) (1.5M) [SCA-24PRIA/MG-24PRIA]” and “MG (PRI) (2M) [SCA-30PRIA/MG-30PRIA]” in Chapter 2, IP devices in Peripheral Equipment Description - IP Devices.

- About UG50 (PRT), see “Office Data Settings on Telephony Server” in Chapter 3, Startup in Peripheral Equipment Description (UG50).

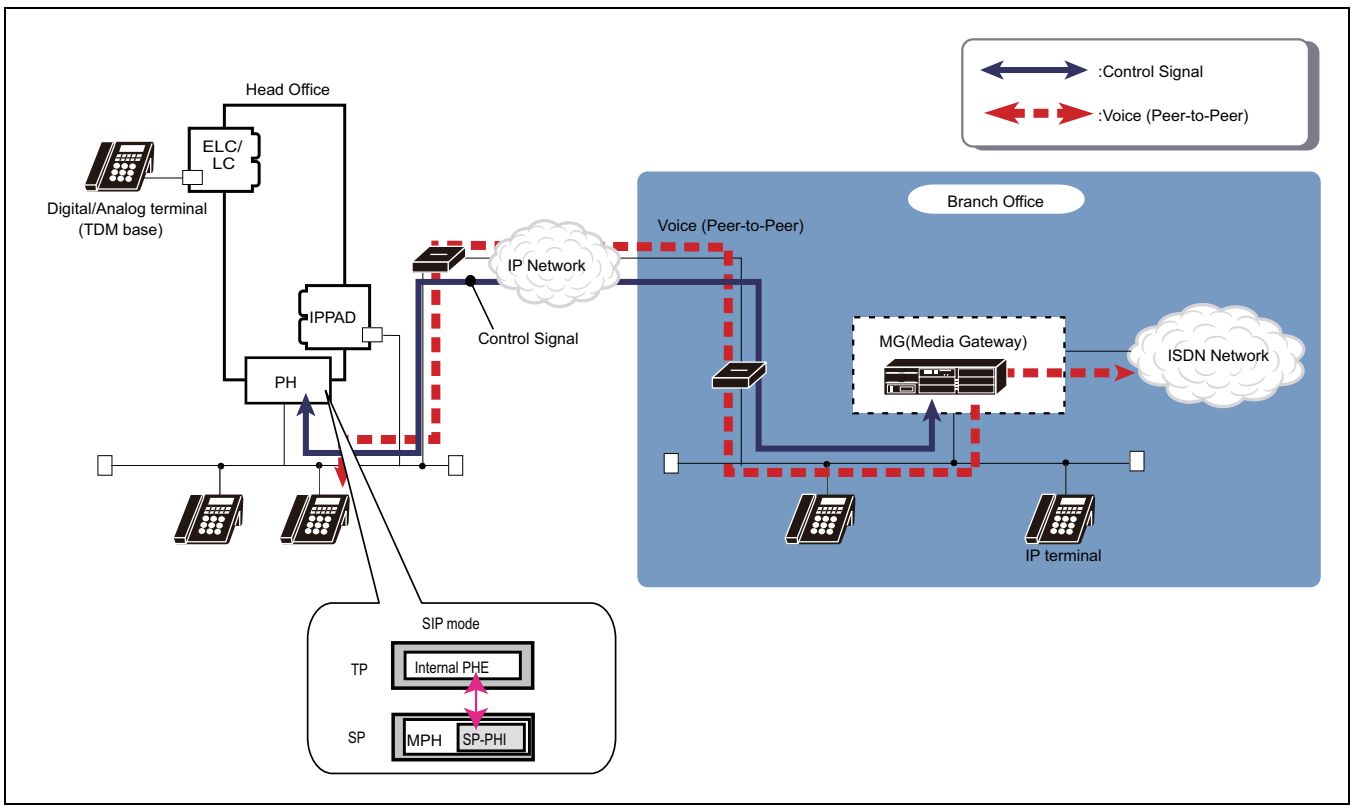
[M-116] MEDIA GATEWAY ISDN BRI

1. GENERAL DESCRIPTION

Media Gateway-Basic Rate Interface (MG-BRI) enables IP terminal to connect to the ISDN network. Voice packet is sent/received with peer-to-peer connection. “Peer-to-Peer” is a direct calling connection between IP terminals/IP stations with each other without the use of PBX line card.
When a call is to be made to/from MG and the opposite party is a TDM-based station/trunk (such as Digital terminal and Analog terminal), the system requires the IPPAD card. The IPPAD card provides media conversion between LAN-side IP packets and TSW-side TDM signals.
Protocol Handler control MG and is stored in MGC. (**Note 1**)

Telephony Server supports two types of MG-BRI depending on the control signaling protocol; Proprietary protocol mode and SIP mode. The following hardware is provided.

MODE	MG NAME
SIP mode	MG(BRI) Card [SCA-2BRIA-B/SCA-2BRIA]
	MG(BRI) [MG-2BRIA]



Note 1: PH handles control signal between MG-BRI and telephony server. Control signal is handled with LAN cable.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) ETSI-ISDN for Australia is supported by assigning the System Data (ASYDL SYS1 Index818 bit6=1):
- ETSI basic features are supported.
- ETSI optional features are not supported.
- MG-BRI cannot go over through other country's ISDN specification.
For ETSI Euro-ISDN (EMEA), assign ASYDL SYS1 Index818 bit6=0.

(2) MG-BRI occupies one group of virtual speech channel. The group can only be used as virtual speech channel of MG-BRI even when only one channel is assigned.
The virtual speech channel of MG-BRI cannot coexist in a same group with the virtual speech channel of other type of MG devices. Also the virtual speech channel cannot coexist in the same group with the virtual speech channel of CCIS over IP using PHC.

(3) Virtual speech channel (B channel) can be assigned to Virtual PIR (Assign with ASYDL SYS1 Indexes 556 and 557).

(4) Voice communication and unrestricted digital communication is available. MG-BRI only support 64kbps of unrestricted digital communication. Data communication more than 128kbps, H0 exchange, Dch packet and Bch packet are not supported.

(5) Interface available is only Q.931 and connection to public ISDN network is available (accommodation of ISDN terminal and Tie-line connection is not supported).

(6) Alternate routing follows the LCR feature if ISDN line or UDP/IP failure occurs.

(7) PAD value assigned by AMGVL command and AIVCL command takes precedence.

(8) Echo Canceller (EC) setting by AMGVL and AIVCL commands takes precedence.

(9) Echo Canceller (EC) training function is available between MG-BRI and ISDN network. **Note 1**

Note 1: EC training: MG-BRI sends out EC training tone to ISDN network when station answers a call and the tone crosses ISDN network to converge echo on an early stage.

(10) CODEC is assigned by AMGVL command (AIVCL command is used when no data is assigned by AMGVL command). Payload type and size needs to be assigned after confirming the setting condition of MG-BRI. (Contact your local NEC dealer for further information.)

(11) Telephony Server is responsible for timing control of call originating guard timer, which needs to be assigned with the System Data (ASYD SYS1 Index474). Value "256ms" is default.

(12) [S-127D] Serial Call -D cannot be operated toward the calls terminating through MG-BRI.

(13) Use DIMG command to display the MG-BRI registration status.

(14) Internal PHE must be assigned (ASYDL SYS1 Index 880 bit3=1) to enable SP-PHI function.

(15) Line Equipment Numbers (LENS) information for control signal needs to be assigned for MPH and SP-PHI by using the ALIDL command. (Specify an even-numbered Group Number as MPH/SP-PHI accommodated location. The LENS can be allocated on either a Virtual PIR or a Physical PIR.)

(16) Refer to the table below for the maximum number of MG-BRI and channels to be assigned per system. Maximum number of speech channel to be controlled simultaneously is 460 channels per LP, including other ISDN channels.

Per System	
Maximum capacity for MG-BRI accommodation (When 2 lines are assigned per MG-BRI) **(Note 2)**	Maximum numbers of channels **(Note 3)**
1152 **(Note 4)**	4608 **(Note 4)**

Note 2: The table shows the maximum number of MG-BRIs to be accommodated when two lines are accommodated. The amount will be doubled when only one line is accommodated to an MG-BRI.

Note 3: The maximum number of channels to be controlled simultaneously here is the same as the amount of line capacity of each system. Other equipment cannot be used when maximum number of channels are occupied by MG-BRI.

Note 4: The maximum number of MG-BRIs (channels) per SP is 500 (2000 channels) because SP-PHI function is accommodated on SP. (A maximum of 1152 MG-BRIs (4608 channels) per system means the total amount of MG (BRI) and MG-BRI.)

(17) Assign the system data (ASYDL SYS1 Index880 bit1=1, Index885 bit7=1) to enable the SP-PHI function.

(18) ISDN line can be connected both in Point-to-Multipoint connection or Point-to-Point connection. However, be careful for the following.

- MG(BRI) does not support TEI automatic assignment. The TEI operates with the fixed value “0”.
- When using emergency telephone, user needs to have an ISDN line contract status according to the specification of the ISDN line interface of the emergency telephone to be used.
- Length of call reference value (in octets) is 1 byte and Dch cannot be shared.

(19) The fault detection for ISDN line is operated the same as the ordinary ISDN lines (both Layer 1 and Layer 2). Call origination/termination is unavailable when MG-BRI is in faulty condition.

(20) SP-PHI and MG-BRI is connected by UDP/IP. Routine diagnosis is activated by NOTIFY message. System Message [33-R: IP PKG warning] is output when fault is detected.

(21) Initialize the MG-BRI by the operation below after the port number change. (Changed data will be effective after the initialization.)

- System Initialization
- SP/Server Card power OFF/ON
- Internal PHE initialization by ADPM command
- TCP/IP initialization or loading by ADTM command
- Data change of MPH or SP-PHI by ALIDL command (other than gaining REGMAX parameter)

(22) The QoS value used for SP-PHI side is assigned by ALOCL command. Assign LOC-ID to the network address corresponding to the IP address of SP/Server Card, and the QoS value assigned to the LOC-ID is applied to SP-PHI.
ToS (QoS) setting and Control Signal packet used for MG-BRI side is assigned by AMGIL command. Media stream is assigned by AMGVL command.

(23) For KIND parameter of AMGIL command, choose “ISDN trunk (BRI)[SIP].” LENS of LINE, CH0, and CH1 need to be assigned consecutively. (Example: CH0=020010, CH1=020011...) Be sure to assign CH0 to even-numbered Level. (LENS: 000000 cannot be used.)

(24) Capacity of Registration (REGMAX) needs to be assigned.

4. PROGRAMMING

Refer to “MG (BRI) [SCA-2BRIA/MG-2BRIA/SCA-2BRIA-B]” in Chapter 2, IP devices in Peripheral Equipment Description- IP Devices.

[N-20/24] NIGHT CONNECTION-FIXED-PRI/PRA

1. GENERAL DESCRIPTION

This feature routes ISDN calls normally directed to the ATTENDANT CONSOLE [A-3] to a preselected common station within the system when the Night mode has been entered.

2. OPERATING PROCEDURE

To answer NIGHT CONNECTION-FIXED-PRI/PRA calls:

1. Incoming Calls to the ATTENDANT CONSOLE [A-3] in the Night Mode are automatically transferred to a preselected NIGHT CONNECTION-FIXED-PRI/PRA station.
2. Calling party hears Ringback Tone.
3. Ring signal is sent to the NIGHT CONNECTION-FIXED-PRI/PRA station.
4. NIGHT CONNECTION-FIXED-PRI/PRA station goes off-hook to answer Incoming Call. If necessary, this station can transfer the Incoming Call to another station within the system using CALL TRANSFER-ALL CALLS [C-11] feature.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 147: DIT supervisory timer for a busy station. How often will the CPU look at the Idle/Busy status of the station for rerouting the DIT call to the destination? Always leave this index as 00H.

STEP 2: ACSI - Assign External Route Number, Trunk Number, Connection Service Index of “4” for NIGHT CONNECTION-FIXED, and the Tenant Number and station number to serve as the NIGHT CONNECTION FIXED station.

STEP 3: ACFR - Allow a Transfer Service Feature Index of 2, NIGHT CONNECTION-FIXED, for the types of Incoming Calls listed in Call Class Index (CCI).

[N-21/25] NIGHT CONNECTION-FLEXIBLE-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides arrangements to route ISDN calls normally directed to the ATTENDANT CONSOLE [A-3] to a preselected station on a flexibly assignable basis within the system, when the Night mode has been entered.

2. OPERATING PROCEDURE

Answering operation is the same as that for NIGHT CONNECTION-FIXED-PRI/PRA [N-20/N-24].

Each evening, before placing the ATTENDANT CONSOLE [A-3] into the Night Connection mode, the Attendant programs CALL FORWARDING-ALL CALLS [C-5] from the NIGHT CONNECTION-FIXED [N-20/N-24] station to the desired station.

3. PROGRAMMING

STEP 1: NIGHT CONNECTION-FLEXIBLE is a combination of CALL FORWARDING-ALL CALLS [C-5] and NIGHT CONNECTION-FIXED [N-1] features.

STEP 2: CLASS OF SERVICE-INDIVIDUAL [C-15]-The station chosen as the Night Connection-Flexible station should be assigned a CLASS OF SERVICE-INDIVIDUAL [C-15] capable of performing the Night station functions.

[N-22/27] NON-DELAY OPERATION-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows the ATTENDANT CONSOLE [A-3] to place any calling party on hold, dial the call, and connect the calling and called parties.

2. OPERATING PROCEDURE

To operate:
1. The Attendant answers an operator call by pressing the ANSWER or ATND key.
2. Press the START key.
3. Dial the exchange network Access Code.
4. Dial the desired telephone number.
5. Press the RELEASE key.
6. The parties are connected.

3. PROGRAMMING

STEP 1: ARSC - Allow restriction RRI2 = 1 (Route Restriction via the Attendant).

STEP 2: ASDT - Assign a Route Restriction Class (RSC) that allows outgoing access to the route via the Attendant Console to station.

[N-29/30] NIGHT CONNECTION OUTSIDE-SYSTEM-PRI/PRA

1. GENERAL DESCRIPTION

This is a night transfer service on a system basis enabling a ring down call to be transferred to a preselected station outside the node via ISDN network when Night mode has been set.

2. OPERATING PROCEDURE

1. The Attendant sets Night mode.
   (Night key, PB, Jack Extraction, MB)
2. Ring down call terminates from a trunk.
3. The call is transferred to another station in accordance with NIGHT CONNECTION OUTSIDE-SYSTEM-PRI/PRA data.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 77, Bit 0: DAY/NIGHT mode Changeover via handset jack 0/1: Not Required/Required.

STEP 2: ALDN - Assign LDN, allow night transfer, assign TYPE = 3, and the ADC number assigned in ASPD.

STEP 3: ASPD - Assign an Access Code (000-999) to an Abbreviated Digit Code (ADC). This step is required only if the Access Code and outside number are greater than eight digits.

STEP 4: ACFO - Assign call forwarding data, CF = 4: Night Connection, and the ADC assigned in ASPD.

STEP 5: ARRC - Allowing incoming route to out-going route. Use Alternative Route Index (ARI) D for Direct Connection. Three possible restriction (RES) may be assigned. Data “0” = connection is restricted, data “1” = connection is allowed, or data “2” = toll restriction is required. For NIGHT CONNECTION-OUTSIDE-SYSTEM, toll restriction is not required.

STEP 6: ACFR - Assign Transfer Service Feature Index (TSFI) = 2: Direct In Termination Night Only, to be allowed CCI: 1 (LDN). This allows LDN to go to Night transfer destination.

[O-24/25] OUTGOING TRUNK QUEUING-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user, upon encountering an ISDN trunk busy signal, to dial a specified Access Code and enter a first-in, first-out queue. As soon as an ISDN outgoing trunk becomes available, stations in the queue will be called back on a first-come, first-served basis.

2. OPERATING PROCEDURE

1. Dials the desired number to the ISDN trunk. Receives Busy Tone.
2. Press the switchhook. Receives Special Dial Tone.
3. Dials the OUTGOING TRUNK QUEUING Access Code and receives Service Set Tone.
4. Replaces the handset.

When an ISDN trunk becomes available, a station in the queue is called back.

To cancel
1. Lifts the handset. Receives Dial Tone.
2. Dials the OUTGOING TRUNK QUEUING Cancel Code. Receives Service Set Tone.

3. PROGRAMMING

STEP 1: ASYD -System Data 1,Index 68,Bit 3:Enables automatic cancel timer as set in System Data 1, Index 159. 0/1: -/Enable.

Index 159: OUTGOING TRUNK QUEUING (OGQ) release timer. Standard data of 00H for 30 minutes may be assigned.

System Data 2, Index 4, Bit 0: Should the Access Code for CALL BACK and OUTGOING TRUNK QUEUING be the same? 0/1: No/Yes.

Bit 1: Enable Automatic OUTGOING TRUNK QUEUING? 0/1: No/Yes.

Bit 2: Enable OFF-HOOK OUTGOING TRUNK QUEUING for the Attendant Console? 0/1: No/Yes.

STEP 2: ANPD - Reserve a number level for service feature access and cancel. Select Busy Service (B) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - If System Data 2, Index 4, Bit 0 is assigned for separate Access Codes, assign an Access Code to OUTGOING TRUNK QUEUING assign, SRV = “SSC: Service Code”, SID = 19 and to OUTGOING TRUNK QUEUING cancel, SRV = “SSC: Service Code”, SID = 20. Assign SID = 19 for a Connection Index of Busy and SID = 20 for a Connection Index of “N: Normal”. If the Access Codes are the same, either the Access Codes for OUTGOING TRUNK QUEUING or the Access Codes for CALL BACK may be assigned.

STEP 4: ASFC - Assign SFI1=1.

STEP 5: ARTD - Routes to be used for OUTGOING TRUNK QUEUING must be flagged in CDN 9, TQ. Trunk Queuing Service. Always allow queuing to the LCR (S) Dummy route.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 6: AKYD - Set the following data to assign CALL BACK Feature key on a Desktop terminal. KYI: 1 FKY: 5 (= CALL BACK)

[O-25D] OUTGOING TRUNK QUEUING-D-PRA

1. GENERAL DESCRIPTION

This service allows a user, upon encountering an ISDN trunk busy signal, to enter a first-in, first-out queue.

2. OPERATING PROCEDURE

Without LEAST COST ROUTING [L-5]:
1. Dial the trunk Access Code. Receive Busy Tone.
2. Press the CALL BACK Feature key. Receive Service Set Tone. The LCD displays as follows.

O G - Q S E T **(Time Display)**

3. Replace the handset.
4. When the trunk becomes idle, the station will be rung.

With LEAST COST ROUTING [L-5]:
1. Dial the trunk Access Code. Receive PBX Dial Tone.
2. Dial the desired number. Receive Busy Tone. The LCD displays as follows.

Calling Station

B U S Y X X X X X X X **(Time Display)**

3. Press the CALL BACK Feature key. Receive Service Set Tone. The LCD displays as follows.

O G - Q S E T **(Time Display)**

4. Replace the handset.
5. When the trunk becomes idle, the station will be rung. Once connected to the trunk, the system automatically redials the number.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 68, Bit 3. Enables automatic cancel timer, as set in System Data 1, Index 159. 0/1: -/Enable.

System Data 1, Index 159. OGQ release timer. Standard data of 00H for 30 minutes may be assigned. (RAM data of 3C [Hex] provides for 30 minutes.)

System Data 2, Index 4, Bit 0. Should the Access Code for CALL BACK and OGQ be the same? 0/1: No/Yes. Usually assign data “1”. Assign on a per-tenant basis.

System Data 2, Index 4, Bit 1. Enable Automatic OGQ? 0/1: No/Yes. Assign on a per-tenant basis. Automatic operation eliminates the need to access via dial pad.

System Data 2, Index 4, Bit 2. Enable OFF-HOOK OGQ for the Attendant Console? 0/1: No/Yes. Assign on a per-tenant basis. (See OUTGOING TRUNK QUEUING-ATTENDANT [O-16] in Data Programming Manual - Business.)
System Data 1, Index 139, timer for the recall ringing.

STEP 2: ANPD - Reserve a number level for feature access and cancel. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes (applicable to any feature assigned to this level). Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - If System Data 2, Index 4, Bit 0 is assigned for separate Access Codes, assign an Access Code to OGQ, SRV = "SSC: Service Code", SID = 19, and to OGQ cancel, SRV = "SSC: Service Code", SID = 20. Assign SID = 19 for a Connection Index of "B: Busy" and SID = 20 for a Connection Index of "N: Normal". If the Access Codes are the same, either the Access Codes for OGQ or the Access Codes for CALL BACK may be assigned.

STEP 4: ASFC - If Access Codes are separate, assign a Service Feature Restriction Class that allows SFI 1 to stations that will have OGQ. If Access Codes are the same, assign an SFC that allows SRI 1, SFI 1 and SFI 2 to the station.

STEP 5: ARTD - Routes to be used for OGQ must be flagged in CDN 9:TQ, Trunk Queuing Service. Always allow queuing to Route 31, the LCR (S) flag route.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 6: AKYD - For Desktop terminal set the following data to assign CALL BACK Feature key.
Type: Function: CALL BACK [5].

STEP 7: ADSL - SN = 6 (Trunk is Busy) and FKY=5 (Call Back; CB).This command is used for assigning the function to each Soft key.

[O-26/27] OUTGOING TRUNK QUEUING-DELUXE-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows users according to their Service Feature Restriction Class to queue for an outgoing ISDN trunk when all call routes are busy. This feature allows specific routes to be queued in a timed interval depending on the user's Service Feature Restriction Class (SFC). If on-hook queuing is used, the system will send a Ring-back Tone to the station when a trunk becomes available. On or off-hook queuing may be assigned to stations within a tandem network, as well as stations at main and satellite offices.

The system provides an off-hook queuing capability to Attendants and an optional priority queuing feature.

2. OPERATING PROCEDURE

(1) Outgoing trunk

The Busy Tone will be sent to the Calling Station, when no ISDN trunks are available.
The user presses the switchhook, and receives Special Dial Tone.
Dials the OUTGOING TRUNK QUEUING Access Code, receives the Service Set Tone and replaces the handset.

To cancel on-hook queuing, the user must go off-hook and dial the OUTGOING TRUNK QUEUING Cancel Code. User receives the Service Set Tone and replaces the handset.

If the calling party does not answer the ringback within thirty seconds, the call will be removed from queue.

(2) Off-Hook trunk Queuing:

When off-hook queuing is used, the Service Set Tone will be sent to the Calling Station when no outgoing ISDN trunks are available. The Service Set Tone indicates that the Calling Station has been placed in an off-hook queue.

To cancel off-hook queuing from a station or TIE Line, the user merely goes on-hook.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 68, Bit 3: OG Trunk Queuing (On-Hook) Automatic Cancel
0/1=Out/In Service
Index 159: Assign the OG-Trunk Queuing Automatic Cancel Timer, when System Data 1, Index 68, Bit 3 is "1". (Default data=30 min.)
System Data 2, Index 4, Bit 0: Call Back and OG Trunk Queuing Access Code.
0/1=Separate/Common
Bit 1: Automatic Setting of OG Trunk Queuing **Note 1**
0/1=Not Required/Required.

Note 1: For OG Trunk (ON HOOK) Queuing, Bit 1=0.
For Off Hook Queuing, Bit 1=1.

System Data 3, Index 3, Bit 5: 3 Ringings per Ringing Period for Ringer Pattern 5
0/1=Disabled/Enabled
Index 7: Ringer Pattern 5 for this service.

STEP 2: ANPD - Reserve a number level for OG Trunk (ON-HOOK) Queuing.
Select Normal Service (N) or Busy Service (B) from the combo box for Connection Indexes.

STEP 3: ASPA - Assign the Access Code for OG Trunk (ON-HOOK) Queuing.
CI="B: Busy", SRV="SSC: Service Code", SID=19 (To set)
CI="N: Normal", SRV="SSC: Service Code", SID=20 (To Cancel)

STEP 4: ARTD - Assign the OG Trunk Queuing-Deluxe service for the OG route.
CDN9 (TQ)=1
CDN41 (TDMQ)=1 (for Tandem Queuing)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 5: ASFC - Allow OG Trunk Queuing-Deluxe to the SFC of the station.
SFI62 (OG Trunk Queuing-Deluxe)=1

Note: For Off-Hook Queuing, the following data is required as well as above.
SFI21 (Off-Hook OG Queuing)=1

[O-28/29] OFF-HOOK QUEUING-PRI/PRA

1. GENERAL DESCRIPTION

This service allows a user encountering busy ISDN trunk to remain off-hook and automatically enter a first-in, first-out queue. As soon as an outgoing ISDN trunk becomes available, the switch connects the next call to this trunk.

2. OPERATING PROCEDURE

To operate:

1. When no trunks are available, the call automatically enters an available queue.
2. The caller receives Service Set Tone.
3. When a trunk becomes available, the dialed number is automatically sent forward.
4. If the caller goes on-hook while in queue, the assigned queue is cleared.

3. PROGRAMMING

STEP 1: ASYD - System Data 2, Index 4, Bit 1: Automatic Setting of OG Trunk Queuing
0/1 = Not required/Required.

STEP 2: ARTD - Assign the following data for the Queuing route and the dummy route CDN9 (TQ) = 1.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 3: ASFC - Allow a service restriction as follows.
SFI21 (Off-Hook Queuing) = 1

[O-30/31] OUTGOING TRUNK QUEUING-ATTENDANT-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows an ATTENDANT CONSOLE [A-3] encountering a busy ISDN trunk to remain off-hook and automatically enter a first-in, first-out queue. As soon as an outgoing ISDN trunk becomes available, the switch connects the next call to that trunk.

2. OPERATING PROCEDURE

To operate:

1. Dial the Access Code and the desired ISDN Trunk Number.
2. When no trunks are available, the call automatically enters an available queue slot.
3. The Attendant receives Service Set Tone.
4. When a trunk becomes available, the dialed number is automatically sent forward.
5. If the Attendant goes on-hook while in queue, the assigned queue slot is cleared.

3. PROGRAMMING

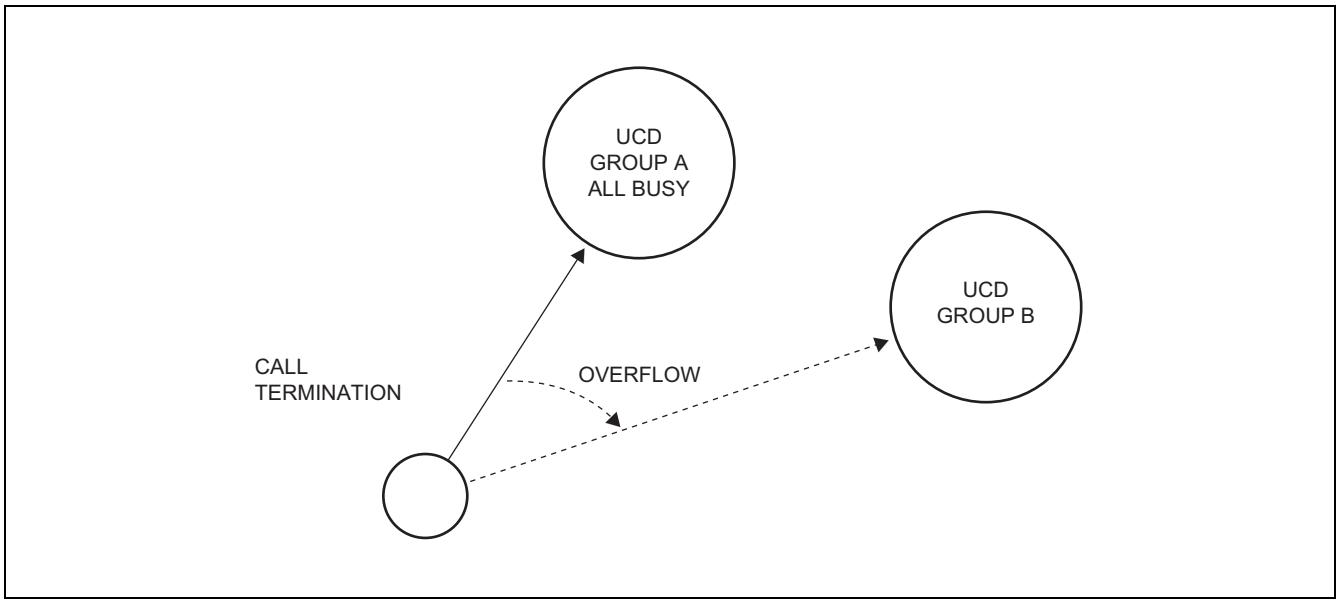
STEP 1: ASYD - System Data 2, Index 4, Bit 2: Off-Hook OG Queuing for Attendant.
0/1 = Out/In Service.

STEP 2: ASFC - Assign 1 (= Allowed) in SFI21 (= Off-Hook OG Queuing) for SFC0.

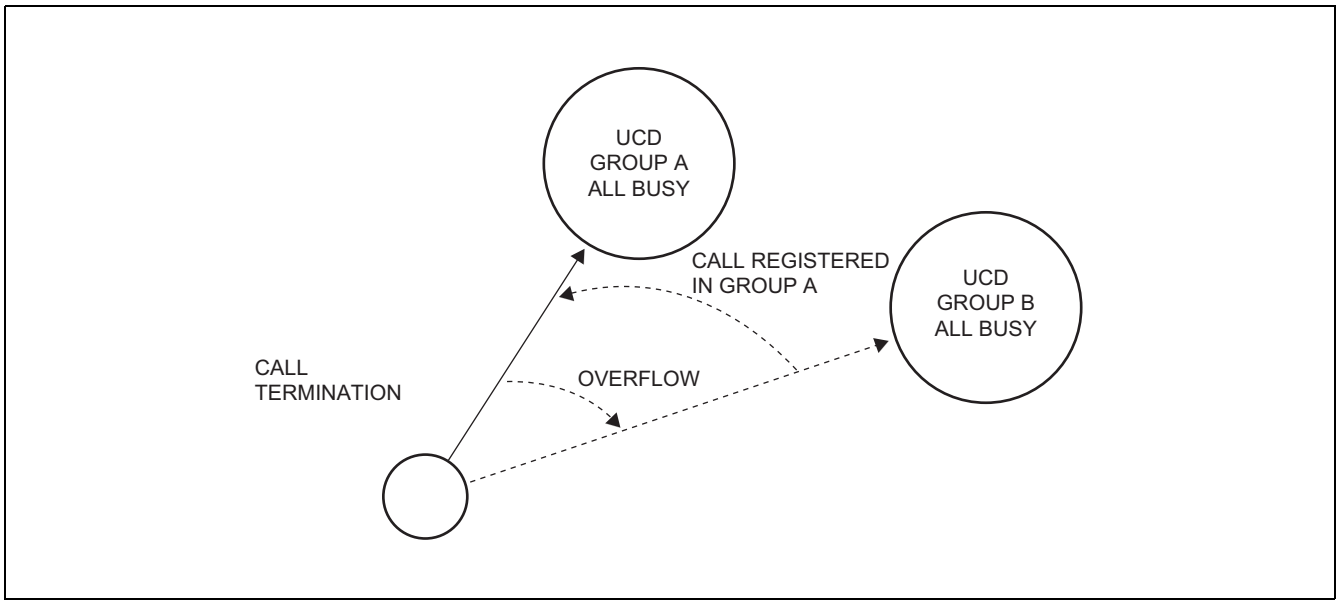
[O-32/33] OVERFLOW-UCD-PRI/PRA

1. GENERAL DESCRIPTION

(1) When a call from an ISDN trunk has terminated to UCD [U-1] Group A and this Incoming Call has encountered all stations busy in Group A, the call is transferred to UCD [U-1] Group B, if Group B is registered as the overflow destination.



(2) In case all the stations are busy in Group B to which the call has been transferred by the OVERFLOW-UCD service, the call is registered in the queue in UCD [U-1] Group A.



2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: ASHU - Assign the required data for the UCD Group:

TN: Tenant Number
STN: Station Number
CNT: Number of stations to be entered (recommended max. of 100 stations).
ADD: Number of station to be added (recommended max. of 100 stations).
STN: Station numbers of the stations included in the UCD group.

STEP 2: AUOG - Assign the UCD OVERFLOW data via this command. Assign the following:

TN-A, STN-A: Tenant Number and station number which belong to a UCD group.
TN-B, STN-B: Tenant Number and station number of a member station in a UCD group to be hunted in the case where the UCD group designated by TN-A and STN-A happens to be busy.
TRANSLATION: When UCD group A is busy, calls will overflow to UCD group B.

[O-35] OUTGOING TRUNK BUSY-ANNOUNCEMENT-PRA

1. GENERAL DESCRIPTION

This feature permits a station-originated call, upon encountering an ISDN trunk busy signal, to be automatically routed to a recorded announcement informing the caller that all outgoing trunks are busy.

2. OPERATING PROCEDURE

No manual operation is required once this feature has been programmed in system data.

3. PROGRAMMING

STEP 1: AAED - Assign Announcement Equipment Number = 4.

STEP 2: ARSC - Set Route Restriction Class to allow RES = 1 for announcement trunk.

STEP 3: ARRC - Assign Alternative Route Restriction to allow or disallow the DID or TIE Line Route to the Announcement Route.

[P-37/41] PEG COUNT-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits traffic studies and traffic analysis information to be accessed from PCPro and to be printed out.

2. OPERATING PROCEDURE

Refer to Operations and Maintenance Manual.

3. PROGRAMMING

Refer to Operations and Maintenance Manual.

[P-38/43] PRIMARY CALL RESTRICTION-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows the system to restrict outgoing ISDN calls according to the specific called number. This restriction is controlled on the basis of the first seven, eight, nine, or all ten digits dialed.

2. OPERATING PROCEDURE

The system checks the dialed number and the restricted numbers and if these numbers match the call is restricted.

3. PROGRAMMING

STEP: APCR - Assign the number to be restricted and the condition of restriction (Allow or Restricted) to each RSC.

[P-39/42] PRI/PRA TRUNK TO TIE LINE CONNECTION WITH PAD CONTROL

1. GENERAL DESCRIPTION

This feature provides a switchable transmission pad for PRI/PRA trunks, which allows tandem connections. Necessary PAD CONTROL is activated to protect against echo.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP: APAD - Assign the Pad data required for the Tandem connection. Assign the following:
KIND:T (Tandem Connection) or S (Station)
ICRT:Incoming Route Number
OGRT: Outgoing Route Number
SFC: Service Feature Restriction Class
IC PAD: Incoming PAD Data (1-15)
OG PAD: Outgoing PAD Data (1-15)
RT: Route Number
PAD DATA: **Note 1**

Note 1: See Circuit Card in Circuit Card Description.

[P-47/48] PAGING TRANSFER-PRI/PRA

1. GENERAL DESCRIPTION

This feature will allow a user to transfer a paged call to a party that has been placed on hold.

Note: When using this feature, see PAGING TRANSFER [P-10] in Assignment of Basic Office Data chapter of Data Programming Manual - Business.

2. OPERATING PROCEDURE

While a user is engaged in a Central Office Line Call:
1. The user presses the SWITCHHOOK FLASH Feature key. Receives Special Dial Tone.
2. User dials the PAGING Access Code. Receives continuous Ringback Tone for approximately one second.
3. User pages the desired party.

Following are the two methods that the paged user answers:
1. Non-Delay System: On dialing the PAGING Answer Access Code, the party paged is immediately connected to the PAGING station.
2. PAGING TRANSFER Supervision: The PAGING user replaces the handset after the page. By dialing the PAGING Answer Access Code, the paged party is directly connected to party on hold.

For Non-Delay Systems, when a PAGING station replaces the handset after talking with the paged party, the held party is directly connected to the paged party.

3. PROGRAMMING

STEP 1: ASYD -System Data 1,Index 73,Bits 0 and 1:b1 b0

0	1	For MEET-ME PAGE. Non-Delay service.
1	0	For MEET-ME PAGE. Delay service.
1	1	For MEET-ME PAGE. Delay service with Call Transfer.

Bit 3: Are PAGE Cancel Codes provided for each route?
0/1: Per route/Common to all routes.

Index 74, Bits 0 and 3:Assign the cancel timer for unanswered page.
Assign data 00H for 30 seconds.
(0-F+1)×30 = Cancel Timer.

System Data 2,Index 1,Bits 0 and 1:Consultation Hold allowed or denied. 00: Denied;01: Originating and Terminating Calls allowed; Tandem Call Denied; 11: All calls allowed.

STEP 2: ARTD - Assign the paging route as shown below:

RT: 1

1-OSGS	: 2	2-ONSG	: 3	5-TF	: 1	6-TCL	: 8	7-L/T	: 1
8-RLP	: 2	15-LSG	: 0						

The other data than above should be set “0” (default data).

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: ATRK - Assign the LENS, Paging Trunk Route Number, Trunk Number, and Tenant Number.

STEP 4: MBTK - Assign the Make Idle status to the Paging trunks.

STEP 5: ANPD - Reserve levels for trunk access and for PAGE answer and Cancel Codes. Assign the trunk access level for a Connection Indexed (CI) of Normal and momentary switchhook flash (Hooking) service. Number of Necessary Digits is Max.3. Busy Lamp Field is not activated.

If the PAGE answer and Cancel Codes reside in a level reserved for features, then assign according to a predetermined numbering plan. If the PAGE answer and Cancel Codes reside in a separate level, then assign for a Connection Index (CI) of Normal only. The number of Necessary Digits is usually two and the Busy Lamp Field is off.

STEP 6: ASPA - Assign Paging Route Access Code. Type of Service, SRV = “OGC: Outgoing Call”. Assign the proper Route Number that is associated with this Paging trunk Access Code. Assign for CI = “N: Normal” and “H: Hooking”.

Assign the PAGE answer and cancel Access Code. Type of Service, SRV = “PAGA: Paging Answer” and SRV = PAGC: Paging Cancel”. Assign the proper Route Number that is associated with this Access Code. Assign for CI = “N: Normal”.

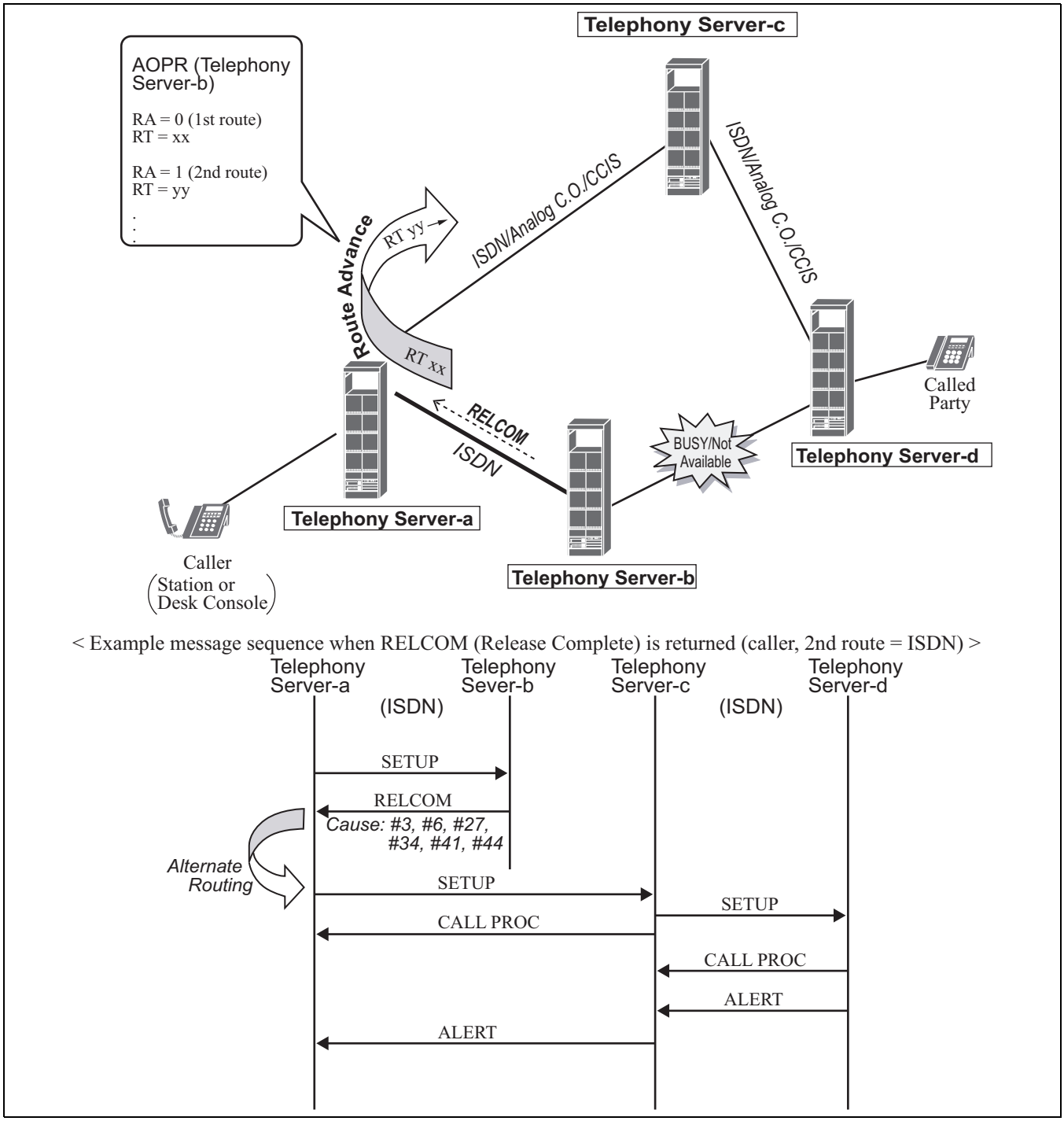
STEP 7: ARSC - Allow RRI: 2 and 3 access to this route for the RSCs assigned to stations given access to the paging routes. Allow RRI: 0 and 1 on the incoming route to be transferred to the RSCs given access to the page answer.

STEP 8: ASFC - Assign station to receive PAGING TRANSFER a Service Feature Restriction Class that allows SFI = 38. This allows a station to dial PAGE answer codes.

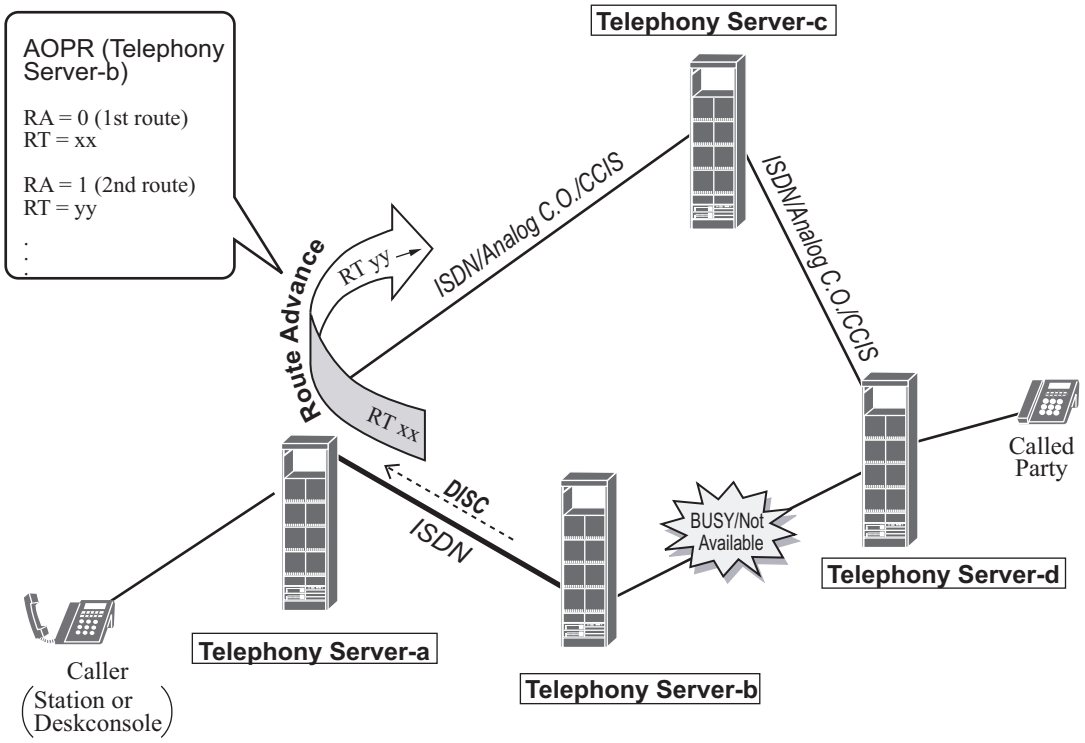
[P-49/50] PRI/PRA FAILSAFE ROUTING

1. GENERAL DESCRIPTION

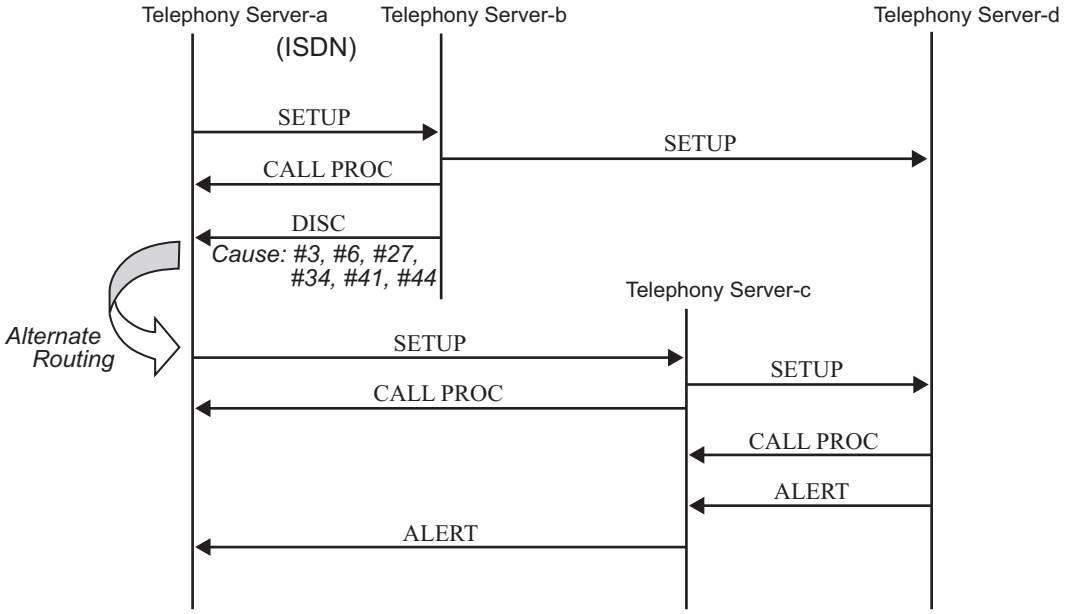
When call origination via ISDN network is not available due to failure, etc., this feature allows the call to be placed via alternative route (Public Switched Network such as another ISDN network or analog Central Office Line). In addition, the pending call can be routed also to No.7 CCIS network.



Alternate routing to CCIS, analog Central Office Line, or other ISDN network can be executed after receiving CALL PROC.



< Example message sequence when DISC (Disconnect) is returned after receiving CALL PROC (Call Proceeding) (caller, 2nd route = ISDN) >



2. OPERATING PROCEDURE

Originate a call to the ISDN network as usual. This feature also supports the AUTHORIZATION CODE [A-20] feature. Therefore, even when access to the selected alternate route is restricted due to the calling party's "station class (CLASS OF SERVICE - INDIVIDUAL [C-15])" data, the caller can temporarily override it (station class) and then access the route, by dialing the pre-assigned Authorization Code.

3. SERVICE CONDITIONS

(1) When the Cause of the release message (RELCOM) or the disconnect message (DISC) is one of the following, the alternate routing can be executed:

- #3: No route to destination
- #6: Channel unacceptable
- #27: Destination out of order
- #34: No Bandwidth
- #41: Temporary Failure
- #44: Request Line/Channel Not Available

(2) This feature is available for:

- Originated call from a station
- Placed call via Call Forwarding-All Calls feature
- Forwarded/placed call at Tandem Node
- Originated call from ATT
- Originated call from ATT with a held station
- Originated call from ATT with a held trunk

Note: When any above-mentioned call encounters a route that is not available (restricted) due to the calling party's station class (CLASS OF SERVICE - INDIVIDUAL [C-15]) data, the caller can temporarily change the class and access to the route, by dialing the Authorization Code. For details on the Code, refer to AUTHORIZATION CODE [A-20] in Data Programming Manual - Business.

(3) When the alternative route is set to ISDN network, following originated calls are routed in one-way.

- Forwarded/placed call at Tandem Node
- Directly originated call from ATT
- Originated call from ATT with a held station
- Originated call from ATT with a held trunk

Note: For directly originated call from a station, originated call from a station with a held station, originated call from a station with a held trunk, above restriction is not applied.

(4) Alternate routing to MFC trunks is not available.

(5) When the last selected route is also not available, the caller hears Busy Tone.

(6) When the last selected route is also not available, the following services are not provided:

- Off-Hook Queuing
- Outgoing Trunk Queuing
- Inter-Office Off-Hook Queuing
- Route Restriction - Announcement

- Outgoing Trunk Busy Announcement

(7) As to the billing information, refer to the STATION MESSAGE DETAIL RECORDING (SMDR) [S-10] in Data Programming Manual - Business.
(8) This feature is not available when originating a call from ISDN terminal or PS terminal.
(9) This feature can be used in combination with LOOK AHEAD - CCIS [L-25] and CCIS ALTERNATE ROUTING - BACKUP [C-178]. See Look Ahead Routing - CCIS [L-25] in Data Programming Manual - CCIS, or CCIS Alternate Routing - Backup [C-178] in Data Programming Manual - CCIS for details.
(10) This feature can be activated via MG-SIP128/96/16. When using this feature with MG-SIP128/96/16, see service condition listed in MEDIA GATEWAY SIP [M-111] in Data Programming Manual - Business.
(11) This feature does not support OAI/ACD related services.

4. PROGRAMMING

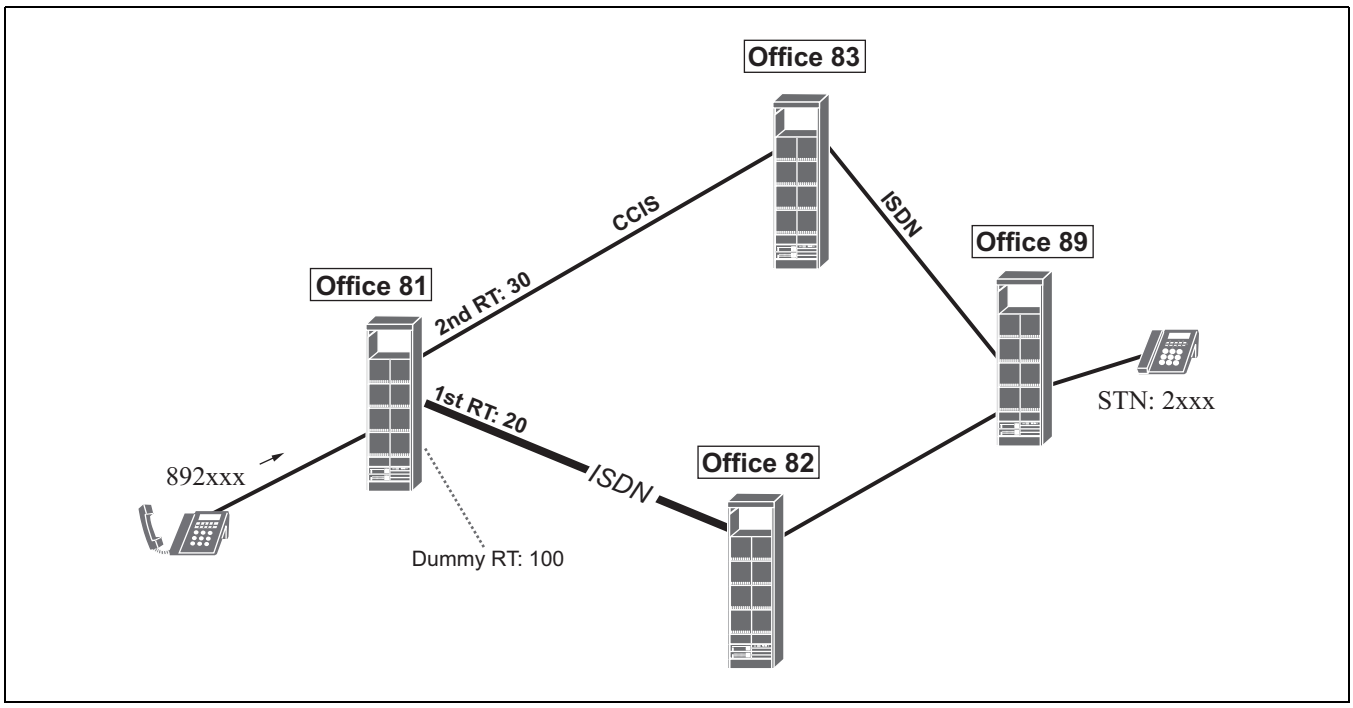
STEP 1: ASYD - Allow alternate routing to No.7 CCIS line.
SYS1, Index 368, b2.
0/1 = Alternate routing to No.7 CCIS line is restricted/allowed.

STEP 2: ARTD - Assign the route class data for dummy route. The route class data of the dummy route is ADVPRA (CDN: 111) = 1.

STEP 3: When the Authorization Code is to be used, assign the necessary office data by referring to AUTHORIZATION CODE [A-20].

☐ Example data assignment
Example data assignment is shown below, in an assumption of the following network configuration:

Data assignment at Office 81, in case of dialing “892xxx” from a station of Office 81.
Network configuration is as follows:



STEP 1: Assign call origination data, route/trunk data and route restriction data, toward Offices 82, 83.

STEP 2: ANPD - Assign the 1st digit code for LCR access.
1st DC = 8
Select Normal Service (N) from the combo box for Connection Indexes.
NND = 1

STEP 3: ASPA - Assign the LCR Access Code (ACC) and Dummy Route.
ACC = 8
CI = "N: Normal"
SRV = "LCR: Least Cost Routing"
RT = 100 (Dummy Route No.)

STEP 4: AFRS - Assign the NPC (Number Pattern Code) and designate the OPR (Outgoing Route Selection Pattern Number) table No., associated with the Dummy Route assigned by ASPA command.
RT = 100 (Dummy Route No.)
NPC = 89
OPR = 9

STEP 5: AOPR - Develop the details of OPR table for route selection.
TDPN = 0
OPR = 9
RA = 0
E = 1
RT = 20
SKIP = 0
PNL = 0
OVFT = 0

PRSC = 0

TDPN = 0
OPR = 9
RA = 1
E = 0
RT = 30
SKIP = 0
PNL = 0
OVFT = 0
PRSC = 0

STEP 6: AMND - Assign the MND (Maximum Necessary Digits) to be received.
DC = 892
MND = 6

STEP 7: ARTD - Assign the route class data for Dummy RT 100.
RT = 100
ADVPRA(CDN: 111) = 1

[P-81] PRESENTATION RESTRICTION OVERRIDE ISDN - PRI

1. GENERAL DESCRIPTION

This feature will override the presentation restriction status of an Incoming call and allow the CLI data to be displayed. This feature is based on a per route basis.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

1. This feature will only override the presentation restriction status of an incoming call.
2. The CLI must be sent from the central office.
3. This feature only supports overriding the presentation restriction in a SETUP message.
4. All other Presentation Restriction information will not be changed.
5. The PRI Interface must be reset after programming the ARTI data.

4. PROGRAMMING

STEP 1: ARTD/ARTDN -Assign DPLY = 1 for Display Service
Assign BT =1
All other Route data is the same as normal ISDN interface.

STEP 2: ARTI - BNOVR=1 for Blocked Number Override

[R-35/38] RESTRICTION FROM OUTGOING CALLS-PRI/PRA

1. GENERAL DESCRIPTION

This feature automatically denies preselected station lines within the system the ability to place outgoing ISDN calls without Attendant assistance.

2. OPERATING PROCEDURE

Operation is fully automatic in that restricted stations will receive Reorder Tone upon attempting to place a restricted call.

3. PROGRAMMING

STEP 1: ASYD -System Data 1,Index 75: Should the following commands be developed for Day/Night? 0/1:No/Yes.
Bit 0-Develop ARSC/ARSCN command for Day/Night?
Bit 3-Develop ATDP/ATDPL/ATDPN command for Day/Night?

System Data 2,Index 1,Bits 4 and 5:Should a Toll-Restricted station be routed to the Attendant Console or receive Reorder Tone?
Reorder Tone: Bit 4 = 0, Bit 5 = 0.
Attendant Console: Bit 4 = 1, Bit 5 = 0.

ROUTE RESTRICTION CLASS

STEP 2: ARSC - Sixteen different Route Restriction Classes may be constructed to either allow, deny, or toll restrict access to the various routes of the system. Assign the RSC using Route Restriction Indexes 2 (outgoing via the Attendant Console) and 3 (Outgoing Direct).

STEP 3: ASDT - Assign Tenant No., Station No., LENS, and the Telephone Equipment Class (TEC) to the station. This is used in regular Business systems. The Service Feature Restriction Class (SFC) and Route Restriction Class (RSC) are also assigned to the telephone.

TN: Tenant Number
STN: Station Number
LENS: Line Equipment Numbers (6 digits)
TEC: Telephone class (1-31)
1 - DP (10 PPS)
2 - BP
3 - DP/PB
4 - DP (20 PPS)
12 - Dterm
13 - Data terminal Via Dterm
14 - Hot Line
15 - CAS Line
18 - Virtual Circuit
23 - ISDN Terminal
27 - 8 Conference Equipment
RSC: Route Restriction Class (0-15) For assignment of RSC, ARSC command.
SFC: Service Feature Restriction Class (0-15) For assignment of SFC, ASFC command.

[R-48] REMOTE ACCESS TO SYSTEM-PRA

1. GENERAL DESCRIPTION

This feature allows a user outside the system to access the system via an ISDN network connection without Attendant or station assistance. The outside user may originate calls over any or all of the PBX facilities such as TIE Line.

2. OPERATING PROCEDURE

To operate, using AUTHORIZATION CODE [A-20] /FORCED ACCOUNT CODE [F-7]:

1. Lift the handset. Receive Dial Tone.
2. Dial the Remote Access number to connect to the system. Receive Ringback Tone through public network.
3. If there is an announcement service, an announcement will be heard. Receive PBX Dial Tone.
4. Dial AUTHORIZATION CODE/FORCED ACCOUNT CODE. Receive PBX Dial Tone.
5. Dial the desired station number. Hear Ringback Tone.
6. The called party answers.

To operate without using AUTHORIZATION CODE [A-20]/FORCED ACCOUNT CODE [F-7]:

1. Lift handset. Receive Dial Tone.
2. Dial the Remote Access number to connect to the system. Receive Ringback Tone through the public network.
3. Receive PBX Dial Tone.
4. Dial the desired station number. Hear Ringback Tone.
5. The called party answers.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 43, Bit 0. Is Authorization Code required with REMOTE ACCESS TO SYSTEM? 0/1: Yes/No. If this is assigned as data “1”, then no assignment in AATC and AMND is required.
System Data 1, Index 243. Timer Counter of the forced release for a tandem connection to the trunk not providing Answer signal. (Data 00H = 64 seconds)
System Data 2, Index 3, Bit 5 must be assigned as data “1”, FORCED ACCOUNT CODE [F-7].
System Data 1, Index 435, Bit 4. Toll Fraud Report. 0/1= Out/ In Service. When this data is assigned as “1”, System Data 1, Index 91, Bit 2 and 3 must be assigned as “0” (All System Messages are output).

STEP 2: AATC - Define an Authorization Code for a Tenant and determine what type of access is allowed or restricted by the code:
TN: Tenant Number
DC: Authorization Code
ACR: Authorization Code Restriction
Choose “Restricted” or “Allowed” based on application. If you want to keep some functionality access restricted, choose “Restricted” and specify the following parameters:
RSC: Route Restriction Class **Note 1**
SFC: Service Feature Class **Note 1**
The remote access line will be route restricted accordingly. The SFC parameter is not operational.

Note 1: Only available when “Restricted” is chosen for the ACR parameter.

[S-82/104] SPEED CALLING-SYSTEM-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a station user or ATTENDANT CONSOLE [A-3] to call frequently dialed ISDN numbers using fewer digits (abbreviated call codes) than would normally be required.

2. OPERATING PROCEDURE

To operate using Access Code:
1. Dial the Speed Calling Access Code (one to three digits).
2. Dial the abbreviated call code (maximum four digits).
3. The call is completed.

<The following procedures are applied for Desktop terminals only.>

To operate using a Line/Feature key:
1. Press the SPEED CALLING-SYSTEM [S-3] (SPEED-SYS) Feature key.
2. Dial the abbreviated call code (two or three digits). The LCD displays as follows.



3. The call is completed.

To operate from a ONE TOUCH-SPEED CALLING key:
1. Press a ONE TOUCH-SPEED CALLING key, the LCD displays previously stored digits.
2. Dial the SPEED CALLING-SYSTEM [S-3] Access Code.
3. Press the SPEED CALLING-ONE TOUCH-D [S-26D] Feature key. The LCD will display as follows.



4. To access, press the SPEED CALLING ONE TOUCH-D [S-26D] Feature key.

The abbreviated Calling Code may be stored along with the Access Code in the SPEED CALLING-ONE TOUCH-D [S-26D] Feature key. Add a pause between Access Code and calling code.

3. PROGRAMMING

STEP 1: ASYD -System Data 2,Index 1,Bit 7:Does TOLL RESTRICTION [T-7] apply to SPEED CALLING-SYSTEM? 0/1:Yes/No.

STEP 2: ANPD - Reserve a number level for feature access. Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

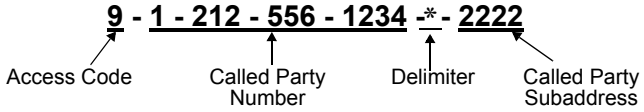
STEP 3: ASPA - Assigning an Access Code to SPEED CALLING-SYSTEM, assign SRV = "SSC: Service Code", SID 15. Program for normal. NND = Access Code plus ADC (Abbreviated Digit Code). See ASPD.

Example: 6+010 (1 digit+3 digits) = NND = 4

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows SFI 12 to stations that will have SPEED CALLING-SYSTEM.

STEP 5: ASPD - Enter Tenant Number (TN), Abbreviated Digit Code (ADC), and Called Number (CD). Include the Access Code of the route in the CD.

- Each Abbreviated Digit Code can store a maximum of 24 digits, including Access Codes.
- A maximum of 1,000 codes can be assigned per system.
- Called party subaddress may be stored by PCPro. For example:



<For Desktop terminal>

STEP 6: AKYD - Assign SPEED CALLING to the Desktop terminal key. Assign FKY 15 to the Desktop terminal key.

[S-83/110] STATION MESSAGE DETAIL RECORDING SYSTEM-RS232C-PRI/PRA

1. GENERAL DESCRIPTION

This feature provides a "call record" for all outgoing station-to-PRI trunk calls and incoming PRI trunk-to-station calls. When the system is equipped with this feature, a SOCKET interface (LAN))/an RS232C output port is provided, permitting direct interface with a customer-owned computer system. All output is in the ASCII format, and includes the following:

- Calling Station Number
- Called Station Number (24 digits maximum)
- Route Number
- Start of Call Time
- Disconnect Time
- Year, Month and Date
- Attendant Handled
- ACCOUNT CODE [A-18] (10 digits maximum)
- FORCED ACCOUNT CODE [F-7] /AUTHORIZATION CODE [A-20] (10 digits maximum)

<Additional FCCS format (for [S-110] only)>

- Called Party Type (Attendant Console/Station)
- Call Start/Call end time (Milli-second)
- Call metering
- FPC/User Group/Telephone number (Calling Party)
- FPC/User Group/Telephone number (Called Party)
- FPC of the node providing the route for call
- Logical Route number
- FPC of the node providing the first-choice route
- First-choice Logical Route number

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

Refer to [S-10] Station Message Detail Recording (SMDR) in Data Programming Manual -Business.

STEP 1: ASYD -System Data 1,Index 20,Bit 7:Charging to a call transferred by CALL FORWARDING-OUTSIDE
0=Charging is made to the caller of the transferred call.
1=Charging is made to the station which has set CALL FORWARDING-OUTSIDE service.

Index 32:	Bit 1:	1=Record the tenant information
	Bit 2:	1=Record the route taken
	Bit 5:	Is the Route Access Code recorded? 0/1=No/Yes.
	Bit 6:	Is the number sent or number dialed recorded in SMDR? 0/1=Number to be sent/Number to be dialed.
	Bit 7:	1=SMDR is in service

Index 33:
- Data 00 Hex=Split Billing
- When Bit 5=1 (Total Billing for Incoming Calls) and/or Bit 6=1 (Total Billing for outgoing calls), the following data can be assigned.

b4	b3		
0	0	=	Telephone called first
0	1	=	Telephone called last
1	0	=	Next Telephone receiving call from ATT/Station.
1	1	=	Last Telephone receiving call form ATT/Station.

Index 34: Bit 0: 1=Enables RS-232C transmission.
Bit 5: Is the converted number sent? 0/1=No/Yes.

System Data 1,Indexes 288-295:Designation of the attributes of the SMDR.
SMDR output port will be designated. For this designation, the attributes of the terminal which outputs the detail call information should have been designated by the AIOC command.
Also for detecting a fault of the SMDR, set the SMDR fault detect timer.
Index 288 = Charging information port of SMDR A.
Index 289 = SMDR fault detect timer of SMDR A.
Index 290 = Charging information port of SMDR B.
Index 291 = SMDR fault detect timer of SMDR B.
Index 292 = Charging information port of SMDR C.
Index 293 = SMDR fault detect timer of SMDR C.
Index 294 = Charging information port of SMDR D.
Index 295 = SMDR fault detect timer of SMDR D.

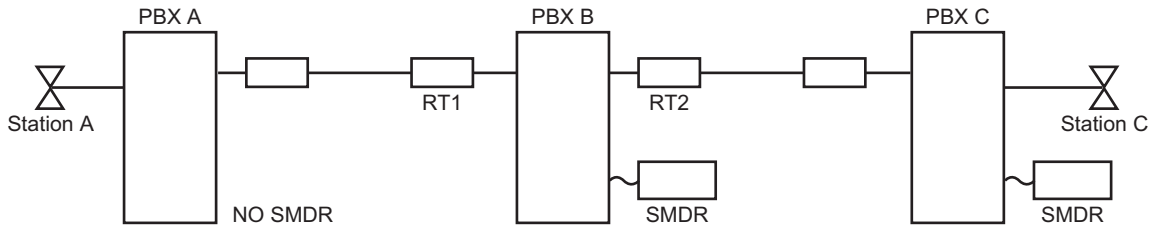
System Data 2,Index 3,Bit 0:1=SMDR registration per tenant is valid.
Bit 7: 0/1=-/SMDR Output (STN-STN) is in service.

STEP 2: AIOC - Assign the function and attribute data of the IOC ports.

STEP 3: ARTD - CDN 10. Enable outgoing routes to be included for SMDR registration. CDN 16, Determination on a per-route basis what type of connection will be registered by SMDR. For outgoing only routes, assign data “0”. For incoming routes, assign data “2”. For bothway trunk routes, assign data “1” only.
CDN56. Detailed billing for outgoing (tandem). CDN69. Detailed billing for incoming (tandem).
With regard to CDN56 and CDN69, see <Reference> on next page.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

<Reference>



In the network shown above, PBX B functions as a tandem switch. In this example, parameters SMDR3 and SMDR4 for RT1 of PBX B should be assigned as "1" for the following reasons.

When Station C places a call to Station A:

Since SMDR collects billing information on the outgoing trunk at PBX C, billing information on the outgoing trunk of RT1 is not required at PBX B (SMDR3=1).

When Station A places a call to Station C:

At PBX B, SMDR collects billing information on the outgoing trunk of RT2, and therefore billing information on the incoming trunk of RT1 is not required (SMDR4=1).

STEP 4: ASFC - Assign data “1” to SFI14 of a Service Feature Restriction Class whose traffic is to be registered on SMDR (Trunk Basis). Assign data “1” to SFI58 of a Service Feature Restriction Class whose traffic is to be registered on SMDR (STN to STN Basis).

Note: The setting enables all traffics to be billing targets. If an unnecessary SMDR data is output, please discard it at the SMDR terminal.

STEP 5: ARNP - For the routes flagged for SMDR in ARTD, list the Physical Route Number and the LCR Access Code.

STEP 6: AMND - Assign the number of digits the register is to receive for every dialing code. List the Toll Number ID Data code for the system to distinguish the Toll Dialing patterns for SMDR registration.

[S-84/102] SPEED CALLING-STATION-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user to dial frequently called ISDN network numbers using fewer digits (abbreviated call codes) than normally required. With this feature a user can establish personal abbreviated codes.

2. OPERATING PROCEDURE

To operate:
1. Dial the speed calling Access Code (one or two digits).
2. Dial the abbreviated call code (one or two digits).
3. Call is completed.

3. PROGRAMMING

STEP 1: ASYD -System Data 2,Index 1,Bit 3:Does TOLL RESTRICTION apply to SPEED CALLING-STATION? 0/1: Yes/No. (If yes, refer to TOLL RESTRICTION-3/6-DIGIT [T-7] in Data Programming Manual - Business).

STEP 2: ANPD - Reserve a number level for feature access. Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Two Access Codes must be assigned for this feature.
For the individual station speed calling number entry, assign the tenant and Access Code (ACC). Assign for a Connection Index of “N: Normal”. For SRV = “SSC: Service Code”, assign SID 14.
For individual station speed calling access, assign the tenant and Access Code (ACC). Assign for a Connection Index of “N: Normal”. For SRV = “SSC: Service Code”, assign SID 21.

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows SFI 19 to the stations to receive SPEED CALLING-STATION.

STEP 5: AISA - Program the tenant, station, type of station, and the number of SPEED CALLING blocks to be assigned to the Master station.
TN: Tenant Number
STN: Station Number
MST/SLV: Master/Slave
1: MST (Master Station)
2: SLV (Slave Station)
BLOCK: Number of Blocks
MST STN:When assigning Slave station, assign the Master station number.

STEP 6: AKYD - KYI = 1 FKY = 26 (SPEED CALLING-STATION)

STEP 7: AISD - This command is used to assign, delete and display the destination number of Individual Speed Calling.

[S-85/103] SPEED CALLING-GROUP-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a user to share a group of common ISDN network Speed Calling numbers with other members in the group.

2. OPERATING PROCEDURE

To operate:
1. Dial the speed calling Access Code (one or two digits).
2. Dial the abbreviated call code (one or two digits).
3. Call is completed.

3. PROGRAMMING

STEP 1: ASYD -System Data 2,Index 1,Bit 3:Does TOLL RESTRICTION apply to SPEED CALLING-STATION? 0/1: Yes/No. (If yes, refer to TOLL RESTRICTION-3/6-DIGIT [T-7] in Data Programming Manual - Business).

STEP 2: ANPD - Reserve a number level for feature access. Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Two Access Codes must be assigned for this feature.
For the individual station speed calling number entry, assign the tenant and Access Code (ACC). Assign for a Connection Index of “N: Normal”. For SRV = “SSC: Service Code”, assign SID 14.
For individual station speed calling access, assign the tenant and Access Code (ACC). Assign for a Connection Index of “N: Normal”. For SRV = “SSC: Service Code”, assign SID 21.

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows SFI 19 to the stations to receive SPEED CALLING-STATION.

STEP 5: AISA - Program the tenant, station, type of station, and the number of SPEED CALLING blocks to be assigned to the Master station.
TN: Tenant Number
STN: Station Number
MST/SLV: Master/Slave
1: MST (Master Station)
2: SLV (Slave Station)
BLOCK: Number of Blocks
MST STN:When assigning Slave station, assign the Master station number.

STEP 6: AKYD - KYI = 1 FKY = 26 (SPEED CALLING-STATION)

STEP 7: AISD - This command is used to assign, delete and display the destination number of Individual Speed Calling.

[S-89/105] SPEED CALLING OVERRIDE-SYSTEM-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows a station with restriction on outgoing ISDN and/or certain miscellaneous trunk calls by the station CLASS OF SERVICE-INDIVIDUAL [C-15] to place such calls by using the prefixed digits (abbreviated call code) registered beforehand in SPEED CALLING-SYSTEM-PRI/PRA [S-82/S-104]. A station may use this feature if it has been assigned the appropriate SFC (Service Feature Restriction Class).

2. OPERATING PROCEDURE

1. Lift the handset (includes SPEAKER key operation on a Desktop terminal). Listen for Dial Tone.
2. Dial the speed calling Access Code (one or two digits).
3. Dial the abbreviated call code (two or three digits).
4. If the station is allowed this call, the call is completed, if not, the station will hear Reorder Tone.

3. PROGRAMMING

STEP 1: ASYD -System Data 2, Index 1, Bit 6: Is SPEED CALLING OVERRIDE (on a SFC basis) to be enabled? 0/1: No/Yes.
Bit 7: Is SPEED CALLING OVERRIDE (on a system basis) to be enable? 0/1 = No/Yes.

Note: Assign the data "1" in either Bit 6 or Bit 7.

STEP 2: ANPD - Reserve a number level for feature access. Select Normal Service (N) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assigning an Access Code to SPEED CALLING-SYSTEM, assign SRV = SSC, SID = 15. Program for Normal. NND = Access Code plus ADC (Abbreviated Digit Code). See ASPD.
Example: 6 (ACC) + 010 (ADC)
1 digit + 3digits = NND = 4

STEP 4: ASFC - Assign an SFC that allows SFI 12 to stations that will have SPEED CALLING-SYSTEM.

STEP 5: ASPD - Assign a Tenant Number (TN), Abbreviated Digit Code (ADC), and Called Number (CD). Include the Access Code of the route in the CD.

STEP 6: AABD - Assign the Tenant (TN) and the Abbreviated Speed Calling Code, Abbreviated Digit Code (ADC) as assigned in the ASPD command. Assign the Service Feature Restriction Class (SFC) and Restriction Data (RES).
RES 0: Connection is restricted.
RES 1: Connection is allowed.

Note: This step can be skipped when System Data 2, Index 1, Bit 6=0 in ASYD.

STEP 7: AKYD - Assign SPEED CALLING-SYSTEM to a programmable Line/Feature key. Assign KYI = 1 and FKI = 15.

[S-107/108] STATION INDIVIDUAL TRUNK ACCESS-PRI/PRA

1. GENERAL DESCRIPTION

This feature permits a station to access an individual ISDN trunk via dial access.

2. OPERATING PROCEDURE

To access:

1. Lift the handset. Receive the Dial Tone
2. Dial the feature Access Code, trunk Route Number, Trunk Number, and desired station number. Receive the Ringback Tone.
3. When the called party answers, communication can begin.

3. PROGRAMMING

STEP 1: ASYD -System Data 1,Index 68,Bit 1:Designates the method the Attendant Console must use to operate INDIVIDUAL TRUNK ACCESS. 0/1: Route and Trunk Number/Listed Directory Number (Central Office Code, ACOC)
System Data 1,Index 68,Bit 4:Is Trunk Select Key in service? 0/1: No/Yes. Assign data 1.

STEP 2: ANPD - Reserve a number level for this Access Code. CI=N.

STEP 3: ASPA - Assign an Access Code for this service. CI="N: Normal", SRV="SSC: Service Code", SID=17.

Optional

STEP 4: ARTD - If the Central Office Code option is assigned, assign data "1" in CDN 25.

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 5: ACOC - If the Central Office Code option is assigned, trunks in the system must be programmed to have an associated Central Office Code. This code is dialed after pressing the Attendant Console's Trunk Select key.

STEP 6: ASFC - Allow the restriction. SFI39=1.

[T-37/43] TANDEM SWITCHING OF TIE TRUNKS-2/4-WIRE-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows PRI trunk-to-Tie-trunk connections through Telephony Server without the need for any Attendant assistance or control. The major use of this feature is in association with the Dial Tandem TIE Line Network to allow TIE Line connections and incoming TIE Line calls automatic access to and completion of local central office calls.

2. OPERATING PROCEDURE

1. Lift the handset. Receive Dial Tone from the distant office.
2. Dial the Tie Trunk Access Code. Receive Dial Tone from the PBX.
3. Dial "9". Receive Dial Tone from the distant PBX or local Central Office.
4. Dial the Central Office exchange number (local or toll).

3. PROGRAMMING

STEP 1: ARTD - Assign the TIE Line routes as shown below:

<Example of BOTHWAY TIE-LINES>

RT: 1

1-OSGS	: 2	2-ONSG	: 3	3-ISGS	: 2	4-INSG	: 3	5-TF	: 3
6-TCL	: 4	7-L/T	: 1	8-RLP	: 2	15-LSG	: 4	28-ANS	: 1

The other data than above should be set "0" (default data).

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ATRK - Assign the LENS, TIE Line Route Number, Trunk Number, and Tenant Number.

STEP 3: MBTK - Assign the Make Idle status to the TIE Line Trunks.

STEP 4: ANPD - Reserve a number level for trunk access. Select Normal Service (N) or Hooking Service (H) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan. Busy Lamp Field is not activated.

STEP 5: ASPA - Assign the Access Code as assigned in ANPD above. Assign Connection Indexes, CI = "N: Normal" and "H: Hooking". Type of Service, SRV = "OGC: Outgoing Call" for Outgoing Trunk. Assign the Route Number associated with this Access Code.

STEP 6: ARRC - Assign to the system trunk-to-trunk connection. Use Alternative Route Index (ARI) D for Direct Connection. Three possible Restrictions (RES) may be assigned. Data "0" Connection is Restricted, data "1" Connection is Allowed, or data "2" Toll Restriction is required. For TANDEM SWITCHING OF TIE TRUNKS-2/4 WIRE, TOLL RESTRICTION is not required.

STEP 7: APAD - Assign any Pad data that may be required for desired quality of service. (Optional, see TIE LINE CONNECTION WITH PAD CONTROL [T-5]).

Note: In the network including CCIS No.7, assign the data CDN98 (CI)=1 (of the ARTD command) to all speech routes of CCIS No.7 network.
Refer to [T-44] TRANSFER MESSAGE (TRM).

[T-38/45] THREE-WAY CALLING-PRI/PRA

1. GENERAL DESCRIPTION

This feature enables any user to add another party to an existing ISDN network connection, establishing a Three-Way conference.

2. OPERATING PROCEDURE

To operate using the hookswitch:

1. Place the original party on hold.
2. Press the hookswitch. Receive Special Dial Tone.
3. Dial the desired number. Receive an answer.
4. Announce the conference and press hookswitch again.
5. THREE-WAY CALLING-PRI/PRA is now established.

<The following procedures are applied for Desktop terminals only.>

To operate using a CONF key:

1. Press the TRANSFER key. Receive Special Dial Tone. The original party is placed on hold.
2. Dial the desired number. Receive an answer.
3. Announce the conference and press the CONF key.
4. THREE-WAY CALLING-PRI/PRA is now established. The LCD displays as follows.

CONF (Time Display)

3. PROGRAMMING

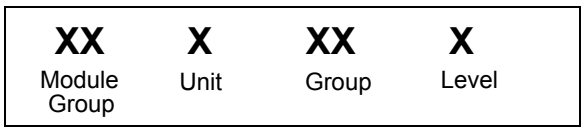
STEP 1: ASYD -System Data 2,Index 1,Bits 0 and 1:Consultation Hold allowed or denied. 00: Denied; 01: Originating and Terminating Calls allowed, Tandem Call Denied; 10: Only Terminating Calls Allowed; 11: All calls allowed.

Index 6, Bit 2: This Bit remains as data “0”. CALL TRANSFER-ALL CALLS [C-11].

Bit 3: Enable add-on ability. This Bit remains as data “0” to allow THREE-WAY CALLING.

System Data 3,Index 2: Assign data 91H for Normal, hookswitch (Hooking) values.

STEP 2: ATRK - Assign these LENS as Route 909, Digital Conference Trunk. The LENS consists of the following:



Group and Level numbers for the Digital Conference Trunk are 210, 213, 216, 221, 224, 227, 232 and 235.

STEP 3: MBTK - Make Idle the Digital Conference Trunk.

STEP 4: ARRC - Allow for trunk-to-trunk connections between any two routes that may be used in THREE-WAY CALLING. Assign these routes for ARI = A: This connection is for a station and two trunks.
ARI = D: If the originating party hangs up, the remaining two parties will stay connected.

STEP 5: ARSC - The Route Restriction Class must be constructed so as to allow the station access to the involved routes.

[T-40/47] TOLL DENIAL/TOLL DIVERSION-PRI/PRA

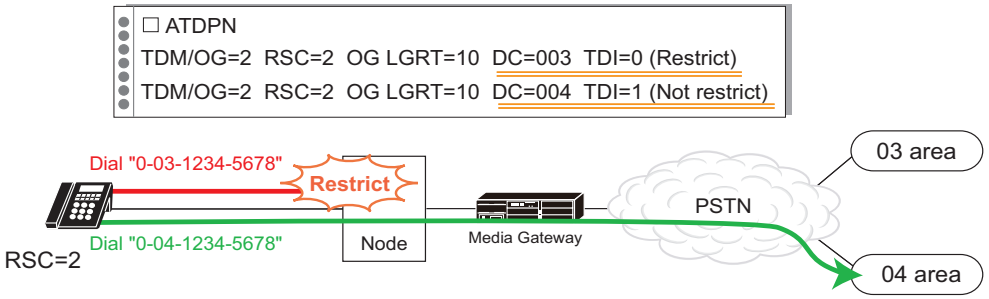
1. GENERAL DESCRIPTION

This feature prohibits users from placing long distance calls over specific ISDN network trunks. Restricted calls are routed to either an ATTENDANT CONSOLE [A-3] (diversion) or to an Reorder Tone (denial).

Toll calls can be restricted on the basis of Tenant Number (TN) of originating station/incoming trunk by ATDPEL/ATDPEN command, combining the Route Restriction Class (RSC) setting. See the examples below:

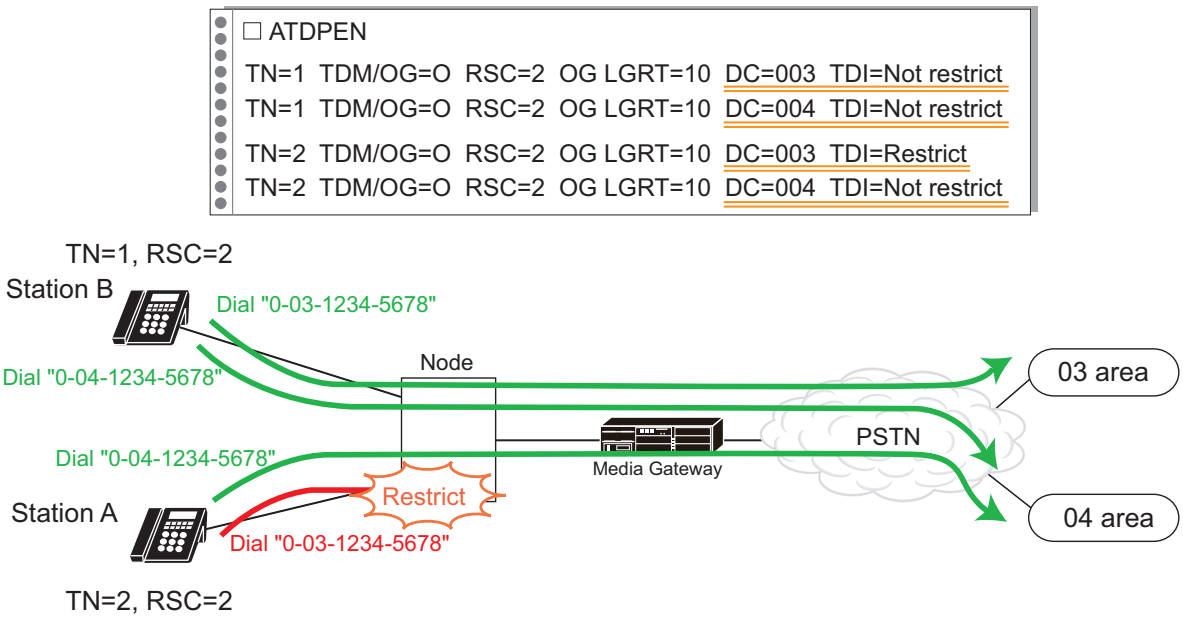
<e.g.1> Toll call restriction by RSC (with ATDP/ATDPL/ATDPN command)

When restricting outside calls to 03 area from the station with RSC=2:



<e.g.2> Toll call restriction by RSC for each TN (with ATDPEL/ATDPEN command)

When restricting outside calls to 03 area from the station with RSC=2 and TN=2 (Station A):



When the stations with the same Route Restriction Class (RSC=2 is set to both Station A and Station B) dial the same destination, Station B (TN=1) can originate outside calls to 03 area while Station A (TN=2) is restricted.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

Follow the conditions listed below for the Tenant based TOLL DENIAL/TOLL DIVERSION-PRI/PRA.

1. TOLL DENIAL/TOLL DIVERSION-PRI/PRA is applied to individual stations by the setting of Tenant Number (TN), Route Restriction Class (RSC), and outgoing trunk.
2. When toll call from station is restricted by Route Restriction Class (RSC),
   - Toll call restriction can be released on the basis of Tenant Number (TN) and Destination Code (DC) by using ATDPEL/ATDPEN command.
   - Toll call by Speed Dialing is restricted/allowed by Service Feature Restriction Class (SFC).
3. Toll call in tandem connection is restricted on the basis of Tenant Number (TN) and Destination Code (DC) by using ATDPEL/ATDPEN command.
4. This feature supports the outgoing calls of LCR/LCRS. Therefore, toll call from the restricted station is denied after dialing all the digits.
5. Toll call from Sub Line is restricted by the TN of My Line.
6. This feature is not compatible with OAI, ACD, and hotel features.
7. Toll call from visitor PS (roaming in other node) is restricted by the TN and RSC assigned for visitor PS number on the visitor node.
8. Be sure to assign a same value to TN and UGN when Dial Plan to Support IP Centrex Functionality [D-166] is used.
9. ATDPEL/ATDPEN command does not support [T-41/48] Toll Restriction - 3/6-Digit - PRI/PRA and operator call to outside.
10. The following commands work in the priority order below:

ATDPEL/ATDPEN	1	high
ATDPN	2	↑
ATDPL	3	
ATDP	4	low

11. When toll call is restricted to each tenant of originating station/incoming trunk, use ATDPEL command for the nodes without FPC setting, and use ATDPEN command for the nodes with FPC setting.

4. PROGRAMMING

STEP 1: ASYD -System Data 1,Index 75: Should the following commands be developed for Day/Night: 0/1: No/Yes. For details, see Day/Night Class of Service [D-15] in Data Programming Manual - Business.

-Bit 0- Develop ARSC/ARSCN command for Day/Night?
-Bit 3- Develop ATDP/ATDPL/ATDPN command for Day/Night?

System Data 2,Index 1,Bits 4 and 5:If TOLL DENIAL is required, assign these Bits as data "00". If TOLL DIVERSION is required, assign these Bits as "01". Calls are then diverted to the Attendant Console. Assigned on a per-tenant basis.

STEP 2: ARSC - Assign Route Restriction Classes. When these are assigned to stations, classes will determine whether or not a station will be allowed access to a specific route or specific dialing sequence. See TOLL RESTRICTION-3/6-DIGIT [T-7]. Assign the following:

DAY/NIGHT: Day/Night Mode
D: Day Mode
N: Night Mode
TN: Tenant Number
RT: Route Number
RSC: Route Restriction Class
RRI: Route Restriction Index
0-IC Restriction via Attendant Console/station
1-IC Restriction Direct Connection
2-OG Restriction via Attendant Console/station
3-OG Restriction Direct Connection
RES: Restriction Data
0-Connection is Restricted
1-Connection is Allowed
2-Connection is Toll Restricted (See TOLL RESTRICTION-3/6-DIGIT, [T-7])

STEP 3: ASDT - When assigning the data to specific stations, assign the proper RSC to each station.

<Programming for Tenant based TOLL DENIAL/TOLL DIVERSION-PRI/PRA>
STEP 1: ASYD - System Data 2
Index1 b4 and b5: Connection pattern for toll call restriction
b5=0, b4=0: TOLL DENIAL (Reorder Tone connection)
b5=0, b4=1: TOLL DIVERSION (Terminated to Attendant Console)
b6: Speed Calling overrides Toll Restriction (on SFC base)
0/1=Out of service/In service **Note 1**

Note 1: When this system data is assigned to 1=In service, stations with TOLL DENIAL/TOLL DIVERSION-PRI/PRA can originate toll calls using Speed Calling assigned by AABD command.

STEP 2: ASYDL - System Data 1
Index802 b1: Tenant data table for ATDPEL/ATDPEN. 0/1=Tenant base/Common **Note 2**, **Note 3**
Index1121 b0: Day/Night data table for ATDPEL/ATDPEN.
0/1=Common/Separate **Note 2**, **Note 4**
b1: Day/Night data table for ATDPEL/ATDPEN in tandem connection.
0/1=Common/Separate **Note 2**, **Note 4**

Note 2: When assigning toll call restriction data by ATDPEN command, be sure to assign the same data on Network Control Node (NCN) and Local Node (LN).

Note 3: When ASYDL SYS1 Index 802 b1=1 (Tenant data table is common) is assigned, TN=1 is always applied in ATDPEL/ATDPEN command even when other Tenant is selected.

Note 4: When Day/Night data table is assigned to 0=Common, D/N=D (Day) is always applied in ATDPEL/ATDPEN command even when N (Night) is selected.

STEP 3: ASYDN - System Data 1

Index800 b6: Tenant data table for ARSCN command in NDM.
0/1=Tenant base/Common

STEP 4: AMND/AMNDL/AMNDN- Maximum Necessary Digits Data

Note: Assign on each node.

TN: Tenant Number
DC: Destination Code (= Access Code + Area/Office Code)
MND: Maximum Necessary Digits to DC
TOLL: Local Code/Toll Code
AN: Out of service/Account Number
RATE: 0 (fixed)
A/D: Type of destination party: Analog/Digital

STEP 5: ARSC/ARSCN- Route Restriction Class Data. Whether to restrict toll call is determined for RSC and TN of station.

DAY/NIGHT: D/N=Day Mode/Night Mode
TN: Tenant Number
RT: Route Number
RSC: Route Restriction Class
RRI: Route Restriction Index
0: IC Restriction via Attendant Console (DDD, etc.)
1: IC Restriction Direct Connection (DID, etc.)
2: OG Restriction via Attendant Console
3: OG Restriction Direct Connection (DDD, etc.)
RES: Restriction Data
0: Connection is Restricted
1: Connection is Allowed
2: Toll Connection is Restricted **Note 5**

Note 5: When RES=2 is assigned, toll calls from the stations with the specified RSC are restricted.

STEP 6: ARRC/ARRCN - Alternative Route Restriction. Assign toll call restriction data between incoming route and outgoing route. **Assign to configure tandem connection.*

ICRT: External route number of incoming route
OGRT: External route number of outgoing route
ARI D-RESS: 2 = Toll Connection is Restricted **Note 6**

Note 6: Even when ARI D-RESS=2 is assigned, toll call in tandem connection is not restricted unless restriction data is assigned by ATDPEL/ATDPEN command.

STEP 7: ATDPEL/ATDPEN - Expanded Toll Call Restriction data. Toll call is to be restricted/allowed depending on Destination Code and Tenant Number.

TN:	Tenant Number of originating station/incoming trunk [1-63]
TDM/OG:	TDM = Tandem Connection **Note 7**, **Note 8** OG = Outgoing Connection **Note 9**
D/N:	Day Mode/Night Mode
RSC:	Route Restriction Class of originating station [1-15] **Required when OG is selected.*
IC RT/LGRT:	Incoming Route Number [1-255/1-899] **Note 10**, **Note 12**
OG RT/LGRT:	Outgoing Route Number [1-255/1-899] **Note 10**
DC:	Destination Code [Maximum 24 digits] **Note 11**
TDI:	Restriction Data [Connection is restricted/allowed] **Note 13**

Note 7: To make Tandem Connection effective, assign the alternative route restriction to ARI D-RES=2 (Toll Connection is restricted) by ARRC command.

Note 8: When TDM (Tandem Connection) is selected, D/N mode cannot be separately assigned. Irrespective of D/N mode setting, restriction data for tandem connection is registered as common data.

Note 9: To make OG (Outgoing Connection) effective, assign RES=2 (Toll Connection is restricted) by ARSC command.

Note 10: Assign IC LGRT and OG LGRT when ATDPEN command is used. Use ATDPEL command for the nodes without FPC setting, and use ATDPEN command for the nodes with FPC setting.

Note 11: When toll call is to be restricted in the node where all digits are sent out for LCR/LCRS dialing, in DC parameter of ATDPEL/ATDPEN command, add the ACC of ARNP command before the sending digits (the ACC corresponds to the NND of ANPD). Be sure to assign equal or more digits of NND for the ACC by ARNP command.

Note 12: Required when TDM is selected.

Note 13: Select either of the radio button.

STEP 8: AABD - Speed Calling Restriction Data. Release restriction of outgoing toll call origination by dialing Speed Calling on a SFC basis.

ADC:	Abbreviated Digit Code of Speed Calling [Maximum 4 digits]
SFC:	Service Feature Restriction Class [1-15]
RES:	Restriction Data. 0/1=Connection is restricted/allowed

[T-41/48] TOLL RESTRICTION-3/6-DIGIT-PRI/PRA

1. GENERAL DESCRIPTION

This feature allows the system to be programmed to restrict outgoing ISDN calls according to specific area and/or Central Office codes.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: ASYD -System Data 1,Index 75: Should the following commands be developed for Day/Night? 0/1: No/Yes. For more details, see Day/Night Class of Service [D-15] in Data Programming Manual - Business.

-Bit 0- Develop ARSC/ARSCN command for Day/Night?
-Bit 3- Develop ATDP/ATDPL/ATDPN command for Day/Night?

System Data 2,Index 1,Bit 3: Does TOLL RESTRICTION apply to SPEED CALLING-STATION [S-21]? 0/1: Yes/No.

Bits 4 and 5: If TOLL DENIAL is required, assign these Bits as data "00". If TOLL DIVERSION is required, assign these Bits as "01".

Bit 7: Does TOLL RESTRICTION apply to SPEED CALLING-SYSTEM [S-3]? 0/1: Yes/No.

STEP 2: ARSC - Assign Route Restriction Classes. When these are assigned to stations, classes will determine whether or not a station will be allowed access to a specific route or specific dialing sequence. Assign the following:

DAY/NIGHT: Day/Night Mode
D: Day Mode
N: Night Mode
TN: Tenant Number
RT: Route Number
RSC: Route Restriction Class
RRI: Route Restriction Index
0-IC Restriction via Attendant Console/station
1-IC Restriction Direct Connection
2-OG Restriction via Attendant Console/station
3-OG Restriction Direct Connection
RES: Restriction Data
0-Connection is Restricted
1-Connection is Allowed
2-Connection is Toll Restricted

STEP 3: AMND - This command indicates the total number of digits to expect, based upon the first digits dialed. A "9" plus a local call will equal 8 digits, "9" plus 1 plus an Area Code call will equal 12 digits. Assign the dialed digits information and the corresponding Maximum Necessary Digits (MND) data. Choose either Local Code or Toll Code for the Toll Code Identification (TOLL) parameter.

N + DIALING

(N = 2-9, P = 0 or 1, A/X = 0-9)

CALL TYPE	DIGITS DIALED (Note 1)	DIGITS NEEDED	MND	TOLL
Local Calls	9-NNX-XXXX	9-N	8	Local Code
Near Distance Calls	9-1-NNX-XXXX	9-1-NN	9	Toll Code
Long Distance Calls	9-1-NPA-NXX-XXXX	9-1-NP	12	Toll Code

WITHOUT N + DIALING

(N = 2-9, P = 0 or 1, A/X = 0-9)

CALL TYPE	DIGITS DIALED (Note 1)	DIGITS NEEDED	MND	TOLL
Local Calls	9-NNX-XXXX	9-N	8	Local Code
Long Distance Calls	9-NPA-NXX-XXXX	9-NP	11	Toll Code

Note 1: The digits underlined are to be listed in the DC (Digit Code) parameter. Overseas or Operator-assisted calls should be listed with an MND equal to the calculated number of required digits. Special dialing sequences such as "911" with an MND = 4 should also be listed.

STEP 4: ATDP - Assign the following:

D/N: Day/Night Mode
1: Day Mode
2: Night Mode

TDM/OG: Tandem Connection/Outgoing Connection
1: T (Tandem Connection)
2: O (Outgoing Connection)

IC RT: Incoming Route Number (Tandem Connection Only)

RSC: Restriction Class (0-15)

OG RT: Outgoing Route Number

DC: Destination (Area) Code (Maximum 11 digits)

TDI: Restriction Data
0: Connection is Restricted
1: Connection is Allowed
2: 3/6 Digit Toll Restriction
3: Central Office Operator Call (9+0)

NND: Necessary Digits (1-12)
This parameter is available only when TDI=2 (3/6 Digit Toll Restriction)

[T-58] TRUNK ANSWER FROM ANY STATION (TAS)-PRA

1. GENERAL DESCRIPTION

This feature allows any station, other than one with incoming restrictions, to answer the Incoming Calls when the system is in the night mode. With this feature activated, the ISDN network Incoming Calls will activate a common alert (TAS) signal at the customer premises. By dialing a specified code, any station may answer the call and then extend it to any other station by means of CALL TRANSFER - ALL CALLS [C-11].

2. OPERATING PROCEDURE

To operate:
1. The TAS signal (bell, buzzer, etc.) sounds.
2. Lift the handset. Receive Dial Tone.
3. Dial the specified Access Code.
4. Connection to the Incoming Call is completed.

3. PROGRAMMING

STEP 1: ASYD - SYS1, Index 68, Bit 2. Type of TAS ringing. 0/1: Interrupted/Continuous.
SYS1, Index 77, Bit 0. Is Day/Night change accomplished by removing Attendant Console handset? 0/1: No/Yes.
SYS1, Index 229, Bit 3. Day/night change system message printout. 0/1: No/Yes.

STEP 2: ANPD - Reserve a number level for feature access. Select Normal Service (N), Hooking Service (H), or Busy Service (B) from the combo box for Connection Indexes (applicable to any feature assigned to this level).
Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assign an Access Code to TRUNK ANSWER FROM ANY STATION, SRV = “SSC: Service Code”, SID = 16 TAS. Connection Index of CI = “N: Normal”.

STEP 4: ASFC - Assign a Service Feature Restriction Class that allows SFI = 13 for the station to receive TRUNK ANSWER FROM ANY STATION.

STEP 5: ACFR - Allow a Transfer Service Feature Index of 5, TAS to the listed types of Incoming Calls to be answered by TAS. The Call Class Indexes (CCI) will correspond to ARTD, CDN 6: TCL; Trunk Class parameter. CCI: 1-LDN 2-DDD2 3-DDD3 4-TIE LINE 5-DDD4

STEP 6: ATAS - Assign the TAS circuit to the TN, MG, PIR, and the circuit number: 0/1 based on the circuit location. TAS CKT # = Attendant Console CKT #.

[T-59] TRUNK-TO-TRUNK CONNECTION-PRA

1. GENERAL DESCRIPTION

This feature provides any user with the ability to conference together either two ISDN network calls or an ISDN network call and a TIE Line call.

2. OPERATING PROCEDURE

To operate:
1. Place the Incoming Caller on hold.
2. Press the switchhook. Receive Special Dial Tone.
3. Dial the desired ISDN network or TIE Line Access Code. Receive Second Dial Tone.
4. Dial the desired number. Receive an answer.
5. Announce the conference and press switchhook again.
6. The original party is now included in connection.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 156. The timer value for non-senderized trunks between seizure and when a switchhook flash is possible. Default is 30 seconds. Without SMDR, it is recommended to change it to two seconds. Program 31H.
System Data 1, Index 157. The timer value for senderized trunks between seizure and when a switchhook flash is possible. Default is 18 seconds. Without SMDR, it is recommended to change it to two seconds. Program 31H. (See Station Message Detail Recording (SMDR) [S-10] in Data Programming Manual - Business.)
System Data 2, Index 1, Bits 0 and 1. Consultation Hold. Assign data “11” for Consultation Hold service on Originating, Terminating, and Tandem calls.
System Data 2, Index 6, Bit 2. This Bit remains as data “0”. CALL TRANSFER-ALL CALLS [C-11].
System Data 2, Index 6, Bit 3. Enable add-on station. This Bit remains as data “0” for THREE-WAY CALLING [T-2].
System Data 3, Index 2. Assign data 91H for normal switchhook flash values.

STEP 2: ARSC - Stations allowed to establish trunk-to-trunk connection must be provided access to routes that have been allowed trunk-to-trunk connection in the ARRC command.

STEP 3: ASFC - Assign a Service Feature Restriction Class that allows SFI 10 to stations that will have CALL HOLD [C-6].

STEP 4: ATRK - Assign these LENS as Route 909, Digital Conference Trunk.
Group and Level numbers for the Digital Conference Trunk are 210, 213, 216, 221, 224, 227, 232, and 235.

STEP 5: ARRC - Routes that will be allowed trunk-to-trunk connection must be allowed here for ARI-A-RES.

ICRT: Incoming Route Number

OGRT: Outgoing Route Number

ARI-A-RES: This allows/restricts trunk-to-trunk (tandem) connection via the Attendant Console and stations.

ARI-D-RES: This allows/restricts trunk-to-trunk (tandem) connection via Direct Dial access from a station and trunks.

0 = Alternate routing is restricted

1 = Alternate routing is allowed

2 = Toll Restricted

When ARI-D-RES is needed for a direct dial trunk-to-trunk connection, refer to the specific application within this document for the programming steps. Such applications include REMOTE ACCESS TO SYSTEM [R-3], TANDEM SWITCHING OF TIE TRUNKS-2/4-WIRE [T-1], INCOMING CENTRAL OFFICE TO TIE LINE CONNECTION [I-3], and TOLL RESTRICTION-3/6-DIGITS [T-7].

[U-6/7] UNIFORM CALL DISTRIBUTION (UCD)-PRI/PRA

1. GENERAL DESCRIPTION

This feature distributes Incoming Calls from ISDN trunk to a specified group. Calls are distributed to idle stations, in a circular pattern, in the order they arrive.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: ASHU - Assign the required data for the UCD group:
- TN: Tenant Number
- STN: Station Number
- CNT: Number of stations to be entered (Recommended Max. 100 stations)
- STN: Station numbers of the stations included in the UCD group. (The order in which stations are programmed is the order in which they will be hunted.)

STEP 2: ANPD - Reserve a number level for feature access. Select Normal Service (N) or Hooking Service (H) from the combo box for Connection Indexes. Assign NND in accordance with a predetermined numbering plan.

STEP 3: ASPA - Assign an Access Code to UCD BUSY OUT. SRV = “SSCA: Service Code Appendix”, SIDA = 50 BUSY OUT set, SRV = “SSCA: Service Code Appendix”, SIDA = 51 BUSY OUT cancel. Connection Status Indexes CI = “N: Normal” and CI = “H: Hooking”.

STEP 4: AKYD - Assign BUSY OUT Set/Cancel key (same key does both; toggles function on/off). Assign KYI = 1, FKY = 19. Assign UCD CALL WAITING INDICATION Feature key. Assign KYI-1, FKY-47.

STEP 5: ATRF - Assign Traffic Measurement Order. **Note 1**

TYPE: Type of Traffic Measurement (1-16)

INTERVAL: Output Interval must be assigned in units of ten minutes (range is from 30-120 minutes), or data "0" must be assigned, which is the instruction for assigning output time.

FROM-TO-: Measurement time is to be designated.

TIME: Output Time

TYPE:1-10

1: Terminal Traffic Measurement
2: Route Traffic Measurement
3: Station Peg Count
4: Attendant Console Peg Count
5: Route Peg Count
6: Service Peg Count
7: Terminal Peg Count
8: UCD Route Peg Count
9: UCD Group Peg Count
10: UCD Station Peg Count

STEP 6: DTF3 - Display of Traffic Data 3 **Note 1**

TYPE: Type of Traffic Measurement

8: UCD Route Peg Count
9: UCD Group Peg Count
10: UCD Station Peg Count

Note 1: This step is necessary only for measuring the UCD Traffic.

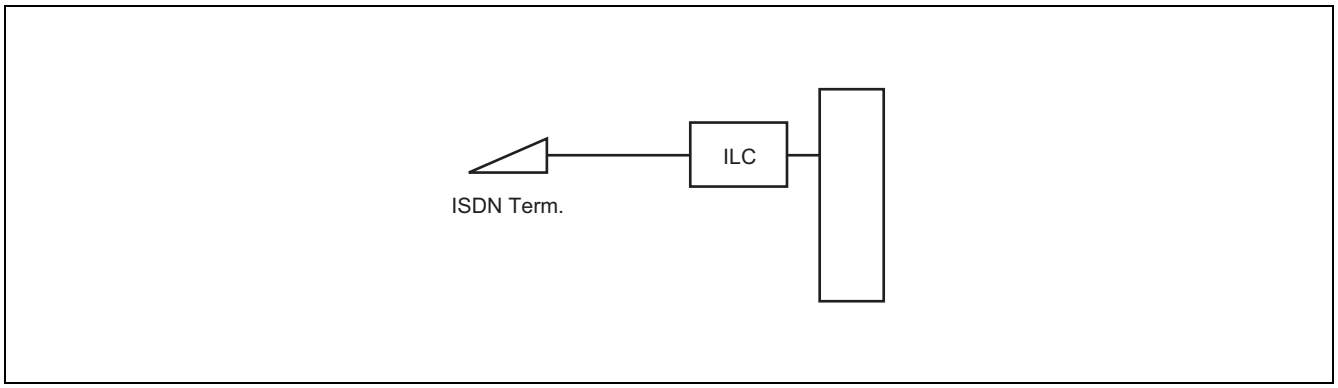
CHAPTER 6
SUPPLEMENTARY SERVICE

This Chapter explains the data assignment of ISDN station and supplementary services of ISDN.

ISDN Station

CONTENTS		PAGE
Data Assignment of ISDN Station	(1) ISDN Terminal (5ESS)	230
	(2) ISDN Terminal (National ISDN1)	231
	(3) ISDN Terminal (BRI station)	233
	(4) PRI station (H0)	234

(1) ISDN Terminal (5 ESS)



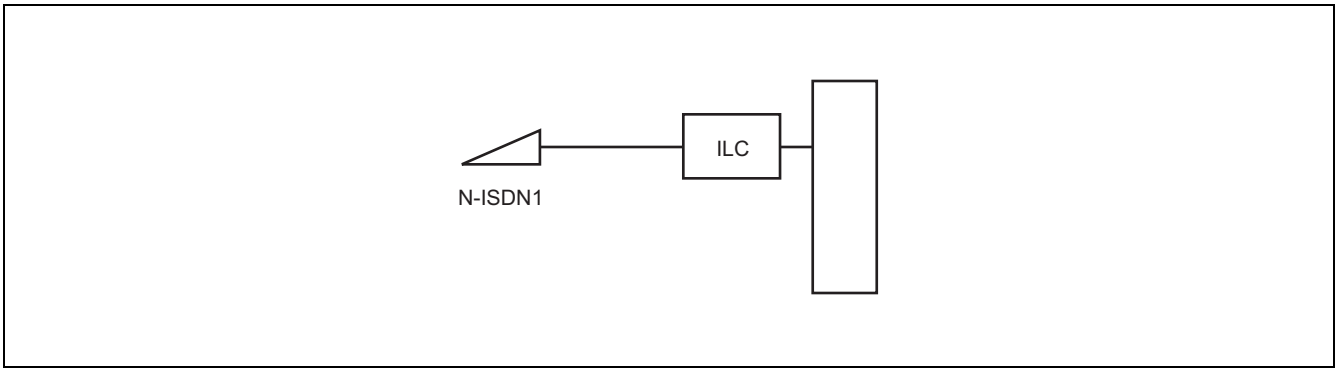
STEP 1: ASYD - Assign the protocol type of ISDN Terminal.
SYS 1 Index 220 Bit 0-Bit 3: 1 (5 ESS)

STEP 2: ANPD - Reserve a number level for a station number.

STEP 3: ASPA - Assign Access Code for a station.

STEP 4: ASDT - Assign a station number to B1 and B2 channel.
TEC:23 (ISDN Terminal)

(2) ISDN Terminal (National ISDN1)



STEP 1: ASYD - Assign the protocol type of ISDN terminal.
SYS 1 Index 220 Bit0-Bit3=5 (N-ISDN)

STEP 2: ANPD - Reserve a number level for a station number.

STEP 3: ASPA - Assign Access Code for a station.

STEP 4: ASDT - Assign a station number to B1 and B2 channel.
TEC: 23 (ISDN terminal)

STEP 5: AITD - Assign ISDN terminal data and FID to only B1 channel. **Note 1, Note 2**

FUNC: 1 (Terminal Data)
TN:
STN:
TYPE: 1 (N-ISDN1)
FIDP: 1-31 (FID Pattern)

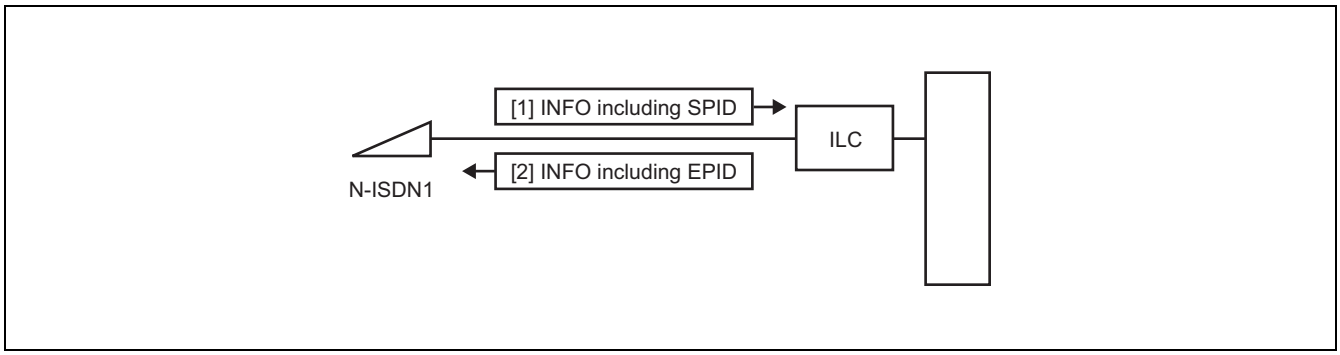
FUNC: 2 (Feature Identifier Data)
FIDP: 1-31 (FID Pattern)
1 Transfer: **Note 3**

Note 1: A PBX may send EPID (Endpoint Identification), for the terminal initialization, by receiving SPID (Service Profile Identification) from N-ISDN terminal, and may perform the supplementary service (Transfer) by FID (Feature Identifier) which has been set to each terminal.

Note 2: If you assign an above (AITD) data to B2 channel, this feature will not work.

Note 3: Assign “FID number” (Max. 2 digits).

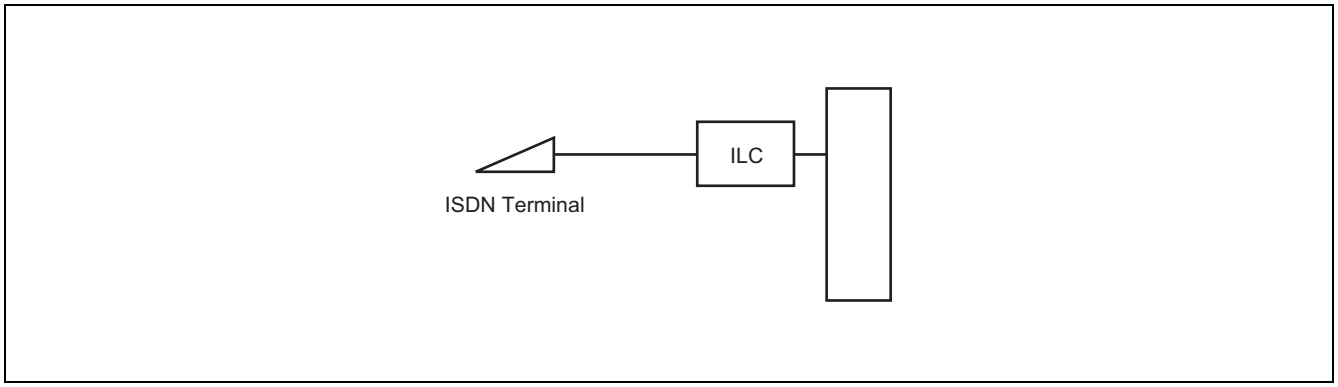
Terminal Initial



[1] A PBX receives INFO including SPID which was set by the terminal.
SPID allows the user to be executed an automatic allocation by USID (User Service Identifier) and TID (Terminal Identifier).

[2] After creating EPID, the PBX sends INFO including EPID.
EPID including USID and TID is necessary for the identification of the terminal.

(3) ISDN Terminal (BRI station)



STEP 1: ASYD - Assign ISDN Terminal protocol type.
SYS1 Index 220 b0-b3: 2 (TPH1962 1991(REV A ISS 2))

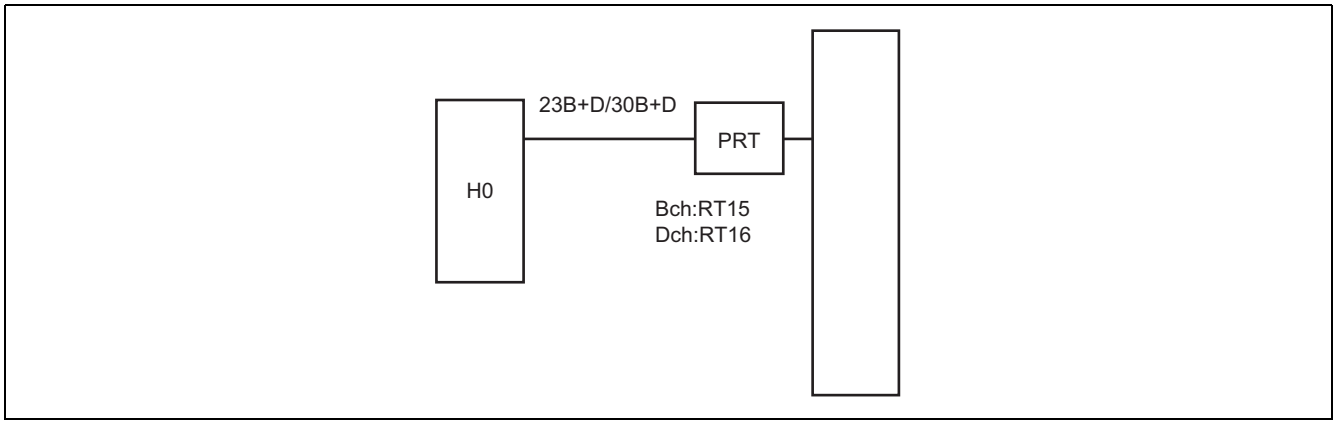
STEP 2: ANPD - Reserve a number level for a station number.

STEP 3: ASPA - Assign Access Code for a station.

STEP 4: ASDT - Assign a station number to B1 and B2 channel.
TEC23 (ISDN Terminal)

STEP 5: ATNR - Allow the tenant restriction.

(4) PRI station (H0)



STEP 1: Assign the numbering (LCR) data to access to H0 terminal.

STEP 2: ARTD - Assign the same route data as the data for "CHAPTER 3", and arrange the following specific data to Bch and Dch route.

CDN64 (NET)= 1
CDN65 (INT)= 2 (Australia)/5 (AT&T)/7 (NT)
CDN66 (DC)= 15
CDN118(BOB)= 1

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

STEP 3: ATRK - Assign the trunk data for Bch. Note that the data setting for Dch is performed after STEP 6: ACIC1 command assignment. (Refer to CHAPTER 3)

STEP 4: ADPC - Assign PC (Point Code) to Bch route and Dch route. (Refer to the following example)

RT=15 (Bch)PC=11
RT=16 (Dch)PC=11

STEP 5: ACSC - Assign the location of DCH (Dch handler) and Bch. (Refer to the following example)

PIR0

	24
	P
	R
	T
	/
	30
	P
	R
	T

Group No.

09	11
08	10

CSCG	CICG	DCH/CCH	
CSCG=132	0	00008	Dch
	1	00008	
	2	00008	
	3	00008	
	4	00008	
	5	00008	
	6	00008	
	7	00008	
CSCG=133	0	00008	Bch
	1	00008	
	2	00008	
	3	00008	
	4	00008	
	5	00008	
	6	00008	
	7	00008	

STEP 6: ACIC1 - Assign CSCG corresponding to PC (Point Code). (Refer to the following example)

PC=11CSCG=132

STEP 7: ATRK - Assign the trunk data for Dch.

STEP 8: ARTI - Assign the Trunk Application data.

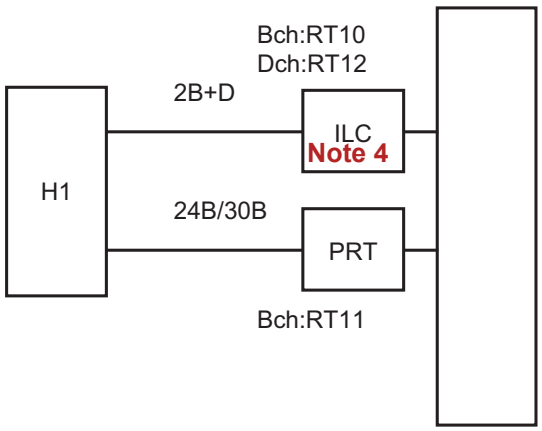
If the H0 terminal does not provide the initial setup procedure conforming to Q931 protocol, assign the following data.

CDN 2 (RST)=3Assignment of Restart

0: Restart Send per Individual Channel
1: –
2: –
3: Restart not Send

Note: Circuit card must be initialized after this assignment.

(5) PRI station (H1)



Note 4: PA-ILCG is necessary for H1 (2B+D).

STEP 1: Assign the numbering (LCR) data to access to H1 terminal.

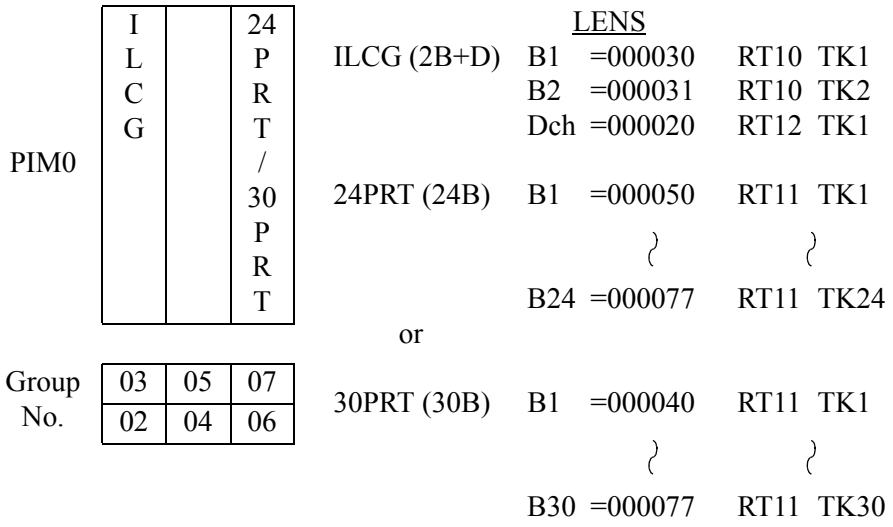
STEP 2: ARTD - Assign the same route data as the data for "CHAPTER 3", and arrange the following specific data to Bch and Dch route.

CDN64 (NET)= 1
CDN65 (INT)= 2 (Australia)/5 (AT & T)/7 (NT)
CDN66 (DC)= 15
CDN96 (H1)= 1
CDN118 (BOB)=1

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

Note: Give the separate RT NO. to Bch of PRT and ILC respectively.

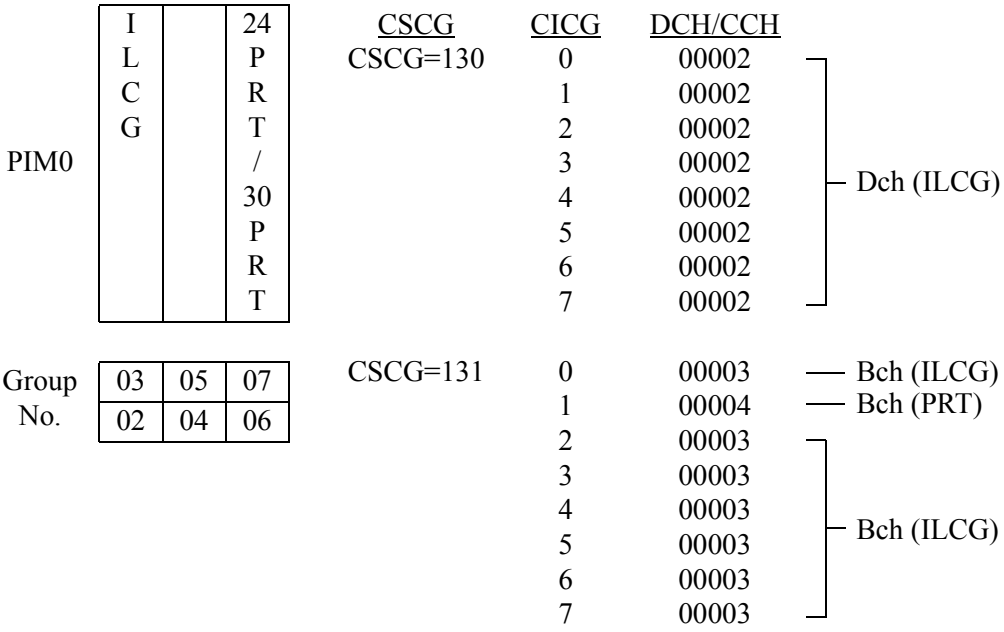
STEP 3: ATRK - Assign the trunk data for Bch referring to the example below. Note that the trunk data for Dch is assigned after STEP 6: ACIC1 command assignment.



STEP 4: ADPC - Assign PC (Point Code) to Bch route and Dch route. (Refer to the following example)

RT=10 (Bch)PC=10
RT=11 (Bch)PC=10
RT=12 (Dch)PC=10

STEP 5: ACSC - Assign the location of DCH (Dch handler) and Bch. (Refer to the following example)



STEP 6: ACIC1 - Assign CSCG corresponding to PC (Point Code). (Refer to the following example)

PC=10CSCG=130

STEP 7: ATRK - Assign the Trunk data for Dch.

STEP 8: ARTI - Assign the Trunk Application data. **Note 5**

If the H0 terminal does not provide the initial setup procedure conforming to Q931 protocol, assign the following data.

CDN 2 (RST)=3Assignment of Restart

0:	Restart Send per Individual Channel
1:	–
2:	–
3:	Restart not Send

Note 5: Circuit card must be initialized after this assignment.

[C-103] CALLING PARTY RECOGNITION SERVICE (CALL FORWARDING-All Calls/ Busy Line/Don't Answer)

1. GENERAL DESCRIPTION

This feature enables the PBX to transfer a direct Incoming Call from the ISDN network, when the called party has been set CALL FORWARDING-ALL CALLS/BUSY LINE/DON'T ANSWER, to the designated destination by identifying the calling subscriber number. For this feature, the calling subscriber number and the transfer destination must be assigned in advance. This feature is available for the analog station, Desktop terminal, ISDN terminal, WLAN Handset (MH Series) and SP Controlled/SIP Handler Controlled Standard SIP terminal.

Note: The available **CALL FORWARDING** types are: **CALL FORWARDING-ALL CALLS/BUSY LINE/DON'T ANSWER**. The **CALL FORWARDING** destination can be determined according to the BC (Bearer Capability).

Bearer Capability [*Speech*
3.1 kHz audio

- Unrestricted Digital Data is not available.

2. OPERATING PROCEDURE

To set/cancel CALL FORWARDING from a station.

(1) Lift a handset.
(2) The station receives DT (Dial Tone).
(3) Dial the Access Code of CALL FORWARDING-ALL CALLS/BUSY LINE/DON'T ANSWER.
(4) The station receives SPDT (Special Dial Tone).
(5) Dial its own station number.
(6) The station receives SST (Service Set Tone).

To set/cancel CALL FORWARDING from an ATT console.

(1) Press a LOOP key on the console.
(2) Enter the CALL FORWARDING Access Code.
(3) Enter the Tenant Number of the station.
(4) Enter the transferring station number.
(5) Enter the transferring station number again.
(6) Press the RELEASE key.

3. SERVICE CONDITIONS

(1) CALL FORWARDING - ALL CALLS cannot be canceled with the entry Access Code (**Note 1**) when used with this feature.

Note 1: With the system data ASYDL/N SYS1, Index 686, Bit 0 = 1.

4. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

STEP 2: ASYD - System Data 1, Index 76, Bit 0: Day/Night Table Development for CALLING PARTY RECOGNITION SERVICE.
0: Not Required (Common)
1: Required (Separate)

STEP 3: ANPD - Assign the minimum necessary number of digits for the first number of the Access Code for CALL FORWARDING-ALL CALLS/BUSY LINE/DON'T ANSWER.

STEP 4: ASPA - Assign an Access Code for CALL FORWARDING.
CI: Connection Status Index = "N: Normal"
SRV: Kind of Service = "SSC: Service Code"
SID: Service Feature Index
8- CALL FORWARDING-ALL CALLS (ENTRY)
9- CALL FORWARDING-ALL CALLS (CANCEL)
10- CALL FORWARDING-BUSY LINE (ENTRY)
11- CALL FORWARDING-BUSY LINE (CANCEL)
12- CALL FORWARDING-DON'T ANSWER (ENTRY)
13- CALL FORWARDING-DON'T ANSWER (CANCEL)

STEP 5: ACNP - Assign Calling Party Number Pattern Information
IC/OG: Choose "IC: Incoming Call."
RT: External Route Number
CNP: Calling Number Pattern (1-255)

STEP 6: ACND - Assign the Digit Code of the Additional Number.
CNP:Calling Number Pattern (1-255)
Enter the same value which has been assigned in the ACNP command.
SKIP:Number of Skip Digits (0-24)-Number of digits for SID.
ADD:Number of Digits of the Additional Number (0-24)
Enter the number of digits (Number of digits for an Access Code to PRI) of the next parameter (= DC).
DC: Additional Digit Information (0-24)
Enter the Access Code which is used to initiate seizure of the ISDN trunk.

STEP 7: AFCP - Assign the Call Forwarding Destination. (For More information, see the example on the next page).

CALLING PARTY: (Max. 32 digits) Called Station Number (**Note 1**) + ACC (**Note 2**) + Calling Party Number
CFSI: CALL FORWARDING Service Feature (0-3)
0- CALL FORWARDING-ALL CALLS
1- CALL FORWARDING-BUSY LINE
2- CALL FORWARDING-DON'T ANSWER
3- DIRECT-IN TERMINATION
ITC: Information Transfer Capacity (0-2)

0- Speech
1- Unrestricted (Digital Data) **Note 3**
2- 3.1 kHz Audio (Modem)

CFD: Call Forwarding Destination (0~3)
0- Station
1- ATT
2- External
3- Not used

STN: Station number of Call Forwarding Destination (Max. 5 digits) **Note 4**

ADC: Abbreviated Digit Code (ACC + SPD dialing number, Max. 4 digits) **Note 5**

Note 1: Assign Called station number by the physical station number. PCS terminal's number can not be assigned here.

Note 2: Enter the Access Code assigned in the ACND command (DC).

Note 3: This data (=1) can be assigned when the CFSI is DIT (=3).

Note 4: This parameter appears when the input data in the CFD is 0.

Note 5: This parameter appears when the input data in the CFD is 2. When the forwarded destination is a trunk line, ACC + SPD dialing number must be assigned within 4 digits.

STEP 8: ASFC - Enter Service Feature Restriction Data

SFI: Service Feature Index (1~127)
7- CALL FORWARDING ALL CALLS
8- CALL FORWARDING DON'T ANSWER
9- CALL FORWARDING BUSY LINE

RES: Restriction Data 0/1 = Restricted/Allowed.

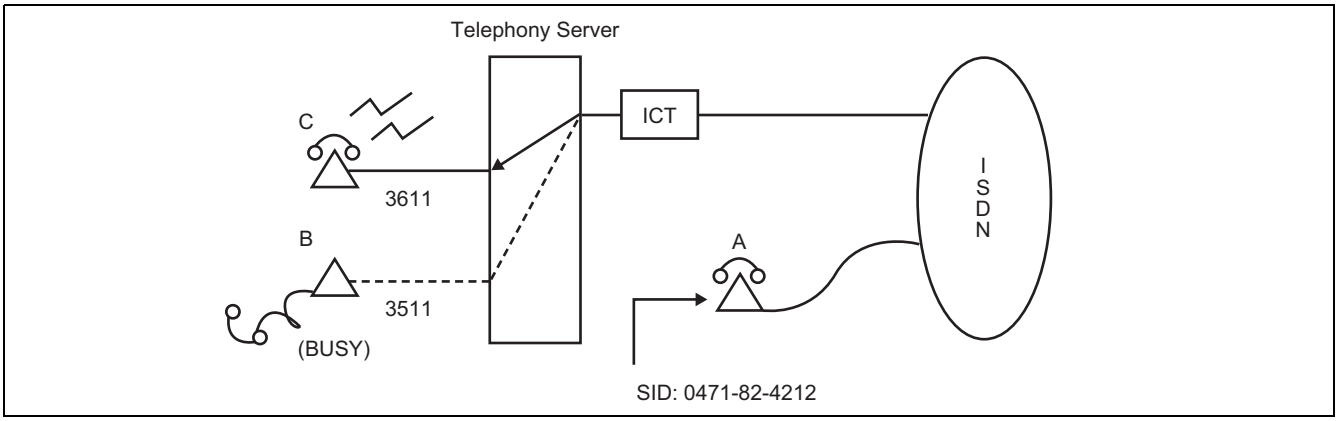
STEP 9: ATNR - Enter Tenant Restriction Data between the transferring station and the transferred station.

TRI: Tenant Restriction Index (0~15)
1-Assignment of CALL FORWARDING-ALL CALLS from a station

RES: Restriction Data 0/1 = Restricted/Allowed.

Example:

AFCP DAY/NIGHT: D
TN: 1
CALLING PARTY 3511 + ACC 0471-82-4212
CFSI: 1 (SID)
ITC: 0
CFD: 0
STN: 3611



* In this example, this feature is executed as follows: When the calling subscriber places call to station B, his/her call will be transferred to station C if station B is BUSY.

Note: If the calling party's BC (Bearer Capability) is 3.1 kHz Audio, assign "2" for ITC.

[C-104] CALLING PARTY RECOGNITION SERVICE (Direct-In Termination [DIT])

1. GENERAL DESCRIPTION

An Incoming Call from the ISDN network can be connected to the specific station, which can be assigned as a destination in advance, on a calling subscriber number basis without any assistance of an operator.

This feature is automatically executed when no information has been received from the calling subscriber for addressing a specific terminal in the PBX.

Note: The destination can be determined according to the BC (Bearer Capability).
This feature is available for the analog station, Desktop terminal, ISDN terminal, WLAN Handset (MH Series) and SP Controlled/SIP Handler Controlled Standard SIP terminal.

2. OPERATING PROCEDURE

No manual operation is required once feature has been programmed.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

STEP 2: ASYD - System Data 1, Index 76, b2: Day/Night Table Development for Call Forwarding Service by Calling Number Data
0: Not required (Common)
1: Required (Separate)

STEP 3: ACOC - Assign the Central Office Code
RT: External Route Number
TK: Trunk Number
DC: Digit Code (4 digits)

STEP 4: ACNP - Assign the Calling Number Pattern (CNP)
IC/OG: Choose “IC: Incoming Call.”
RT: External Route Number
CNP: Calling Number Pattern (1-255)

STEP 5: ACND - Assign the Digit Code of the Additional Number
CNP: Calling Number Pattern (1-255)
Enter same value which has been assigned in the ACNP command.
SKIP: Number of Skip Digits (0-24)-Number of digits for SID.
ADD: Number of Digits of the Additional Number (0-24)
Enter the number of digits (Number of digits for an Access Code to PRI) of the next parameter (=DC).
DC: Additional Digit Information (0-24)
Enter the Access Code which is used to initiate seizure of the ISDN trunk.

STEP 6: AFCP - Assign the transfer destination.

(For more information, see the Example on the Next page.)
DAY/NIGHT: Day mode/Night mode
TN: Tenant Number
CALLING PARTY: (Max. 32 digits) Called Station Number (**Note 1**) + ACC (**Note 2**) + Calling Party Number
CFSI: Call Forwarding Service Feature (0~3)
0- CALL FORWARDING-ALL CALLS
1- CALL FORWARDING-BUSY LINE
2- CALL FORWARDING-DON'T ANSWER
→3-DIRECT-IN TERMINATION
ITC: Information Transfer Capacity (0~2)
0- Speech
1- Unrestricted (Digital Data) **Note 3**
2- 3.1 kHz Audio (Modem)
CFD: Call Forwarding Destination (0~3)
0- Speech
1- ATT
2- External
3- Not used
STN: Station number of the Destination (Max. 5 digits) **Note 4**
ADC: Abbreviated Digit Code (Max. 3 digits) **Note 5**

Note 1: Assign Called Station Number by the physical Station Number PCS terminal's number can not be assigned here.

Note 2: Enter the Access Code assigned in the ACND command (DC).

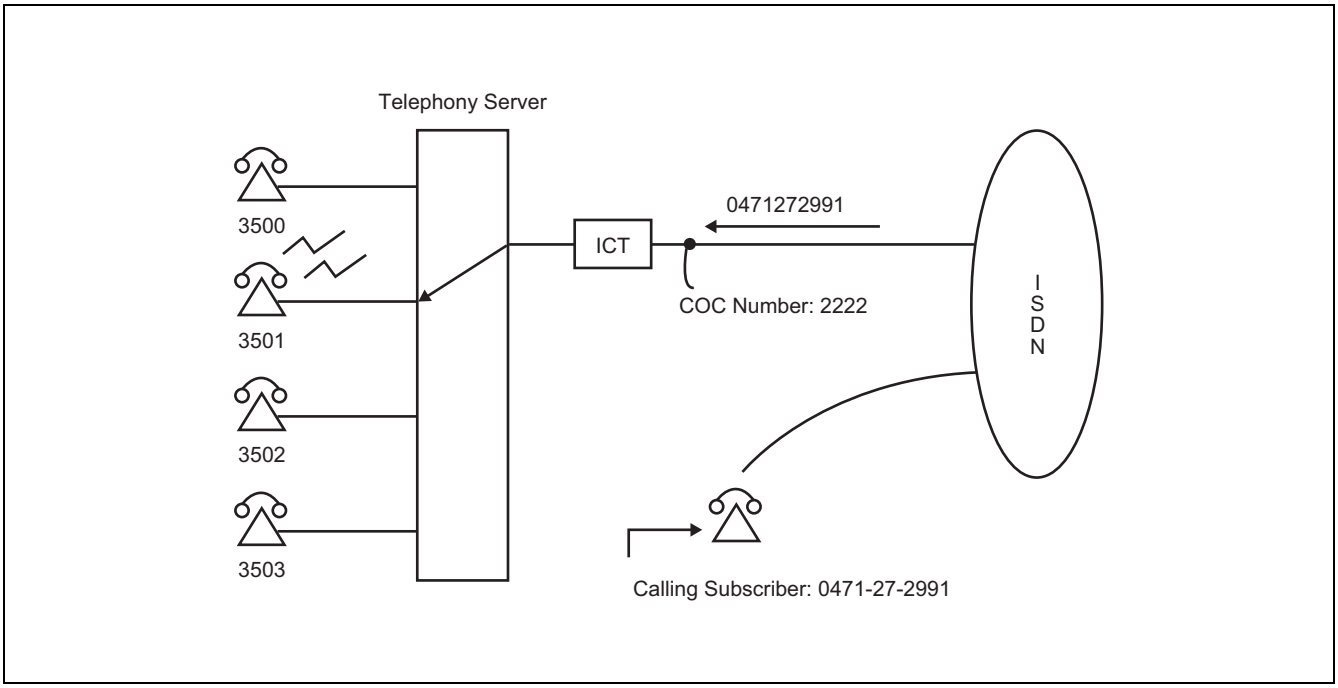
Note 3: This data (=1) can be assigned when the CFSI is DTI (=3).

Note 4: This parameter appears when the input data in the CFD is 0.

Note 5: This parameter appears when the input data in the CFD is 2.

Example:

AFCP DAY/NIGHT: D
TN: 1
CALLING PARTY 2222 + ACC 0471272991
CFSI: 3 (2222 = COC Number; 0471272991 = SID)
ITC: 0
CFD: 0
STN: 3501



* In this example, this feature is executed as follows: When a particular trunk (COC No. = 2222) receives an Incoming Call from the ISDN network with a specific number (0471-27-2991, in the above case), the call will be transferred to extension "3501."

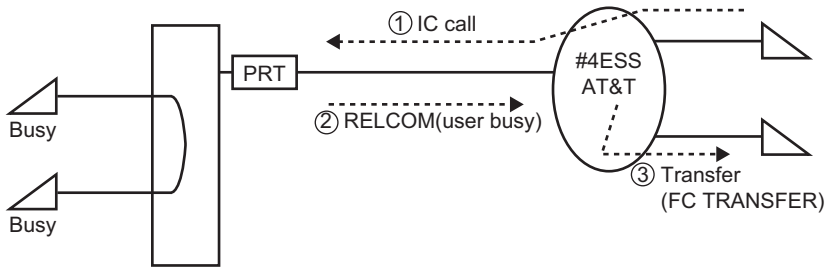
Note: If the calling party's BC (Bearer Capability) is 3.1 kHz Audio, assign "2" for ITC.

[C-170] CALL REDIRECTION (FOR AT&T #4ESS)

1. GENERAL DESCRIPTION

ISDN (AT&T-#4ESS) enable the call to a busy station in a PBX to transfer (FC TRANSFER) to a predetermined destination in its network.
In CALL REDIRECTION, a PBX has to send RELCOM message including “user busy” or “resource unavailable” (Cause) information.

Note 1: Whether this service is available or not depends on a contract with a network for ISDN line.



2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP: Assign the Basic Data for ISDN. (Refer to CHAPTER 3)

[C-171] COLLECT CALL BLOCKING-PRI/BRI (for Brazil only)

1. GENERAL DESCRIPTION

This feature allows a station to restrict collect calls from the ISDN Line. The Service Feature Restriction Class of the called station determines whether to allow or restrict the collect call.

2. OPERATING PROCEDURE

<When the collect call termination is allowed:>

(1) A collect call from the ISDN network terminates to a trunk.
(2) The called party sends the "CALL PROC" and "ALERT/PROG" message to the calling party.
(3) The called station rings. When the called station is a Dterm, the LCD displays as shown below.



(4) When the called party answers, the "Answer" signal is sent to the opposite office.
(5) The connection is established.

<When the collect call termination is restricted:>

(1) A collect call from the ISDN network terminates to a trunk.
(2) The called party sends the "RELCOM (Cause No. 21)" message to the calling party.
(3) The incoming trunk is released.

3. SERVICE CONDITIONS

(1) When collect calls are transferred to a designated station because of CALL FORWARDING-ALL CALLS or CALL FORWARDING-BUSY LINE, whether to allow or restrict the collect call is determined according to Service Feature Restriction Class of the forwarding station. (The "CLCT" indication on the LCD display of the transferred destination station has priority over the "FDA" and "FDB". However, when the collect calls are transferred to a designated station because of Call FORWARDING-DON'T ANSWER, the "CLCT" does not appear on the LCD display of the transferred destination station.)

(2) When a collect call is terminated to the station, special ringing signal for the collect call (ASYD, SYS3, INDEX7 [Ringer Pattern 5]) will be sent to the station so that the user can distinguish whether it is a collect call or not. However, when the collect call is terminated to a busy station once and forwarded to a designated station (CALL FORWARDING-BUSY LINE), the ringing signal to the forwarding station depends on a per-trunk route via ARTD and System data programming.

(3) When collect calls (including operator call, DID, LDN, intercept, and forwarded calls to Attendant in CALL FORWARDING-ALL CALLS/BUSY LINE [C-5, 2]) are terminated to the Attendant Console, whether to allow or restrict the collect call is determined on a system basis.

(4) When collect calls are transferred to a preselected NIGHT CONNECTION-FIXED station or NIGHT CONNECTION-FLEXIBLE station, this service is available.

(5) This service is available for PS according to PS Service Feature Restriction Class. However, the "CLCT" indication does not appear on the LCD of the PS, when the collect call is allowed.

(6) When a collect call is restricted by this service, RELCOM (Release Complete) message is sent from the terminating party side to the ISDN network and the incoming trunk is released.

(7) When collect calls are terminated to the TAS (TRUNK ANYWHERE FROM ANY STATION [T-8]) while no station is assigned to pick up, the collect call is absolutely refused.

(8) Conditions involving tandem connection are shown in the table below.

Incoming Trunk	Tandem Trunk from ISDN Line	Tandem connection
ISDN	Central Office Line	Not Available
	TIE Line	Not Available
	MFC Line	Not Available
	Q-SIG	Not Available
	Dp Channel	Not Available
	CCIS Line	Available
	FCCS Line	Available

4. INTERACTIONS

(1) The collect call termination via the REMOTE ACCESS TO SYSTEM feature is not available. The originating office will receive the RELCOM signal (Cause No. 21).

(2) The different "CLCT" indication on the Dterm LCD can be provided according to use's language.
- "CLCT" (English)
- "DDC" (Portuguese)
- "CLCT" (Spanish)

(3) When a collect call is terminated to the member station of a Circular/Terminal/Secretarial Hunt Group, whether to allow or restrict the collect call is determined according to Service Feature Restriction Class of the station that is hunted. (When a collect call is terminated to the member station that is assigned to restrict the collect call, the call will not proceed through any other programmed stations.)

(4) When a collect call is terminated to a station in a UCD group or a station in a Circular/Terminal Hunt Group, the "CLCT" indication on the LCD display of the called station has priority over the "UCD" or "HNT" indications.

(5) When a collect call is terminated to a UCD group number, whether to allow or restrict the collect call is determined according to Service Feature Restriction Class of the UCD controlling station. If the collect call is allowed by the UCD controlling station and all the stations in the UCD group are busy (or all of the overflow group's stations are also busy), the call will be placed in the Queue.

(6) In the following cases, the collect call can be answered from the station that is programmed to restrict the collect call.

- CALL PICKUP: The station that is programmed to restrict the collect call can pick up a collect call to any other station that is programmed to allow the collect call using the CALL PICKUP feature. (The display on the LCD for CALL PICKUP service "PCK" has priority over the "CLCT" indication.)

- MULTIPLE LINE OPERATION-D: When a collect call terminates to Station A (the station that is programmed to allow the collect call), Station B (the station that is programmed to restrict the collect call) can answer the call by pressing Sub Line key associated with My Line of the Station A.

(7) The billing (Split billing or Total billing) for transferred collect call is determined by conventional System Data programming.

5. PROGRAMMING

STEP 1: ASYD - System Data 2, Index 6, Bit 6. 0/1: Collect call to the Attendant is allowed/restricted.
System Data 3, Index 7. Assign Ringer Pattern for Collect Call.

STEP 2: ASFC - Assign the Service Feature Restriction Class of Collect Call Blocking.
SFI = 20 (Collect Call Blocking) RES:0/1 = Collect Call is restricted (The collect call Blocking signal is sent to the opposite office)/Collect Call is allowed. **Note 1**

Note 1: For the collect call from the ISDN Line, RELCOM (Release Complete) message is sent as the "Collect Call Blocking" signal.

STEP 3: ARTD - For PRI - Assign "CDN 65 (INT) = 4" to routes of B channel(s) and D channel(s).
For BRI - Assign "CDN 65 (INT) = 6" to B channel route(s).

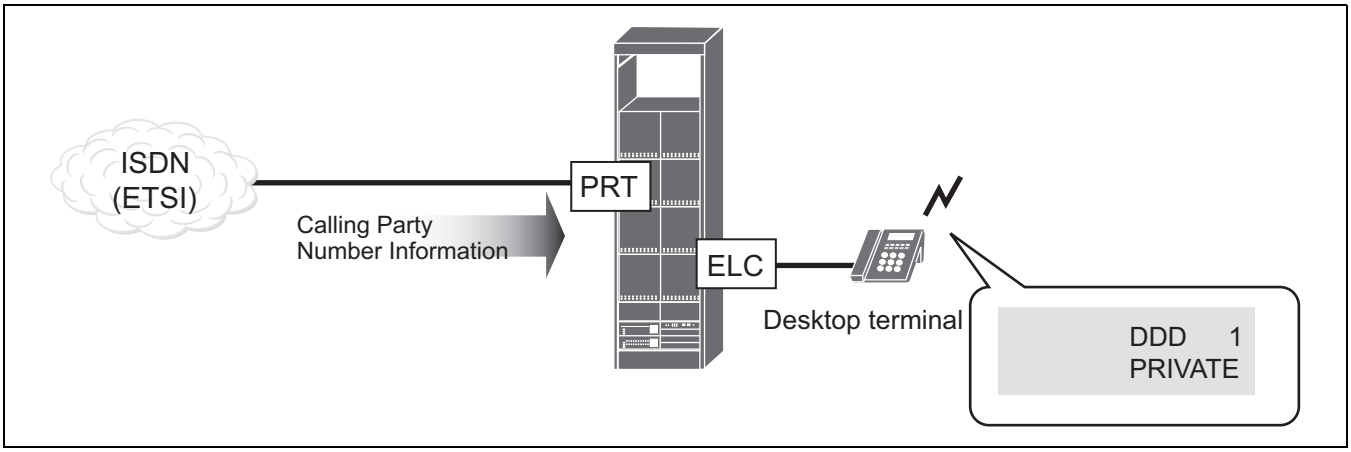
Note: When you need this service via CCIS No.7 link, assign CDN 43 (BT)=1 to B channel route and CDN 98 (CI)=1 to speech route of CCIS No.7 network.

Note: To change the data for existing route (RT), initialize the circuit card.

[C-179] CALLING LINE IDENTIFICATION RESTRICTION (CLIR)

1. GENERAL DESCRIPTION

This feature provides called Desktop terminal stations to indicate the reason for restriction of calling number indication when Incoming Call via ISDN line terminated. On receiving ISDN Incoming Call, the called party is informed the reason by means of the calling party number information element, delivered in the SETUP message.



The language on Desktop terminal LCD can be selected; English, Portuguese, Spanish, or French. According to the reason for restriction of calling number indication, the bottom line of Desktop terminal LCD displays as shown in the table below (kind of Line and Trunk Number is indicated on the upper line):

		Indication on Desktop terminal LCD			
Presentation Indicator (Reason for restriction delivered in the SETUP message)	**LCD Type**	**English**	**Portuguese**	**Spanish**	**French**
Presentation Restricted	8-digit wide	_PRIVATE	__SIGILO	_PRIVADO	___CACHE
	16-digit wide	_____PRIVATE	_____SIGILO	_____PRIVADO	_____CACHE
Number not available due to interworking	8-digit wide	OUT_AREA	_S/IDENT	_S/IDENT	_INCONNU
	16-digit wide	___OUT_OF_AREA	___SEM_IDENTIFI	__SIN__IDENTIFICAR	_____INCONNU

2. OPERATON PROCEDURE

No manual operation is required. This feature owes to the calling party information sent from ISDN line.

3. SERVICE CONDITIONS

(1) This feature works when the interface type of Route Class Data to ISDN line is assigned as follows:

ARTD command, CDN65 INT (Interface specification for ISDN)
4 = PRI (ITU-T/ETSI)
6 = BRI (ITU-T/ETSI)

In addition, assign the following data for EMEA:
ARTI command, CDN89 REGION = 1 (ETSI ISDN)

(2) This feature works only when ARTD CDN65 INT=4 [Interface Specification for ISDN = PRI (ITU-T/ETSI)] is assigned to the ISDN line.

(3) When calling party number information is sent by SETUP message via the ISDN line with the information element containing presentation indicator set to "presentation restricted" or "number not available due to interworking," each reason for restriction of calling number indication is displayed on Desktop terminal station.

(4) The indicated language on Desktop terminal LCD can be selected by the system data, ASYD, SYS1, INDEX389, Bit0-4.

(5) This feature is available for each type of Incoming Call (such as Direct-In Termination, etc.) from ISDN line.

(6) The calling party information element of "presentation restriction" and "number not available due to interworking" is not transparent to other lines.

(7) When ISDN Incoming Call terminated to an ATTCON or a Desk Console, only the route/trunk data is displayed.

(8) This feature is not applied to PHS/PCS and ISDN terminals.

(9) When using an SP Controlled Standard SIP terminal with LCD, the information displayed on the LCD depends on the specification of terminal being used.

4. INTERACTIONS

(1) Even if the following features are set, the calling number is not indicated on Desktop terminal and ATTCON when the reason for restriction of calling number indication is informed:
-Sub Address-Addressing

(2) Trunk Number indication on Desktop terminal LCD depending on the kind of incoming trunk is available in conjunction with this service.

5. PROGRAMMING

STEP: ASYD - Assign the following system data for Desktop terminal LCD indication
SYS1 Index 78, b4:Always assign "0."
Index 389, b0-b4:Display Language on Desktop terminal LCD
00=English
01=Portuguese
02=Spanish
03=French
04-31=Not used

[D-123] DIRECT INWARD DIALING (DID) ADDRESSING

1. GENERAL DESCRIPTION

This feature provides for a called-party number received via ISDN to be used to designate the station at which the call is to terminate.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

(a) When the called party number and terminating station number are the same.

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

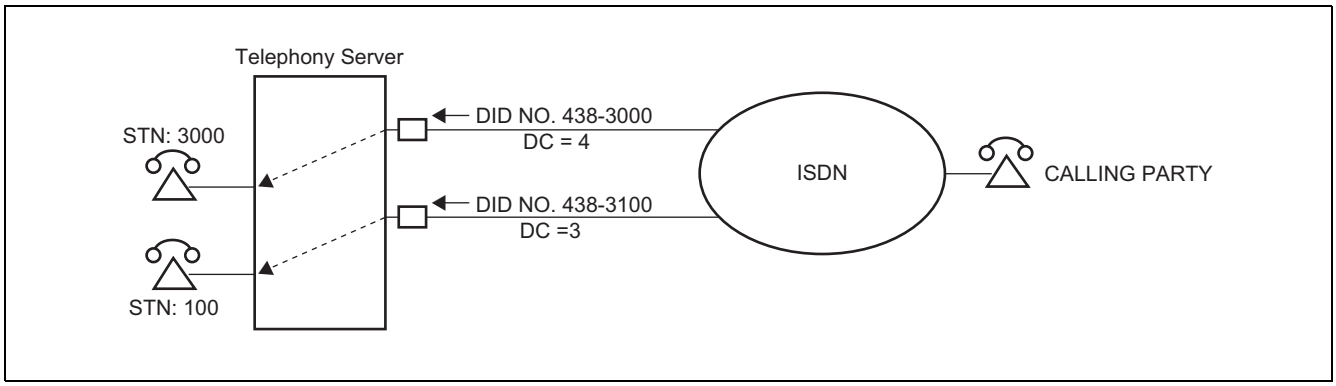
STEP 2: ARTD - Assign the number of digits of the called line to the parameter DC (CDN 66) of the routes of the B-channel and D-channel of the 24/30 PRT which interfaces with the ISDN line with DID Addressing.

Note: Specify "DC" on a route basis.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card or MG.

Example of Office Data Assignment for DID Line (No Digit Conversion)

CALLED PARTY NUMBER	TERMINATING STATION No.	DC	REMARKS
438-3000	3000	4	When the number of digits for the station number is 4.
438-3001	3001		
438-3100	100	3	When the number of digits for the station number is 3.
438-3101	101		



(b) When the called party number and terminating station number are different (Number Conversion).

STEP 1: Assign the Basic Data for ISDN (Refer to CHAPTER 3)

STEP 2: ARTD - Assign the number of digits to be decoded in the System to the parameter DC (CDN=66) of the Route of the B-channels and D-channel of a 24/30PRT which interfaces with the ISDN line with DID addressing.

Note: Specify "DC" on a route basis.

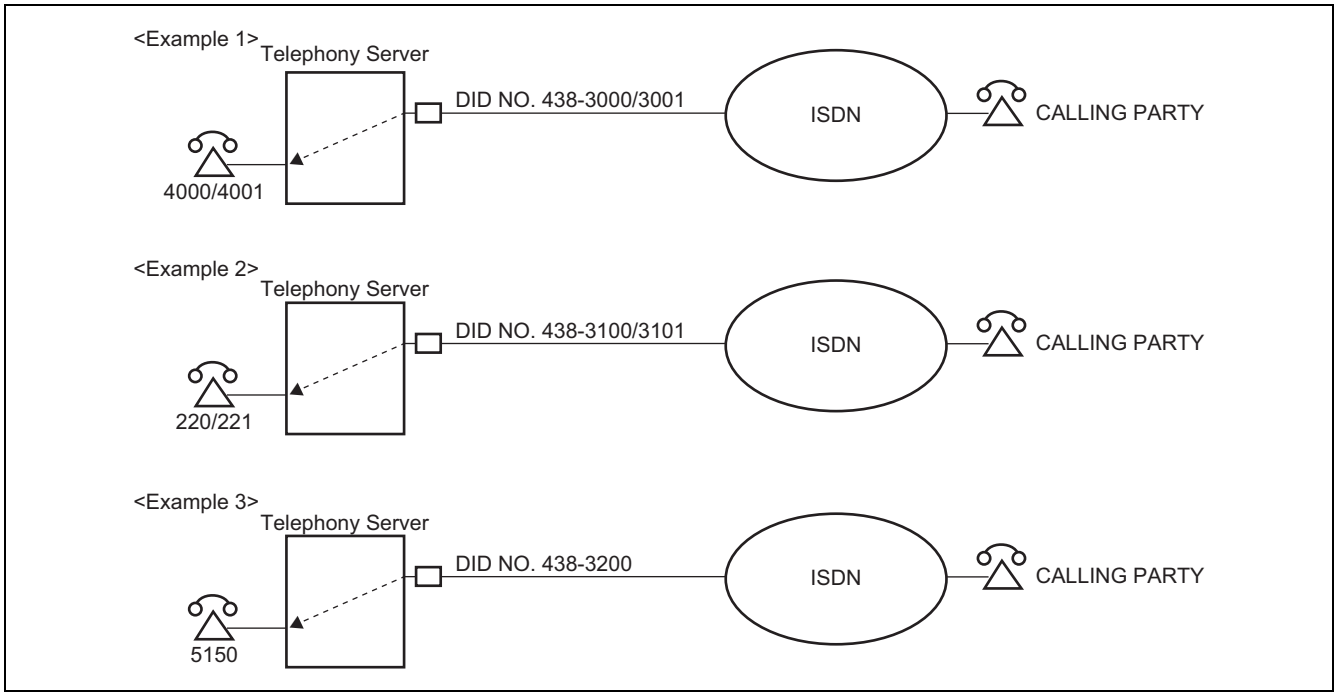
Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card or MG.

STEP 3: ACDD - Assign a Conversion Number for the Route of the B-channels in which the number of decoding digits has been assigned with the ARTD command.

- Assign "0" to the parameter "AD".
- If there are no Attendant Consoles in the system, set the DAY/NIGHT parameter to "N" (Night Mode). The system functions as if in Night Mode.

Example of Office Data Assignment for DID Line (Digit Conversion)

CALLED PARTY NUMBER	TERMINATING STATION NO.	ARTD	ACDD		REMARKS
		DC	DC	CDC	
438-3000	4000	4	3000	4000	See example 1
438-3001	4001	4	3001	4001	
438-3100	220	3	100	220	See example 2
438-3101	221	3	101	221	
438-3200	5150	4	3200	5150	See example 3


<Example 1>
Telephony Server
DID NO. 438-3000/3001
ISDN
CALLING PARTY
4000/4001
<Example 2>
Telephony Server
DID NO. 438-3100/3101
ISDN
CALLING PARTY
220/221
<Example 3>
Telephony Server
DID NO. 438-3200
ISDN
CALLING PARTY
5150

[E-32] ETSI ISDN ADDRESSING

1. GENERAL DESCRIPTION

This feature allows Telephony Server to modify information on a SETUP message included in an ISDN call in order for the called party to use the information conveniently:

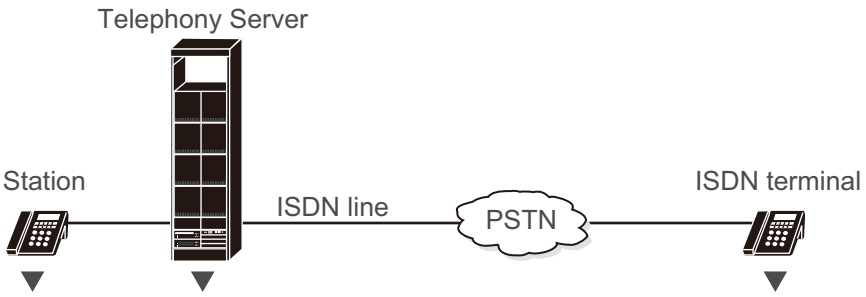
- When you originate an ISDN call with your station, Telephony Server forms a proper SETUP message accordingly to the relationships of parties' country codes and area codes to notify the called party of your Caller ID (as calling line identification presentation (CLIP)) properly.
- When you receive an ISDN call from a party, Telephony Server forms a proper Caller ID displayed on your LCD (also as CLIP) so that you can call it back.

Note: Addressing/COLP feature works on a number called Local Number Plan Domain (LNPD) basis. In this method, the office data for Addressing/COLP can be set on an area basis, by using the LNPD. For this Extended Addressing/COLP feature, see the latter part (EXTENDED ADDRESSING/COLP) of this feature.

The following describes more details with examples.

Note: This feature is based on the ETSI Standard Specifications.

(1) Call between a station and an ISDN terminal with same country codes and area codes



Country Code:	-	39	39
Area Code:	-	35	35
Local Office Code:	-	689	-
STN/ISDN Number:	2200	-	5671234

(a) From Station to ISDN terminal

The station dials 05671234. Telephony Server regards the first digit "0" as trunk access code to PSTN. Telephony Server forms a SETUP message with the following:

Dialing number: NPI = E.164, TON = National, Digits = 356892200
Dialed number: NPI = E.164, TON = National, Digits = 355671234

Note: NPI: Numbering Plan Identifier
TON: Type of Number

Note: E.164 is the international public telecommunication numbering plan recommended by ITU-T. An E.164 number consists of three fields, Country Code (CC), National Destination Code (NDC), and Subscriber Number (SN), up to 15 digits in total.

Where: Telephony Server adds local office code "689" and area code "35" to the dialing number while adding area code "35" to the dialed number.

(b) From ISDN terminal to Station

The ISDN terminal dials 6892200. PSTN recognizes that the call destination is Telephony Server. PSTN forms a SETUP message with the following:

Dialing number: NPI = E.164, TON = National, Digits = 355671234
Dialed number: NPI = E.164, TON = National, Digits = 356892200

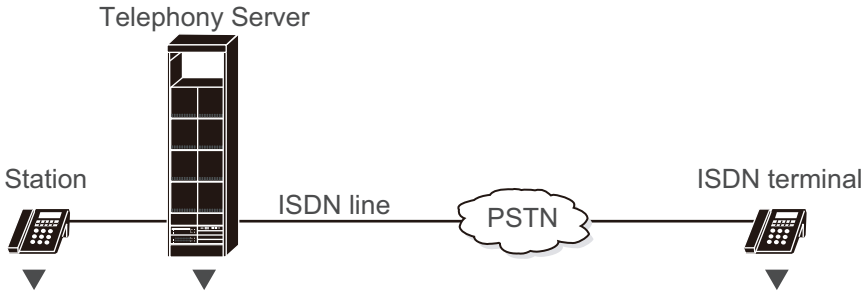
Note: NPI: Numbering Plan Identifier
TON: Type of Number

Note: E.164 is the international public telecommunication numbering plan recommended by ITU-T. An E.164 number consists of three fields, Country Code (CC), National Destination Code (NDC), and Subscriber Number (SN), up to 15 digits in total.

Where: PSTN adds area code "35" to the dialing number and dialed number.

Telephony Server specifies the station to connect by the last four digits of the dialed number. The LCD of the station displays 05671234 with which you can call it back. This number is formed by Telephony Server: Telephony Server removes area code "35" from the dialing number digits on the SETUP message because it is not necessary for the terminals belonging to the same area code to dial the area code; Telephony Server adds "0" on the top of the digits as access code to PSTN.

(2) Call between a station and an ISDN terminal with same country codes but different area codes



Country Code:	-	39	39
Area Code:	-	35	229
Local Office Code:	-	689	-
STN/ISDN Number:	2200	-	1234567

(a) From Station to ISDN terminal

The station dials 002291234567. Telephony Server regards the first digit "0" as trunk access code to PSTN, and the second digit "0" as national prefix which means the dialed ISDN terminal belongs to a different area from the station (but to the same country). Telephony Server forms a SETUP message with the following:

Dialing number: NPI = E.164, TON = National, Digits = 356892200
Dialed number: NPI = E.164, TON = National, Digits = 2291234567

Note: NPI: Numbering Plan Identifier
TON: Type of Number

Note: E.164 is the international public telecommunication numbering plan recommended by ITU-T. An E.164 number consists of three fields, Country Code (CC), National Destination Code (NDC), and Subscriber Number (SN), up to 15 digits in total.

Where: Telephony Server adds local office code "689" and area code "35" to the dialing number.

(b) From ISDN terminal to Station

The ISDN terminal dials 0356892200. The first digit "0" indicates national prefix. PSTN recognizes that the call destination is Telephony Server in area "35". PSTN forms a SETUP message with the following:

Dialing number: NPI = E.164, TON = National, Digits = 2291234567
Dialed number: NPI = E.164, TON = National, Digits = 356892200

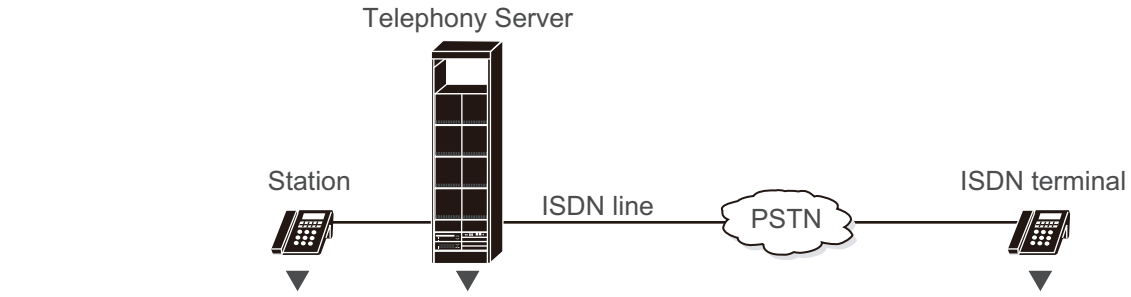
Note: NPI: Numbering Plan Identifier
TON: Type of Number

Note: E.164 is the international public telecommunication numbering plan recommended by ITU-T. An E.164 number consists of three fields, Country Code (CC), National Destination Code (NDC), and Subscriber Number (SN), up to 15 digits in total.

Where: PSTN adds area code "229" to the dialing number.

Telephony Server specifies the station to connect by the last four digits of the dialed number. The LCD of the station displays 002291234567 with which you can call it back. This number is formed by Telephony Server: Telephony Server adds two 0s "00" on the top of the dialing number digits on the SETUP message as access code to PSTN and national prefix respectively.

(3) Call between a station and an ISDN terminal with different country codes and area codes



Country Code:	-	39	43
Area Code:	-	35	44
Local Office Code:	-	689	-
STN/ISDN Number:	2200	-	1234567

(a) From Station to ISDN terminal

The station dials 00043441234567. Telephony Server regards the first digit "0" as trunk access code to PSTN, and the second and third digits "00" as international prefix which means the dialed ISDN terminal belongs to a different country from the station. Telephony Server forms a SETUP message with the following:

Dialing number: NPI = E.164, TON = National, Digits = 356892200
Dialed number: NPI = E.164, TON = International, Digits = 43441234567

Note: NPI: Numbering Plan Identifier
TON: Type of Number

Note: E.164 is the international public telecommunication numbering plan recommended by ITU-T. An E.164 number consists of three fields, Country Code (CC), National Destination Code (NDC), and Subscriber Number (SN), up to 15 digits in total.

Where: Telephony Server adds local office code "689" and area code "35" to the dialing number; PSTN adds country code "39" to the dialing number when required.

(b) From ISDN terminal to Station

The ISDN terminal dials 0039356892200. The first two digits "00" indicate international prefix followed by the country code and area code. PSTN recognizes that the call destination is Telephony Server in area "35" in country "39". PSTN forms a SETUP message with the following:

Dialing number: NPI = E.164, TON = International, Digits = 43441234567
Dialed number: NPI = E.164, TON = National, Digits = 356892200

Note: NPI: Numbering Plan Identifier
TON: Type of Number

Note: E.164 is the international public telecommunication numbering plan recommended by ITU-T. An E.164 number consists of three fields, Country Code (CC), National Destination Code (NDC), and Subscriber Number (SN), up to 15 digits in total.

Where: PSTN adds country code “43” and area code “44” to the dialing number.

Telephony Server specifies the station to connect by the last four digits of the dialed number. The LCD of the station displays 00043441234567 with which you can call it back. This number is formed by Telephony Server: Telephony Server adds three 0s “000” on the top of the dialing number digits on the SETUP message where the first 0 indicates access code to PSTN and second and third ones indicate international prefix.

2. OPERATING PROCEDURE

No manual operation is required once this feature has been programmed.

3. SERVICE CONDITIONS

<Important>

None

<Interactions with Other Features>

(1) International/national prefix is not added to the data of features related to Calling Line Identification.

(2) This feature does not support Hotel service.

<Hardware/Software>

(1) When an incoming ISDN call arrives on a terminal, the terminal displays the caller number on its LCD. The terminal stores the displayed number as call history with which you can call it back.

(2) CLIP is available on Digital terminal, IP terminal, SIP Multiple Line terminal, Softphone (Proprietary Protocol), and SIP Handler Controlled Standard SIP terminal.

<Interactions with Network Features>

None

<Conditions Specific to This Feature>

(1) A maximum digits to display as CLIP is 24 digits (specified by ASYDL SYS1 INDEX672). In case of more than 24 digits, using ASYD (SYS1 INDEX241 Bit6=0/1) determines a type of 24-digit display format, which starts to display from the first digit or the last digit.

(2) The detailed data of AFRS/AFRSL/AFRSN and AOPR/AOPRL/AOPRN, are as follows:
AFRS/AFRSL/AFRSN NPC: Specified for Access Code + International/National Prefix and numbers
AOPR/AOPRL/AOPRN SKIP: Specified to determine a range of the above.

(3) The setting conditions of AMSGL/AMSGN are as follows:
When two route selection pattern is selected by AOPRL: Assign TON/NPI by AMSGL
When two route selection pattern is selected by AOPRN: Assign TON/NPI by AMSGN

(4) In the case of Overlap Dialing, information on the incoming call number is added to SETUP and INFO messages.

(5) CLIP and call history are not available even if you receive an incoming ISDN call on a terminal, if either of the following applies:
- When the SETUP message includes Calling Line Identification Restriction (CLIR)
- When the SETUP message does not include the calling party’s number

(6) The following is relationship between Information Element of Incoming Number including NPI and Outgoing Number including NPI and TON both.
When "0 (indicates ISDN trunk Access Code) - 00 (indicates International Prefix) - 81 (indicates Country Code) - 4 (indicates Area Code) - 7185 (indicates Local Area Code) - 1234 (indicates ISDN Number)" is pressed.

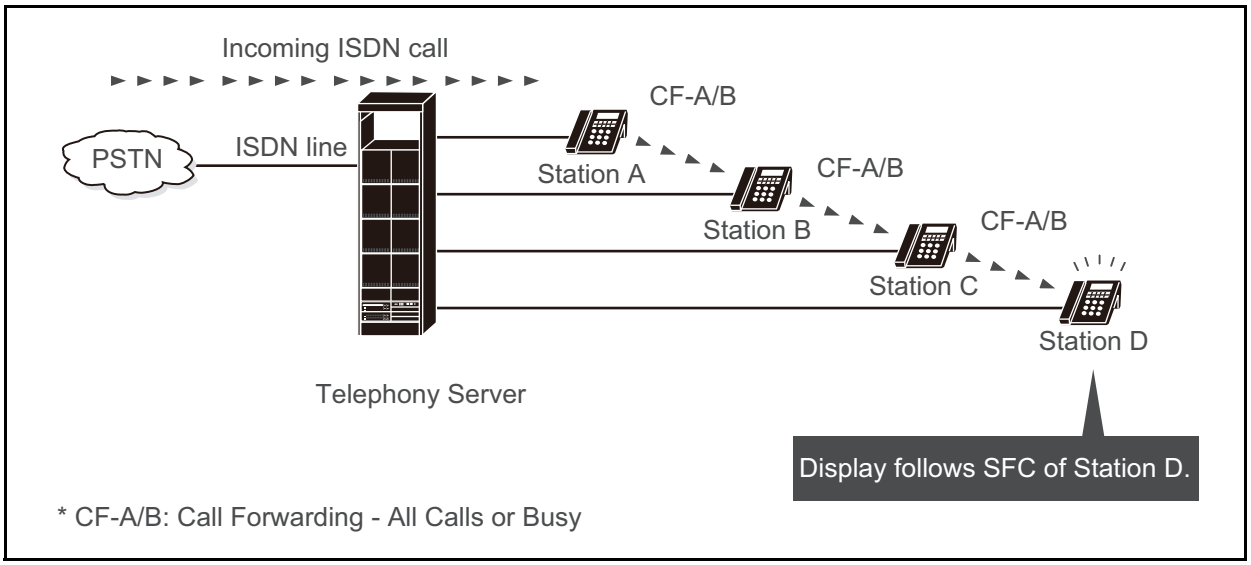
Information Element of Incoming Number	**Information Element of Outgoing Number**		
AMSGL/AMSGN	**ARTI/ARTIN CDN34**	**ARTI/ARTIN CDN33**	**Outgoing Numbers**
NPI	**NPI**	**TON**	
E.164	E.164 is fixed	TON=0 (Unknown)	1234
		TON=1 (International Number)	81+4+7185+1234 *In the case of Japan
		TON=2 (National Number)	4+7185+1234
		TON=3 (Network Specific Number)	7185+1234
		TON=4 (Subscriber Number)	7185+1234
		TON=6 (Abbreviated Number)	7185+1234
		TON = the other values	7185+1234
Unknown	Unknown	Unknown is fixed	1234
	E.164	TON=0 (Unknown)	1234
		TON=1 (International Number)	81+4+7185+1234 *In the case of Japan
		TON=2 (National Number)	4+7185+1234

Information Element of Incoming Number	Information Element of Outgoing Number		
AMSGL/AMSGN	**ARTI/ARTIN CDN34**	**ARTI/ARTIN CDN33**	**Outgoing Numbers**
NPI	**NPI**	**TON**	
Unknown	E.164	TON=3 (Network Specific Number)	7185+1234
		TON=4 (Subscriber Number)	7185+1234
		TON=6 (Abbreviated Number)	7185+1234
		TON = the other values	7185+1234
Other than E.164/Unknown	Unknown is fixed.	Unknown is fixed.	1234

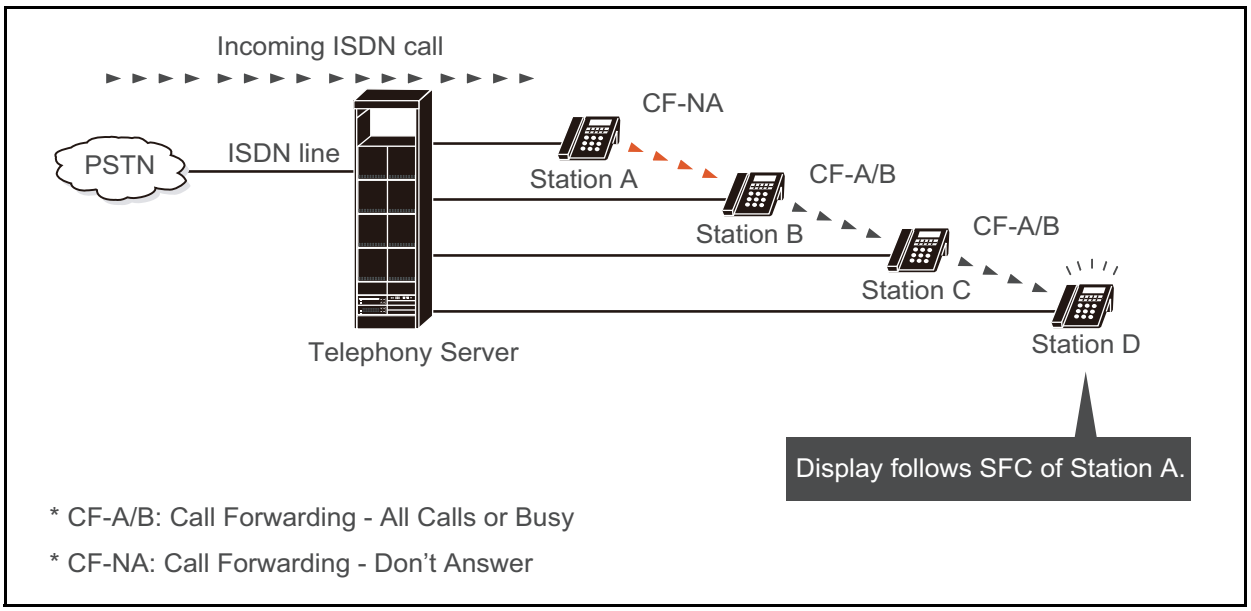
<Other Conditions>

(1) The following describes how a terminal displays CLIP for a call multi-hopped in a single office.

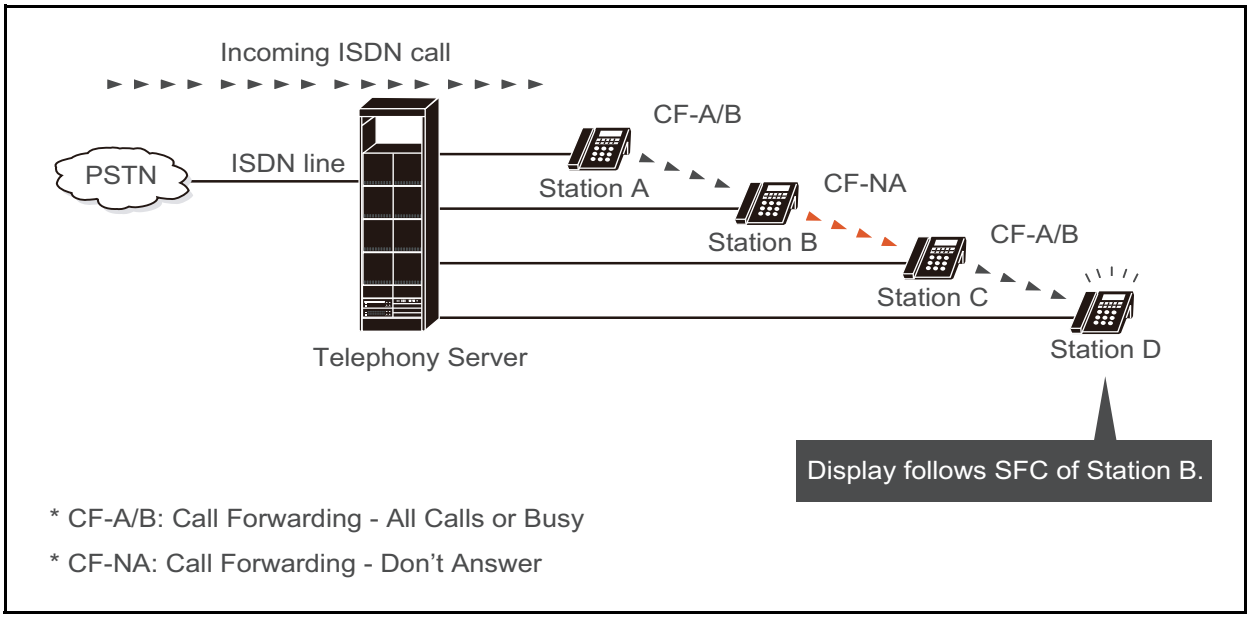
- Display for a call multi-hopped with Call Forwarding - All Calls/Busy depends on the SFC set on the finally-receiving station.



- Display for a call first-hopped with Call Forwarding - Don't Answer and following-multi-hopped with Call Forwarding - All Calls/Busy depends on the SFC set on the first-forwarding station.

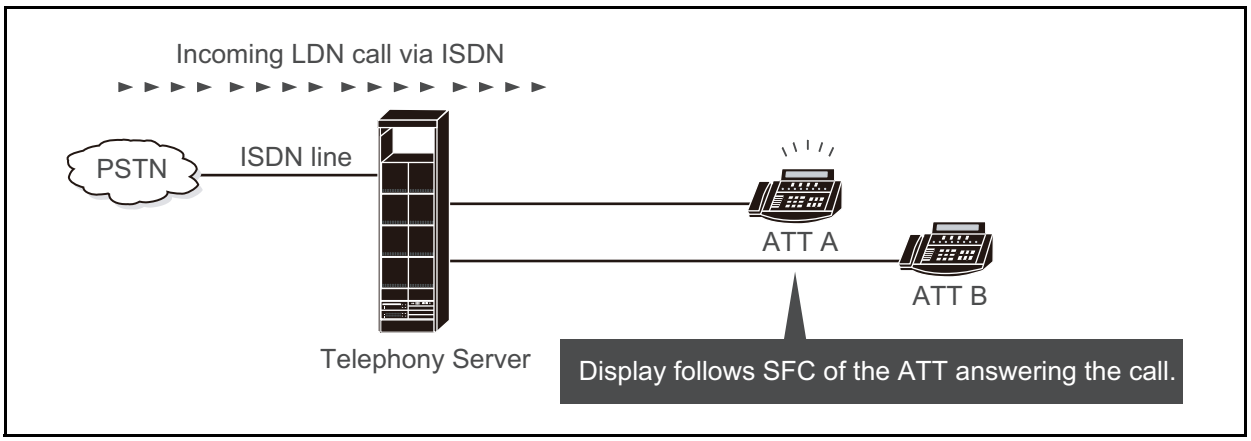


- Display for a call multi-hopped with Call Forwarding - Don't Answer and Call Forwarding - All Calls/ Busy depends on the SFC set on the forwarding station performing Call Forwarding - Don't Answer.

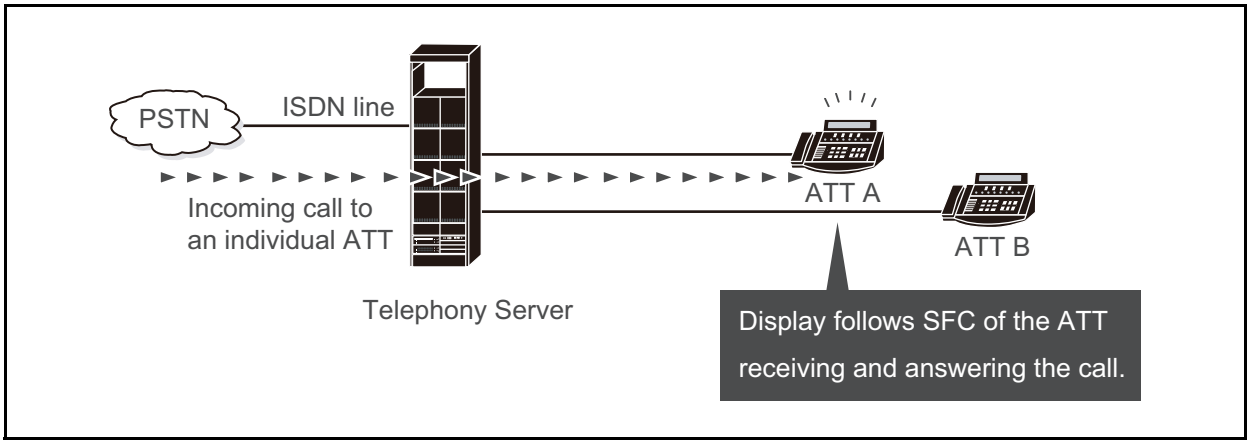


(2) The following describes how an ATT displays CLIP when receiving an ISDN call.

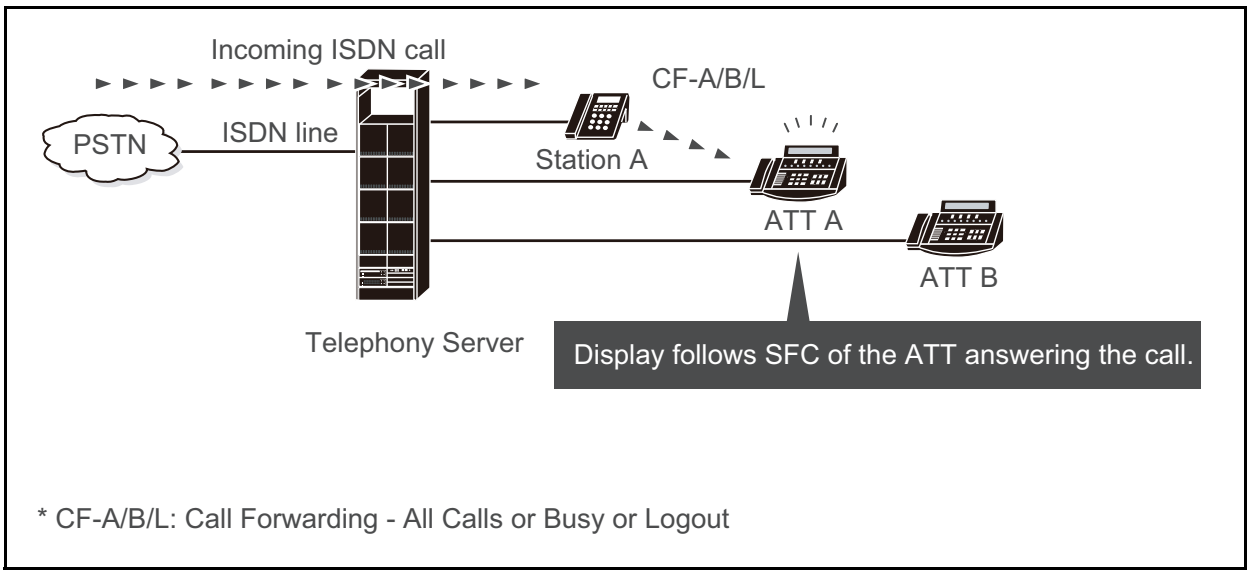
- When an incoming LDN call via ISDN arrives, display for the call depends on the SFC set on the first ATT answering up the call.



- When an incoming ISDN call arrives on an individual ATT, display for the call depends on the SFC set on the ATT receiving and answering the call.

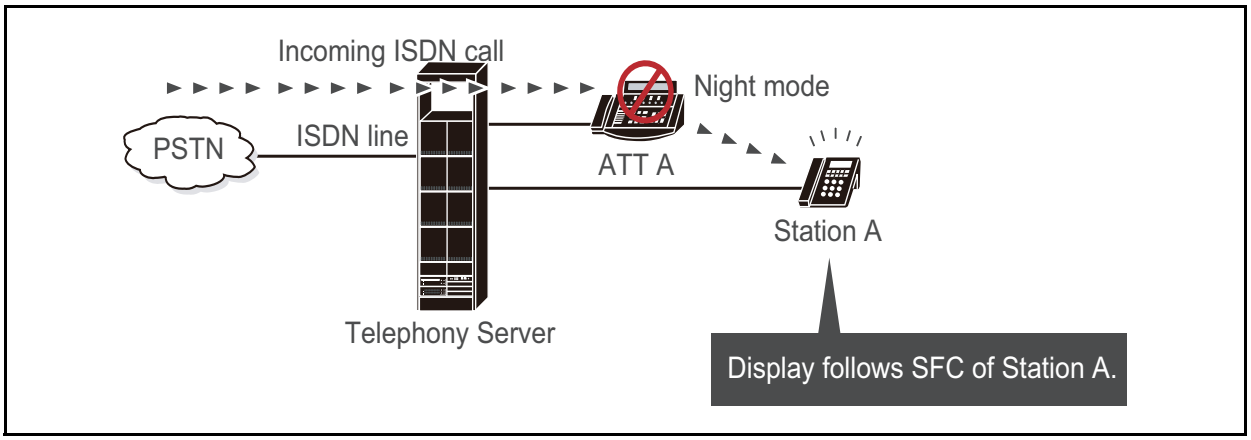


- When an incoming ISDN call is forwarded to an ATT with Call Forwarding - All Calls/Busy/Logout, display for the call depends on the SFC set on the ATT answering the call.

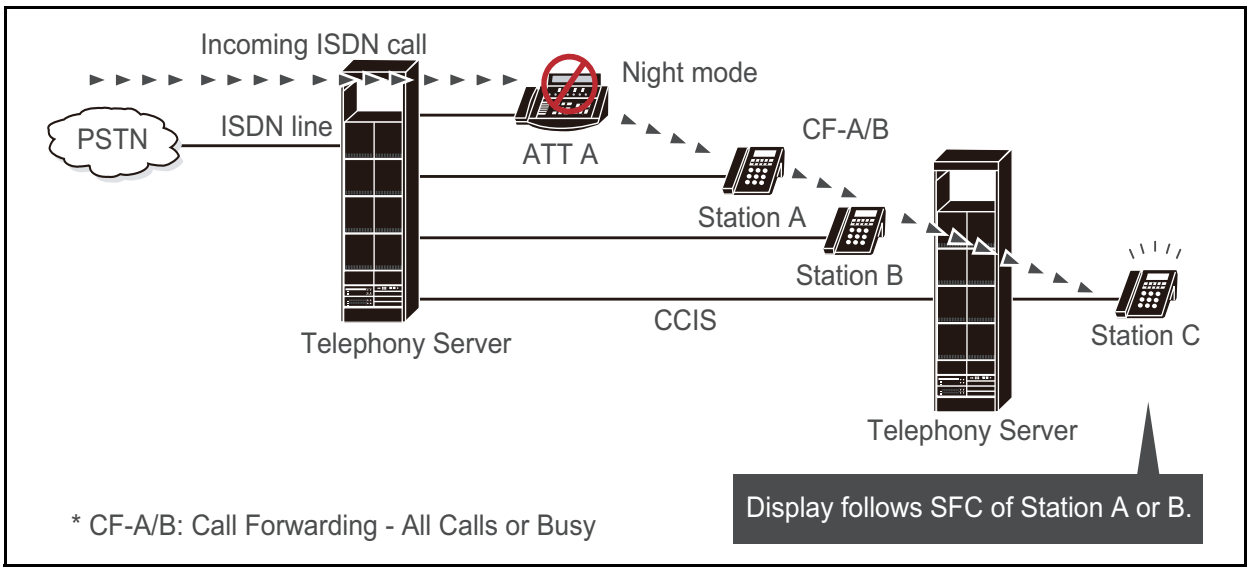


(3) The following describes how a terminal displays CLIP when an ATT in Night mode forwards an ISDN call to the terminal.

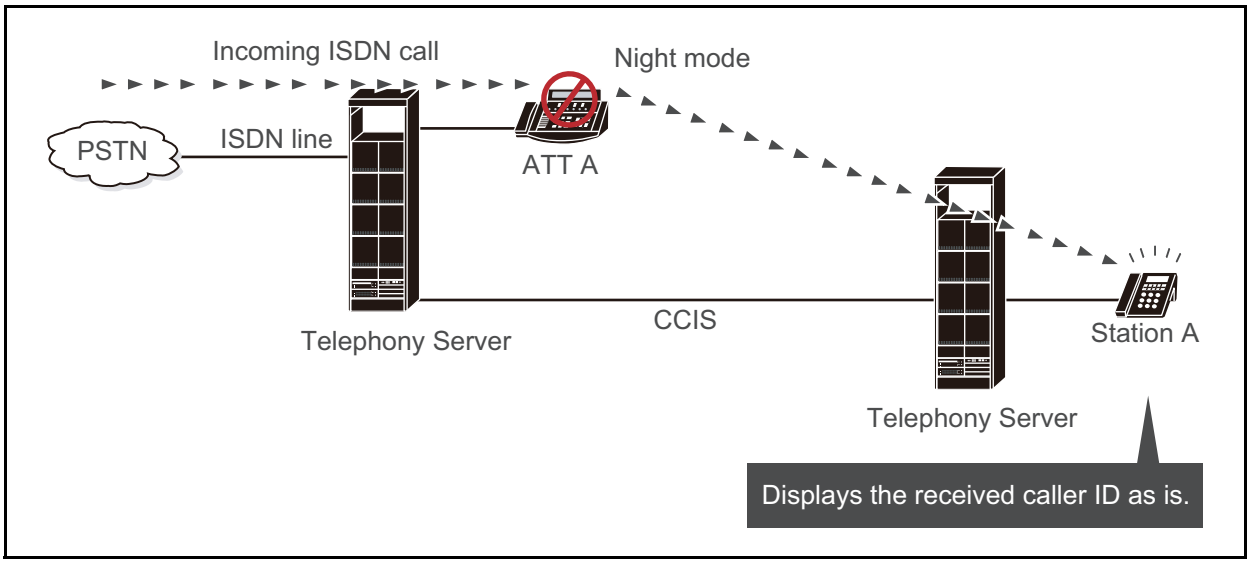
- When an incoming LDN call via ISDN is forwarded to a terminal (for night) by an ATT in Night mode, display for the call depends on the SFC set on the terminal.



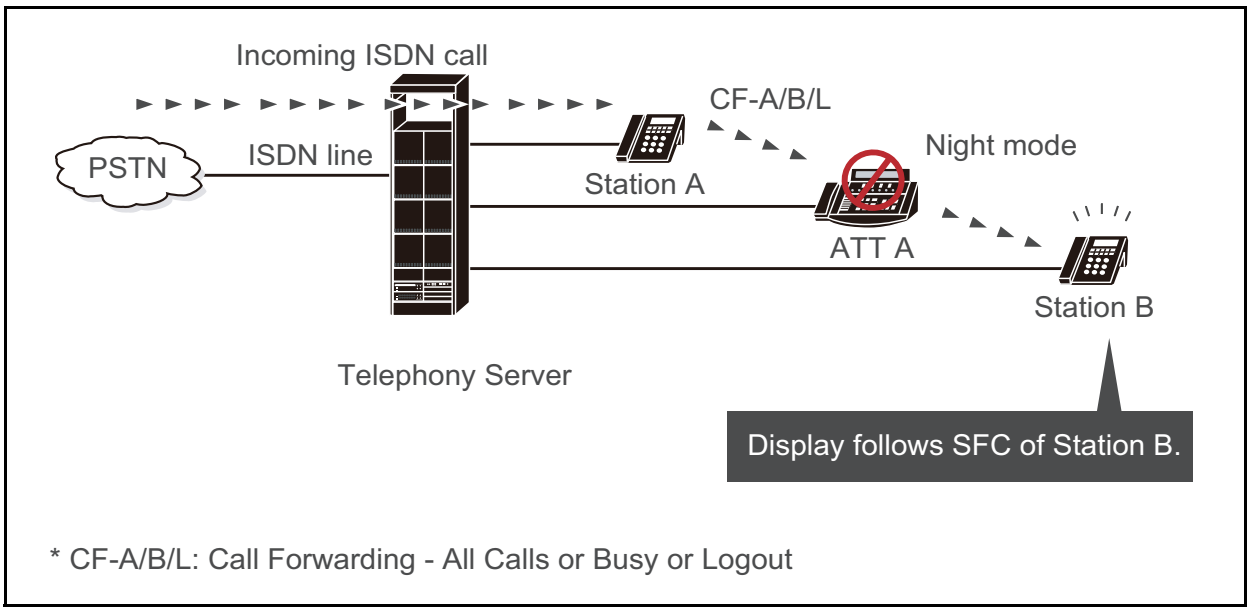
- When an incoming LDN call via ISDN is forwarded to an other node's terminal by a station, display for the call depends on the SFC set on the forwarding node: You can choose the terminal whose SFC is followed, a first-forwarding station or a last-forwarding station, with the System data: ASYD SYS1 Index20 bit7=0/1: The Billing Party is the originator of the transferred call/The Billing Party is the station that has set Call Forwarding - Outside service.



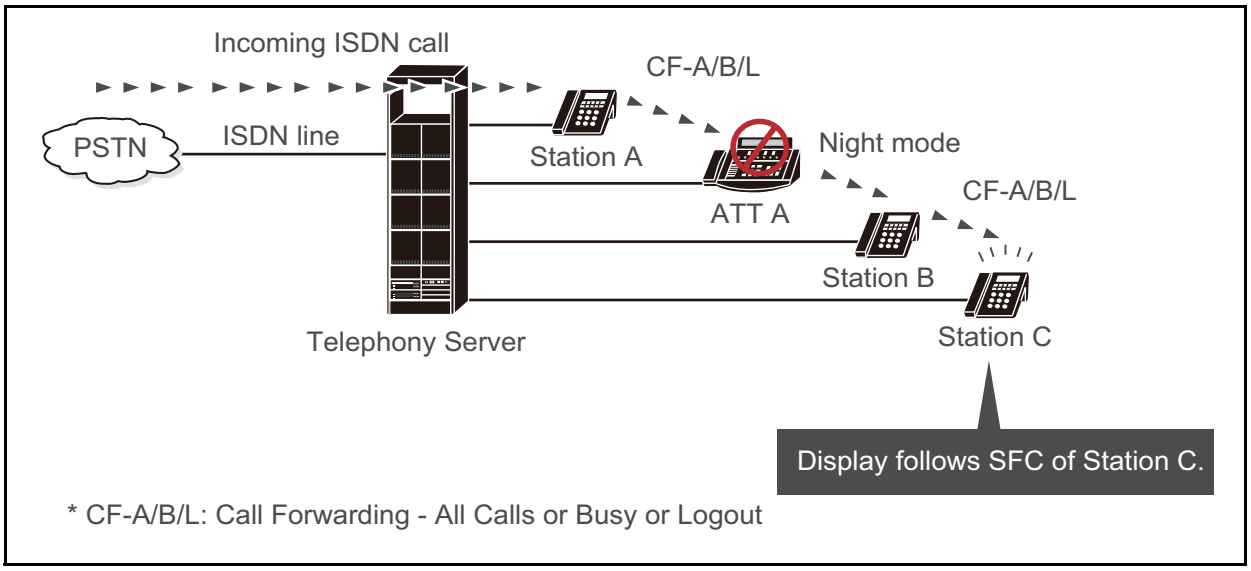
- When an incoming LDN call via ISDN is forwarded to an other node's terminal by an ATT in Night mode, the terminal displays the received Caller ID as is. The ALDN command is required to assign: TYPE=2, enables to transfer a night call to a different node by specifying dial number; TYPE=3, enables to transfer a night call to a different node by specifying ADC.



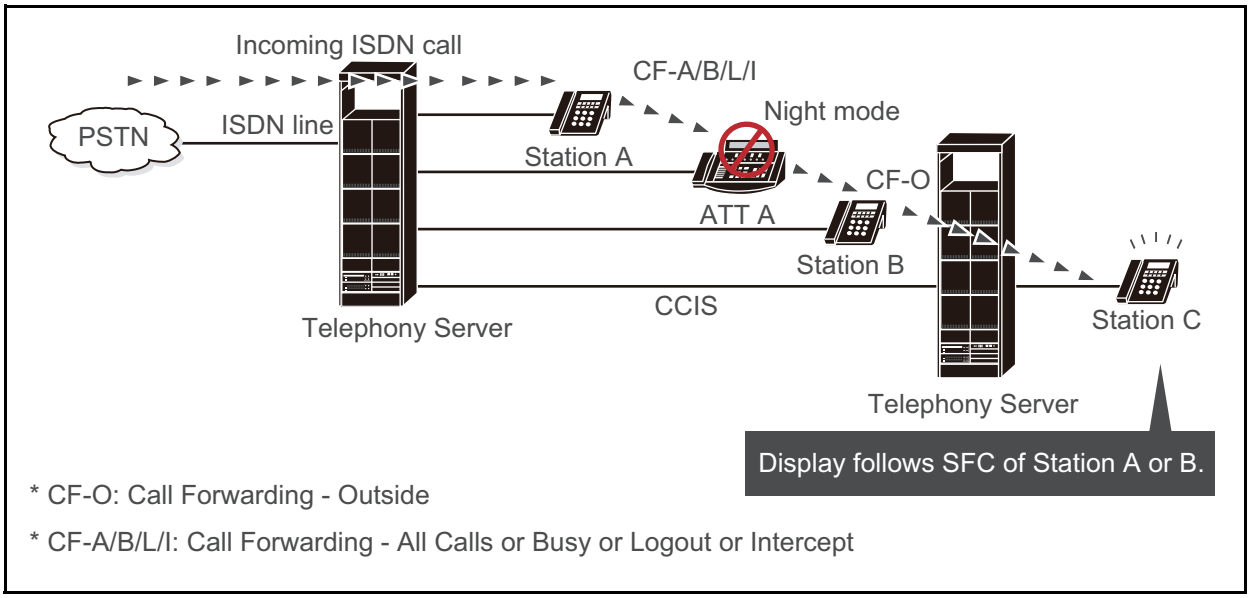
- When a terminal forwards an incoming ISDN call with Call Forwarding - All Calls/Busy/Logout to an ATT in Night mode, and which re-forwards it to another terminal, display for the call depends on the SFC set on the forwarded terminal.



Note: This condition applies even when involving multiple hops.

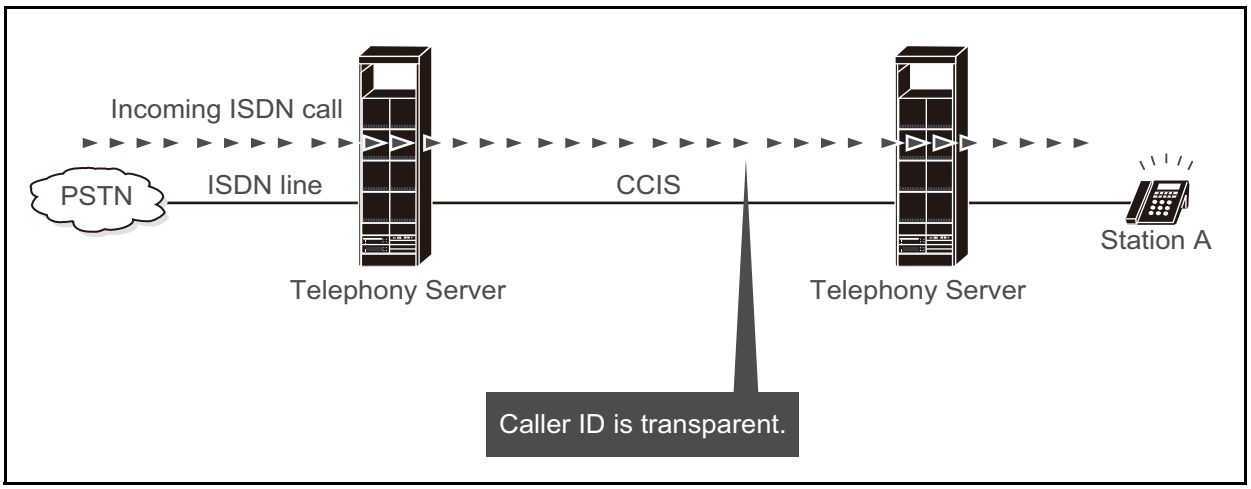


- When a terminal forwards an incoming ISDN call with Call Forwarding - All Calls/Busy/Logout/Intercept to an ATT in Night mode, which re-forwards it to another terminal, and eventually the call is forwarded outside the office, display for the call depends on the SFC set on the forwarding node: You can choose the terminal whose SFC is followed, a first-forwarding station or a last-forwarding station, with the System data: ASYD SYS1 Index20 bit7=0/1: The Billing Party is the originator of the transferred call/The Billing Party is the station that has set Call Forwarding - Outside service.

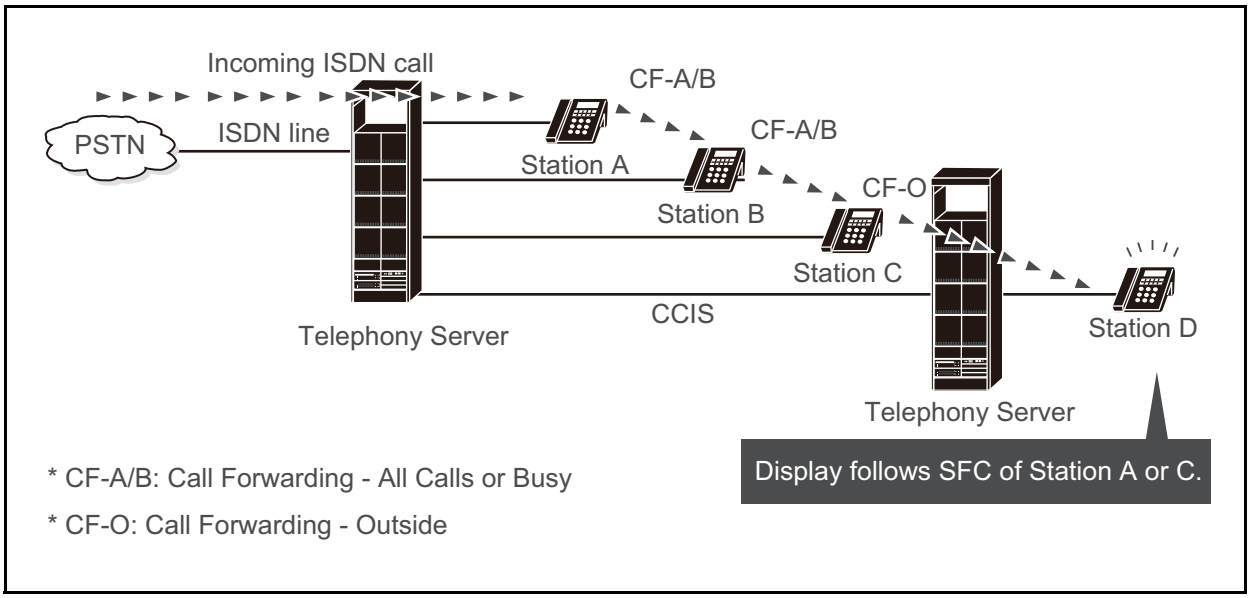


(4) The following describes how a terminal displays CLIP when an ISDN call is forwarded via CCIS.

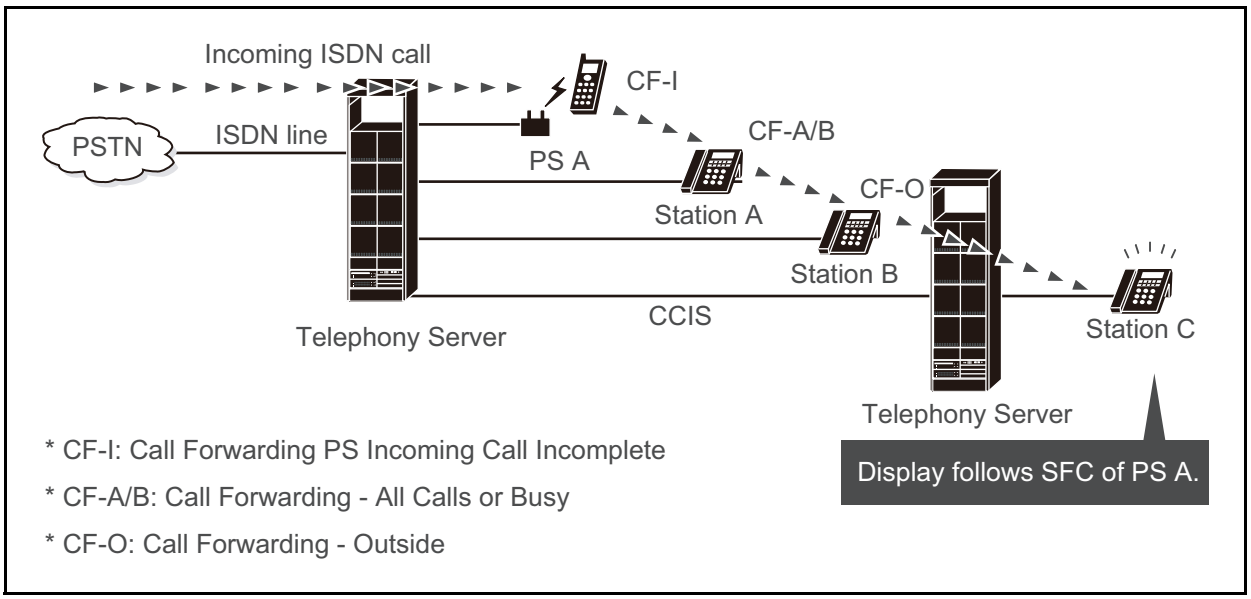
- When an incoming ISDN call is forwarded directly from a node to another node without any terminals involved in between, a receiving terminal can obtain the Caller ID which ISDN line has carried as is.



- When an incoming ISDN call is forwarded via CCIS with Call Forwarding - Outside, display for the call depends on the SFC set on the forwarding node: You can choose the terminal whose SFC is followed, a first-forwarding station or a last-forwarding station, with the System data: ASYD SYS1 Index20 bit7=0/1: The Billing Party is the originator of the transferred call/The Billing Party is the station that has set Call Forwarding - Outside service.

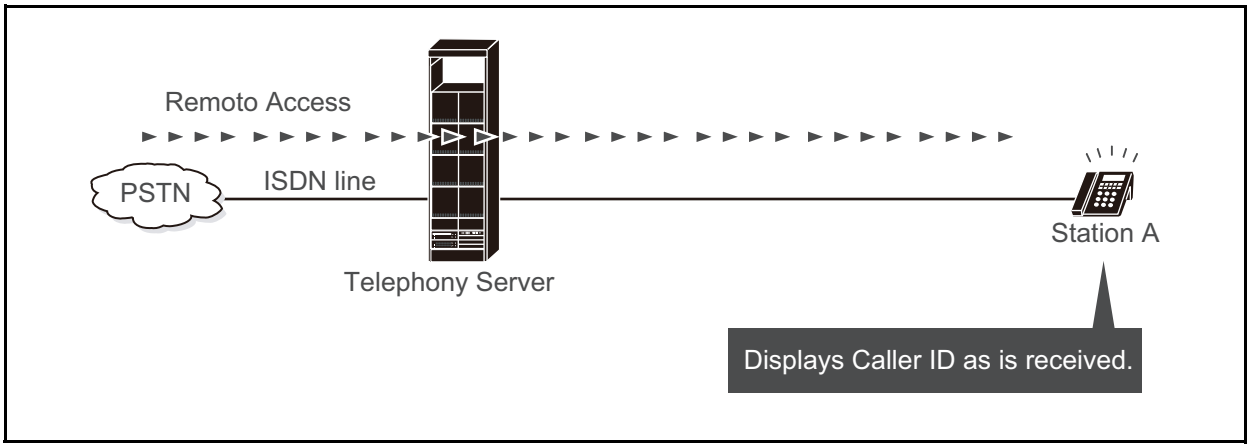


- When an incoming ISDN call is forwarded via CCIS after the first-receiving terminal (PS) forwards it with Call Forwarding PS Incoming Call Incomplete, display for the call depends on the SFC set on the PS.

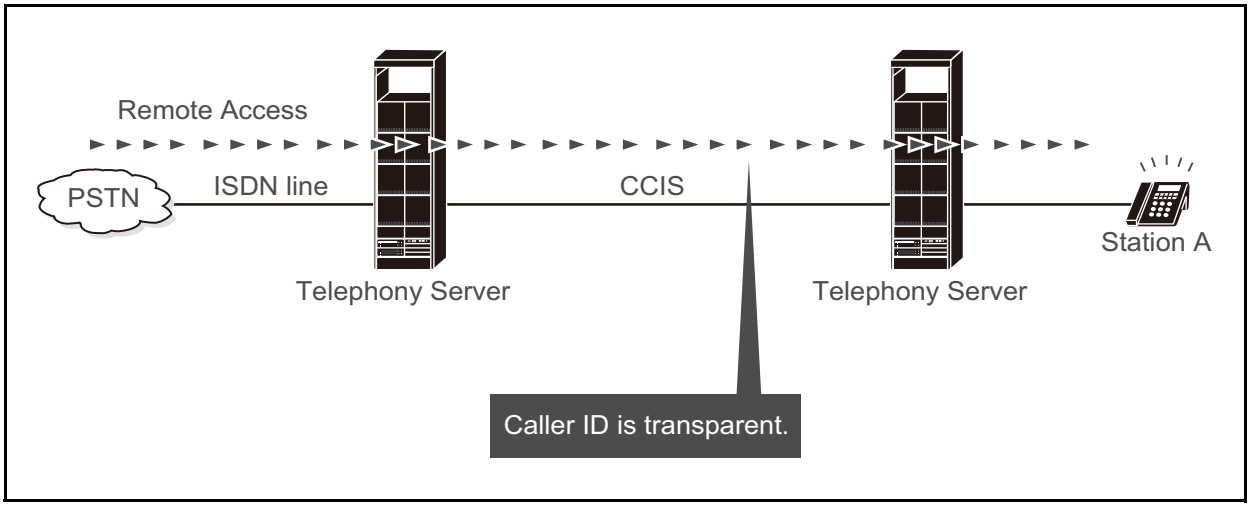


(5) The following describes how a terminal displays CLIP for an ISDN call originated with Remote Access to System [R-2].

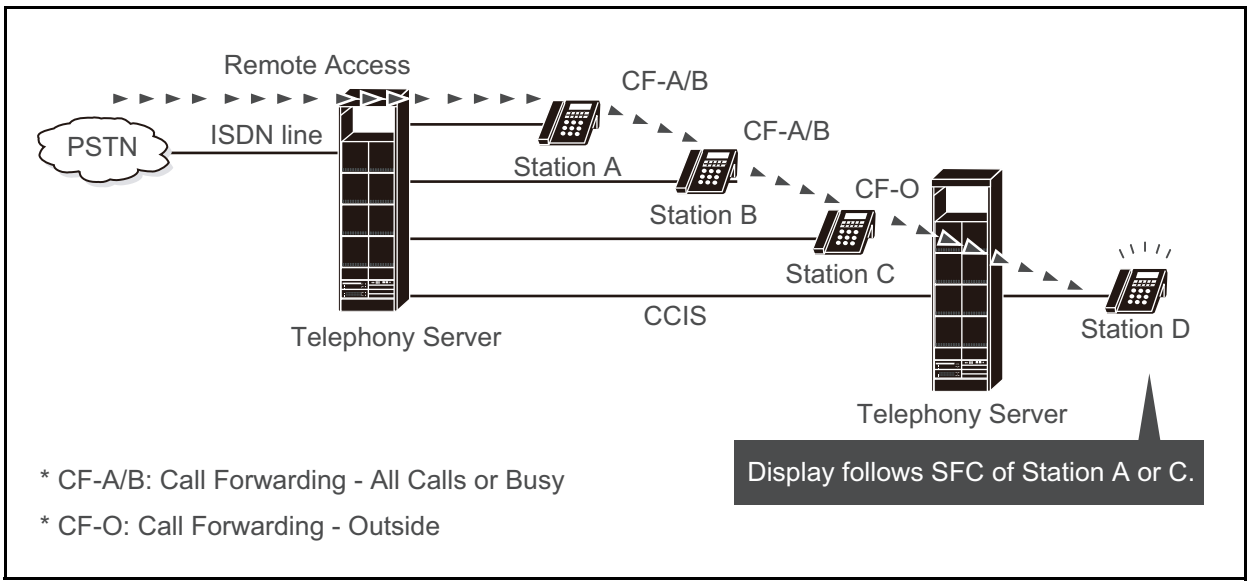
- When an incoming ISDN call arrives on a terminal, the LCD on the terminal displays the Caller ID as is received.



- When an incoming ISDN call is forwarded directly from a node to another node without any terminals involved in between, a receiving terminal can obtain the Caller ID which ISDN line has carried as is.

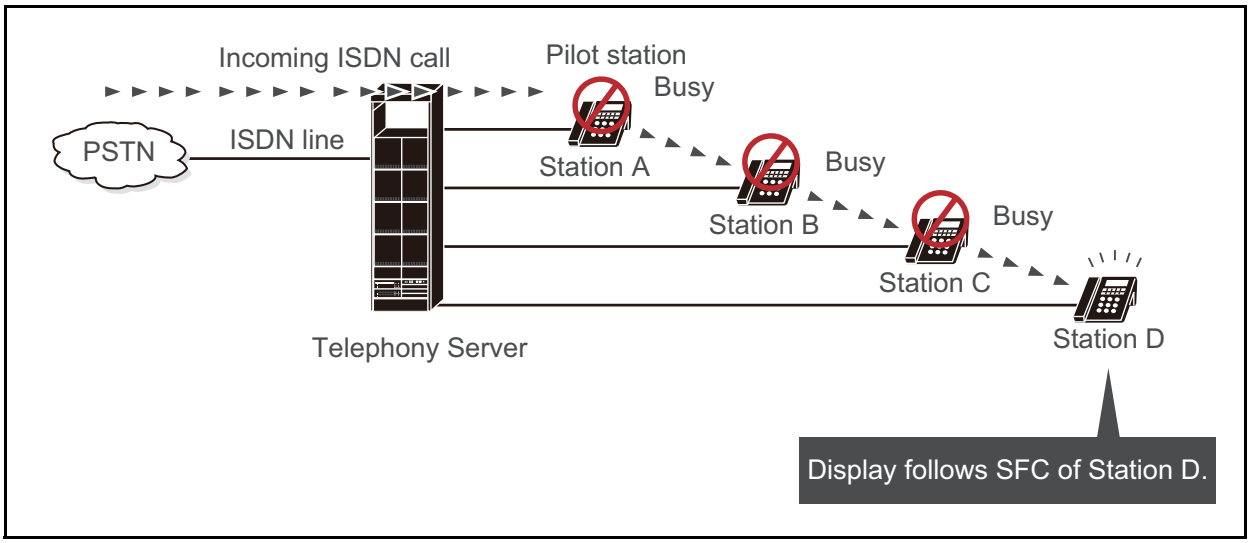


- When an incoming ISDN call is forwarded via CCIS with Call Forwarding - Outside, display for the call depends on the SFC set on the forwarding node: You can choose the terminal whose SFC is followed, a first-forwarding station or a last-forwarding station, with the System data: ASYD SYS1 Index20 bit7=0/1: The Billing Party is the originator of the transferred call/The Billing Party is the station that has set Call Forwarding - Outside service.

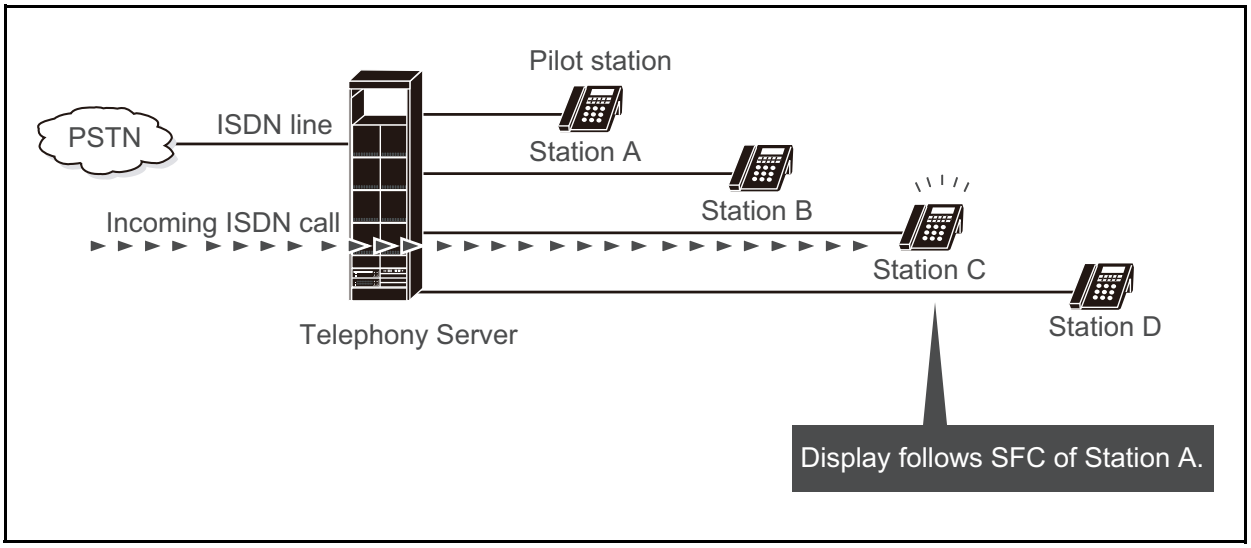


(6) The following describes how a terminal displays CLIP when an incoming ISDN call arrives in a Hunt Group.

- When an incoming ISDN call arrives in a Hunt Group associated by Station Hunting - Circular [S-7], display for the call depends on the SFC set on the receiving station.

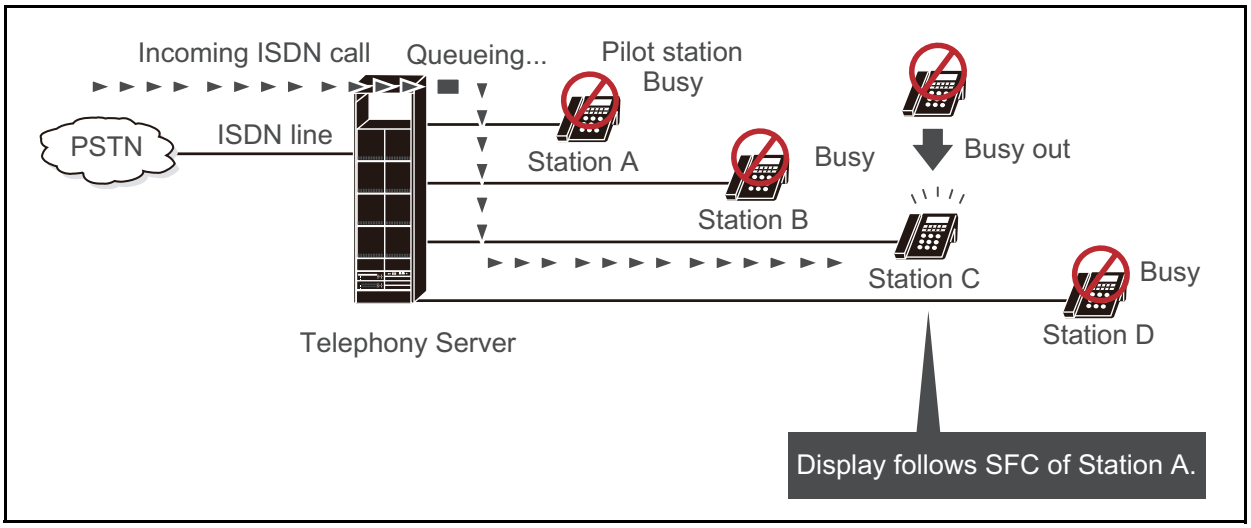


- When an incoming ISDN call arrives in a UCD group associated by Uniform Call Distribution (UCD) [U-1], display for the call depends on the SFC set on the pilot station.



Note: We recommend that all stations in a single UCD group should have the same SFC set.

- When a UCD station receives a queued call, display for the call depends on the SFC set on the pilot station.



(7) The following describes how a terminal displays CLIP when an incoming ISDN call arrives in a Hunt Group.

(8) When you answer an incoming ISDN call with Call Pickup - Group [C-7] or Call Pickup - Direct [C-30], the LCD on your terminal does not change display: display for the call depends on the SFC set on the ringing station.

(9) When you answer an incoming ISDN call with Call Park [C-29], display for the call depends on the SFC set on the first-receiving station.

4. PROGRAMMING

The following shows the data assignment for Addressing/COLP on a route (RT) basis.

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG.)

STEP 2: ARTI/ARTIN- Assign Trunk Application Data.
CDN32 (SRV) bit7=1(Type of Number [TON] and Numbering Plan Identification [NPI] are valid.)
CDN33 (TON)
0: Unknown
1: International Number
2: National Number
3: Network Specific Number
4: Subscriber Number
6: Abbreviated Number
CDN34 (NPI)
0: Unknown
1: ISDN/Telephony Numbering Plan (conformance to E.164)
3: Data Numbering Plan (conformance to X.121)
4: Telex Numbering Plan (conformance to F.69)
8: National Standard Numbering Plan
9: Private Numbering Plan
CDN85 (Addressing)=1 (valid)

STEP 3: AMSGL/AMSGN- Assign the information element data for Incoming Call.
TDPTN
:Assign the Time of Day Change Pattern that is same as one for ISDN route assigned by the AOPR/ AOPRL/AOPRN command.
OPR
:Assign the Outgoing Route Selection Pattern Number that is same as one for ISDN route assigned by the AOPR/AOPRL/AOPRN command.
RA
:Assign the Order of Route Advancing that is same as one for ISDN route assigned by the AOPR/ AOPRL/AOPRN command.
NPI
: Assign the Number Plan Identification for information element of Incoming Call.
TON
: Assign the Type of Number for information element of Incoming Call.

STEP 4: ACODL/ACODN- Assign the country data.
RT/LGRT: ISDN Route
Name: Country Code
Addressing/COLP: Check this item.
Area Code: Area Code
Local Code: Local Area Code
Trunk Access: Check this item if you want to add trunk access codes to outgoing calls.
TK_ACC: Trunk Access Code
International Prefix: Check this item if you want to add International Prefix to outgoing calls.
I_PREFIX Code: Specify an International Prefix Code
National Prefix: Check this item if you want to add National Prefix to outgoing calls.
N_PREFIX Code: Specify a National Prefix
Area Code Display: Check this item if you want to make terminals in the same area display the Area Code.

STEP 5: ASFC/ASFCN- Assign Prefix data.
SFI=231(International Prefix Display)
0/1=None/Add International Prefix to originated call and display it.
SFI=232(National Prefix Display)
0/1=None/Add National Prefix to originated call and display it.

STEP 6: ASYD- Assign a terminal whose SFC is followed to display CLIP for an incoming ISDN call forwarded via CCIS with Call Forwarding - Outside: a first-forwarding station or a last-forwarding station.
SYS1 Index20 Bit7
0/1: The Billing Party is the originator of the transferred call/The Billing Party is the station that has set Call Forwarding - Outside service

EXTENDED ADDRESSING/COLP

1. GENERAL DESCRIPTION

1.1 Addressing/COLP with LNPD

Addressing/COLP feature works on a number called Local Number Plan Domain (LNPD) basis. In this method, the office data for Addressing/COLP can be set on an area basis, by using the LNPD. Here, the existing feature working on a route basis is referred to as "Existing Addressing/COLP", and the new feature working on an LNPD basis is referred to as "Extended Addressing/COLP".

When you set Addressing/COLP feature data on an LNPD basis, the following extended features are also available.

- Addressing/COLP via Tandem Connection
- Addressing/COLP with Phone
- Addressing - SMDR/MCI Support

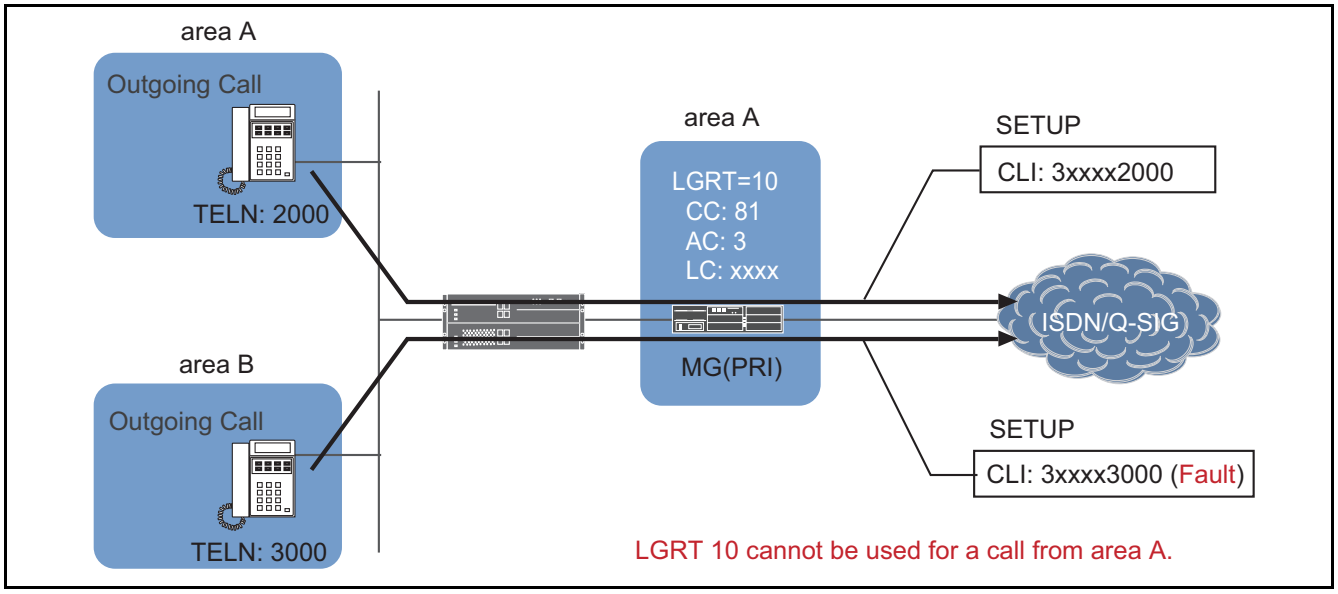
Note: Extended Addressing/COLP (on an LNPD basis) can be enabled by setting "1" for ASYDL, SYS1, Index1088, Bit5. When Extended Addressing/COLP is enabled, Existing Addressing/COLP (on a route basis) is disabled. Conversely, when Existing Addressing/COLP is enabled (ASYDL, SYS1, Index1088, Bit5 = 0), Extended feature is disabled.

The following explains the differences between Addressing/COLP and Extended Addressing/COLP with sample configurations for Addressing/COLP with Phone.

(1) Addressing feature

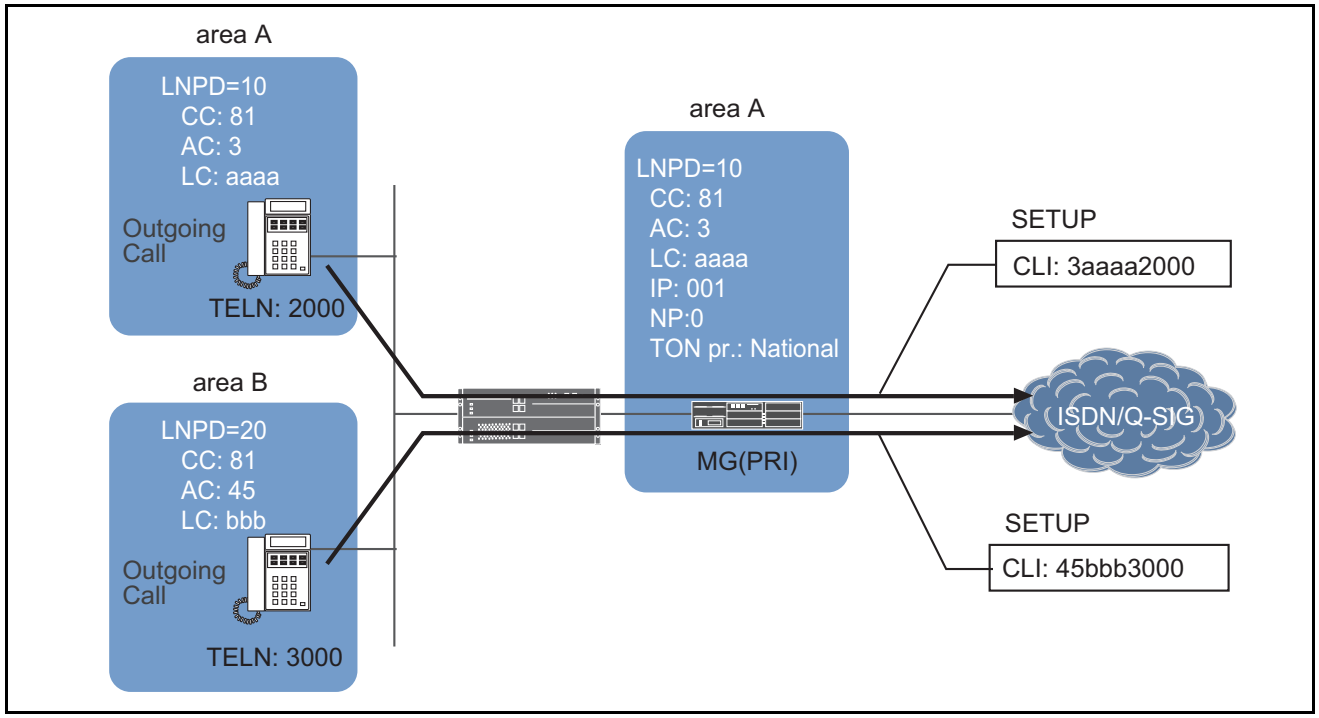
a.) Action Image of Existing Addressing feature

RT cannot be shared among multiple areas because CC and AC are set on an RT basis.



b.) Action Image of Extended Addressing feature

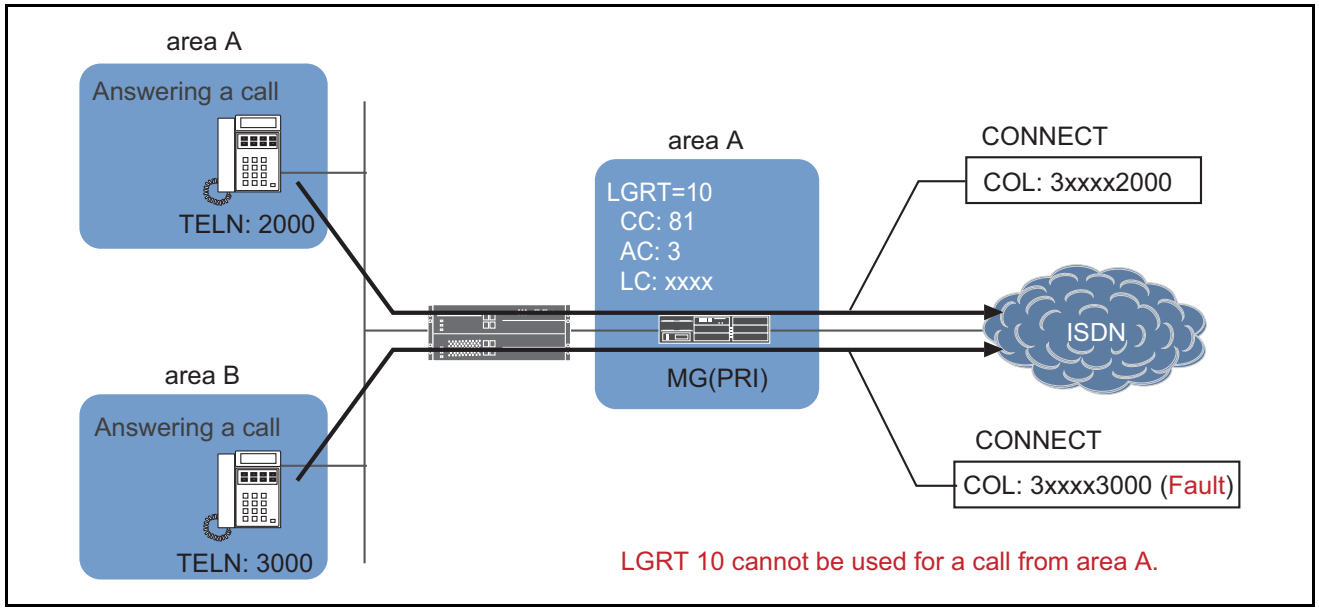
RT can be shared among multiple areas because CC and AC are set on an LNPD basis.



(2) COLP feature

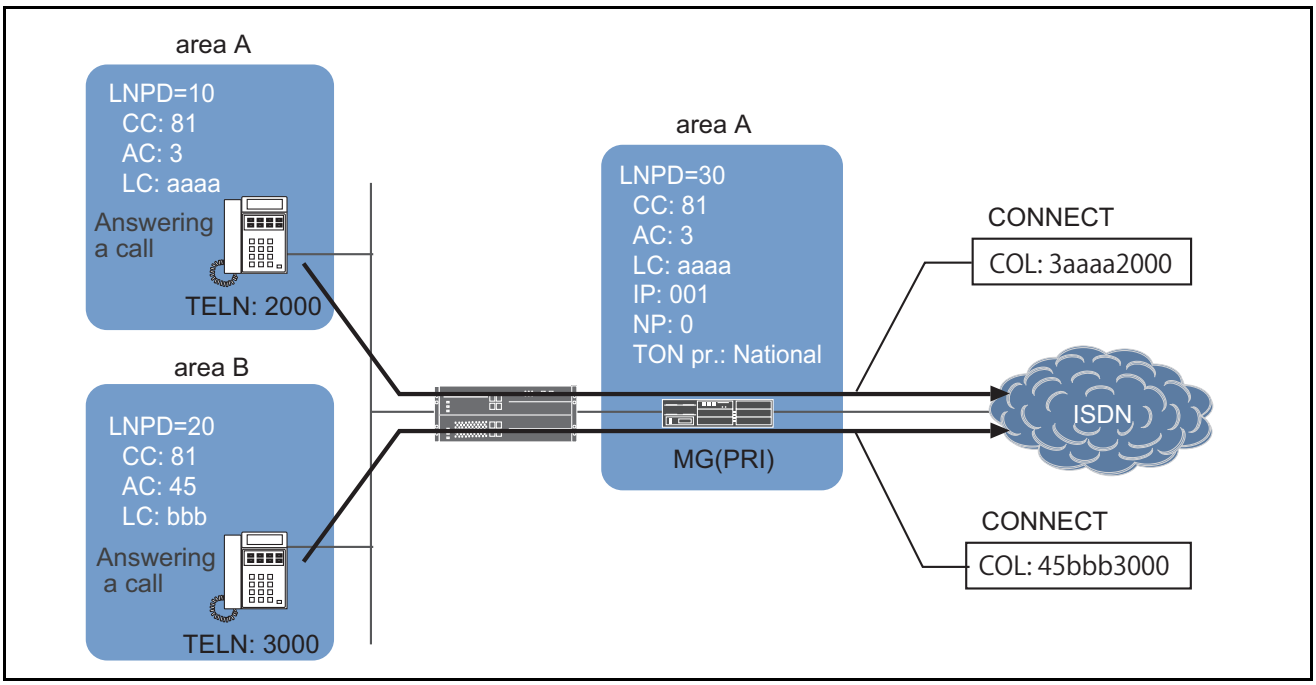
a.) Action Image of Existing COLP feature

RT cannot be shared among multiple areas because CC and AC are set on an RT basis.



b.) Action Image of Extended COLP feature

RT can be shared among multiple areas because CC and AC are set on an LNPD basis.



1.1.1 How to Set LNPD

There are the following two ways to set the LNPD.

1.1.1.1 Assigning LNPD to each device

Assign LNPD to each device through the ADLDL/ADLDN command. You can choose any of the following devices on the ADLDL/ADLDN command.

Note: This method is available when you use Extended Addressing/COLP in tandem connections.

- Phone
- trunk ISDN(PRI)
- trunk ISDN(BRI)
- trunk QSIG
- trunk CCIS

1.1.1.2 Assign LNPD through CLI/COL Translation Data

When you want to translate a CLI/COL Connected Number, configure a translation table and number translation rule on the ACCTL/N and ACCDL/N commands. At this time, you can set LNPD along with the number translation rule.
When a station originates/answers a call, the system compares TELN with the translation rule and then obtains an LNPD to perform a number translation if possible.

Note: This method is available only for Addressing/COLP with Phone (see 1.3 Addressing/COLP with Phone). For details on CLI/COL translation process in this way, see ACCTL/ACCTN and ACCDL/ACCDN in Command Manual.

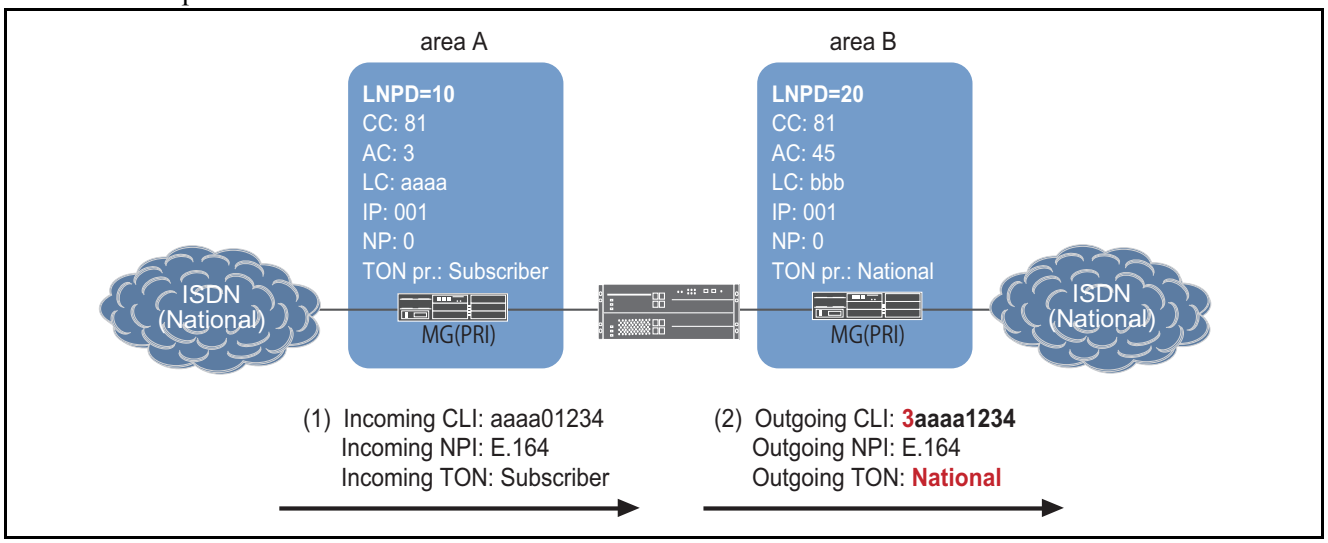
1.1.2 CLI/COL Translation

Calling Line Identification (CLI)/Connected Line Identification (COL) is translated as follows:

When OGT = ISDN (MG(PRI)/MG(BRI))/Q-SIG: CLI/COL, Numbering Plan Identifier (NPI) and Type of Number (TON) of Calling Party Number Information Element (CPNIE) are translated.

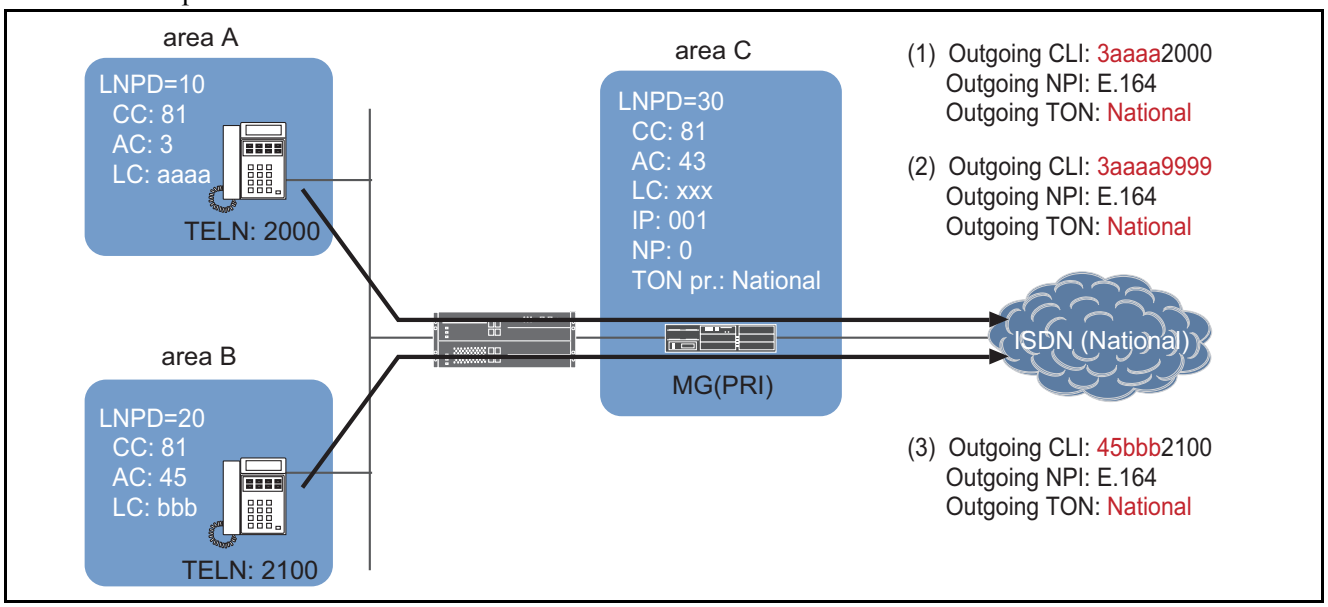
When OGT = CCIS/Phone: CLI/COL is translated.

<Example of CLI/COL translation for a tandem call>



Information on the incoming side is given in (1) of the above figure. It is required to add number information until TON level becomes “National” because TON pr. of the destination MG-PRI is “National”. Thus, area code of area A: 3 is prepended to Incoming CLI to generate a National-level number. As a result, information to be sent is give in (2) of above figure.

<Example of CLI/COL translation for a station call>



When the terminal (TELN: 2000) in area A originates a call, Area Code (AC) and Local Code (LC) need to be added because the call is routed to a different area (from area A to area C. Thus, (1) and (2) are sent as number information. Number Information (1) is an example of number conversion when LNPD is assigned by the method of 1.1.1.1 Assigning LNPD to each device. Number Information (2) is an example of number conversion when LNPD is assigned by the method of 1.1.1.2 Assign LNPD through CLI/COL Translation Data. In the setting of (2), TELN: 2000 changes to 9999. Likewise, when the terminal (TELN: 2100) in area B originates a call, Number Information (3) is sent.

1.1.3 NPI and TON

Number translation for CLI/COL is performed based on values of NPI and TON.

Number Plan Identifier (NPI) specifies which number pattern is used. Useable NPIs vary depending on the device type. Combinations of NPIs and device types are shown in Available NPIs for each Device Type.

Type of Number (TON) is a value indicating a number information level that CLI/COL has. There are some levels, such as International, National and Local Number (see TON Level for NPI). As the level is raised, amount of number information is increased. Settable TONs vary depending on the NPI. Combinations of NPIs and TONs are shown in Combinations of NPI and TON.

Available NPIs for each Device Type

Device Type	NPI			
	E.164	PNP	Unknown	NPI-C
ISDN(PRI)	X	N	X	N
ISDN(BRI)	X	N	X	N
Q-SIG	X	X	X	N
CCIS(PHC)	N	N	N	X
Phone	X	X	X	X

TON Level for NPI

Level	NPI			
	E.164	PNP	Unknown	NPI-C
High	International	Level 2	-	Level-I
	National	Level 1	-	Level-N
Low	Subscriber	Local Number	-	Level-S

Combinations of NPI and TON

TON	NPI			
	E.164	PNP	Unknown	NPI-C
0	Unknown	Unknown	Unknown	-
1	International	Level 2	-	Level-I
2	National	Level 1	-	Level-N
4	Subscriber	Local Number	-	Level-S

1.2 Addressing/COLP via Tandem Connection

1.2.1 Outline of Addressing/COLP via Tandem Connection

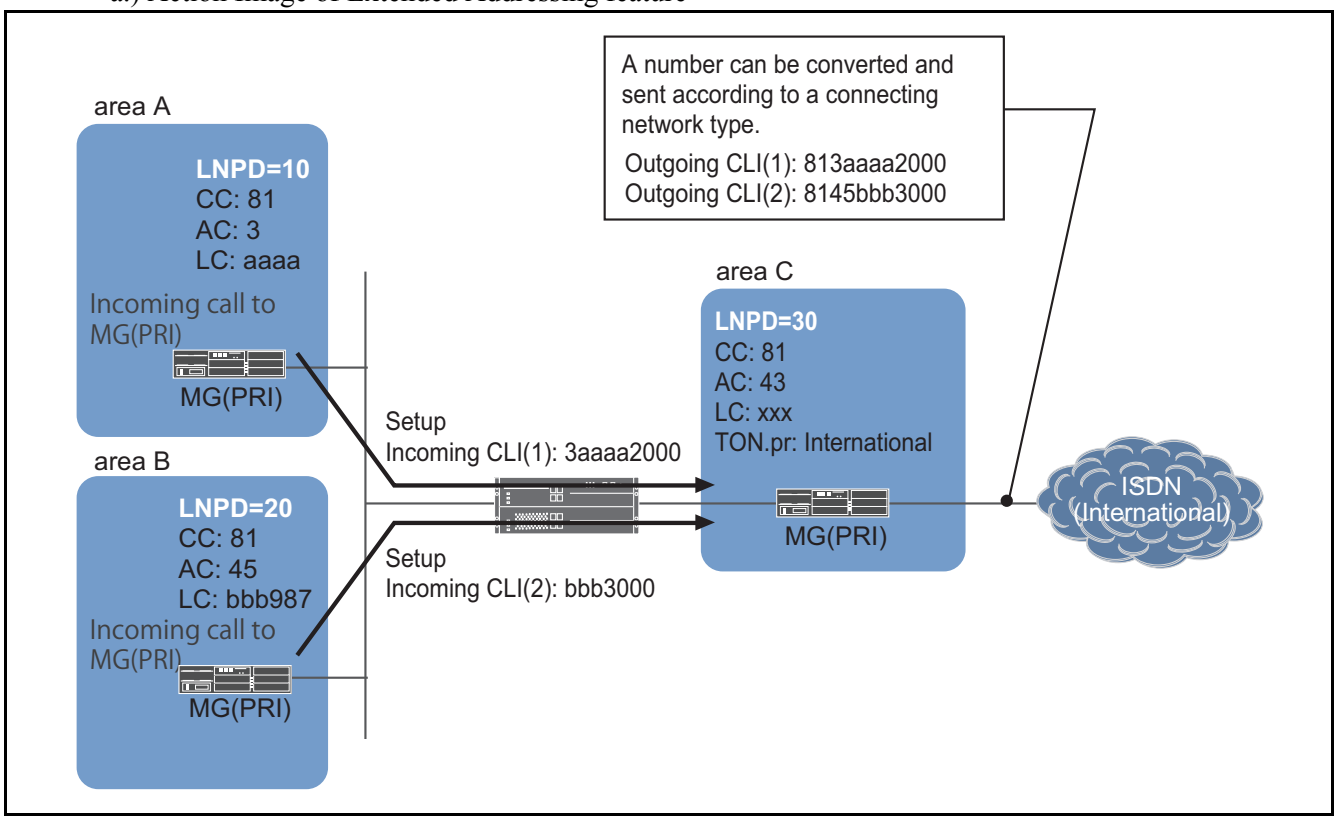
Addressing/COLP feature can work in the following tandem connections.

Outgoing Route / Incoming Route	ISDN(PRI)	Q-SIG	CCIS	ISDN(BRI)
ISDN(PRI)	X	X	X	X
Q-SIG	X	X	X	X
CCIS	X	X	X	X
ISDN(BRI)	X	X	X	X

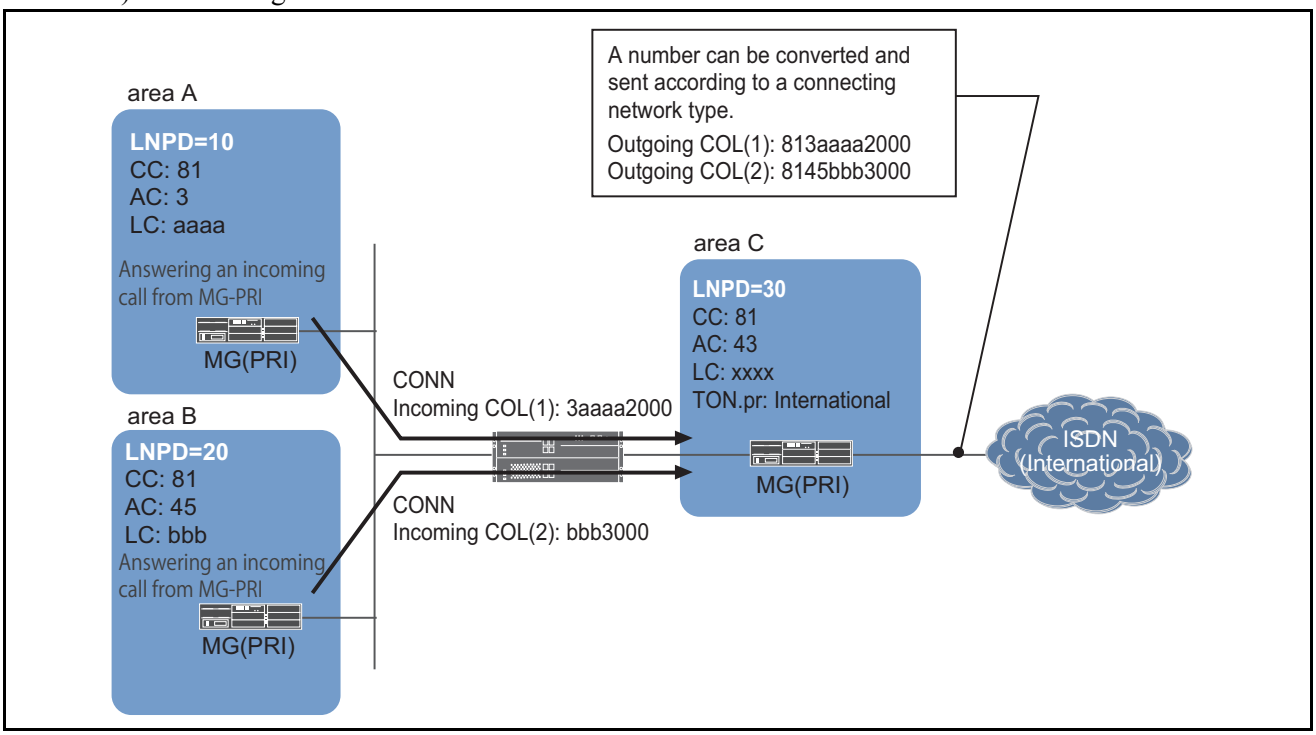
X: Available

Action image of Addressing/COLP via Tandem Connection is shown below. For details on number translation method, refer to 1.1 Addressing/COLP with LNPD.

a.) Action Image of Extended Addressing feature



b.) Action Image of Extended of COLP feature



1.2.2 Number Translation Procedure and Translation Examples

1.2.2.1 Tandem Connection from ISDN(PRI)/ISDN(BRI)/Q-SIG to ISDN(PRI)/ISDN(BRI)/Q-SIG

In a tandem connection from ISDN/Q-SIG to ISDN/Q-SIG, CLI/COL, NPI and TON are translated through the following steps.

<Reading of Numbering Plan Data>

- How to determine LNPD:

  A-LNPD: LNPD assigned to A-LGRT.

  B-LNPD: LNPD assigned to B-LGRT.

  Note: When A-LNPD is not set, the system sets the following and completes the translation.
  Outgoing NPI = (for CLI) B-AMSGN-NPI/(for COL) NPI of the received CONN(0x4c)
  Outgoing TON = (for CLI) B-AMSGN-TON/(for COL) TON of the received CONN(0x4c)
  Outgoing CLI/COL = Incoming CLI/COL

  Note: When B-LNPD is not set, the system bypasses (3) of <Editing of Outgoing CLI/COL, NPI and TON>.

- How to determine NPI:

  A-NPI: (for CLI/COL) Incoming NPI

  B-NPI: (for CLI) B-AMSGN-NPI/(for COL) Incoming NPI

  Note: When B-AMSGN-NPI is not set, Unknown is set for B-AMSGN-NPI.

- Reads Numbering Plan data according to the determined LNPD and NPI.

<Editing of Outgoing CLI/COL, NPI and TON>

- Outgoing NPI = (for CLI) B-AMSGN-NPI/(for COL) NPI of the received CONN(0x4c)
- When Incoming TON = Unknown:

  Outgoing TON = Unknown

  Outgoing CLI/COL = Incoming CLI/COL

- When Incoming TON = A value other than Unknown:

  (1) Upgrades TON level to A-LNPD-TON pr.
  When Incoming TON is lower than A-LNPD-TON pr., the system adds A-LNPD-CC/AC, etc. to Editing CLI/COL and upgrades Editing TON. When Incoming TON level is higher than or the same as A-LNPD-TON pr., or A-LNPD-TON pr. is Unknown/n.a. (not assigned), the system does nothing.

(2) Creates a unique CLI/COL.

When Incoming TON level is higher than A-LNPD-TON pr., the system compares Incoming CLI/COL with A-LNPD-AC/CC according to Incoming TON. As a result of the comparison, the system removes a mutual part from Editing CLI/COL and downgrades Editing TON. At this time, the system makes the number clear at the lowest possible level. When A-LNPD-TON pr. is Unknown or n.a. (not assigned), the system does nothing.

Note: Editing TON level cannot be lower than A-LNPD-TON pr.

(3) Adapts TON to a destination.

(Case 1) When the level of TON created in Step 2 is lower than B-LNPD-TON pr., the system adds ALNPD-AC/CC and upgrades Editing TON to the same level of B-LNPD-TON pr. When Editing TON becomes the same level as B-LNPD-TON pr., the system compares A-LNPD-AC/CC with B-LNPD-AC/CC. When those values do not match, the system adds A-LNPD-AC/CC to Editing CLI/COL. Editing TON is upgraded according to Editing CLI/COL.

Note: Editing TON level needs to be raised to at least B-LNPD-TON pr.

(Case 2) When the level of TON created in Step 2 is higher than B-LNPD-TON pr., the system compares Editing CLI/COL with B-LNPD-AC/CC. When those values match, the system removes BLNPD-CC/AC from Editing CLI/COL to downgrade Editing TON.

Note: Editing TON level cannot be lower than A-LNPD-TON pr.

(Case 3) When the level of TON created in Step 2 is equal to B-LNPD-TON pr., the system compares ALNPD-AC/CC with B-LNPD-AC/CC. When those values do not match, the system adds ALNPD-AC/CC to Editing CLI/COL and upgrades Editing TON.

Note: Editing TON level needs to be raised to at least B-LNPD-TON pr.

(Case 4) When B-LNPD-TON pr is Unknown or n.a. (not assigned), the system does nothing.

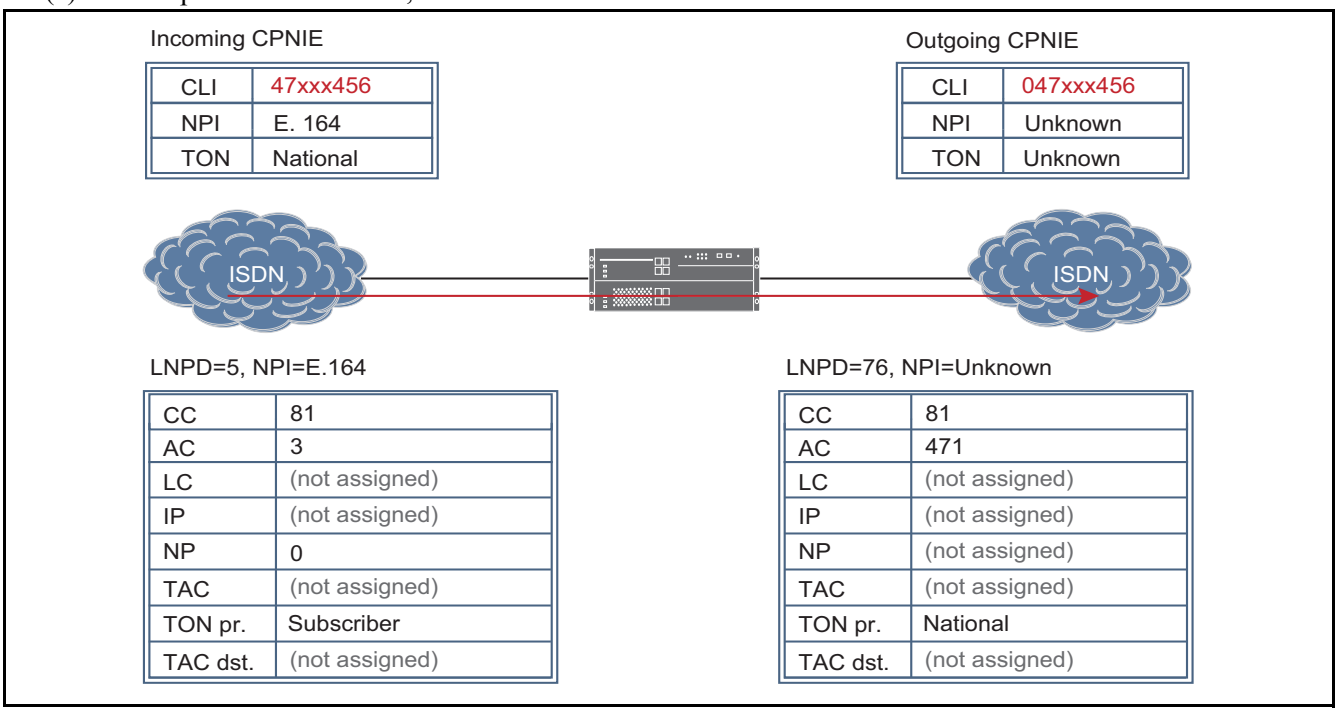
(4) Adds Prefix.

When Editing NPI is Unknown, the system prepends A-LNPD-IP/NP to Editing CLI/COL according to Editing TON.

(5) Changes Editing TON.

When Editing NPI is Unknown, the system sets Editing TON to Unknown.

(a) Example: ISDN to ISDN, TON = National



Step	Editing CLI	Editing NPI	Editing TON
(1)	47xxx456	Unknown	National
(2)	47xxx456	Unknown	National
(3)	47xxx456	Unknown	National
(4)	047xxx456	Unknown	National
(5)	047xxx456	Unknown	Unknown

(1) Since Incoming TON (National) > A-LNPD-TON pr. (Subscriber), the system does nothing.
(2) Since Incoming TON (National) > A-LNPD-TON pr. (Subscriber), the system compares Incoming CLI (47xxx456) with A-LNPD-AC (3). As a result of comparison, the system does nothing because those values don't match.
(3) (Case 3) Since Editing TON = National, the system compares A-LNPD-CC (81) with B-LNPD-CC (81). As a result of comparison, the system does nothing because those values match.
(4) Since Editing NPI = Unknown and Editing TON = National, the system prepends A-LNPD-NP (0) to Editing CLI (47xxx456).
(5) Since Editing NPI = Unknown, the system sets Editing TON to Unknown.

1.2.2.2 Tandem Connection from ISDN(PRI)/ISDN(BRI)/Q-SIG to CCIS

In a tandem connection from ISDN/Q-SIG to CCIS, CLI/COL, NPI and TON are translated through the following steps.

<Reading of Numbering Plan Data>

- How to determine LNPD:

A-LNPD: LNPD assigned to A-LGRT.

B-LNPD: LNPD assigned to B-LGRT/PC.

Note: When A-LNPD is not set:
Outgoing CLI/COL = Incoming CLI/COL

Note: When B-LNPD is not set, the system bypasses (3) of <Editing of Outgoing CLI/COL, NPI and TON>.

- How to determine NPI:

  A-NPI: (for CLI/COL) Incoming NPI.

  B-NPI: (for CLI) B-AMSGN-NPI.
  (for COL) NPI-C.

  Note: When B-AMSGN-NPI is not set, B-AMSGN-NPI is treated as Unknown.

- Reads Numbering Plan data according to the determined LNPD and NPI.

<Editing of Outgoing CLI/COL, NPI and TON>

- When Incoming TON = Unknown:

  Outgoing CLI/COL = Incoming CLI/COL

- When Incoming TON = A value other than Unknown:

  (1) Upgrades TON level to A-LNPD-TON pr.
  When Incoming TON level is lower than A-LNPD-TON pr., The system adds A-LNPD-CC/AC, etc. to Editing CLI/COL and upgrades Editing TON.
  When Incoming TON level is higher than or the same as A-LNPD-TON pr., or A-LNPD-TON pr. is Unknown/n.a. (not assigned), the system does nothing.

  (2) Creates a unique CLI/COL.
  When Incoming TON level is higher than A-LNPD-TON pr., the system compares Incoming CLI/COL with A-LNPD-AC/CC according to Incoming TON. As a result of the comparison, the system removes a mutual part from Editing CLI/COL and downgrades Editing TON. At this time, the system makes the number clear at the lowest possible level. When A-LNPD-TON pr. is Unknown or n.a. (not assigned), the system does nothing.

  Note: Editing TON level cannot be lower than A-LNPD-TON pr.

  (3) Adapts TON to a destination.
  (Case 1) When the level of TON created in Step 2 is lower than B-LNPD-TON pr., the system adds ALNPD-AC/CC and upgrades Editing TON to the same level of B-LNPD-TON pr. When Editing TON becomes the same level as B-LNPD-TON pr., the system compares A-LNPD-AC/CC with B-LNPD-AC/CC. When those values do not match, the system adds A-LNPD-AC/CC to Editing CLI/COL. Editing TON is upgraded according to Editing CLI/COL.

Note: Editing TON level needs to be raised to at least B-LNPD-TON pr.

(Case 2) When the level of TON created in Step 2 is higher than B-LNPD-TON pr., the system compares Editing CLI/COL with B-LNPD-AC/CC. When those values match, the system removes B-LNPD-CC/AC from Editing CLI/COL to downgrade Editing TON.

Note: Editing TON level cannot be lower than B-LNPD-TON pr.

(Case 3) When the level of TON created in Step 2 is equal to B-LNPD-TON pr., the system compares ALNPD-AC/CC with B-LNPD-AC/CC. When those values do not match, the system adds ALNPD-AC/CC to Editing CLI/COL and upgrades Editing TON.

Note: Editing TON level needs to be raised to at least B-LNPD-TON pr.

(Case 4) When B-LNPD-TON pr is Unknown or n.a. (not assigned), the system does nothing.

(4) Adds Prefix.

A-LNPD-IP/NP is prepended to Editing CLI/COL according to Editing TON.

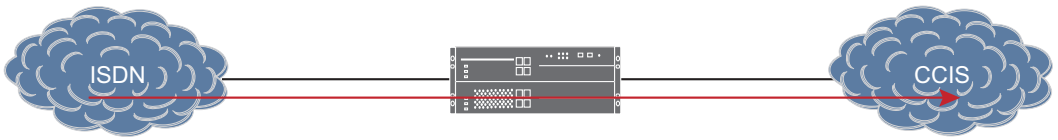
(a) Example: ISDN to CCIS, TON = Subscriber

Incoming CPNIE

CLI	12xxx678
NPI	E. 164
TON	Subscriber

Outgoing CPNIE

CLI	0312xxx678



LNPD=5, NPI=E.164

CC	81
AC	3
LC	(not assigned)
IP	(not assigned)
NP	0
TAC	(not assigned)
TON pr.	(not assigned)
TAC dst.	(not assigned)

LNPD=54, NPI=NPI-C

CC	81
AC	471
LC	(not assigned)
IP	(not assigned)
NP	(not assigned)
TAC	(not assigned)
TON pr.	Level-N
TAC dst.	(not assigned)

Step	Editing CLI	Editing NPI	Editing TON
(1)	12xxx678	NPI-C	Level-S
(2)	12xxx678	NPI-C	Level-S
(3)	312xxx678	NPI-C	Level-N
(4)	0312xxx678	NPI-C	Level-N

(1) Since A-LNPD-TON pr. = n.a. (not assigned), the system does nothing.
(2) Since A-LNPD-TON pr. = n.a. (not assigned), the system does nothing.
(3) (Case 1) Since Editing TON = Level-S, the system adds A-LNPD-AC (3) to Editing CLI and upgrades Editing TON to Level-N. After that, the system compares A-LNPD-CC (81) with B-LNPD-CC (81). In a result of comparison, the system does nothing because those values match.
(4) Since Editing TON = Level-N, the system prepends A-LNPD-NP (0) to Editing CLI (312xxx678).

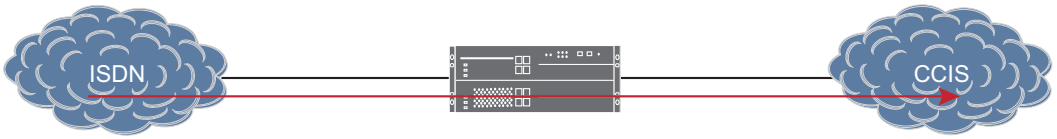
(b) Example: ISDN to CCIS, TON = National

Incoming CPNIE

CLI	47xxx456
NPI	E. 164
TON	National

Outgoing CPNIE

CLI	047xxx456



LNPD=5, NPI=E.164

CC	81
AC	3
LC	(not assigned)
IP	(not assigned)
NP	0
TAC	(not assigned)
TON pr.	(not assigned)
TAC dst.	(not assigned)

LNPD=54, NPI=NPI-C

CC	81
AC	471
LC	(not assigned)
IP	(not assigned)
NP	(not assigned)
TAC	(not assigned)
TON pr.	Level-N
TAC dst.	(not assigned)

Step	Editing CLI	Editing NPI	Editing TON
(1)	47xxx456	NPI-C	Level-N
(2)	47xxx456	NPI-C	Level-N
(3)	47xxx456	NPI-C	Level-N
(4)	047xxx456	NPI-C	Level-N

(1) Since A-LNPD-TON pr. = n.a. (not assigned), the system does nothing.
(2) Since A-LNPD-TON pr. = n.a. (not assigned), the system does nothing.
(3) (Case 3) Since Editing TON = National, the system compares A-LNPD-CC (81) with B-LNPD-CC (81). In a result of comparison, the system does nothing because those values match.
(4) Since Editing TON = Level-N, the system prepends A-LNPD-NP (0) to Editing CLI (47xxx456).

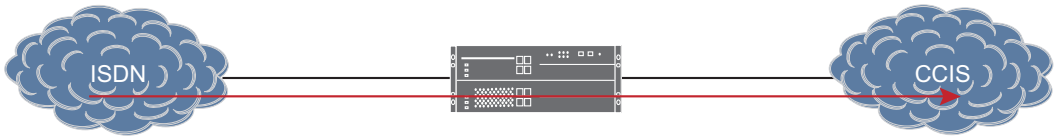
(c) Example: ISDN to CCIS, TON = International

Incoming CPNIE

CLI	3135xxx1180
NPI	E. 164
TON	International

Outgoing CPNIE

CLI	0103135xxx1180



LNPD=5, NPI=E.164

CC	31
AC	35
LC	(not assigned)
IP	010
NP	(not assigned)
TAC	(not assigned)
TON pr.	National
TAC dst.	(not assigned)

LNPD=54, NPI=NPI-C

CC	81
AC	(not assigned)
LC	(not assigned)
IP	(not assigned)
NP	(not assigned)
TAC	(not assigned)
TON pr.	Level-N
TAC dst.	(not assigned)

Step	Editing CLI	Editing NPI	Editing TON
(1)	3135xxx1180	NPI-C	Level-I
(2)	35xxx1180	NPI-C	Level-N
(3)	3135xxx1180	NPI-C	Level-I
(4)	0103135xxx1180	NPI-C	Level-I

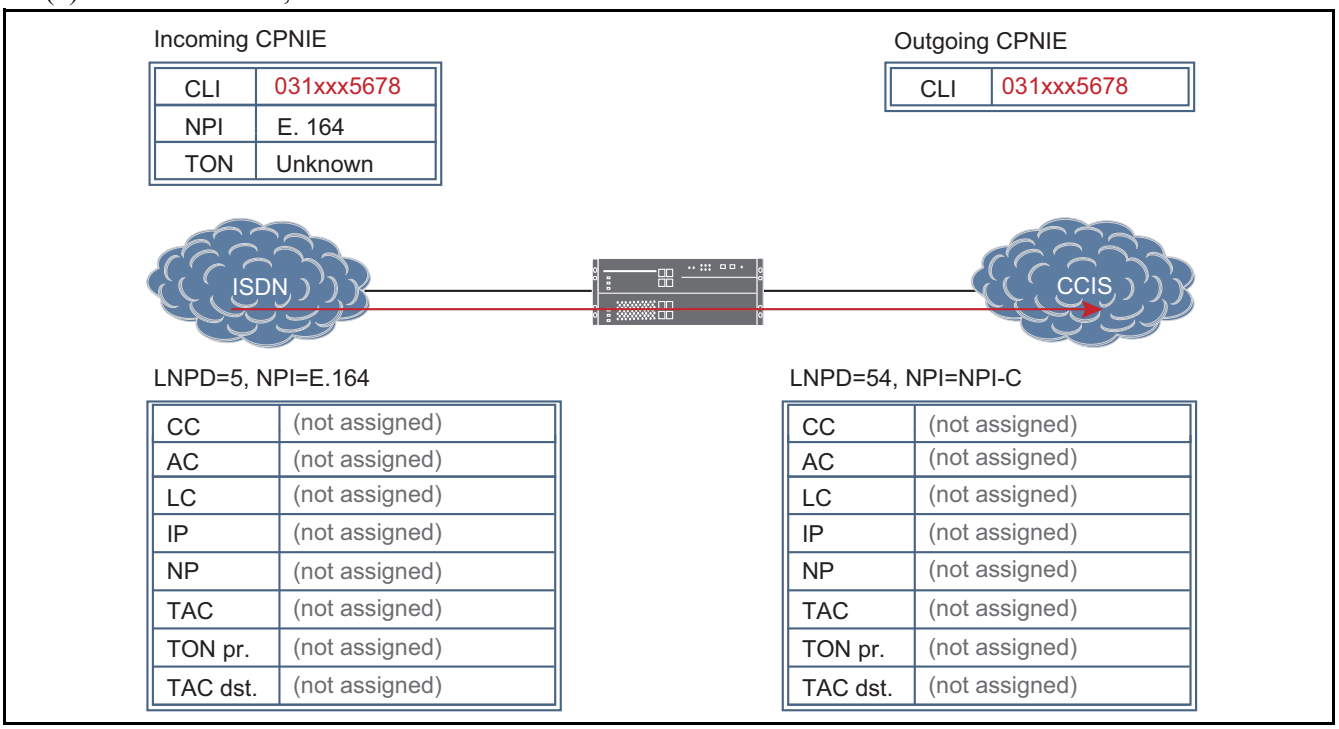
(1) Since Incoming TON (International) > A-LNPD-TON pr. (National), the system does nothing.

(2) Since Incoming TON = International, the system compares Incoming CLI (3135xxx1180) with A-LNPD-CC (31). Because those values match, the system removes A-LNPD-CC (31) from Incoming CLI (3135xxx1180) and downgrades Editing TON. Editing TON level cannot be lower than A-LNPD-TON pr. (National).

(3) (Case 3) Since Editing TON = Level-N, the system compares A-LNPD-CC (31) with B-LNPD-CC (81). Because those values do not match, the system adds A-LNPD-CC (31) to Editing CLI and upgrades Editing TON to Level-I.

(4) Since Editing TON = Level-I, the system prepends A-LNPD-IP (010) to Editing CLI (3135xxx1180).

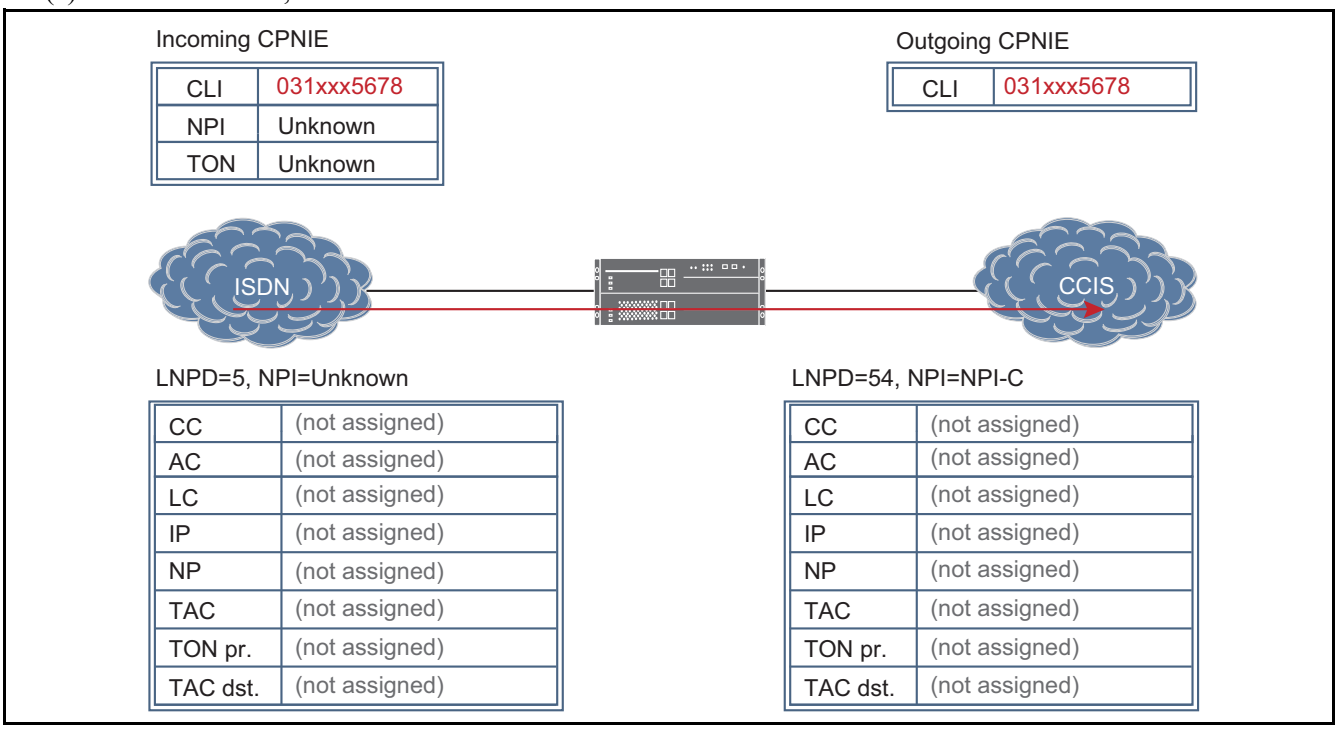
(d) ISDN to CCIS, TON = Unknown



Step	Editing CLI	Editing NPI	Editing TON
(1)	031xxx5678	NPI-C	Unknown

(1) Since Incoming TON = Unknown, Incoming CLI (031xxx5678) is set for Outgoing CLI.

(e) ISDN to CCIS, TON = Unknown



Step	Editing CLI	Editing NPI	Editing TON
(1)	031xxx5678	NPI-C	Unknown

(1) Since Incoming TON = Unknown, Incoming CLI (031xxx5678) is set for Outgoing CLI.

1.2.2.3 Tandem Connection from CCIS to ISDN(PRI)/ISDN(BRI)/Q-SIG

In a tandem connection from CCIS to ISDN/Q-SIG, CLI/COL, NPI and TON are translated through the following steps.

<Reading of Numbering Plan Data>

- How to determine LNPD:

  A-LNPD: LNPD assigned to A-LGRT/PC.

  B-LNPD: LNPD assigned to B-LGRT.

Note: When A-LNPD or B-LNPD is not set, the system sets the following and completes the translation.
Outgoing NPI = (for CLI) B-AMSGN-NPI
(for COL) Unknown
Outgoing TON = Unknown
Outgoing CLI/COL = Incoming CLI/COL

- How to determine NPI:

  A-NPI: NPI-C

  B-NPI: (for CLI) B-AMSGN-NPI
  (for COL) Unknown

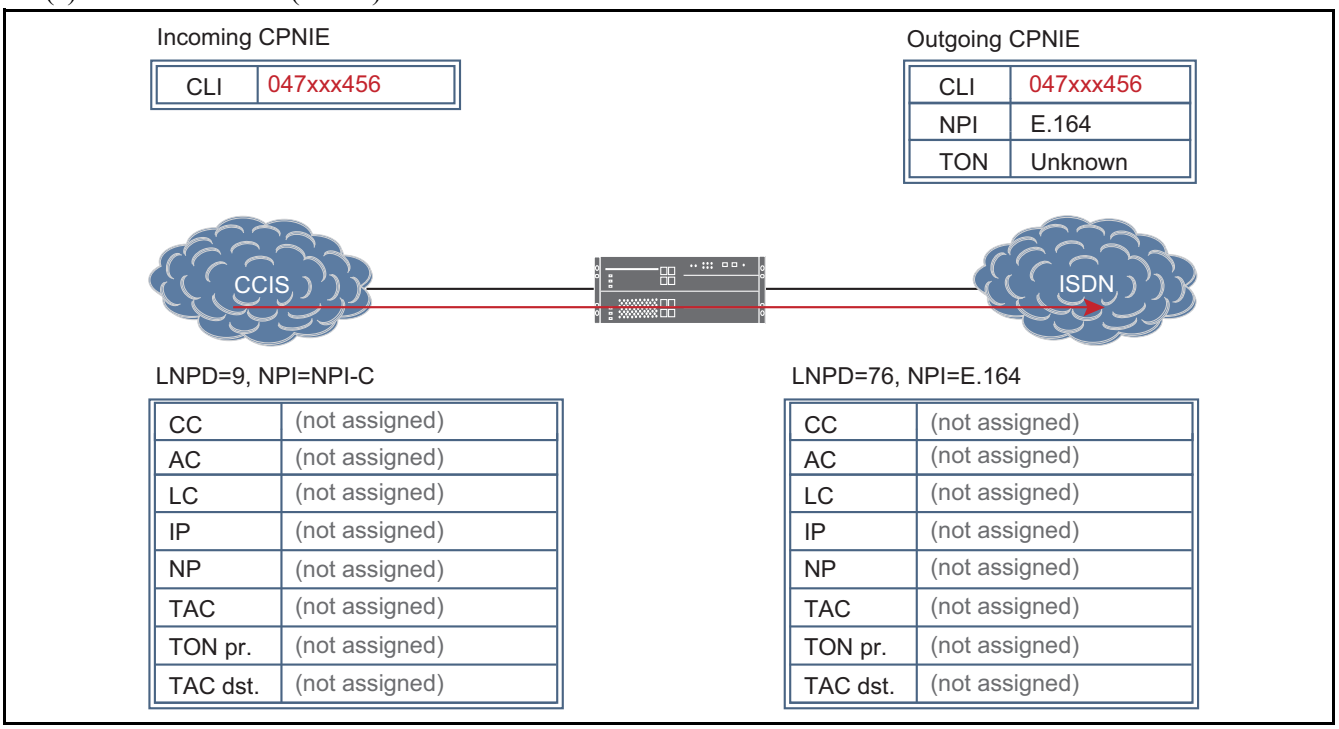
  Note: When B-AMSGN-NPI is not set, B-AMSGN-NPI is treated as Unknown.

- Reads Numbering Plan data according to the determined LNPD and NPI.

<Editing of Outgoing CLI/COL, NPI and TON>

- Outgoing NPI = (for CLI) B-AMSGN-NPI
  (for COL) Unknown
- Outgoing TON = Unknown
- Outgoing CLI/COL = Incoming CLI/COL

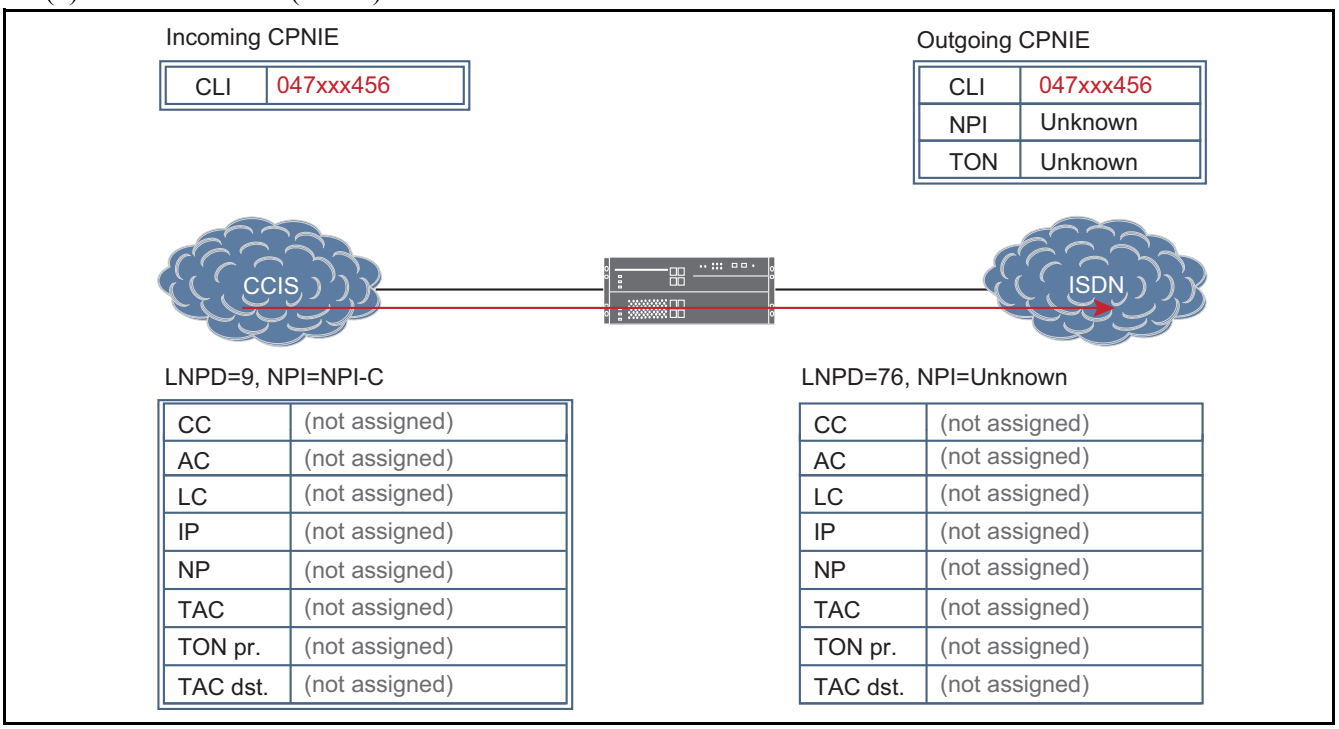
(a) CCIS to ISDN (case 1)



Step	Editing CLI	Editing NPI	Editing TON
(1)	047xxx456	E.164	Unknown

(1) Outgoing NPI = B-AMSGN-NPI (E.164), Outgoing TON = Unknown, Outgoing CLI = Incoming CLI

(b) CCIS to ISDN (case 2)



Step	Editing CLI	Editing NPI	Editing TON
(1)	047xxx456	Unknown	Unknown

(1) Outgoing NPI = B-AMSGN-NPI (Unknown), Outgoing TON = Unknown, Outgoing CLI = Incoming CLI

1.2.2.4 Tandem Connection from CCIS to CCIS

In a tandem connection from CCIS to CCIS, NPI and TON are translated through the following steps.

<Reading of Numbering Plan Data>

- How to determine LNPD:

  A-LNPD: LNPD assigned to A-LGRT/PC.

  B-LNPD: LNPD assigned to B-LGRT/PC.

  Note: When A-LNPD or B-LNPD is not set, the system sets the following and completes the translation.
  Outgoing CLI/COL = Incoming CLI/COL

- How to determine NPI:

  A-NPI: NPI-C

B-NPI: (for CLI) B-AMSGN-NPI
(for COL) NPI-C

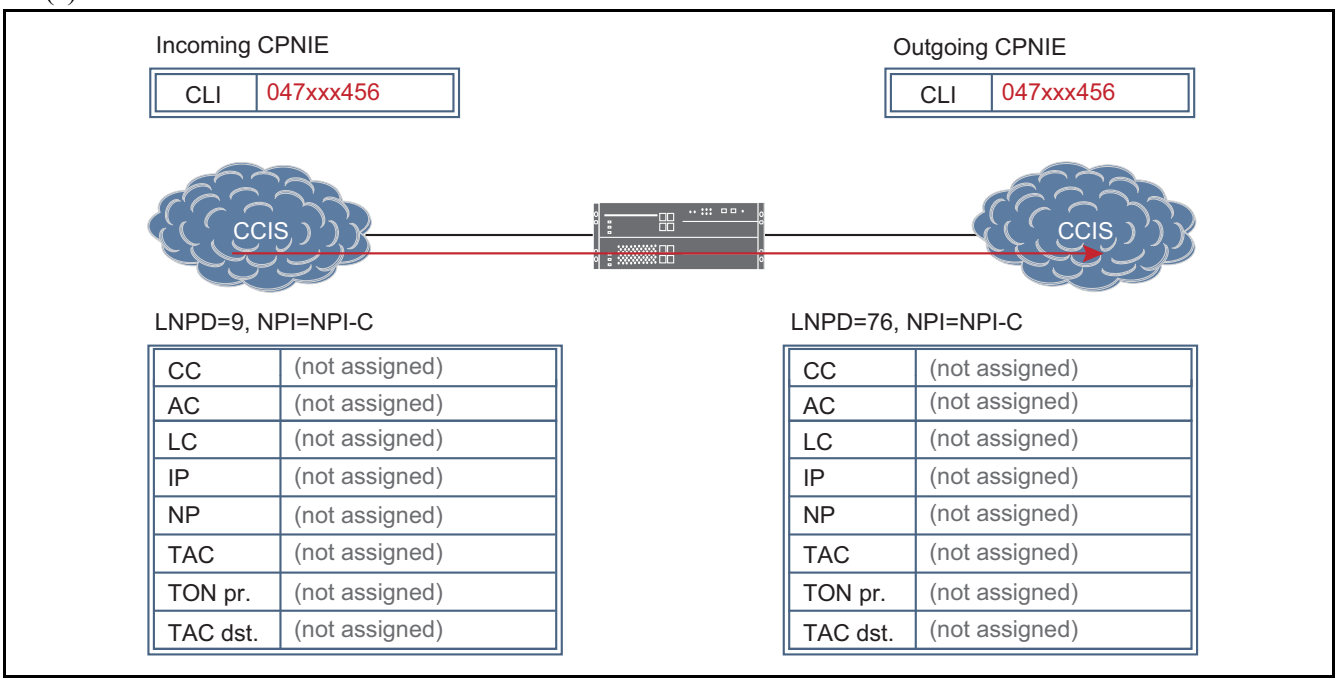
Note: When B-AMSGN-NPI is not set, B-AMSGN-NPI is treated as Unknown.

- Reads Numbering Plan data according to the determined LNPD and NPI.

<Editing of Outgoing CLI/COL, NPI and TON>

- Outgoing CLI/COL = Incoming CLI/COL

(a) CCIS to CCIS



Step	Editing CLI	Editing NPI	Editing TON
(1)	047xxx456	NPI-C	Unknown

(1) Outgoing CLI = Incoming CLI (047xxx456)

1.3 Addressing/COLP with Phone

1.3.1 Outline of Addressing/COLP with Phone

Extended Addressing/COLP is available only for tandem connections. The number translations are performed only at the relaying office in the tandem connection.
In addition to the above, Extended Addressing/COLP with Phone can translate a number when:

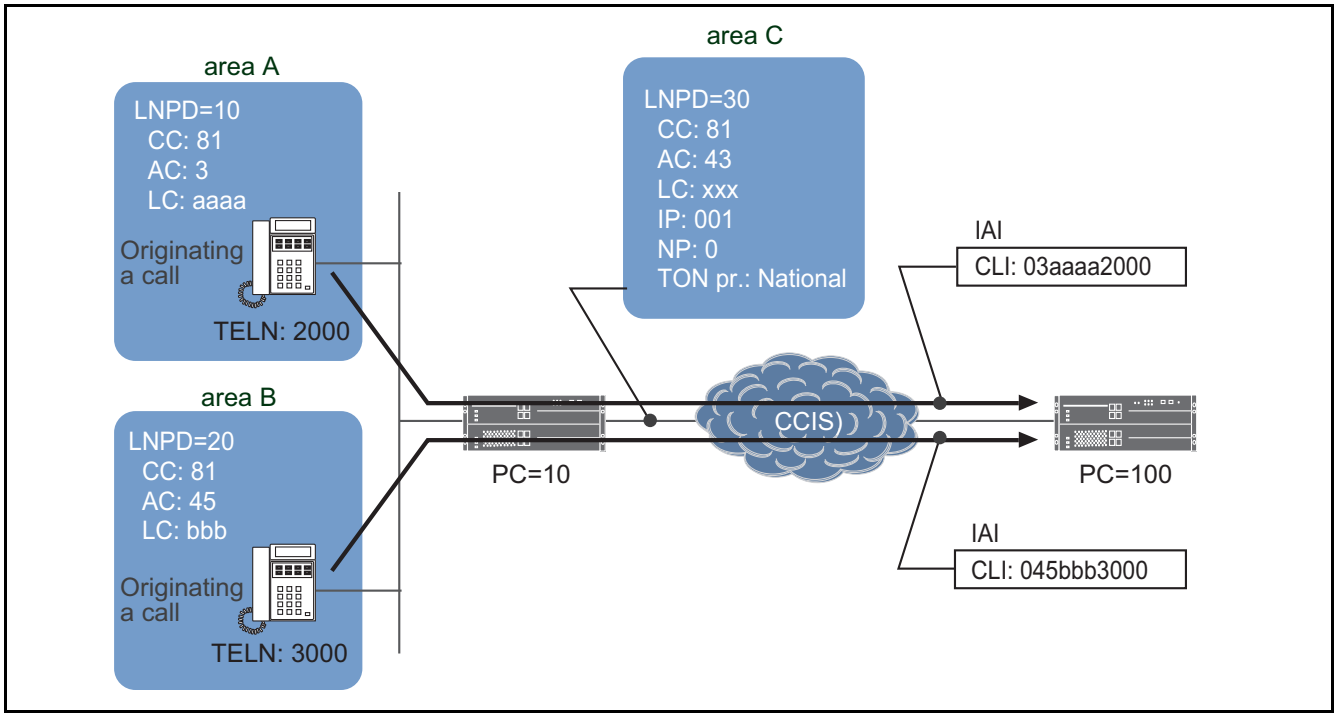
a.) (Addressing) a station originates an outgoing call and the opposite party receives an incoming call.
b.) (COLP) a station answers an incoming call and an originated call is answered by another station.

Addressing with Phone is available for calls through **ISDN(PRI)**, **Q-SIG**, **CCIS (PHC)** and **ISDN(BRI)**.
COLP with Phone is available for calls through **ISDN(PRI)**, **CCIS (PHC)** and **ISDN(BRI)**.
Addressing/COLP with Phone is not available for station-to-station calls.

The following shows sample configurations where Addressing/COLP with Phone works through CCIS. For action image of Addressing/COLP with Phone through ISDN/Q-SIG and details on number translation method, see 1.1 Addressing/COLP with LNPD.

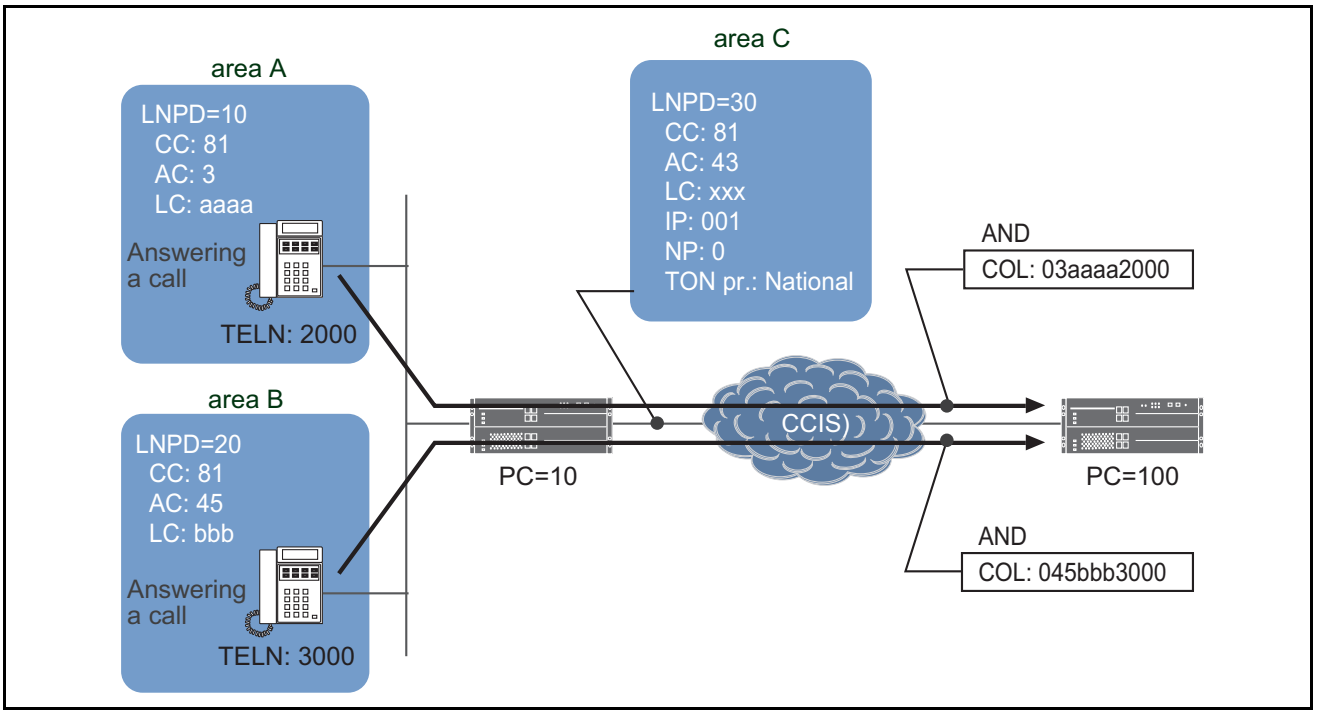
(1) Addressing with Phone through CCIS

When a station originates a call, a number equivalent of Calling Party Number Information is generated and sent to a counter office.



(2) COLP with Phone through CCIS

When a station answers a call, a number equivalent of Connected Party Number Information is generated and sent to a counter office.



1.3.2 Number Translation Procedure and Translation Examples

1.3.2.1 Connection from Party A (Phone) to Party B (ISDN(PRI)/ISDN(BRI)/Q-SIG)

Note: COL translation is not available in a connection from Phone to Q-SIG.

<Reading of Numbering Plan Data>

- How to determine LNPD:

  A-LNPD: LNPD set under the translation rule for A-TELN/B-LGRT. **(Priority: High)**
  : LNPD assigned to A-TELN. **(Priority: Low)**

  B-LNPD: LNPD assigned to B-LGRT.

  Note: When A-LNPD or B-LNPD is not set, the system sets the following and completes the translation.
  Outgoing NPI = (for CLI) B-AMSGN-NPI
  (for COL) NPI of the received SETUP(0x6c)
  Outgoing TON = Unknown
  Outgoing CLI/COL: Setting value on ACCTN/ACCDN (Priority: High):
  None (Priority: Low)

- How to determine NPI:

  A-NPI: Same as NPI-B

  B-NPI: (for CLI) B-AMSGN-NPI/(for COL) NPI of the received SETUP(0x6c)

  Note: (for CLI) When B-AMSGN-NPI is not set, B-AMSGN-NPI is treated as Unknown.

  Note: (for COL) When the received SETUP includes no Calling Party Number Information, B-NPI is treated as Unknown.

- Reads Numbering Plan data according to the determined LNPD and NPI.

<Editing of Outgoing CLI/COL, NPI and TON>

- Editing NPI = (for CLI) B-AMSGN-NPI
  (for COL) NPI of the received SETUP(0x6c)

  (1) Creates a unique CLI/COL.
  When A-LNDP-CC does not match B-LNDP-CC, the system adds A-LNPD-CC+AC+LC to Editing CLI/COL and sets Editing TON to International. When A-LNDP-CC matches B-LNDP-CC, the system compares A-LNDP-AC with B-LNDP-AC. When those values do not match, the system adds A-LNPD-AC+LC to Editing CLI/COL and sets Editing TON to National. When the system finds a match in both comparisons of CCs and ACs, the system compares A-LNDP-LC with B-LNDP-LC. When those values do not match, the system adds A-LNPD-LC to Editing CLI/COL and sets Editing TON to Subscriber. When the system finds a match in all comparisons of CCs, ACs and LCs, the system adds A-LNPD-LC to Editing CLI/COL and sets Editing TON to Subscriber.

(2) Upgrades TON.

When Editing TON (created in Step 1) is lower than B-LNPD-TON pr., A-LNPD-AC/CC is added to Editing CLI/COL to upgrade Editing TON to the same level of B-LNPD-TON pr. When Editing TON level is higher than or the same as B-LNPD-TON pr., or B-LNPD-TON pr. is Unknown/n.a. (not assigned), the system does nothing.

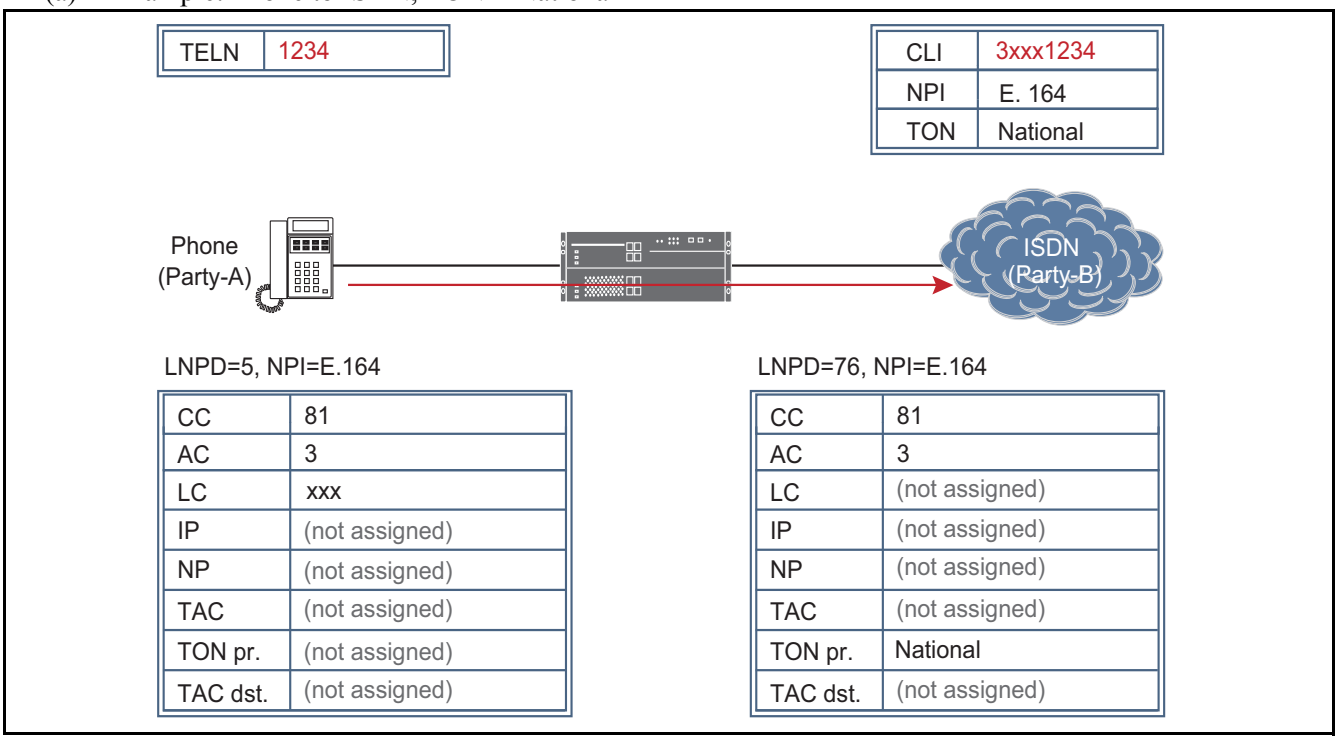
(3) Adds Prefix.

When Editing NPI is Unknown, or B-LNPD-TON pr is Unknown/n.a. (not assigned):
- B-LNPD-NP is prepended to Editing CLI/COL if Editing TON is National.
- B-LNPD-IP is prepended to Editing CLI/COL if Editing TON is International.
- No information is added if Editing TON is Subscriber.

(4) Changes Editing TON.

Editing NPI is Unknown, or B-LNPD-TON pr. is Unknown/n.a. (not assigned), Unknown is set to Editing TON.

(a) Example: Phone to ISDN, TON = National



Step	Editing CLI	Editing NPI	Editing TON
(1)	xxx1234	E.164	Subscriber
(2)	3xxx1234	E.164	National
(3)	3xxx1234	E.164	National
(4)	3xxx1234	E.164	National

(1) A-LNPD-CC (81) = B-LNPD-CC (81), A-LNPD-AC (3) = B-LNPD-AC (3), and A-LNPD-LC (xxx) ≠ B-LNPD-LC (n.a.); the system adds A-LNPD-LC (xxx) to Editing CLI and sets Editing

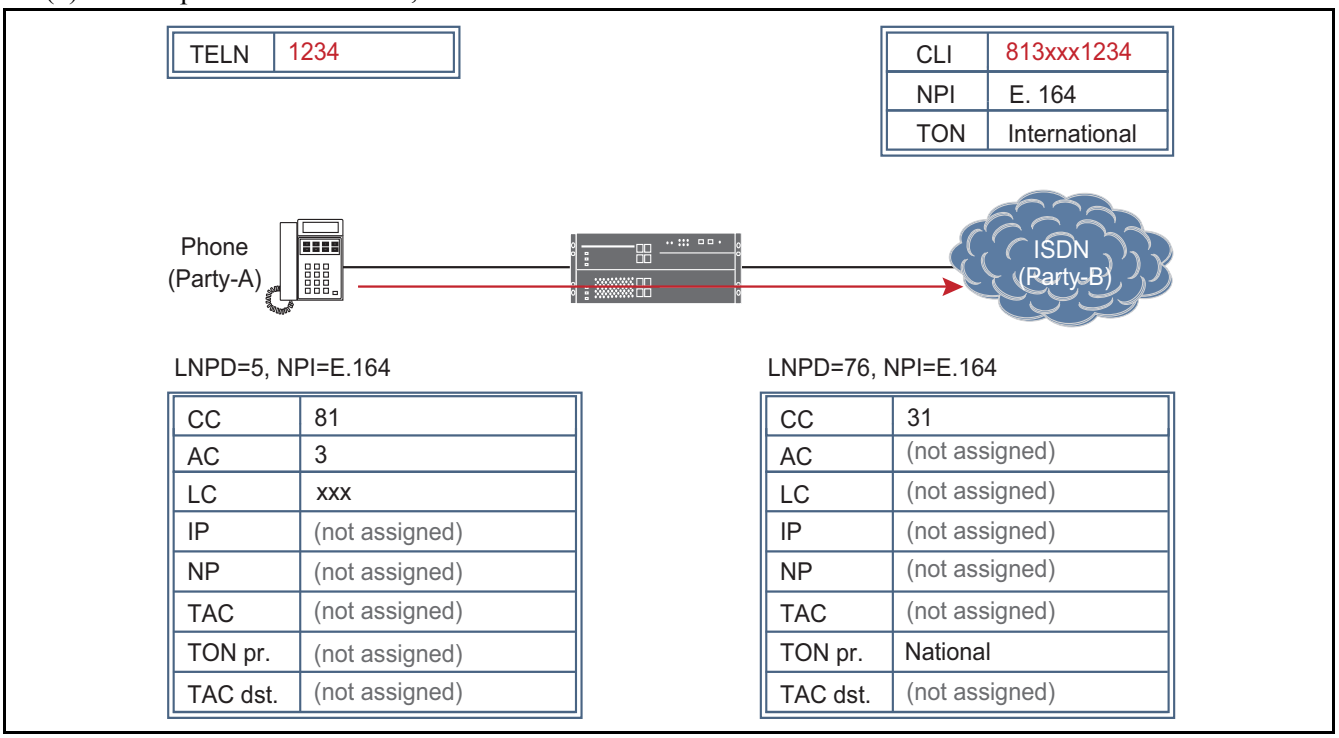
TON to Subscriber.

(2) Since Editing TON (Subscriber) < B-LNPD-TON pr. (National), the system adds A-LNDP-AC (3) to Editing CLI (xxx1234) to upgrade Editing TON to the same level as B-LNPD-TON pr. (National).

(3) Since Editing NPI = E.164 and B-LNPD-TON pr. = National, the system does nothing.

(4) Since Editing NPI = E.164 and B-LNPD-TON pr. = National, the system does nothing.

(b) Example: Phone to ISDN, TON = International



Step	Editing CLI	Editing NPI	Editing TON
(1)	813xxx1234	E.164	International
(2)	813xxx1234	E.164	International
(3)	813xxx1234	E.164	International
(4)	813xxx1234	E.164	International

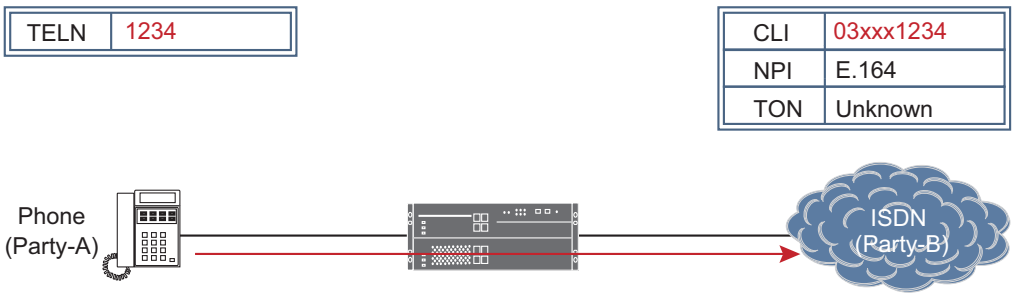
(1) Since A-LNPD-CC (81) ≠ B-LNPD-LC (31), the system adds A-LNPD-LC (xxx), A-LNPD-AC (3) and A-LNPD-CC (81) to Editing CLI, and sets Editing TON to International.

(2) Since Editing TON (International) > B-LNPD-TON pr. (National), the system does nothing.

(3) Since Editing NPI = E.164 and B-LNPD-TON pr. = National, the system does nothing.

(4) Since Editing NPI = E.164 and B-LNPD-TON pr. = National, the system does nothing.

(c) Example: Phone to ISDN, TON = Unknown



LNPD=5, NPI=E.164

CC	81
AC	3
LC	xxx
IP	(not assigned)
NP	(not assigned)
TAC	(not assigned)
TON pr.	(not assigned)
TAC dst.	(not assigned)

LNPD=76, NPI=E.164

CC	81
AC	471
LC	(not assigned)
IP	(not assigned)
NP	0
TAC	(not assigned)
TON pr.	Unknown
TAC dst.	(not assigned)

Step	Editing CLI	Editing NPI	Editing TON
(1)	3xxx1234	E.164	National
(2)	3xxx1234	E.164	National
(3)	03xxx1234	E.164	National
(4)	03xxx1234	E.164	Unknown

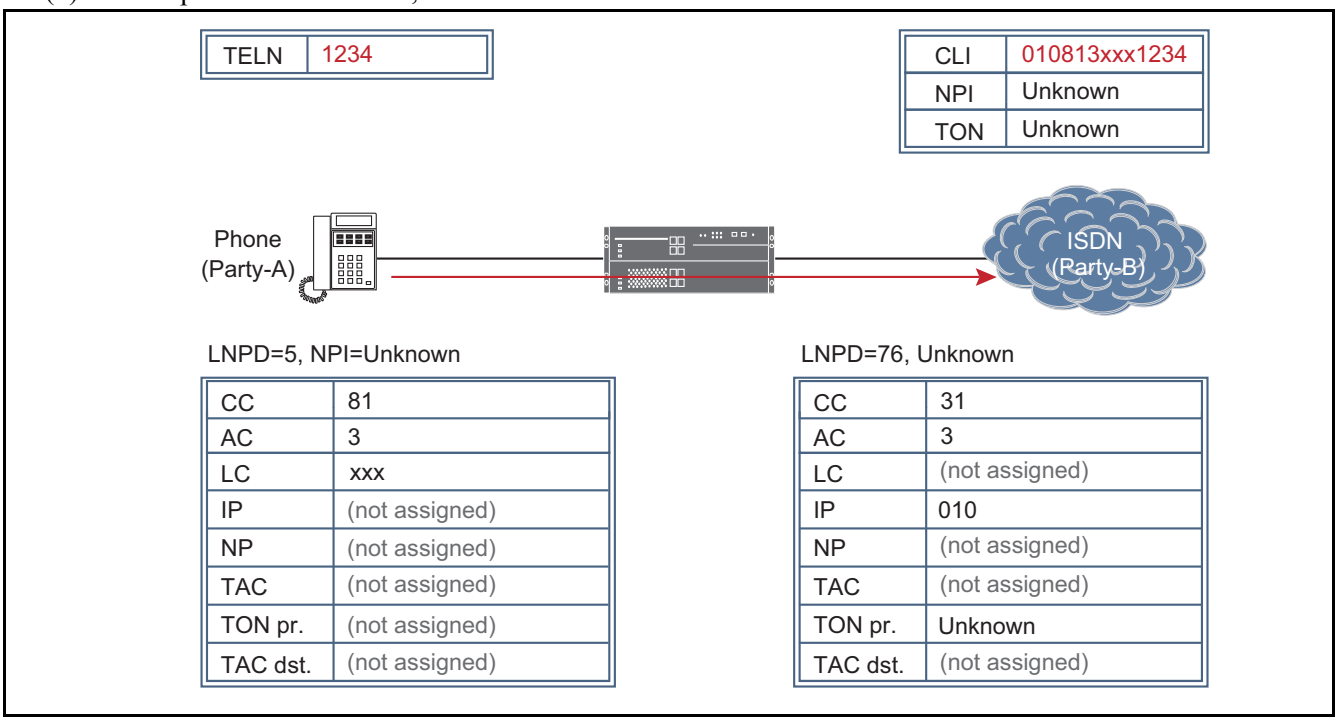
(1) Since A-LNPD-CC (81) = B-LNPD-CC (81) and A-LNPD-AC (3) ≠ B-LNPD-AC (471), the system adds A-LNPD-LC (xxx) and A-LNPD-AC (3) to Editing CLI and sets Editing TON to National.

(2) Since B-LNPD-TON pr. = Unknown, the system does nothing.

(3) Since B-LNPD-TON pr. = Unknown and Editing TON = National, the system prepends B-LNPD-NP (0) to Editing CLI (3xxx1234).

(4) Since B-LNPD-TON pr. = Unknown, the system changes Editing TON to Unknown.

(d) Example: Phone to ISDN, NPI = Unknown



Step	Editing CLI	Editing NPI	Editing TON
(1)	813xxx1234	Unknown	International
(2)	813xxx1234	Unknown	International
(3)	010813xxx1234	Unknown	International
(4)	010813xxx1234	Unknown	Unknown

(1) Since A-LNPD-CC (81) ≠ B-LNPD-CC (31), the system adds A-LNPD-LC (xxx), A-LNPD-AC (3) and A-LNPD-CC (81) to Editing CLI, and sets Editing TON to International.
(2) Since B-LNPD-TON pr. = Unknown, the system does nothing.
(3) Since Editing NPI = Unknown and Editing TON = International, the system prepends B-LNPD-IP (010) to Editing CLI (813xxx1234).
(4) Since Editing NPI = Unknown, the system changes Editing TON to Unknown.

1.3.2.2 Connection from Party A (Phone) to Party B (CCIS)

<Reading of Numbering Plan Data>

- How to determine LNPD:

A-LNPD: LNPD set under the translation rule for A-TELN/B-LGRT. **(Priority: High)**
: LNPD assigned to A-TELN. **(Priority: Low)**

B-LNPD: LNPD assigned to B-LGRT/B-PC.

Note: When A-LNPD or B-LNPD is not set, Outgoing CLI is not set.

- How to determine NPI:

  A-NPI: Same as B-NPI.

  B-NPI: (for CLI) B-AMSGN-NPI/(for COL) NPI-C

  Note: (for CLI) When B-AMSGN-NPI is not set, B-AMSGN-NPI is treated as Unknown.

- Reads Numbering Plan data according to the determined LNPD and NPI.

<Editing of Outgoing CLI/COL, NPI and TON>

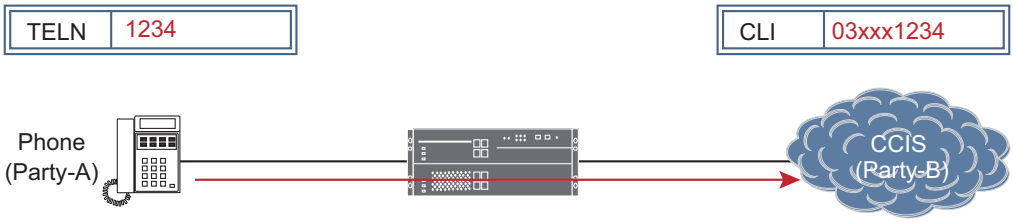
- Editing NPI = (for CLI) B-AMSGN-NPI
  (for COL) NPI-C

  (1) Creates a unique CLI/COL.
  When A-LNDP-CC does not match B-LNDP-CC, the system adds A-LNPD-CC+AC+LC to Editing CLI/COL and sets Editing TON to Level-I. When A-LNDP-CC matches B-LNDP-CC, the system compares A-LNDP-AC with B-LNDP-AC. When those values do not match, the system adds A-LNPD-AC+LC to Editing CLI/COL and sets Editing TON to Level-N. When the system finds a match in both comparisons of CCs and ACs, the system compares A-LNDP-LC with B-LNDP-LC. When those values do not match, the system adds A-LNPD-LC to Editing CLI/COL and sets Editing TON to Level-S. When the system finds a match in all comparisons of CCs, ACs and LCs, the system adds A-LNPD-LC to Editing CLI/COL and sets Editing TON to Level-S.

  (2) Upgrades TON.
  When Editing TON (created in Step 1) is lower than B-LNPD-TON pr., A-LNPD-AC/CC is added to Editing CLI/COL to upgrade Editing TON to the same level of B-LNPD-TON pr. When Editing TON level is higher than or the same as B-LNPD-TON pr., or B-LNPD-TON pr. is Unknown/n.a. (not assigned), the system does nothing.

  (3) Adds Prefix.
  - When Editing TON is Level-N, B-LNPD-NP is prepended to Editing CLI/COL.
  - When Editing TON is Level-I, B-LNPD-IP is prepended to Editing CLI/COL.
  - When Editing TON is Level-S, no information is added.

(a) Example: Phone to CCIS, TON pr. = Level-N



LNPD=5, NPI=NPI-C

CC	81
AC	3
LC	xxx
IP	(not assigned)
NP	(not assigned)
TAC	(not assigned)
TON pr.	(not assigned)
TAC dst.	(not assigned)

LNPD=76, NPI=NPI-C

CC	81
AC	3
LC	(not assigned)
IP	(not assigned)
NP	0
TAC	(not assigned)
TON pr.	Level-N
TAC dst.	(not assigned)

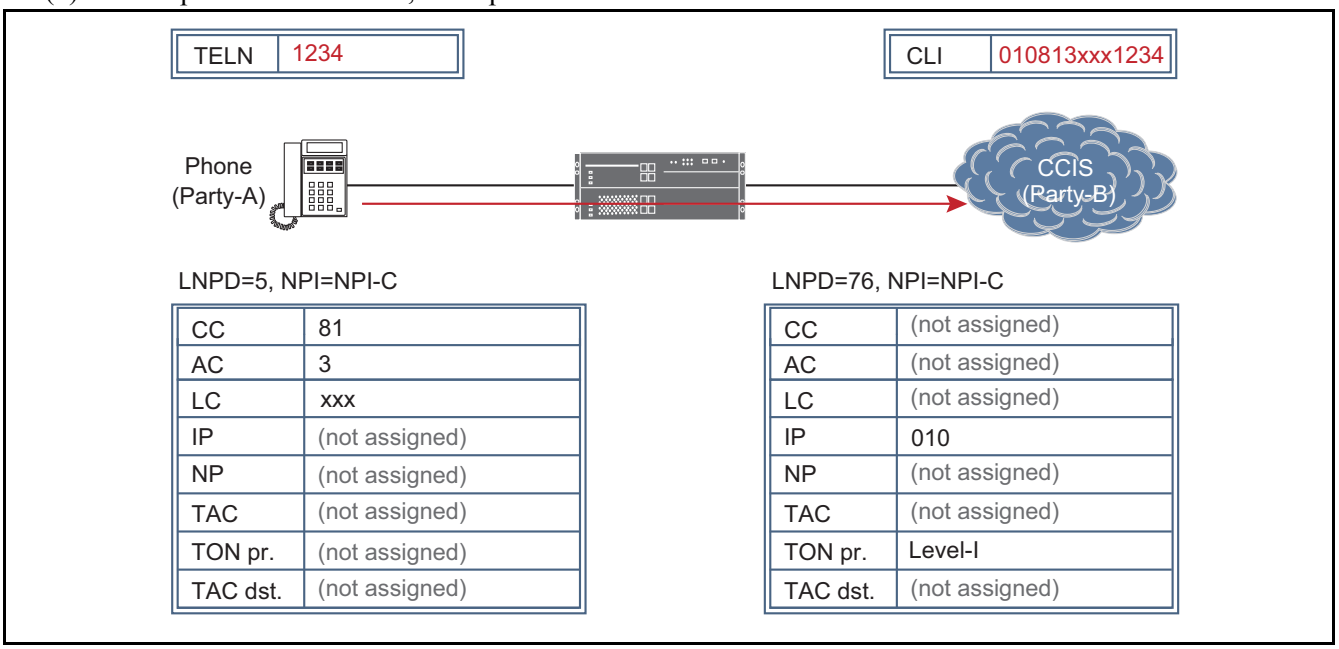
Step	Editing CLI	Editing NPI	Editing TON
(1)	xxx1234	NPI-C	Level-S
(2)	3xxx1234	NPI-C	Level-N
(3)	03xxx1234	NPI-C	Level-N

(1) A-LNPD-CC (81) = B-LNPD-CC (81), A-LNPD-AC (3) = B-LNPD-AC(3), and A-LNPD-LC (xxx) ≠ B-LNPD-LC (n.a.); the system adds A-LNPD-LC (xxx) to Editing CLI and sets Editing TON to Level-S.

(2) Since Editing TON (Level-S) < B-LNPD-TON pr. (Level-N), the system adds A-LNPD-CC (3) to Editing CLI (xxx1234) to upgrade Editing TON to Level-N.

(3) Since Editing TON = Level-N, the system prepends B-LNPD-NP (0) to Editing CLI (3xxx1234).

(b) Example: Phone to CCIS, TON pr. = Level-I



Step	Editing CLI	Editing NPI	Editing TON
(1)	813xxx1234	NPI-C	Level-I
(2)	813xxx1234	NPI-C	Level-I
(3)	010813xxx1234	NPI-C	Level-I

(1) Since A-LNPD-CC (81) ≠ B-LNPD-CC (n.a.), the system adds A-LNPD-LC (xxx), A-LNPD-AC (3) and A-LNPD-CC (81) to Editing CLI and sets Editing TON to Level-I.
(2) Since Editing TON (Level-I) = B-LNPD-TON pr. (Level-I), the system does nothing.
(3) Since Editing TON = Level-I, the system prepends B-LNPD-IP (010) to Editing CLI (813xxx1234).

1.3.2.3 Connection from Party A (ISDN(PRI)/ISDN(BRI)/Q-SIG) to Party B (Phone)

Note: COL translation is not available in a connection from Q-SIG to Phone.

<Reading of Numbering Plan Data>

- How to determine LNPD:

  A-LNPD: LNPD assigned to A-LGRT.

  B-LNPD: LNPD assigned to B-TELN.

Note: When A-LNPD is not set, the system sets the following and completes the translation.
Displayed CLI/COL = Incoming CLI/COL

Note: When B-LNPD is not set, the system bypasses (3) and (5) of <Editing of Displayed CLI/COL>.

- How to determine NPI:

  A-NPI: (for CLI/COL) Incoming NPI

  B-NPI: Same as A-NPI.

- Reads Numbering Plan data according to the determined LNPD and NPI.

<Editing of Displayed CLI/COL>

- When Incoming TON = Unknown:

(1) Adds TAC.
Since Party-B (Phone) is not a trunk device, TAC is prepended to Incoming CLI/COL. The setting of B-LNPD-TAC dst. determines whether A-LNPD-TAC or B-LNPD-TAC is added. When B-LNPD-TAC dst. is set to 1/0, B-LNPD-TAC/A-LNPD-TAC is added.

- When Incoming TON = A value other than Unknown

(1) Upgrades TON to A-LNPD-TON pr.
When Incoming TON level is lower than A-LNPD-TON pr., the system adds A-LNPD-AC/CC to Editing CLI/COL according to Editing TON, and upgrades Editing TON. The system does nothing in any of the following cases.
- Incoming TON and A-LNPD-TON pr. are equal in level.
- Incoming TON level is higher than A-LNPD-TON pr.
- Incoming TON is Unknown or n.a. (not assigned).

(2) Creates a unique CLI/COL.
When Incoming TON level is higher than A-LNPD-TON pr., the system compares Incoming CLI/COL with A-LNPD-AC/CC according to Incoming TON. As a result of the comparison, the system removes a mutual part from Editing CLI/COL and downgrades Editing TON. At this time, the system makes the number clear at the lowest possible level. When A-LNPD-TON pr. is Unknown or n.a. (not assigned), the system does nothing.

Note: Editing TON level cannot be lower than A-LNPD-TON pr.

(3) Adapts TON to a destination.
(Case 1) When the level of TON created in Step 2 is lower than B-LNPD-TON pr., the system adds A-LNPD-AC/CC and upgrades Editing TON to the same level of B-LNPD-TON pr. When Editing TON becomes the same level as B-LNPD-TON pr., the system compares A-LNPD-AC/CC with B-LNPD-AC/CC. When those values do not match, the system adds A-LNPD-AC/CC to Editing CLI/COL. Editing TON is upgraded according to Editing CLI/COL.

Note: Editing TON level needs to be raised to at least B-LNPD-TON pr.

(Case 2) When the level of TON created in Step 2 is higher than B-LNPD-TON pr., the system compares Editing CLI/COL with B-LNPD-AC/CC. When those values match, the system removes B-LNPD-CC/AC from Editing CLI/COL to downgrade Editing TON.

Note: Editing TON level cannot be lower than A-LNPD-TON pr.

(Case 3) When the level of TON created in Step 2 is equal to B-LNPD-TON pr., the system compares A-LNPD-AC/CC with B-LNPD-AC/CC. When those values do not match, the system adds A-LNPD-AC/CC to Editing CLI/COL and upgrades Editing TON.

Note: Editing TON level needs to be raised to at least B-LNPD-TON pr.

(Case 4) When B-LNPD-TON pr is Unknown or n.a. (not assigned), the system does nothing.

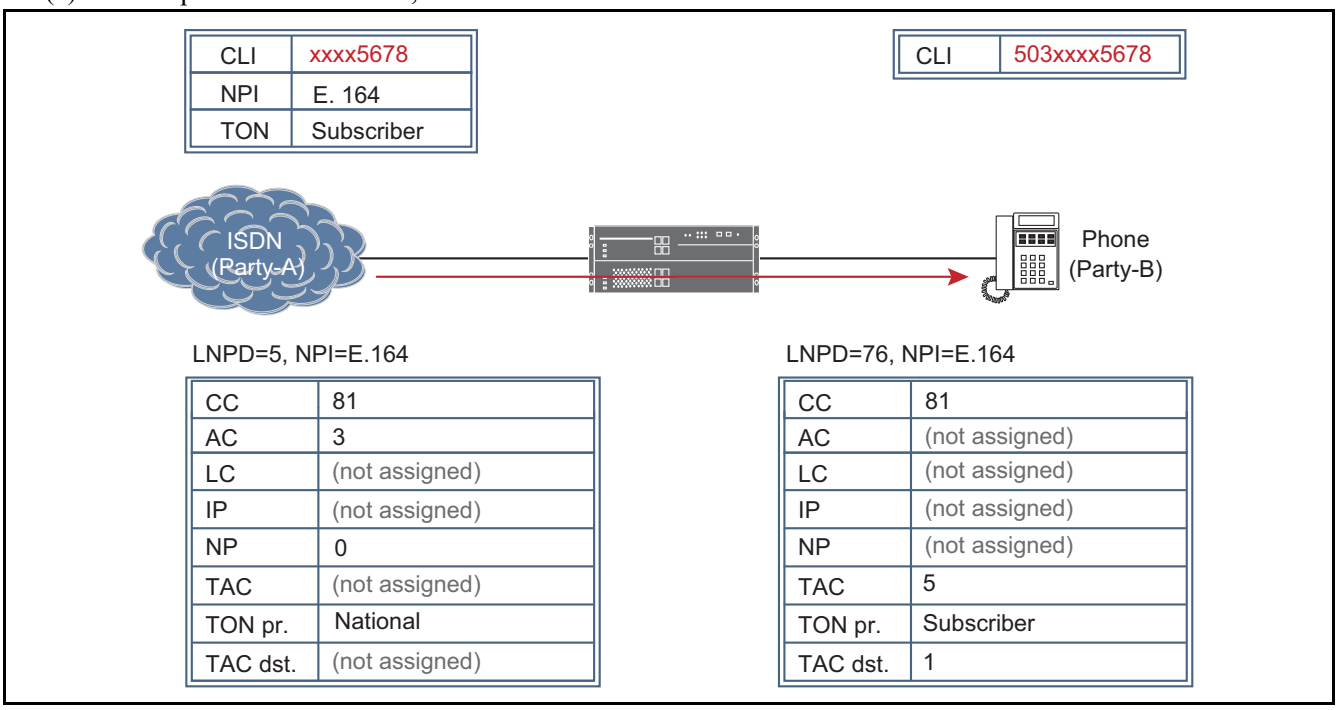
(4) Adds Prefix.

- When Editing TON is National, A-LNPD-NP is prepended to Editing CLI/COL.
- When Editing TON is International, A-LNPD-IP is prepended to Editing CLI/COL.
- When Editing TON is Subscriber, no information is added.

(5) Adds TAC.

Since Party-B (Phone) is not a trunk device, TAC is prepended to Editing CLI/COL. The setting of B-LNPD-TAC dst. determines whether A-LNPD-TAC or B-LNPD-TAC is added. When B-LNPD-TAC dst. is set to 1/0, B-LNPD-TAC/A-LNPD-TAC is added. When B-LNPD-TAC dst. is set to n.a. (not assigned), neither of them is added.

(a) Example: ISDN to Phone, TON = Subscriber



Step	Editing CLI	Editing TON
(1)	3xxxx5678	National
(2)	3xxxx5678	National
(3)	3xxxx5678	National
(4)	03xxxx5678	National
(5)	503xxxx5678	National

(1) Since Incoming TON (Subscriber) < A-LNPD-TON pr. (National), the system adds A-LNPD-AC (3) to Editing CLI (3xxxx5678) and upgrades Editing TON to National.

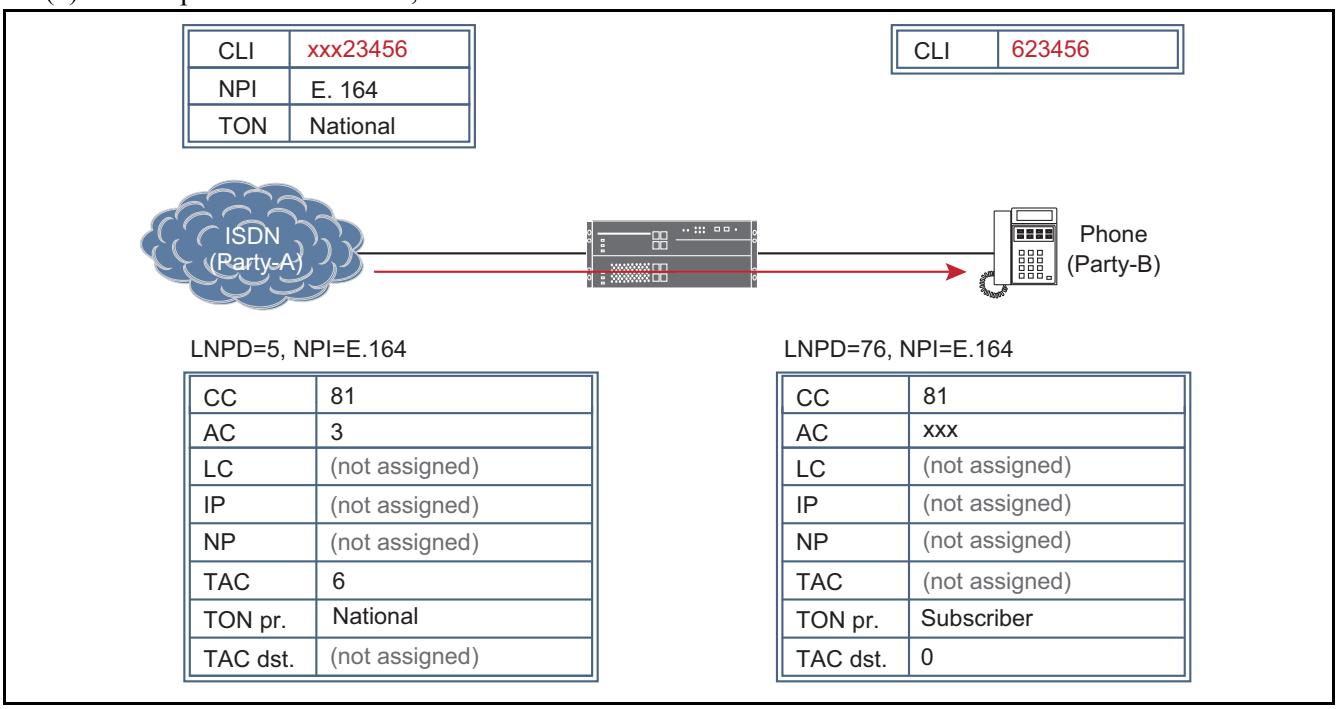
(2) Since Incoming TON (Subscriber) < A-LNPD-TON pr. (National), the system does nothing.

(3) (Case 2) Since Editing TON is National, the system compares Editing CLI (3xxxx5678) with B-LNPD-AC (n.a.). As a result of comparison, the system does nothing because those values do not match.

(4) Since Editing TON is National, the system prepends A-LNPD-NP (0) to Editing CLI (3xxxx5678).

(5) Since Party-B ≠ trunk device and B-LNPD-TAC dst. = 1, the system prepends B-LNPD-TAC (5) to Editing CLI (03xxxx5678).

(b) Example: ISDN to Phone, TON = National



Step	Editing CLI	Editing TON
(1)	xxx23456	National
(2)	xxx23456	National
(3)	23456	Subscriber
(4)	23456	Subscriber
(5)	623456	Subscriber

(1) Since Incoming TON (National) is equal in level to A-LNPD-TON pr. (National), the system does nothing.

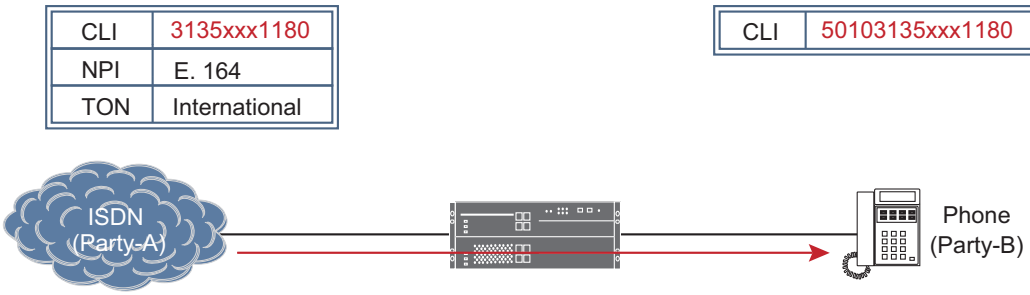
(2) Since Incoming TON (National) is equal in level to A-LNPD-TON pr. (National), the system does nothing.

(3) (Case 2) Since Editing TON = National, the system compares Editing CLI (xxx23456) with B-LNPD-AC (xxx). The system removes a mutual part: B-LNPD-AC (xxx) from Editing CLI (xxx23456) and downgrade Editing TON to Subscriber.

(4) Since Editing TON is Subscriber, “empty” is added (the system adds no information).

(5) Since Party-B ≠ trunk device and B-LNPD-TAC dst. = 0, the system prepends A-LNPD-TAC (6) to Editing CLI (23456).

(c) Example: ISDN to Phone, TON = International



LNPD=5, NPI=E.164

CC	81
AC	(not assigned)
LC	(not assigned)
IP	010
NP	(not assigned)
TAC	(not assigned)
TON pr.	National
TAC dst.	(not assigned)

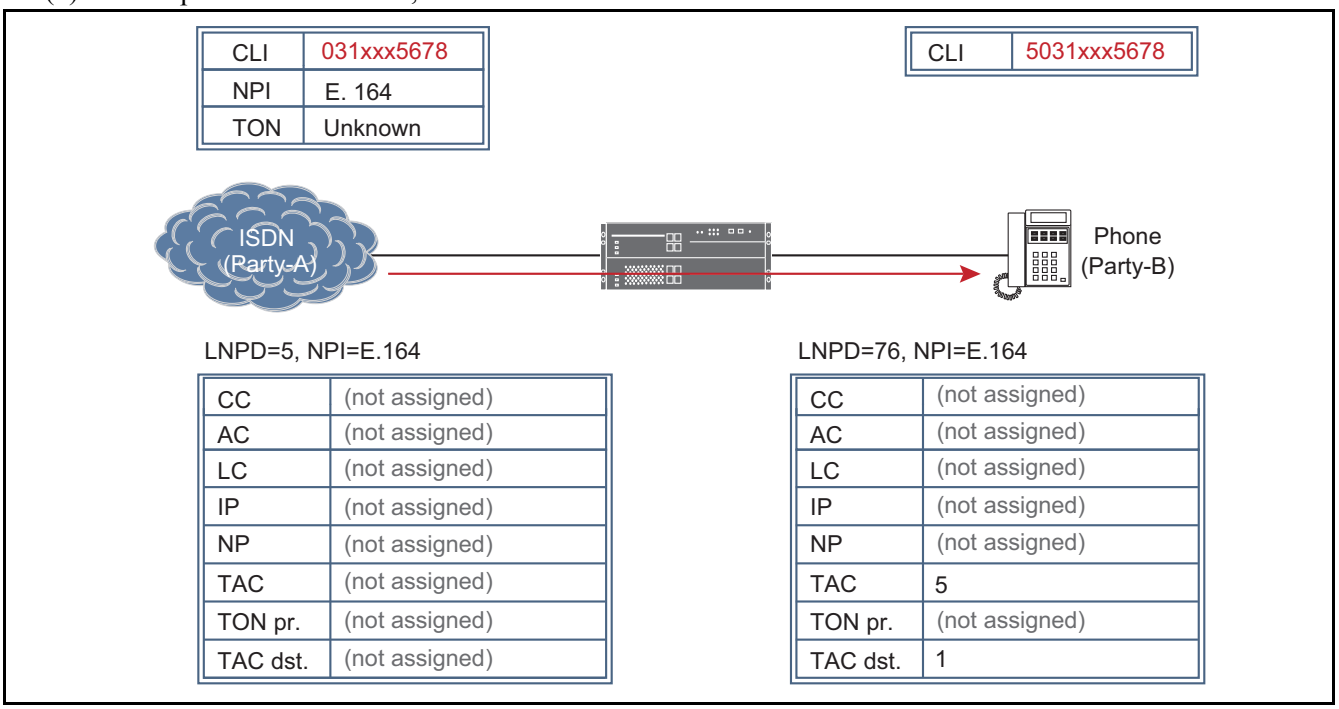
LNPD=76, NPI=E.164

CC	81
AC	(not assigned)
LC	(not assigned)
IP	(not assigned)
NP	(not assigned)
TAC	5
TON pr.	(not assigned)
TAC dst.	1

Step	Editing CLI	Editing TON
(1)	3135xxx1180	International
(2)	3135xxx1180	International
(3)	3135xxx1180	International
(4)	0103135xxx1180	International
(5)	50103135xxx1180	International

(1) Since Incoming TON (International) > A-LNPD-TON pr. (National), the system does nothing.
(2) Since Incoming TON (International) < A-LNPD-TON pr. (National), the system compares Incoming CLI (3135xxx1180) with A-LNPD-CC (81). As a result of comparison, the system does nothing because CLI (3135xxx1180) does not match A-LNPD-CC (81).
(3) (Case 4) Since B-LNPD-TON pr. = n.a. (not assigned), the system does nothing.
(4) Since Editing TON = International, the system prepends A-LNPD-IP (010) to Editing CLI (3135xxx1180).
(5) Since Party-B ≠ trunk device and B-LNPD-TAC dst. = 1, the system prepends B-LNPD-TAC (5) to Editing CLI (0103135xxx1180).

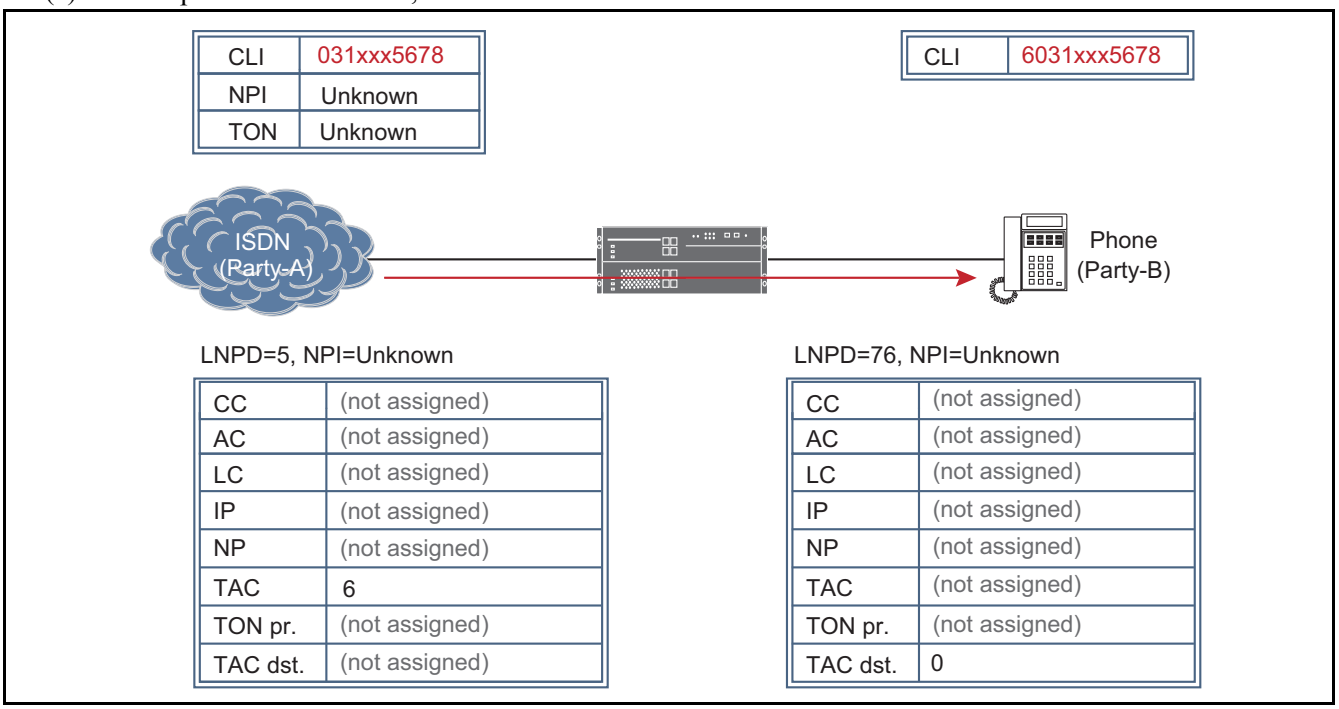
(d) Example: ISDN to Phone, TON = Unknown



Step	Editing CLI	Editing TON
(1)	5031xxx5678	Unknown

(1) Since Party-B ≠ trunk device and B-LNPD-TAC dst. = 1, the system prepends B-LNPD-TAC (5) to Incoming CLI (031xxx5678).

(e) Example: ISDN to Phone, NPI = Unknown



Step	Editing CLI	Editing TON
(1)	6031xxx5678	Unknown

(1) Since Party-B ≠ trunk device and B-LNPD-TAC dst. = 0, the system prepends A-LNPD-TAC (6) to Incoming CLI (031xxx5678).

1.3.2.4 Connection from Party A (CCIS) to Party B (Phone)

<Reading of Numbering Plan Data>

- How to determine LNPD:

  A-LNPD: LNPD assigned to A-LGRT/A-PC.

  B-LNPD: LNPD assigned to B-TELN.

  Note: When A-LNPD or B-LNPD is not set, the system sets the following and completes the translation.
  Displayed CLI/COL = Incoming CLI/COL

- How to determine NPI:

  A-NPI: (for CLI/COL) NPI-C

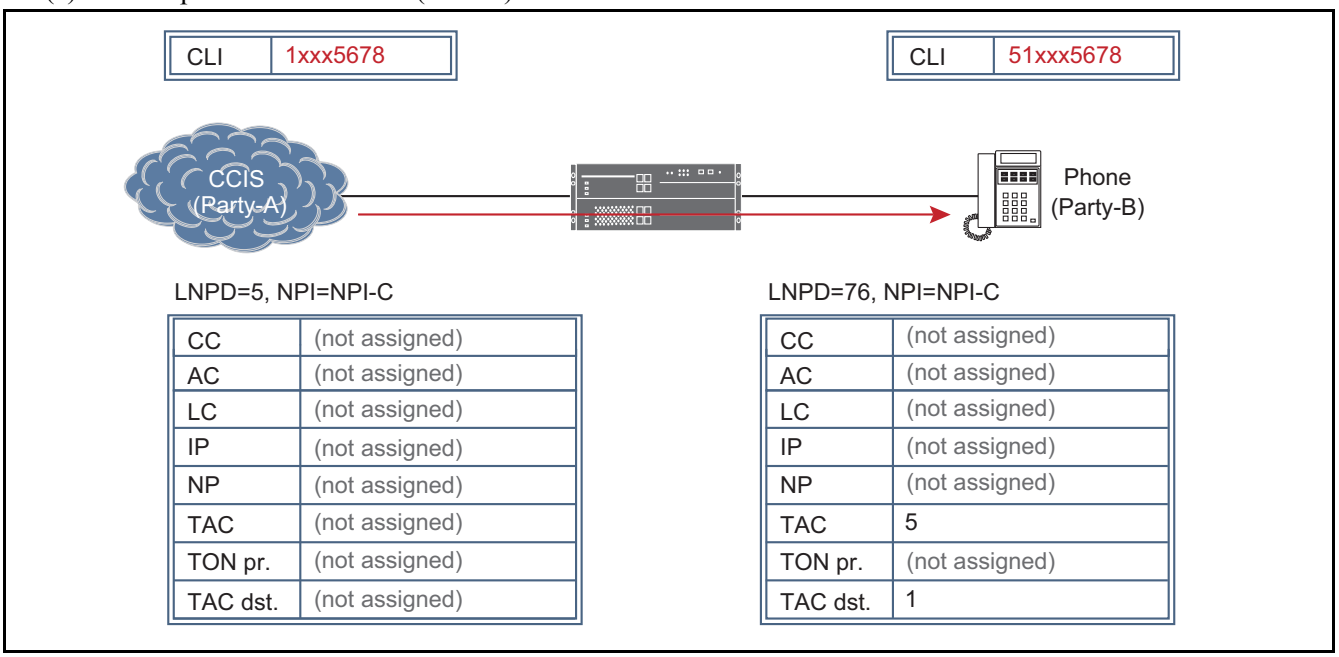
  B-NPI: Same as A-NPI.

- Reads Numbering Plan data according to the determined LNPD and NPI.

<Editing of Displayed CLI/COL>

(1) Adds TAC.
Since Party-B (Phone) is not a trunk device, TAC is prepended to Incoming CLI/COL. The setting of B-LNPD-TAC dst. determines whether A-LNPD-TAC or B-LNPD-TAC is added. When B-LNPD-TAC dst. is set to 1/0, B-LNPD-TAC/A-LNPD-TAC is added, respectively.

(a) Example: CCIS to Phone (Case 1)



LNPD=5, NPI=NPI-C

CC	(not assigned)
AC	(not assigned)
LC	(not assigned)
IP	(not assigned)
NP	(not assigned)
TAC	(not assigned)
TON pr.	(not assigned)
TAC dst.	(not assigned)

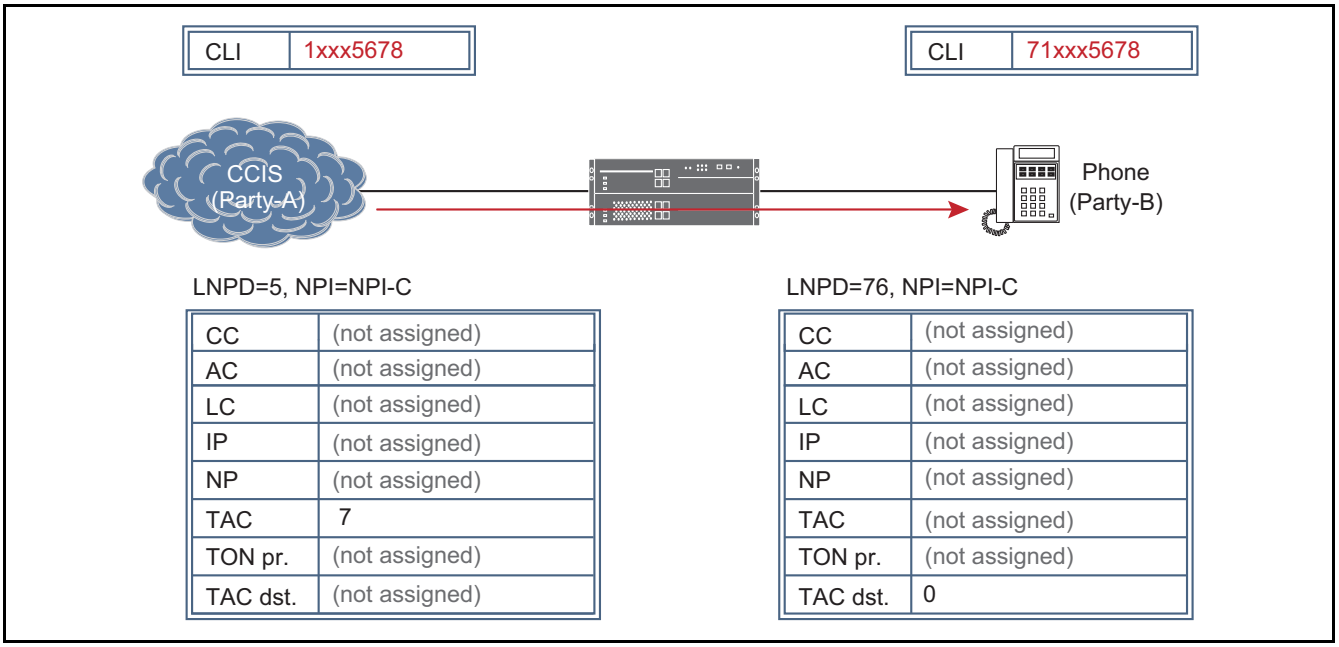
LNPD=76, NPI=NPI-C

CC	(not assigned)
AC	(not assigned)
LC	(not assigned)
IP	(not assigned)
NP	(not assigned)
TAC	5
TON pr.	(not assigned)
TAC dst.	1

Step	Editing CLI	Editing TON
(1)	51xxx5678	Unknown

(1) Since Party-B ≠ trunk device and B-LNPD-TAC dst. = 1, the system prepends B-LNPD-TAC (5) to Incoming CLI (1xxx5678).

(b) Example: CCIS to Phone (Case 2)



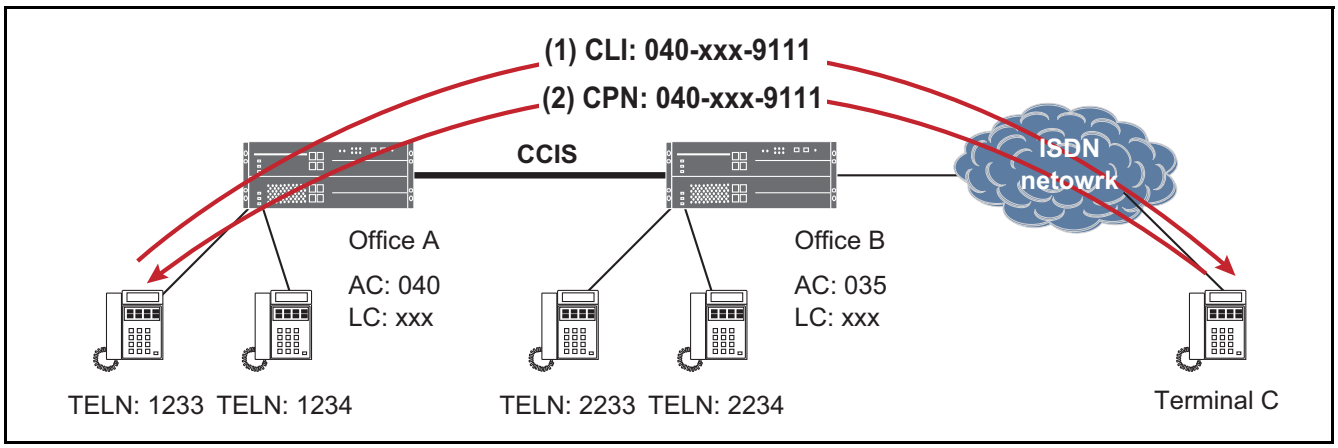
Step	Editing CLI	Editing TON
(1)	71xxx5678	Unknown

(1) Since Party-B ≠ trunk device and B-LNPD-TAC dst. = 0, the system prepends A-LNPD-TAC (7) to Incoming CLI (1xxx5678).

1.3.3 Routing from Pilot Number beyond CCIS to ISDN

The following shows a configuration example when a call is routed to an ISDN network via a CCIS network. In the example below, TELN: 1234 in Office A and TELN: 2234 in Office B are a pilot number (operator) of each office. When they originate a call, the numbers are translated according to CLI/COL translation data (see 1.1.1.2 Assign LNPD through CLI/COL Translation Data).
* The operation here is an example. Assign the data according to your network configuration.

<Originating a Call from Pilot Number>



- Originating a Call to ISDN

  Step 1: TELN: 1234 originates a call to an ISDN network.
  Step 2:Office A performs the number translation and sends CLI (1) to Office B.
  Step 3:Office B transmits the received CLI with no translation because the CLI is sent from CCIS.
  Step 4:Terminal C in the ISDN network is notified of number information (1).
  Step 5:Number Information (1) is sent to Terminal C through an ISDN network.

- Calling Back to (1)

  Step 1: Terminal C calls back to (1).
  Step 2:Office B receives all the digits of DC (2).
  Step 3:Office B originates a tandem call to Office A because Office B receives “040-xxx”.
  Step 4:Office A removes “040-xxx” because it is a self office number.
  Step 5:A call is terminated to a member station because “9111” is a pilot number in Office A.

1.4 Addressing - SMDR/MCI Support

Calling Party Numbers translated through Extended Addressing feature can be output to SMDR and MCI.

1.4.1 Output of Translated Number to SMDR

When Calling Party Numbers are output to SMDR, you can choose between translated numbers and pre-translated numbers through the system data setting.

Available connection patterns are as follows:

Outgoing Route / Incoming Route	ISDN(PRI)	ISDN(BRI)	CCIS	Q-SIG	Phone
ISDN(PRI)	T	T	T	T	I
ISDN(BRI)	T	T	T	T	I
CCIS	T	T	T	T	I
Q-SIG	T	T	T	T	I
Phone	-	-	-	-	-

T: Billing for Tandem Call, I: Billing for Incoming Call, -: Not Applicable

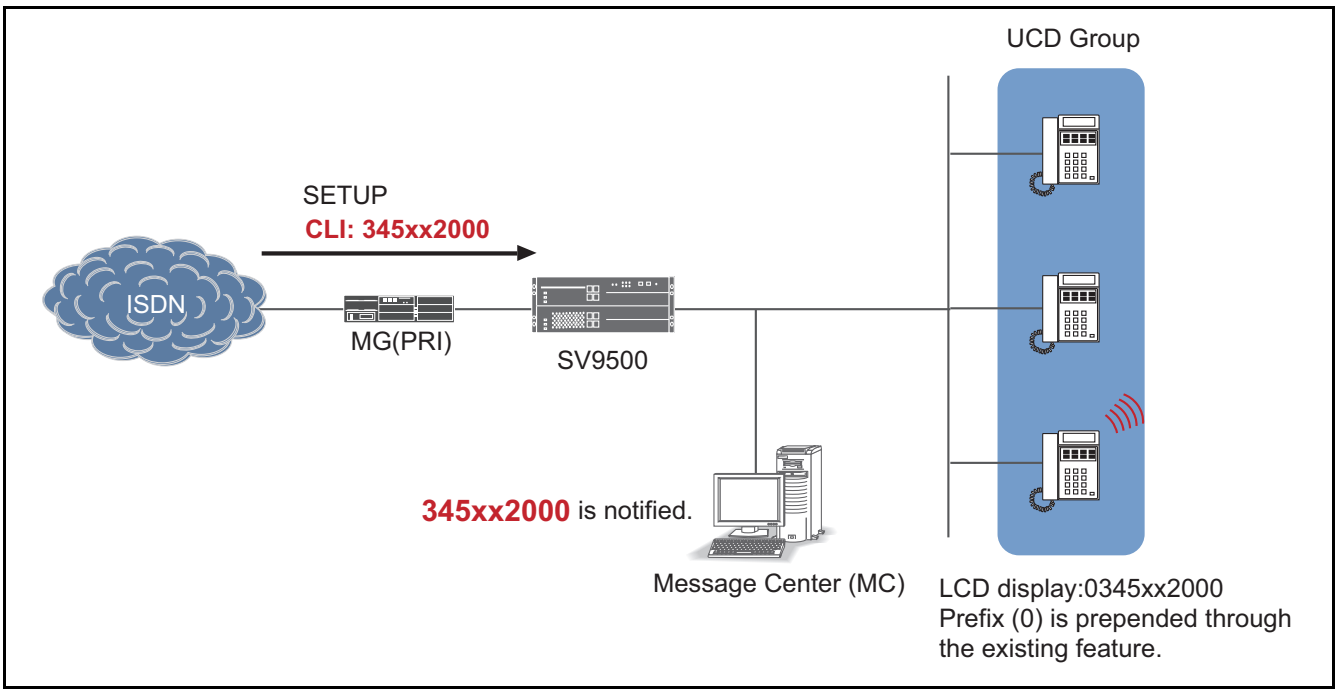
1.4.2 Output of Translated Number to MCI

Telephony Server notifies Message Center (MC) through MCI when incoming calls arrive at Attendant Consoles or UCD groups. It is possible to choose between translated numbers and pre-translated numbers through the system data setting when an incoming call arrives at a UCD group station and a Calling Party Number is translated.

The following two figures show the differences between Existing feature and Extended feature.

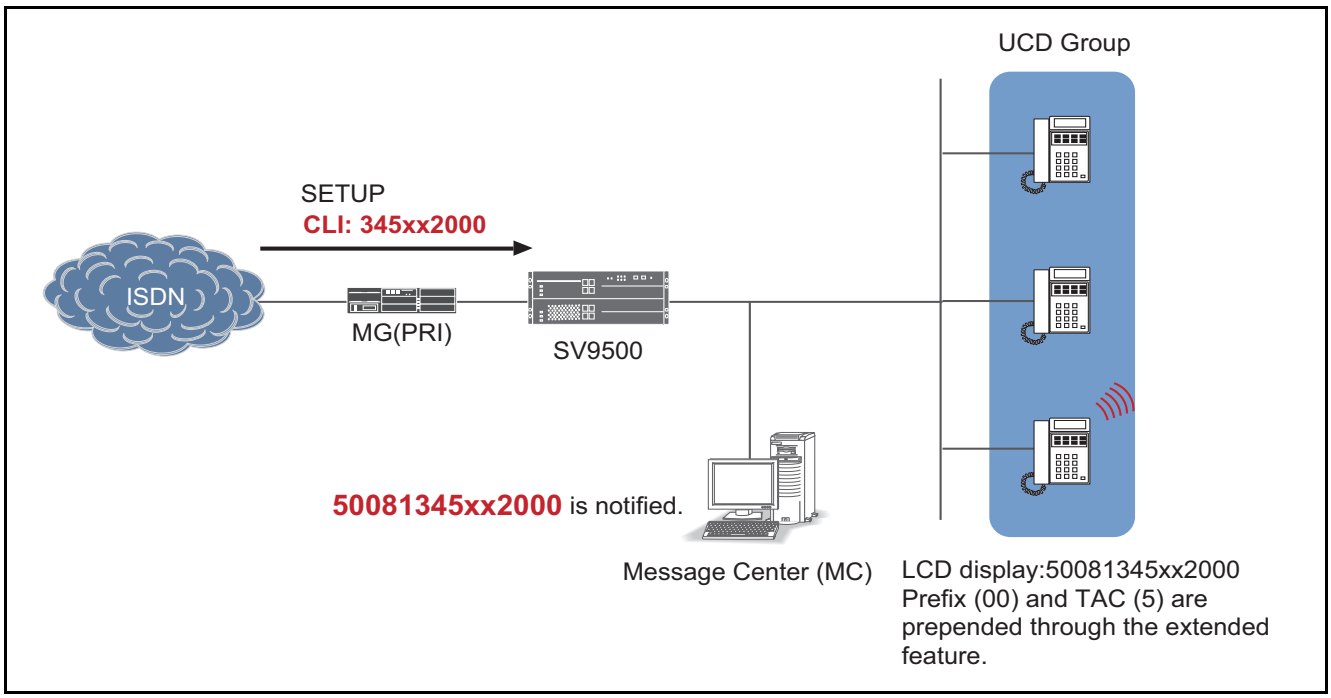
- Action Image of Existing feature

In Existing feature, the received Calling Party Number is sent to MC (without being translated).



- Action Image of Extended feature

In Extended feature, the translated number is sent to MC.



2. OPERATING PROCEDURE

No manual operation is required once this feature has been programmed.

3. SERVICE CONDITIONS

3.1 Conditions for Addressing/COLP via Tandem Connection

(1) To use this feature through the CCIS network, Internal PHCs are required. This feature does not support Legacy CCIS.

(2) As for CCIS, when the translated number exceeds 16 digits, the exceeded numbers are discarded. At this time, the 16th digit is output as "*" and the number is set as Originating CLI/COL.

(3) As for CCIS, Incoming CLI/COL whose 16th digit is "*" passes through with no translation because the number information may be incomplete.

(4) When a value other than available NPIs is set on AMSGL/N, "Unknown" is automatically set for NPI. For available NPIs of each Device Type, refer to 1.1.3 NPI and TON.

(5) CLI/COL conversion with ACCDL/N and ACCTL/N is available only when ADDRESSING/COLP for "Phone call" is carried out. It is not available for "Tandem call".

(6) In a tandem connection, CLI/COL values set on APIPL/N and APIP2L/N are not referred to. They pass through without exception.

3.2 Conditions for Addressing/COLP with Phone

(1) To use this feature through the CCIS network, Internal PHCs are required. This feature does not support Legacy CCIS.

(2) As for CCIS, when the translated number exceeds 16 digits, the exceeded numbers are discarded. At this time, the 16th digit is output as "*" and the number is set as Originating CLI/COL.

(3) As for CCIS, Incoming CLI/COL whose 16th digit is "*" passes through with no translation because the number information may be incomplete. However, TAC is added to the number information.

(4) When this feature is enabled, Calling Party Numbers and Connected Party Numbers are converted in accordance with the following priorities.

1. ANEDL/ANEDN (+ACCTL/N, ACCDL/N)
2. ANEDL/ANEDN (+TELN)
3. ACCTL/ACCTN and ACCDL/ACCDN
4. No number information

(5) Extended COLP with Phone is not available for calls through Q-SIG.

(6) When a call is originated from a station to CCIS network:
Whether the number translated by the extended ADDRESSING feature is set for CLI/COL as an external number depends on the setting value of CLI-COL on APIPL/APIPN or APOP2L/APOP2N command.
CLI-COL: 0/1 = Not set/set

(7) LNPD is determined in accordance with the following priorities:
Assigning LNPD by CLI/COL conversion data > Assigning LNPD for each device.

(8) CLI/COL conversion with ACCDL/N and ACCTL/N is carried out only for "Phone call". It is not carried out for "Tandem call".

(9) This feature supports the following terminals.

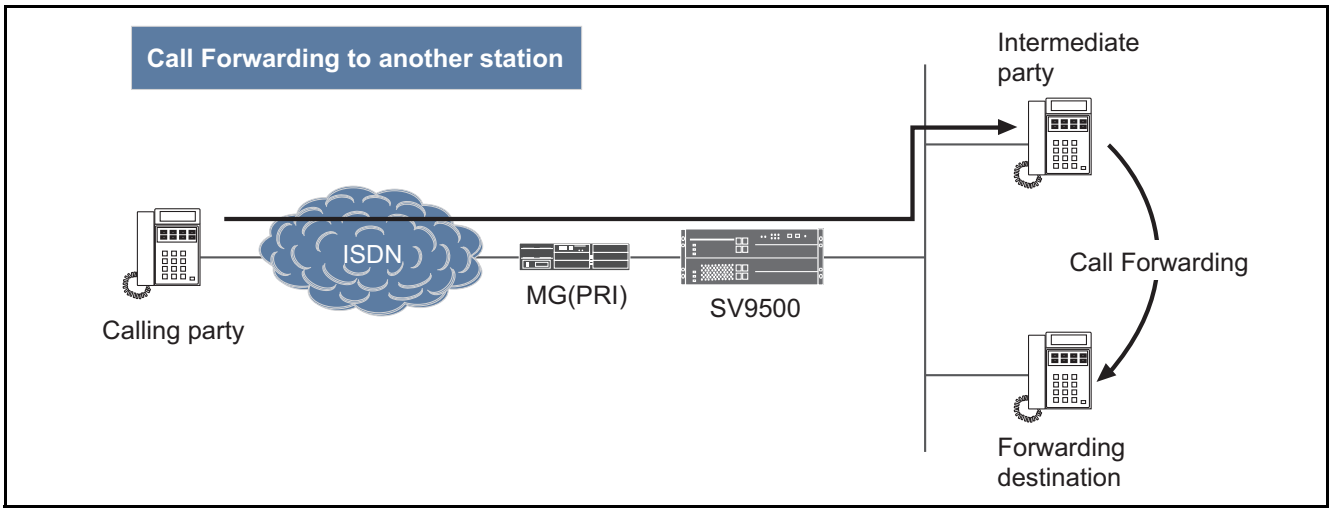
Analog telephone with Caller ID Indication function (Addressing only)
Digital terminal
IP terminal
SIP Multiple Line terminal
SP Controlled Standard SIP terminal (Addressing only)
SIP Handler Controlled Standard SIP terminal

(10) This feature does not support Attendant Consoles because LNPD cannot be set for Attendant Consoles. When an Attendant Console answers a call, the received CLI is displayed on it and no COL is sent to the Calling Party.

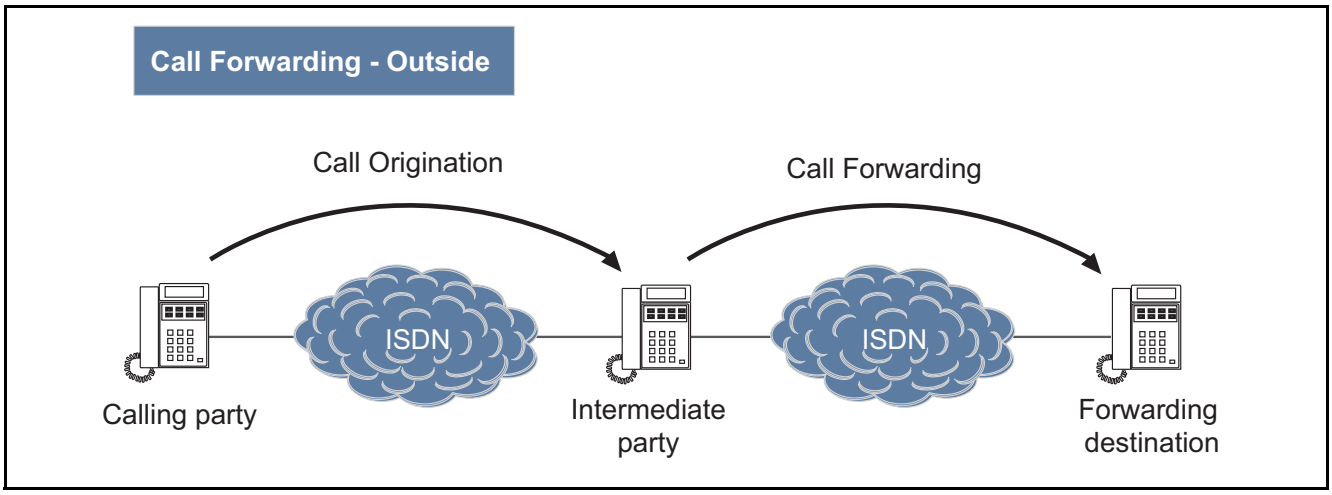
(11) Use SFI 230 (0/1=COLP/COLR) to switch between COLP and COLR.

(12) An Incoming number must be a number beginning with an Area Code.

(13) When an incoming call from a trunk is forwarded to another station, the number to be indicated varies with type of Call Forwarding.



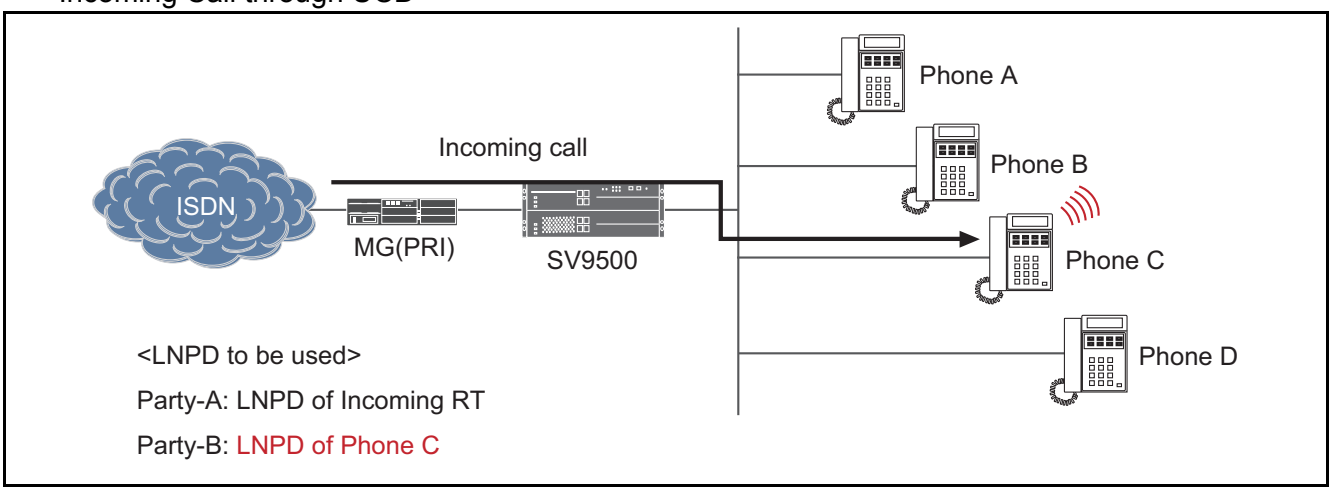
	Blind Transfer/Call Transfer-All Calls/ CF-Don't Answer/CF PS Incoming Call Incomplete	CF-All Calls/CF-Busy/Logged Out IP Station - Call Destination
Display on Forwarding Destination	Calling Party Number translated with Incoming RT and LNPD of intermediate party	Calling Party Number converted with Incoming RT and LNPD of forwarding destination party



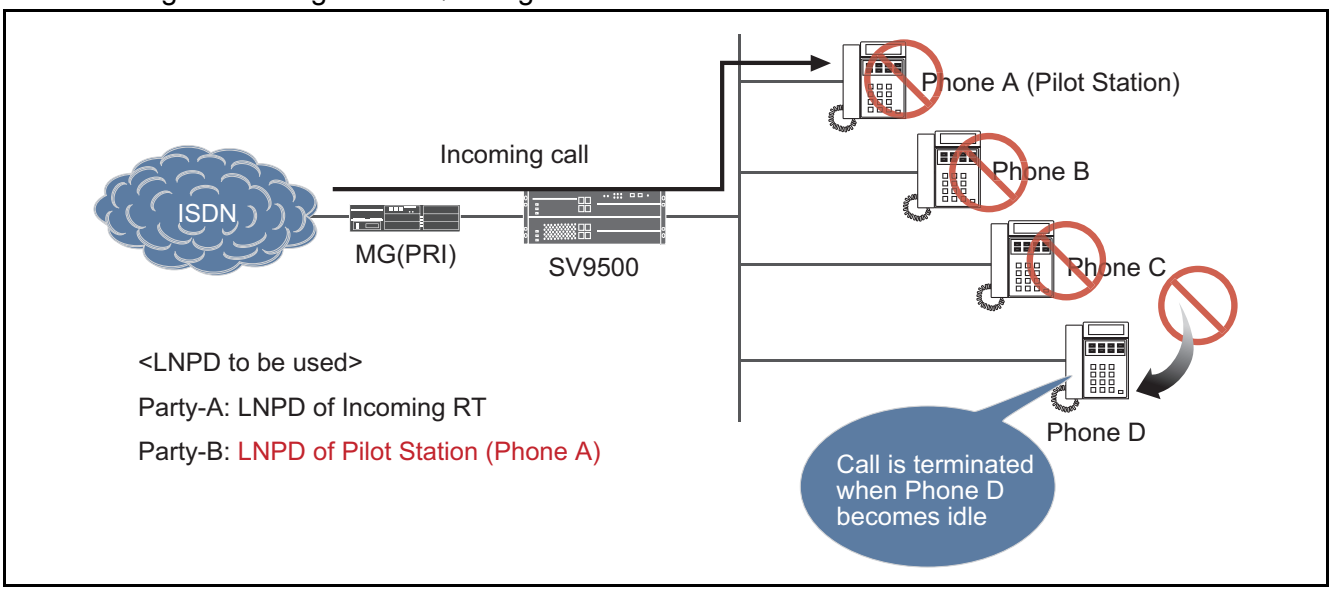
	Blind Transfer/Call Transfer-All Calls/ CF-Don't Answer/CF PS Incoming Call Incomplete	CF-All Calls/CF-Busy/Logged Out IP Station - Call Destination
Display on Forwarding Destination	Calling Party Number translated with Incoming RT and LNPD of intermediate party	Calling Party Number translated with LNPD of Incoming RT and forwarding destination RT

(14) When terminals form a group (such as Call Park, Call Pickup, Multi Line Appearances or Station Hunting (including UCD group), etc.), the same LNPD must be set for all members of the group. If terminals with a different LNPD from the other members belong to the same group, the number translation is performed with LNPD of the first terminal to receive a call. See the following examples of operations of this feature.

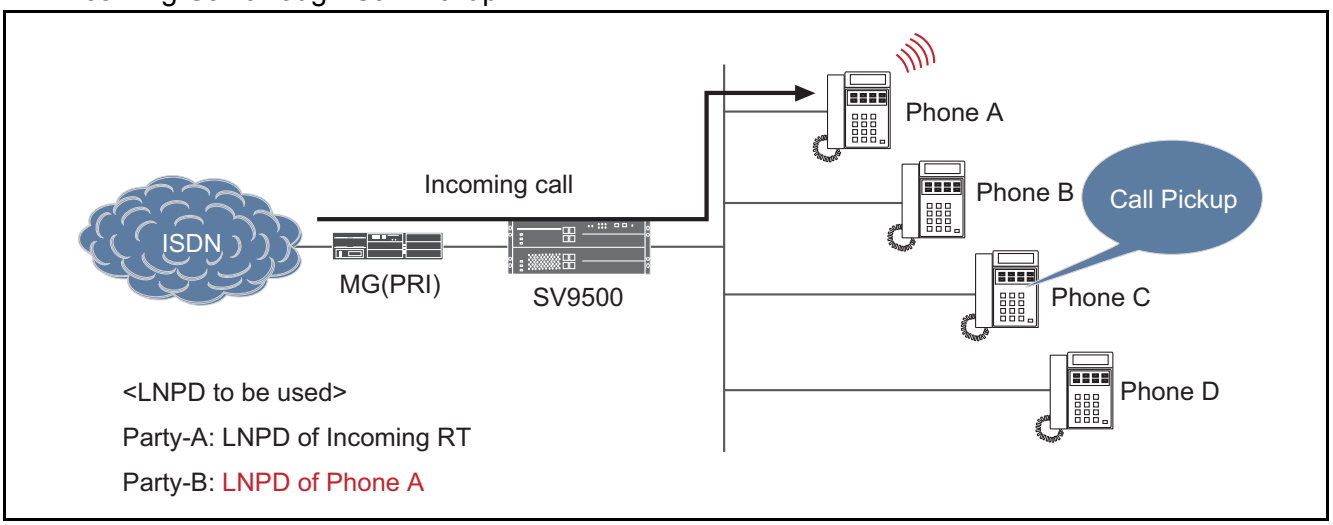
<Incoming Call through UCD>



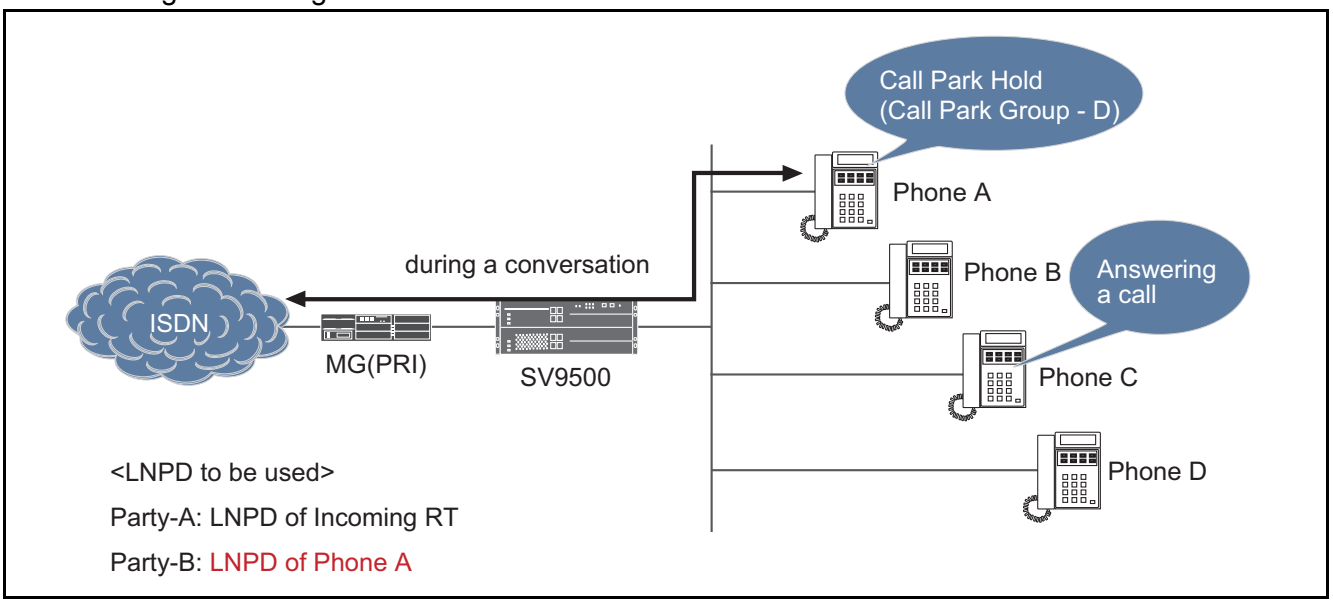
<Incoming Call through UCD Queuing>



<Incoming Call through Call Pickup>

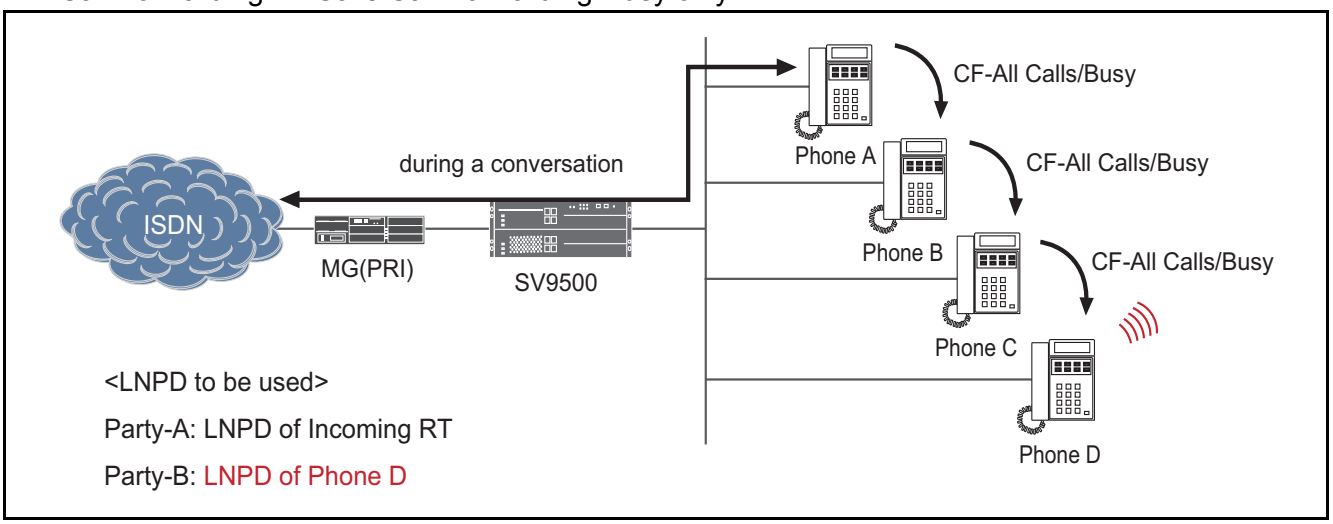


<Incoming Call through Call Park>

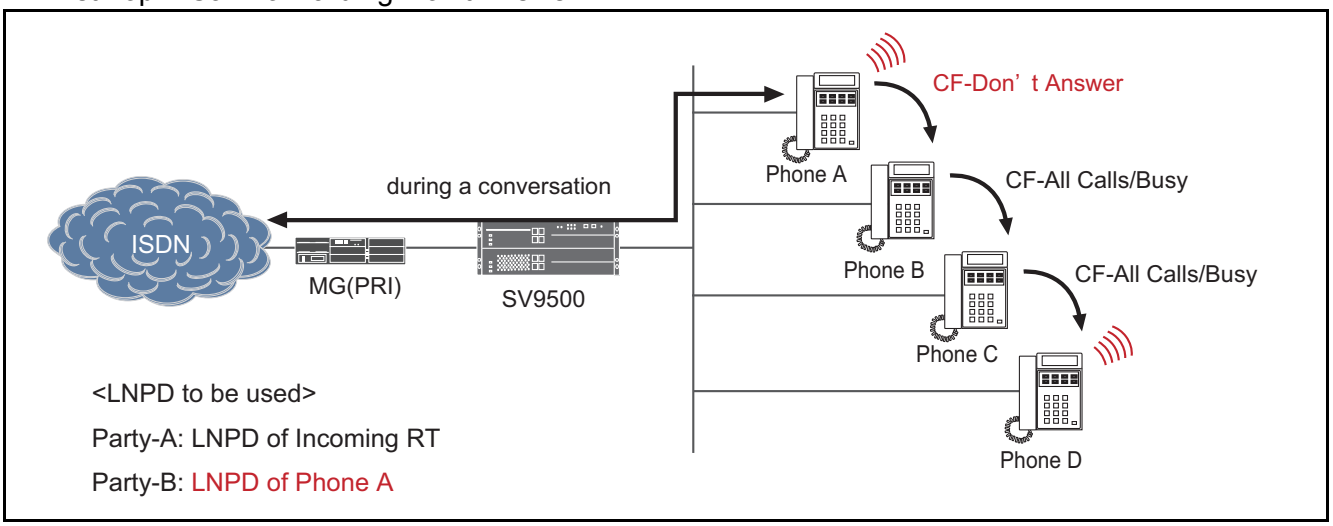


(15) The following shows examples of operations of this feature when a call is multi-hopped within a Self Node.

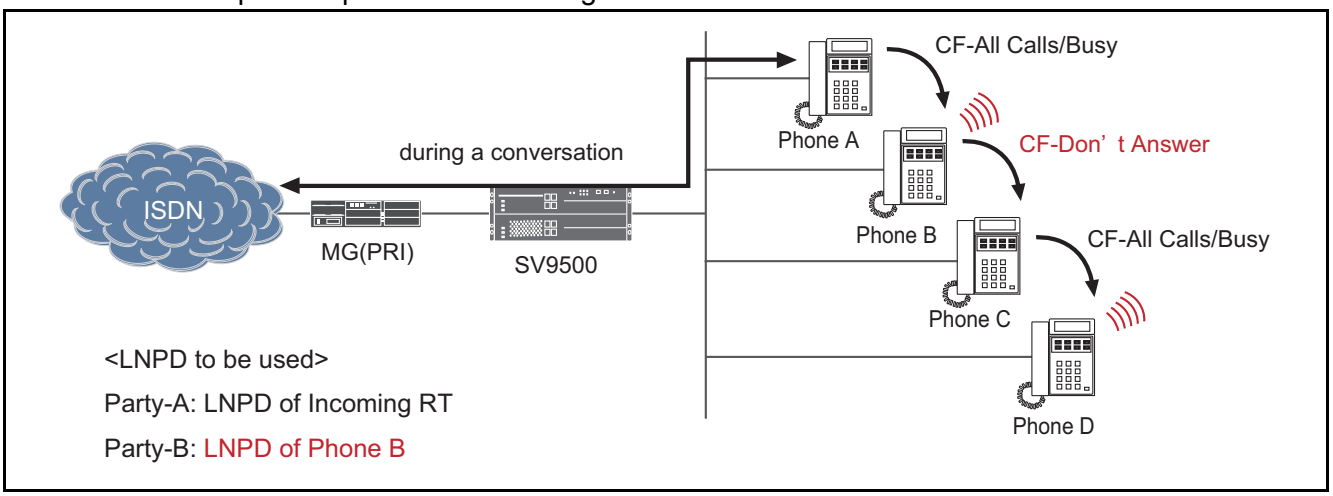
<Call Forwarding-All Calls/Call Forwarding-Busy only>



<1st hop = Call Forwarding-Don't Answer>



<2nd or subsequent hop = Call Forwarding-Don't Answer>



3.3 Conditions for Addressing - SMDR/MCI Support

3.3.1 Common Conditions

(1) SMDR/MCI Support is available only for Extended Addressing feature. COLP feature is not supported.

(2) Incoming TONs and NPIs to be used for number translation are as follows:

Device Type of Incoming RT	Incoming TON and NPI to be used
ISDN(PRI)	Value set in Calling Party Number Information (0x6c) of received SETUP
ISDN(BRI)	Value set in Calling Party Number Information (0x6c) of received SETUP
CCIS(PHC)	Incoming NPI = NPI-C, Incoming TON = Unknown
Q-SIG	Value set in Calling Party Number Information (0x6c) of received SETUP

(3) When a call is originated through CCIS and the translated number exceeds 16 digits, the 16th digit is output as "*" (ex. 123456789012345*).

3.3.2 Conditions for Addressing - SMDR Support

(1) When receiving output requests from SMDR, Telephony Server outputs billing information in the following format.
Outgoing billing: KK format
Incoming billing: KL format
Affected data area is Calling Party Number Information area (Data Type: 16).

(2) Available connection interface for SMDR is LAN connection only. IOC connection is not supported.

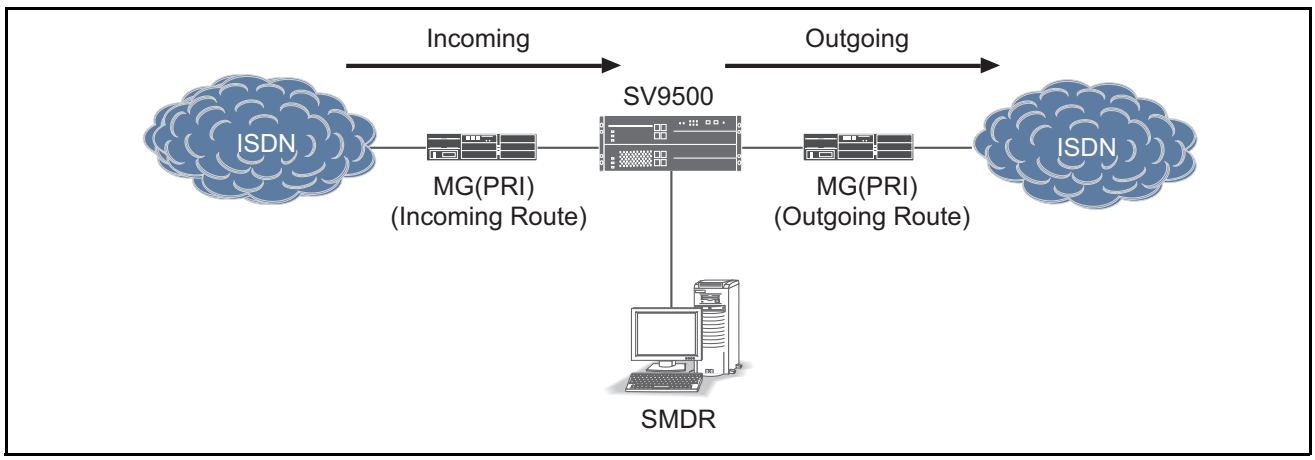
(3) The translation of the number to be output to SMDR is performed with LNPD of the first terminal receiving an incoming call and then the LNPD continues to be used even when the call is forwarded by any forwarding services.

(4) Only Calling Party Number area is translated by this feature. Information in the other areas is not translated.

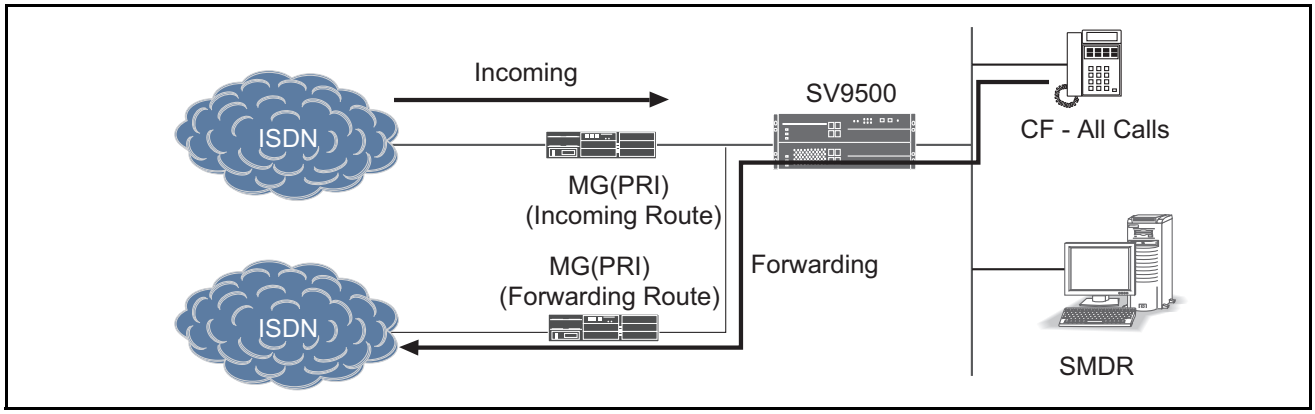
(5) Calling Party Numbers to be output to SMDR are basically translated with LNPDs of the incoming routes and terminals receiving incoming calls, regardless of billing type, transfer type and whether incoming calls are transferred.
With the exception of the above, the numbers are translated with LNPDs of incoming routes and outgoing routes (destination routes when calls are forwarded) when calls are routed through a tandem connection or forwarded to external trunks through Call Forwarding -All Calls/Call Forwarding-Busy/Logged Out IP Station - Call Destination as shown in the figures below.

Reference: Configurations in exceptional cases

- Tandem Connection



- Call Forwarding - All Calls



3.3.3 Conditions for Addressing - SMDR Support

(1) This feature is available only when an incoming call from ISDN(PRI), ISDN(BRI), Q-SIG, CCIS, or MG(SIP) arrives at a UCD group station. An affected data area is Calling Party Number area (Data Type: 06).

(2) Only IMX format is available.

(3) Available connection interface for MC (Message Center) is LAN connection only. IOC connection is not supported.

(4) When an incoming call arrives at an Attendant Console, the translated Calling Party Number is not set.

4. PROGRAMMING

4.1 Data Programming Procedure for Extended Addressing/COLP via Tandem Connection

The following shows the data assignment for Extended Addressing/COLP via Tandem Connection.

* Before setting the following data, you need to assign basic office data to ISDN(PRI)/ISDN(BRI)/Q-SIG/PHC-CCIS.

STEP 1: **ARTI/ARTIN** - Assign Trunk Application Data.
CDN84 (COLP): 0/1 = Invalid/Valid
*Required for ISDN(PRI)/ISDN(BRI)/Q-SIG/CCIS(PHC).
CDN85 (Addressing): 0/1 = Invalid/Valid
*Required for ISDN(PRI)/ISDN(BRI)/Q-SIG/CCIS(PHC).
CDN89 (REGION) = 1 (ETSI ISDN)
*Required for ISDN(PRI)/ISDN(BRI) only.

STEP 2: **ANEDL/ANEDN** - Assign numbering plan data for editing Calling Line Identification (CLI) and Connected Line Identification (COL) per Local Number Plan Domain (LNPD).
LNPD: Enter a Local Number Plan Domain (1 -255).
NPI: Number Plan Identifier.

- When NPI = E.164

CC: Country Code [Maximum 6 digits (0-9, *, #)]
AC: Area Code [Maximum 6 digits (0-9, *, #)]
LC: Local Code [Maximum 12 digits (0-9, *, #)]
IP: International Prefix [Maximum 6 digits (0-9, *, #)]
NP: National Prefix [Maximum 6 digits (0-9, *, #)]
TAC: Trunk Access Code [Maximum 6 digits (0-9, *, #)]
TON pr.: Preferred TON (0-7)
0: Unknown
1: International
2: National

3: -
4: Subscriber
5-7: -
TAC dst.: Destination Determines Trunk Access Code (0/1)

- When NPI = PNP

CC: Country Code [Maximum 6 digits (0-9, *, #)]
AC: Area Code [Maximum 6 digits (0-9, *, #)]
LC: Local Code [Maximum 12 digits (0-9, *, #)]
IP: International Prefix [Maximum 6 digits(0-9, *, #)]
NP: National Prefix [Maximum 6 digits(0-9, *, #)]
TAC: Trunk Access Code [Maximum 6 digits(0-9, *, #)]
TON pr.: Preferred TON (0-7)
0: Unknown
1: Level2
2: Level1
3: -
4: Local Number
5-7: -
TAC dst.: Destination Determines Trunk Access Code (0/1)

- When NPI = Unknown

CC: Country Code [Maximum 6 digits (0-9, *, #)]
AC: Area Code [Maximum 6 digits (0-9, *, #)]
LC: Local Code [Maximum 12 digits (0-9, *, #)]
IP: International Prefix [Maximum 6 digits (0-9, *, #)]
NP: National Prefix [Maximum 6 digits (0-9, *, #)]
TAC: Trunk Access Code [Maximum 6 digits (0-9, *, #)]
TON pr.: Preferred TON (0-7)
0: Unknown
1: International
2: National
3: -
4: Subscriber
5-7: -
TAC dst.: Destination Determines Trunk Access Code (0/1)

- When NPI = NPI-C

CC: Country Code [Maximum 6 digits (0-9, *, #)]
AC: Area Code [Maximum 6 digits (0-9, *, #)]
LC: Local Code [Maximum 12 digits (0-9, *, #)]
IP: International Prefix [Maximum 6 digits (0-9, *, #)]
NP: National Prefix [Maximum 6 digits (0-9, *, #)]
TAC: Trunk Access Code [Maximum 6 digits(0-9, *, #)]
TON pr.: Preferred TON (0-7)
0: -
1: Level-I

2: Level-N
3: -
4: Level-S
5-7: -
TAC dst.: Destination Determines Trunk Access Code (0/1)

- When NPI = NPI-S

CC: Country Code [Maximum 6 digits (0-9, *, #)]
AC: Area Code [Maximum 6 digits (0-9, *, #)]
LC: Local Code [Maximum 12 digits (0-9, *, #)]
IP trunk: International Prefix trunk [Maximum 6 digits (0-9, *, #)]
IP display: International Prefix display [Maximum 6 digits (0-9, *, #)]
NP: National Prefix [Maximum 6 digits (0-9, *, #)]
TAC: Trunk Access Code [Maximum 6 digits(0-9, *, #)]
TON pr.: Preferred TON (0-7)
0: -
1: Level-I
2: Level-N
3: -
4: Level-S
5-7: -
TAC dst.: Destination Determines Trunk Access Code (0/1)

STEP 3: **ADLDL/ADLDN** - Assign Local Number Plan Domain (LNPD) per device.

DEVICE-TYPE: Specify a device from the following.
- Phone
- trunk ISDN(PRI)
- trunk QSIG
- trunk MGSIP **(Not used)**
- trunk CCIS
- trunk ISDN(BRI)

UGN: Enter a User Group Number when DEVICE-TYPE = Phone.
TELN: Enter a Telephone Number (Up to 16 digits) when DEVICE-TYPE = Phone.
RT/LGRT: Enter a Route Number or Logical Route Number when DEVICE-TYPE = trunk.
Dst. PC: Enter the Point Code of destination node when DEVICE-TYPE = trunk CCIS.
LNPD: Enter a Local Number Plan Domain (1 -255).

STEP 4: **AMSGL/AMSGN** - Assign TON and NPI for an outgoing trunk.

TDPTN
: Assign the Time of Day Change Pattern that is same as one for ISDN route assigned by the AOPR/AOPRL/AOPRN command.

OPR
: Assign the Outgoing Route Selection Pattern Number that is same as the one for ISDN route assigned by the AOPR/AOPRL/AOPRN command.

RA
: Assign the Order of Route Advancing that is same as the one for ISDN route assigned by the AOPR/AOPRL/AOPRN command.

NPI
: Assign the Number Plan Identification for an outgoing trunk.
0 = Unknown
1 = E.164
9 = PNP
10 = NPI-C
11 = NPI-S **(Not used)**

TON
: Assign the Type of Number for an outgoing trunk.
0 = Unknown
1 = International Numbering
2 = National Numbering
4 = Subscriber Numbering

STEP 5: ASYDL/ASYDN

SYS1 Index1088 Bit5 = 1 (Extended Addressing/COLP Feature 1 is enabled.) **Note 1**

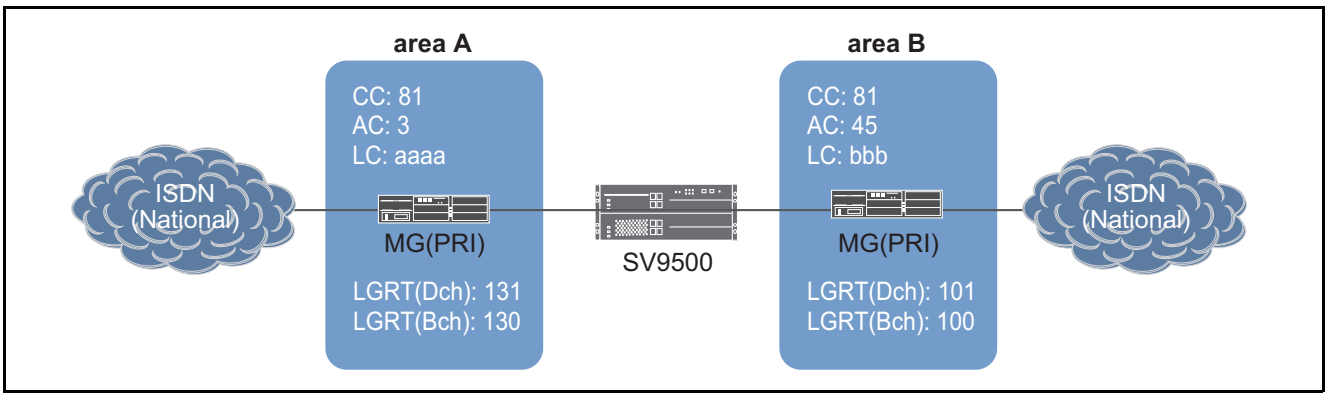
SYS1 Index1088 Bit6 = 1 (Extended Addressing/COLP Feature 2 is enabled.) **Note 2**

Note 1: Once this system data is set to enabled, the existing Addressing/COLP feature becomes invalid. This system data must be set in the last step.

Note 2: This data is required to use Extended Addressing/COLP feature in a tandem connection through MG(BRI). This data is available when ASYDL/ASYDN SYS1 Index1088 Bit 5 = 1.

4.2 Example of Data Programming for Extended Addressing/COLP via Tandem Connection

This section shows the example of the office data assignment for the following sample configuration.



STEP 1: Set LNPD for each area through ANEDL/ANEDN.

[ANEDL/ANEDN]

LNPD=1: area A (MG(PRI))

NPI	CC	AC	LC	IP	NP	TAC	TON pr.	TAC dst.
E.164	81	3	aaaa	n.a.	0	n.a.	2 (National)	n.a.

LNPD=2: area B (MG(PRI))

NPI	CC	AC	LC	IP	NP	TAC	TON pr.	TAC dst.
E.164	81	45	bbb	00	0	n.a.	2 (National)	n.a.

STEP 2: Assign LNPD to each terminal/device.

Use the ADLDL/ADLDN command to assign LNPD to each device.

ADLDL/ADLDN (for area A)

Device-Type	trunk ISDN(PRI)
LGRT	130
LNPD	1

ADLDL/ADLDN (for area B)

Device-Type	ISDN(PRI)
LGRT	100
LNPD	2

STEP 3: Set NPI to be used when a call is originated through MG-PRI (area A)/MG-PRI (area B).

Use the AMSGL/AMSGN command to set NPI to be used when a call is originated through MG-PRI (area A)/MG-PRI (area B). When this data is not set, Unknown is used.

AMSGL/AMSGN (for area A)

TDPTN	Set the same value as one set by the AOP-RL/AOPRN command.
OPR	
RA	
NPI	1(E.164)
TON	2(National)

AMSGL/AMSGN (for area B)

TDPTN	Set the same value as one set by the AOP-RL/AOPRN command.
OPR	
RA	
NPI	1(E.164)
TON	2(National)

After the above data is set, the calling party number information is set as follows:

	ADDRESSING	
	From area A to area B	From area B to area A
Incoming CLI	aaaa2000 (NPI=E.164, TON=Subscriber)	bbb3000 (NPI=E.164, TON=Subscriber)
Outgoing CLI	3aaaa2000 (NPI=E.164, TON=National)	45bbb3000 (NPI=E.164, TON=National)

	COLP	
	From area A to area B	From area B to area A
Incoming COL	aaaa2000 (NPI=E.164, TON=Subscriber)	bbb3000 (NPI=E.164, TON=Subscriber)
Outgoing COL	3aaaa2000 (NPI=E.164, TON=National)	45bbb3000 (NPI=E.164, TON=National)

4.3 Data Programming Procedure for Extended Addressing/COLP with Phone

The following shows the data assignment for Extended Addressing/COLP with Phone.

Note: Before setting the following data, you need to assign basic office data to ISDN(PRI)/ISDN(BRI)/Q-SIG/CCIS (PHC).

STEP 1: **ARTI/ARTIN** - Assign Trunk Application Data.

CDN84 (COLP): 0/1 = Invalid/Valid
*Required for ISDN(PRI)/ISDN(BRI)/Q-SIG/CCIS(PHC).
CDN85 (Addressing): 0/1 = Invalid/Valid
*Required for ISDN(PRI)/ISDN(BRI)/Q-SIG/CCIS(PHC).
CDN89 (REGION) = 1 (ETSI ISDN)
*Required for ISDN(PRI)/ISDN(BRI) only.

STEP 2: **APIPL/APIPN (APIP2L/APIP2N)** - Assign IP address data of counter office.

PC: Point Code (PC) of Counter Office.
CLI-COL: 0/1 = CLI/COL is not sent/is sent.

STEP 3: **ASFC/ASFCN** - Assign a Service Feature Restriction Class.

SFI: 94 *When ISDN(PRI)/ISDN(BRI)/Q-SIG is used, set this data if necessary.
0: -
1: SID is not transfer to a destination.

SFI: 230 *When ISDN(PRI)/ISDN(BRI) is used, set this data if necessary.
0: Connected Number addressing Allowed (COLP).
1: Connected Number addressing Restricted (COLR).

STEP 4: **ANEDL/ANEDN** - Assign numbering plan data for editing Calling Line Identification (CLI) and Connected Line Identification (COL) per Local Number Plan Domain (LNPD).

LNPD: Enter a Local Number Plan Domain (1 -255).
NPI: Number Plan Identifier.

- When NPI = E.164

CC: Country Code [Maximum 6 digits (0-9, *, #)]
AC: Area Code [Maximum 6 digits (0-9, *, #)]
LC: Local Code [Maximum 12 digits (0-9, *, #)]
IP: International Prefix [Maximum 6 digits (0-9, *, #)]
NP: National Prefix [Maximum 6 digits (0-9, *, #)]
TAC: Trunk Access Code [Maximum 6 digits (0-9, *, #)]
TON pr.: Preferred TON (0-7)
0: Unknown
1: International
2: National
3: -
4: Subscriber
5-7: -
TAC dst.: Destination Determines Trunk Access Code (0/1)

- When NPI = PNP

  CC: Country Code [Maximum 6 digits (0-9, *, #)]
  AC: Area Code [Maximum 6 digits (0-9, *, #)]
  LC: Local Code [Maximum 12 digits (0-9, *, #)]
  IP: International Prefix [Maximum 6 digits(0-9, *, #)]
  NP: National Prefix [Maximum 6 digits(0-9, *, #)]
  TAC: Trunk Access Code [Maximum 6 digits(0-9, *, #)]
  TON pr.: Preferred TON (0-7)
    0: Unknown
    1: Level2
    2: Level1
    3: -
    4: Local Number
    5-7: -
  TAC dst.: Destination Determines Trunk Access Code (0/1)

- When NPI = Unknown

  CC: Country Code [Maximum 6 digits (0-9, *, #)]
  AC: Area Code [Maximum 6 digits (0-9, *, #)]
  LC: Local Code [Maximum 12 digits (0-9, *, #)]
  IP: International Prefix [Maximum 6 digits (0-9, *, #)]
  NP: National Prefix [Maximum 6 digits (0-9, *, #)]
  TAC: Trunk Access Code [Maximum 6 digits (0-9, *, #)]
  TON pr.: Preferred TON (0-7)
    0: Unknown
    1: International
    2: National
    3: -
    4: Subscriber
    5-7: -
  TAC dst.: Destination Determines Trunk Access Code (0/1)

- When NPI = NPI-C

  CC: Country Code [Maximum 6 digits (0-9, *, #)]
  AC: Area Code [Maximum 6 digits (0-9, *, #)]
  LC: Local Code [Maximum 12 digits (0-9, *, #)]
  IP: International Prefix [Maximum 6 digits (0-9, *, #)]
  NP: National Prefix [Maximum 6 digits (0-9, *, #)]
  TAC: Trunk Access Code [Maximum 6 digits(0-9, *, #)]
  TON pr.: Preferred TON (0-7)
    0: -
    1: Level-I
    2: Level-N
    3: -
    4: Level-S
    5-7: -
  TAC dst.: Destination Determines Trunk Access Code (0/1)

- When NPI = NPI-S

  CC: Country Code [Maximum 6 digits (0-9, *, #)]
  AC: Area Code [Maximum 6 digits (0-9, *, #)]
  LC: Local Code [Maximum 12 digits (0-9, *, #)]
  IP trunk: International Prefix trunk [Maximum 6 digits (0-9, *, #)]
  IP display: International Prefix display [Maximum 6 digits (0-9, *, #)]
  NP: National Prefix [Maximum 6 digits (0-9, *, #)]
  TAC: Trunk Access Code [Maximum 6 digits(0-9, *, #)]
  TON pr.: Preferred TON (0-7)
  0: -
  1: Level-I
  2: Level-N
  3: -
  4: Level-S
  5-7: -
  TAC dst.: Destination Determines Trunk Access Code (0/1)

STEP 5: **ACCTL/ACCTN** - Assign general number translation rules of CLI/COL for outgoing/incoming calls that use ETSI trunk to CLI/COL translation table.

CCTN (Number of CLI/COL Translation Table): CLI/COL translation table number (1-255)
Original Number: Original number for incoming/outgoing call [Maximum 16 digits (0-9, *, #,%)]
Translated Number: Translated number of the relevant original number [Maximum 16 digits (0-9, *, #,%)]
LNPD: Local Number Plan Domain (1-255)

STEP 6: **ACCDL/ACCDN** - Assign CLI/COL translation table data.

D/N (Day/Night): Choose “Day Mode” or “Night Mode”.
Target: Choose “Any” or “Specific” by using a radio button.
LGRT: Enter the logical route number (1-899).
UGN: Enter the user group number (1-255).
CCTN (Number of CLI/COL Translation Table): Enter the CLI/COL translation table number (1-255).

STEP 7: **ADLDL/ADLDN** - Assign Local Number Plan Domain (LNPD) per device.

DEVICE-TYPE: Specify a device from the following.
- Phone
- trunk ISDN(PRI)
- trunk QSIG
- trunk MGSIP **(Not used)**
- trunk CCIS
- trunk ISDN(BRI)

UGN: Enter a User Group Number when DEVICE-TYPE = Phone.
TELN: Enter a Telephone Number (Up to 16 digits) when DEVICE-TYPE = Phone.
RT/LGRT: Enter a Route Number or Logical Route Number.
Dst. PC: Enter the Point Code of destination node when DEVICE-TYPE = trunk CCIS.
LNPD: Enter a Local Number Plan Domain (1 -255).

STEP 8: **AMSGL/AMSGN** - Assign TON and NPI for an outgoing trunk.

TDPTN
: Assign the Time of Day Change Pattern that is same as one for ISDN route assigned by the AOPR/AOPRL/AOPRN command.

OPR
: Assign the Outgoing Route Selection Pattern Number that is same as the one for ISDN route assigned by the AOPR/AOPRL/AOPRN command.

RA
: Assign the Order of Route Advancing that is same as the one for ISDN route assigned by the AOPR/AOPRL/AOPRN command.

NPI
: Assign the Number Plan Identification for an outgoing trunk.
0 = Unknown
1 = E.164
9 = PNP
10 = NPI-C
11 = NPI-S **(Not used)**

TON
: Assign the Type of Number for an outgoing trunk.
0 = Unknown
1 = International Numbering
2 = National Numbering
4 = Subscriber Numbering

STEP 9: ASYDL/ASYDN

SYS1 Index78 Bit3 = 0 (Dialed Number Display on Desktop terminal is disabled.)

STEP 10: ASYDL/ASYDN

SYS1 Index1088 Bit5 = 1 (Extended Addressing/COLP Feature 1 is enabled.) **Note 1**

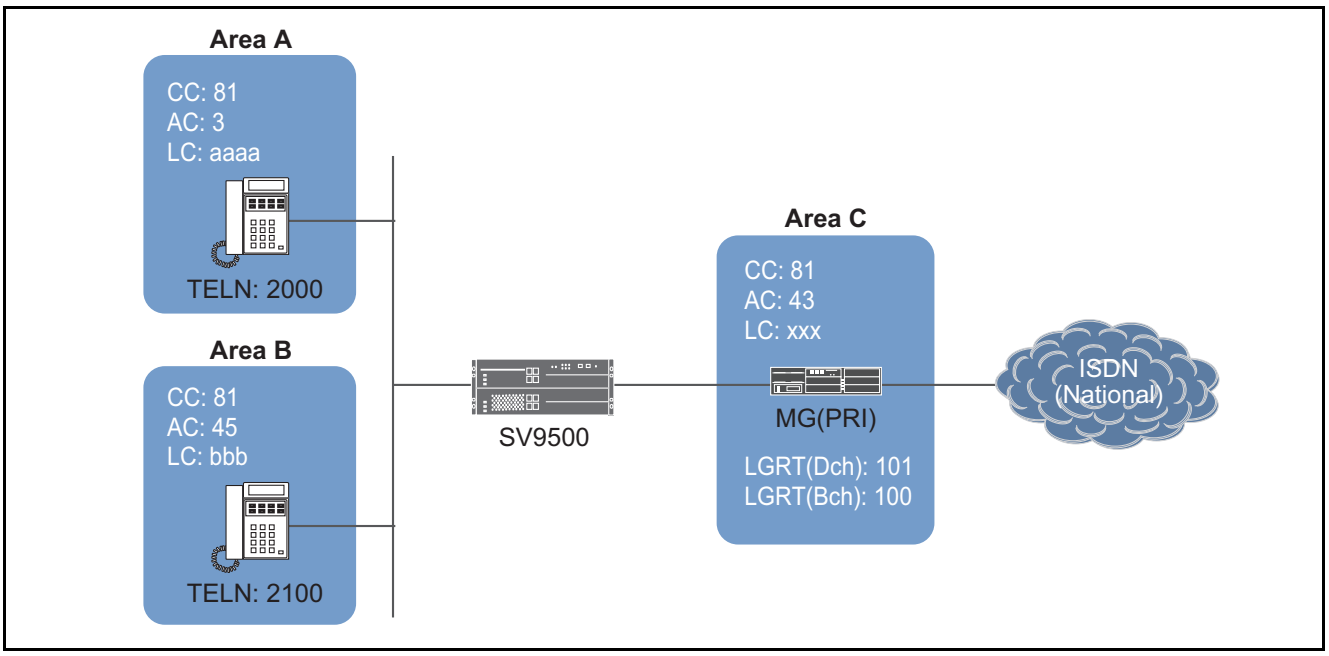
SYS1 Index1088 Bit6 = 1 (Extended Addressing/COLP Feature 2 is enabled.) **Note 2**

Note 1: Once this system data is set to enabled, the existing Addressing/COLP feature becomes invalid. This system data must be set in the last step.

Note 2: This data is required to use Extended Addressing/COLP feature with Phone. This data is available when ASYDL/ASYDN SYS1 Index1088 Bit 5 = 1.

4.4 Example of Data Programming for Extended Addressing/COLP with Phone

This section shows the example of the office data assignment for the following sample configuration.



STEP 1: Set LNPD for each area through ANEDL/ANEDN.

[ANEDL/ANEDN]

LNPD=1: area A

NPI	CC	AC	LC	IP	NP	TAC	TON pr.	TAC dst.
E.164	81	3	aaaa	n.a.	n.a.	5	n.a.	1

LNPD=2: area B

NPI	CC	AC	LC	IP	NP	TAC	TON pr.	TAC dst.
E.164	81	45	bbb	n.a.	n.a.	3	n.a.	1

LNPD=3: area C

NPI	CC	AC	LC	IP	NP	TAC	TON pr.	TAC dst.
E.164	81	43	xxx	n.a.	0	n.a.	2 (National)	n.a.

STEP 2: Assign LNPD to each terminal/device by either one of the following two methods.

(a) Assign LNPD through CLI/COL Translation Data.

When TELN needs to be translated at the time of call origination through PRI, use the ACCTL/ACCTN and ACCTDL/ACCTDN command to assign LNPD to translation data.

In this example, when stations 2000 to 2099 in Area A originate a call through PRI, these numbers are translated to a pilot number 9999.

ACCTL/ACCTN

Day/Night	Day
Logical Route [Specific LGRT]	100
UGN	1
Translation Table Number	1

In the above data setting, when a call is originated through PRI (Bch LGRT: 100), translation data set to Translation Table Number: 1 is used.

ACCDL/ACCDN

Translation Table Number	1
Original Number	20%%
Translated Number	9999
LNPD	1 (LNPD in area A)

In the above setting, TELN corresponding to "20%%" is translated into "9999" and the relevant LNPD is 1. When you just want to translate only TELN: 2000, set 2000 as Original Number.

(b) Assign LNPD to each device.

Use the ADLDL/ADLDN command to assign LNPD to each device.

ADLDL/ADLDN

Device -Type	Phone
UGN	1
TELN	2100
LNPD	2

Device -Type	ISDN(PRI)
LGRT	100
LNPD	3

STEP 3: Set NPI to be used when a call is originated through PRI.

Use the AMSGL/AMSGN command to set NPI to be used when a call is originated through PRI.

AMSGL/AMSGN

TDPTN	Set the same value as one set by the AOP-RL/AOPRN command.
OPR	
RA	
NPI	1(E.164)
TON	2(National)

After the above data is set, when a call is originated from each station, the calling party number information is set as follows:

Calling Station	Calling Party Number Information to be set
2000	3aaaa999 (NPI: E.164, TON: National)
2100	45bbb2100 (NPI: E.164, TON: National)

4.5 Data Programming Procedure for Extended Addressing - SMDR/MCI Support

4.5.1 Data Programming Procedure for Extended Addressing - SMDR Support

The following shows the data assignment for Extended Addressing - SMDR Support.

Note: Before setting the following data, you need to assign basic office data for SMDR.

STEP 1: **ASYDL/ASYDN** - Assign the following system data.

SYS1 Index1088 Bit5 = 1 (Extended Addressing/COLP Feature 1 is enabled.)
Note 1
SYS1 Index1088 Bit6 = 1 (Extended Addressing/COLP Feature 2 is enabled.)
Note 2
SYS1 Index589 Bit6: 0/1 (Calling Party Number Information to be output to SMDR)
0: Pre-translated Number
1: Translated Number
SYS1 Index576 Bit2 = 1 (LAN Interface for SMDR)
SYS1 Index578 Bit0 = 1 (Output format for SMDR A: IMX format)
SYS1 Index579 Bit0 = 1 (Output format for SMDR B: IMX format)
SYS1 Index580 Bit0 = 1 (Output format for SMDR C: IMX format)
SYS1 Index581 Bit0 = 1 (Output format for SMDR D: IMX format)

Note 1: Once this system data is set to enabled, the existing Addressing/COLP feature becomes invalid. This system data must be set in the last step.

Note 2: This data is required to use Extended Addressing - SMDR/MCI Support. This data is available when ASYDL/ASYDN SYS1 Index1088 Bit 5 = 1.

4.5.2 Data Programming Procedure for Extended Addressing - MCI Support

The following shows the data assignment for Extended Addressing - MCI Support.

Note: Before setting the following data, you need to assign basic office data for MCI.

STEP 1: **ASYD** - Assign the following system data.

SYS1 Index400 Bit2 = 1 (ANI information is sent to MCI.)

STEP 2: **ASYDL/ASYDN** - Assign the following system data.

SYS1 Index1088 Bit5 = 1 (Extended Addressing/COLP Feature 1 is enabled.)
Note 1
SYS1 Index1088 Bit6 = 1 (Extended Addressing/COLP Feature 2 is enabled.)
Note 2
SYS1 Index833 Bit5: 0/1 (Calling Party Number Information to be output to MCI)
0: Pre-translated Number
1: Translated Number
SYS1 Index833 Bit0 = 1 (LAN Interface for MCI)

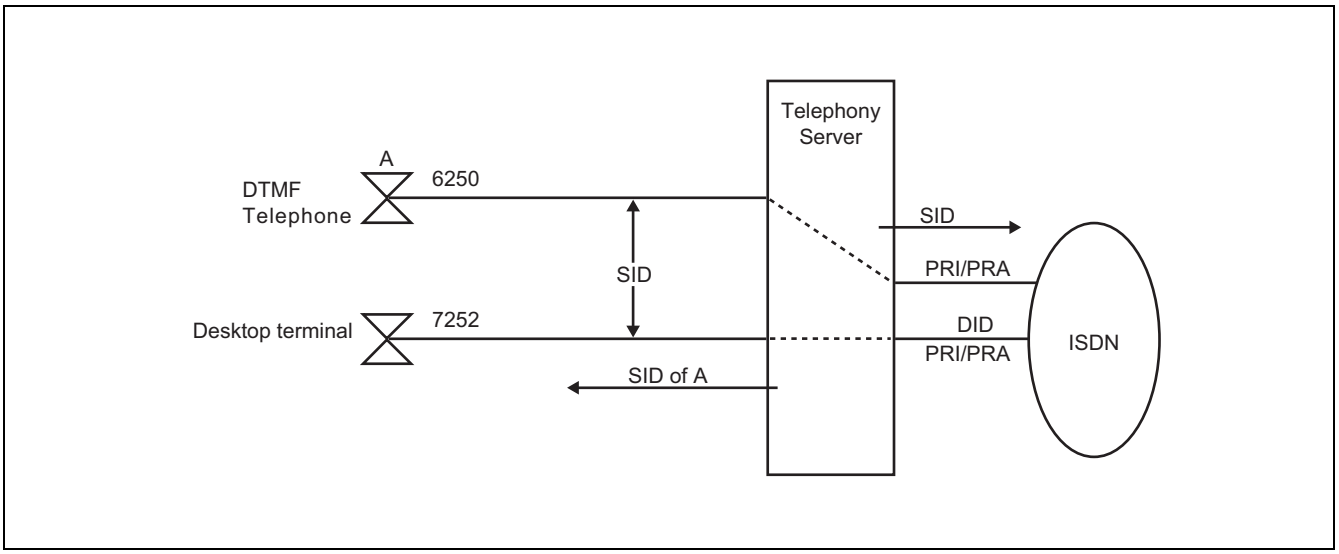
Note 1: Once this system data is set to enabled, the existing Addressing/COLP feature becomes invalid. This system data must be set in the last step.

Note 2: This data is required to use Extended Addressing - SMDR/MCI Support. This data is available when ASYDL/ASYDN SYS1 Index1088 Bit 5 = 1.

[I-28] ISDN INDIVIDUAL CALLING LINE IDENTIFICATION (ICLID)

1. GENERAL DESCRIPTION

The ICLID feature is used to deliver a calling-party's number through the Public ISDN network to a called-party in the same PBX.



2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

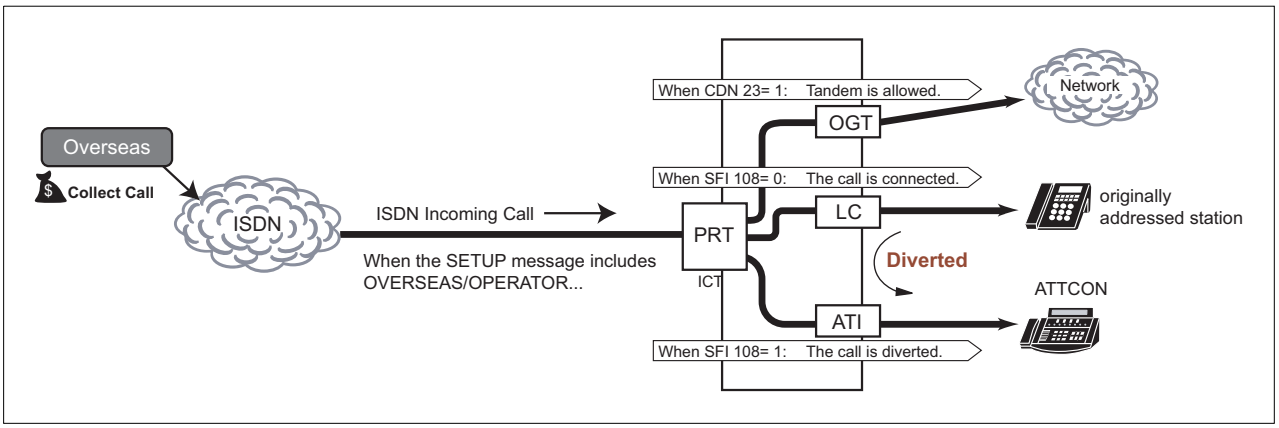
STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 BASIC DATA ASSIGNMENT FOR ISDN AND Q-SIG)

STEP 2: Refer to "When the originating PRI/PRA employs "DID" for the terminating call" in SID TO NETWORK-PRESENT in CHAPTER 6.

[O-40] OVERSEAS COLLECT CALL ISDN DIVERSION

1. GENERAL DESCRIPTION

To reject unnecessary collect calls from overseas, this feature allows the system to divert the call to ATTCON even if the call is a DID call. This feature was originally available for an MFC incoming call. When the system receives OVERSEAS or OPERATOR in the information element of the SETUP message, the call is processed by call control method provided for the MFC signaling.



2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

1. This feature is available when the system receives OVERSEAS or OPERATOR as an information element in the SETUP message. If the system does not receive the information element, the call is processed according to the DID number as usual.
2. When the called party is a Station, depending on the status of the station the following occurs:

STATUS	CALL SCENARIO
Idle	This feature can be disabled / enabled by SFI 108 data.
Busy	This feature can be disabled / enabled by SFI 108 data.
	When disabled (SFI 108 = 0), Call Waiting - Terminating can be used by Route Class (CDN 46: CW 1 = In Service) and SFC (SFI 16: Call Waiting - Originating [Called]). Note that the incoming call is restricted and it is not forwarded to Attendant in the following cases: - When Call Waiting or Call Back has already been set - When this feature is disabled by SFC (SFI 108 = 0)
Incoming Restriction	Call Forwarding - Intercept can be used.
Lockout	
Make Busy	
Call Forwarding destination has not been assigned.	Restricted
Call Forwarding - ATT	Available

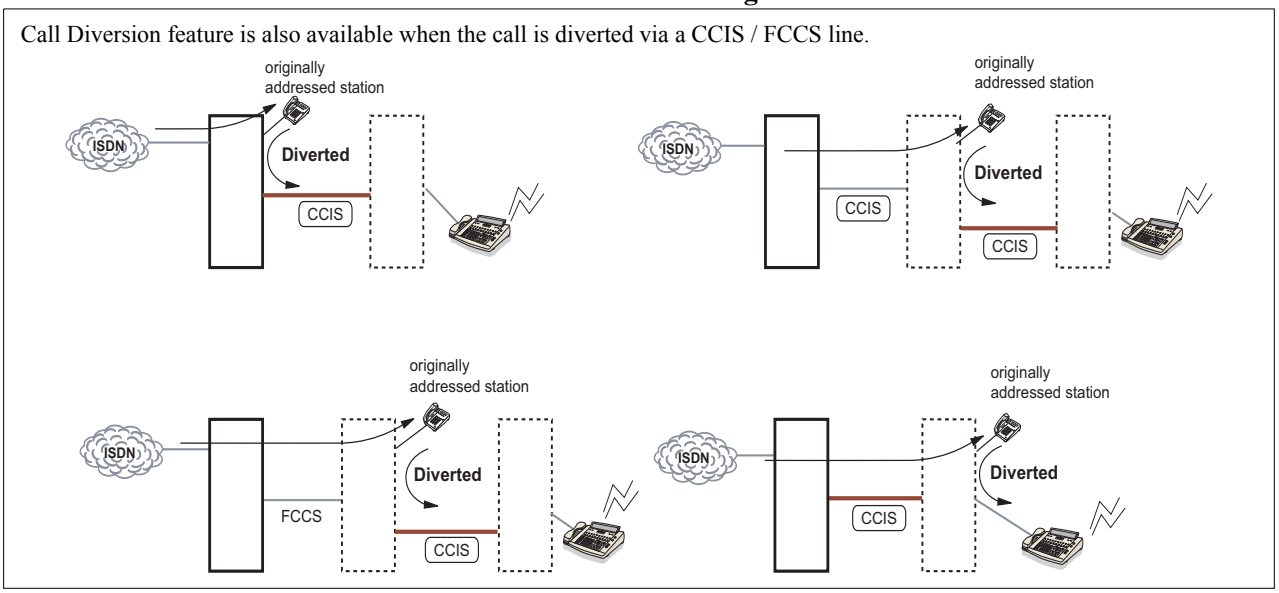
STATUS	CALL SCENARIO
Call Forwarding - Outside	Tandem Connection can be allowed / restricted by the route class data of the originating route (OGC, OGCA, LCR, LCRS). ARTD CDN 23 (TR) is used as follows: Note TR = 0: Tandem Connection is restricted (transferred to Attendant). TR = 1: Tandem Connection is allowed.
Call Forwarding (Station)	When the target station is idle, the result depends on SFI 108.
Others	Restricted

3. Tandem Connection can be allowed / restricted by the route class data of the originating route (OGC, OGCA, LCR, LCRS). ARTD CDN 23 (TR) is used as follows:**Note 1**
   TR = 0: Tandem Connection is restricted (transferred to Attendant).
   TR = 1: Tandem Connection is allowed.

   Note 1: This condition also applies CCIS lines. However, the call scenario cannot be determined by SFI/TR of Station/Trunk of the call-terminating-node.

4. This feature is also applied to alternate routes by OGCA/LCR/LCRS. When there is any available route, the tandem connection is allowed via the route.
5. When CCIS lines are involved, the incoming call can also be diverted via the CCIS line. (See the figure below).

Diversion is available through a CCIS line



6. When Dead Level/Dead Number is applied, Call Forwarding - Intercept can be used.
   Transfer Destination Conditions:

   - Not Assigned: Announcement Connection (Condition 7) is applied
   - CF - Attendant: Can be transferred to Attendant
   - CF - Outside: Disabled and restricted.

- CF - Station: Conforms to SFI 108 data.

7. When an Announcement Trunk has been assigned, the connection conforms to the Route Class data of the Announcement Trunk Route (CDN 23 TR) as follows:

   - TR=0: Announcement Connection is restricted (Not transferred to Attendant, receiving Reorder Tone)
   - TR=1: Announcement Connection is allowed.
   - When no Announcement Trunk has been assigned, the caller receives Reorder Tone.

8. When the called station number is access code for Remote Access to System, Overseas Collect Call ISDN Diversion is disabled. The calling party can dial the subsequent ID code and access to the terminating node / other node.
9. When the called station number is a Station of UCD group, this feature is disabled or enabled depending on SFC of the hunted Station. Note that if the call is restricted, the call cannot be distributed to other stations. If UCD group busy is encountered inclusive of UCD overflow on terminating to UCD group, the incoming call is rejected or accepted by SFC of the controlling station. When the call is accepted, it is queued or transferred to overflow-station. When restricted, it is transferred to Attendant.
10. When the called station number is an LDN, depending on the system mode the call is treated as follows:
    Day Mode: Not supported in this mode.
    Night Mode: When a station is specified as a Night Station, it conforms to the SFC of the station.
    Restricted: TAS connection if TAS is used
    Busy: Reorder Tone will be heard
    If outside party is specified as Night Transfer, it conforms to the Route Class Data of the originating route. (See Condition 3.)
    Restricted: TAS connection if TAS is used (ROT if TAS is not assigned.)
11. When the called number is a Monitor Number (ACD),

    - System with OAI/ACD function: this feature is not supported
    - System without OAI/ACD function: this feature is restricted (not transferred to ATT)

12. When the called number is an Individual Attendant Number, this feature is not supported. (The call is connected to the Attendant.) However, the caller hears ROT if the console is in JACK OFF or NIGHT mode.
13. The incoming ISDN call can be transferred to the ATT (Day / Night) of the call terminating node.
14. SFI data of the Attendant is not applied. (The call terminates as ICPT call.) (When the call is an LDN call, incoming indication is LDN.)
15. When the system is in Night Mode, the call can be transferred to Night ATT. If Night ATT (RT 915) has not been assigned, the call can be transferred to Night Station. Note that Night Station can select enable / disable by SFI. If ATT/Night Station have not been assigned, TAS connection is available.
16. When Night Attendant has not been assigned, the call can be transferred to a station specified by ASID. A Night Station can reject or accept the call by the SFC. If restricted, the call results in ROT connection. (TAS connection is not allowed.)

Note: A station can be specified among ordinary stations/UCD stations/HUNTING(PILOT/CIRCULAR) stations.

17. When a collect call from overseas is transferred to an Attendant, the calling party number or the station number of originally addressed station (called party number) can be displayed on the Attendant LCD by the following system data setting.
    ASYDL SYS1 Index 831, Bit 2: 0 = Display calling station number
    1 = Display station number of originally addressed station

    Note: The station number of originally addressed station will be displayed only when the Attendant answers the terminated collect call from overseas for the first time. For example, when the Attendant connects with the calling party for the second time after the line is on hold, the station number of originally addressed station cannot be displayed. The calling party number will be displayed instead.

18. The forwarding destination for this feature can be assigned with the ACFO/ACFOL/ACFON command on a route basis since FP95-114 V4 Issue 2.0 (earlier than FP95-114 V4 Issue 2.0, the destination can be assigned on a tenant basis only). For details, see CALL FORWARDING DESTINATION PER TRUNK ROUTE - INCOMING CALL [C-209] in Data programming Manual- Business.

4. INTERACTIONS

(1) Release control is performed in accordance with Trunk Release Pattern (ARTD CDN8: RLP) of the incoming route. Release control that is specified on an SFC basis (MFC Called Party Release for IC Call [SFI 60]) cannot be applied to this feature.

(2) Charge / No Charge conforms to conventional ISDN incoming call control. Conventional charging method (Total Billing / Split Billing) is used even if the call is a collect call.

(3) MFC No Charge for IC Call (SFI 59) is not applied for this feature.

(4) Even if the destination of the incoming call is a night station, SFI 108 (Transfer ISDN incoming call to Station) is not applied. This includes call termination after the call is treated as a ringdown call on the ground that the called number / subaddress has not been received.

(5) No special indication is displayed on the Desktop terminal for this feature (Ordinary ISDN incoming call display is used).

(6) When the call is transferred to ATT on the ground that the called station does not answer, ATT Answer Peg Count is invalid.

(7) Once the call is terminated, it can be answered by Call Pickup / Direct Call Pickup even if the called station's SFC does not allow to receive an international incoming call. Also stations allowed to use TAS can answer the call by using access code, My Line or Sub Line key.

(8) Whether ISDN incoming call to a PS, ISDN terminal is answered or transferred to ATT depends on the SFC of the terminal as well as ordinary station (DP/PB), Desktop terminal.

(9) Collect Call Blocking feature has precedence over this feature. If the incoming call is rejected because of Collect Call Blocking, the caller hears Reorder Tone. The international incoming call cannot be transferred to ATT.

(10) CCIS Network features are available for nodes on ISDN-CCIS network. When the call is restricted at terminating node by this feature the call is transferred to ATT, terminating on the ICPT lamp. When a call is terminated by activating CF-All Calls/CF-Busy at Pre-located node (ISDN incoming Node / CCIS Tandem Node) and restricted by this feature, the call terminates on the ATND lamp. ATND has precedence over ICPT. (ICPT is invalid).

Note: This feature is supported for each Node on CCIS Network. However, if the terminating node is not Telephony Server/ IMX(R11), this feature cannot be supported. In such a case, set the route class data CDN 23 (TR) to 0 (Tandem Connection is restricted) of routes that point to the terminating node.

(11) This feature is available for ISDN-FCCS incoming call. However, since a TAS call terminates to node that is equipped with ATT, the call cannot be answered from other node.

5. PROGRAMMING

STEP 1: ASYDL- Select the display on ATT when a collect call is transferred.
SYS1 Index 831, Bit 2
0 = Display calling station number
1 = Display station number of originally addressed station

STEP 2: ASFC - Assign to the telephone a Service Feature Restriction Class that allows SFI 108 (Transfer ISDN incoming call to ATT)
RES = 0: Not transfer to ATT (allowing the termination to the called station).
RES = 1: Transfer to ATT.

STEP 3: ARTD - Assign the route class data CDN 23 (TR) of ISDN route for restricting tandem connection when required. Note that this data should be assigned on the route whose CDN 65 (INT) is 4 (PRI (ITU-T/ETSI)), and is applied to the outgoing route of the tandem connection.
TR = 0: Tandem Connection is restricted (ICPT transfer to ATT).
TR = 1: Tandem Connection is allowed.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 4: ACSA - Assign the Connection Service Index A data.
RT: External Route Number
TK: Trunk Number
CSIA: Connection Service Index A (1: CAS Line)
TN: Tenant Number
STN: Station Number

STEP 5: ALDN - Assign the Listed Directory Number.
TN: Tenant Number
LDN: Listed Directory Number (Maximum five digits)
TYPE: Night Transfer Type [0-3]
0 = No Night Transfer
1 = STN (Night Station)
2 = DC (Destination Number including Access Code)
3 = ADC for Speed Calling

STEP 6: ACFO - Assign Call Forwarding service data on a Tenant basis.
TN: Tenant Number
CF: Call Forwarding Service [1-4]

1 = CF - Busy Line
2 = CF - Don't Answer
3 = CF - Intercept
4 = Night Connection Outside

STEP 7: ASID - Assign Special Incoming data.
TN: Tenant Number
F: Function Number [0-7]
GN: Group Number [1-7]
S/A: Station / ATTCON [S/A]
SSTN: Special Station Number

STEP 8: AIIIL - Assign ISDN International Incoming ICPT Transfer data.
TN: Tenant Number
LGRT/RT: Logical Route/Route
TYPE: Trunk Line/Abbreviated Code
DC: Digit Code (When Trunk Line is selected)
ADC: Abbreviated Digit Code (When Abbreviated Code is selected)

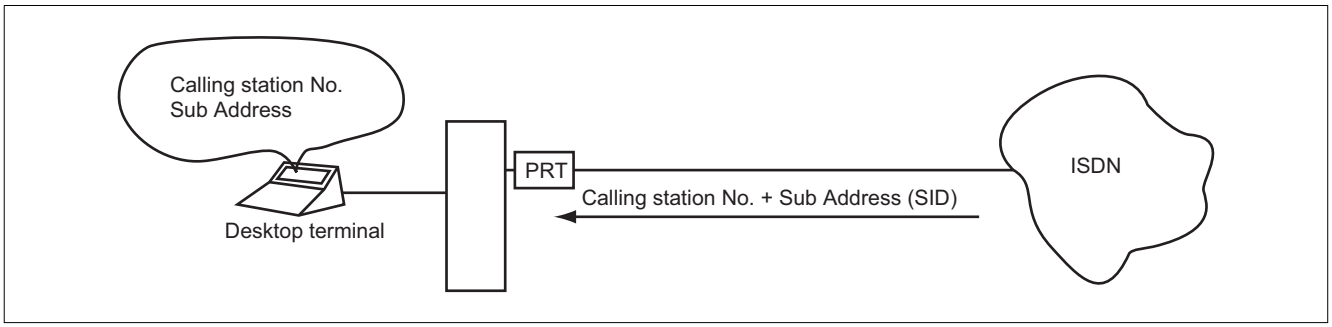
STEP 9: ACFR - Assign Call Forwarding restriction data on a Tenant basis.
TN: Tenant Number
TSFI: Transfer Service Feature Index [1-15]
CCI: Call Category Index [0-15]
RES: Restriction Data [0/1]

STEP 10: ARRC - Assign Alternative Route Restriction data between ISDN Incoming Trunk and CCIS Trunk, ISDN Incoming Trunk and CCIS Dummy Route.
ICRT: Incoming Route Number
OGRT: Outgoing Route Number
ARI A-RES: Restriction Data for Alternative Route INDEX-A
ARI D-RES: Restriction Data for Alternative Route INDEX-D

[S-93] SID TO TERMINATING USER-DISPLAY

1. GENERAL DESCRIPTION

This ISDN feature provides a visual display of the Calling Station's number and sub address information on a Desktop terminal for incoming ISDN calls. This provides the terminal user with a quick and accurate way to identify the Calling Station's number (Station Identification Number, SID).



2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

None.

[S-95] SUB ADDRESS-ADDRESSING

1. GENERAL DESCRIPTION

This ISDN feature permits an Incoming Call to be directed to a designated station by using called-party sub-address information.

2. OPERATING PROCEDURE

No manual operation is required.

Note: When ISDN Address information arrives from the ISDN line assigned for Sub Address-Addressing and it does not contain the Sub Address information, the call is routed to an Attendant Console.

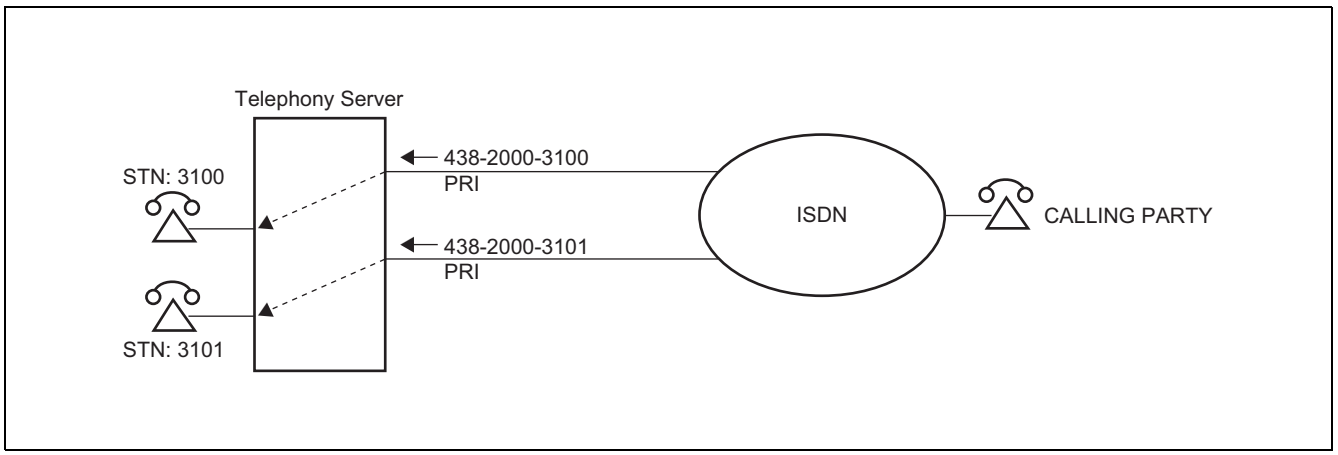
Note: When a Desktop terminal is designated as the destination of an Incoming Call, the calling party number is automatically presented on the display of the Desktop terminal.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

STEP 2: ARTD - For the Route of the B-channels and D-channel of a 24/30PRT, which inter-faces with the ISDN line of Sub Addressing, assign DC (CDN 66)="0".

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card or MG.

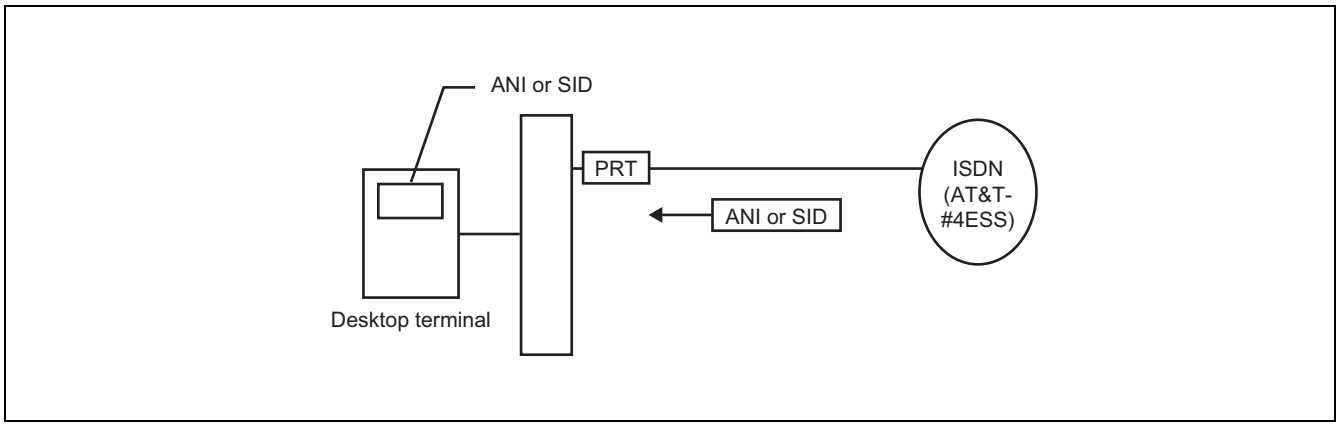


[S-136] SID TO TERMINATING USER (CALL-BY-CALL)-DISPLAY for AT&T (#4ESS)

1. GENERAL DESCRIPTION

This feature allows a PBX to request either ANI or SID for each Incoming Call (Call-by-Call) by using a Facility message to the ISDN (AT&T). When a PBX receives ANI or SID by a Facility Acknowledge, a Desktop terminal shows it (Max. 8 digits) on the display.

Note: During requesting ANI or SID (for a maximum of four seconds) any OG and IC call will not be allowed.
Call Associated TSC will not covered in a PBX.



2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP: ASFC - SFI97=0/1 (-/ANI only)
SFI98=0/1 (-/SID only)

Note: When SFI 97=0 and SFI 98=0, a PBX receives SID of SETUP message.
When SFI 97=1 and SFI 98=1, a PBX receives ANI only.

CALL WAITING

1. GENERAL DESCRIPTION

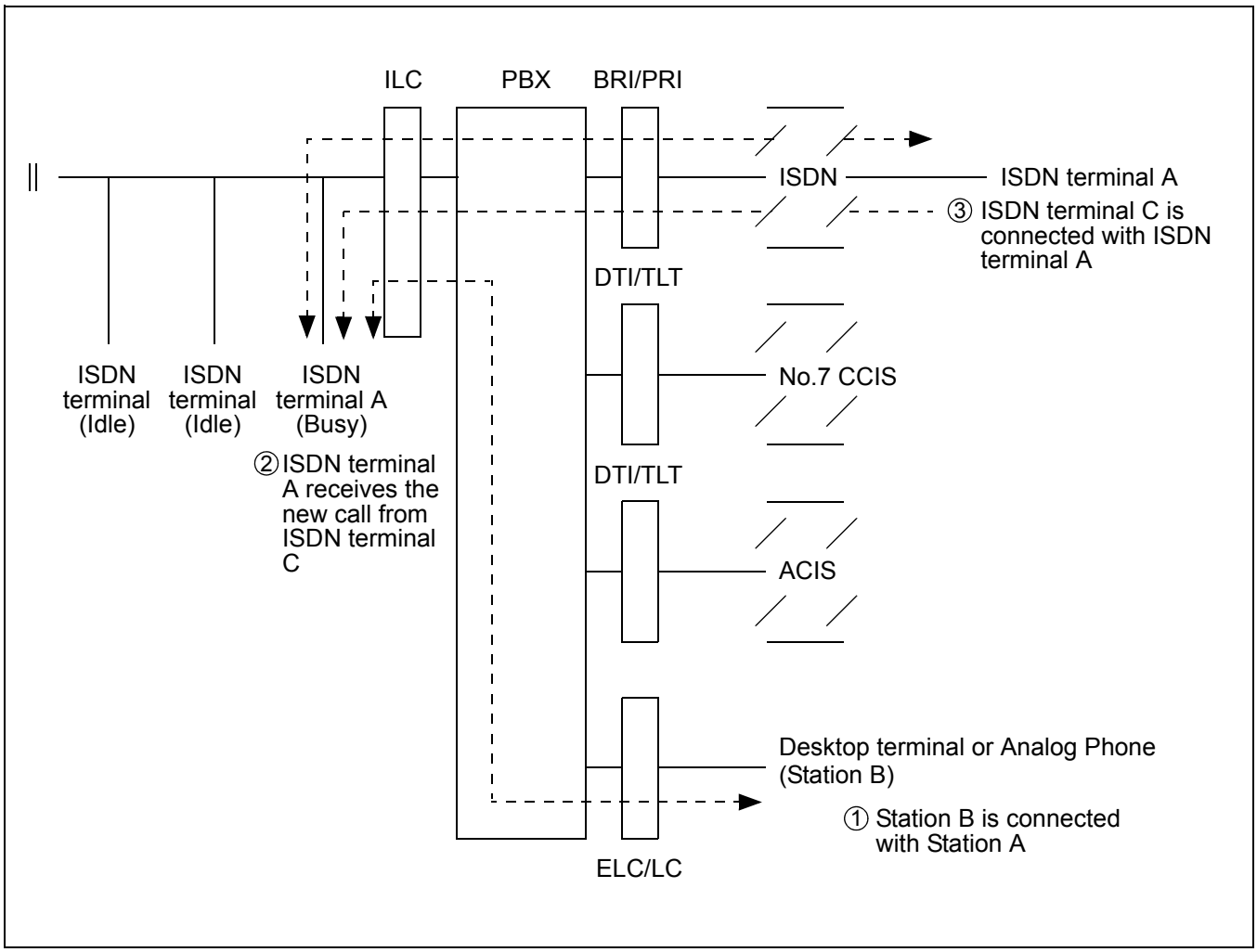
This feature allows the PBX user to use CALL WAITING supplementary service provided in the ISDN network. With this feature, a busy station in two-party connection can answer the second call with the CW key (At that time, the first connected call is placed on hold).

Operation Outlines are shown in the below.

①ISDN terminal A is communicated with Station B, which is not ISDN terminal.

②ISDN terminal A receives the new call originated from ISDN terminal C.

③ISDN terminal A can be connected with ISDN terminal C with this feature.



2. OPERATING PROCEDURE

Note: Since the operation method varies depending on ISDN terminal specifications, the operating procedure described in this item is an example when the ISDN terminal to be based upon Recommendation Q.932 is used. Also, the LED indication or the function of the key (it is called as "CW key" in this manual) described in this item may also vary depending on each terminal.

To activate CALL WAITING service on an incoming ISDN trunk call:

1. Third party (Station C) calls to Station A while Station A and Station B have conversation.
   (Desktop terminal LCD display)
   Station B indicates Station A's station number.

2. Station A presses the CW key to answer the new call from Station C; Station B hears the music on hold and the CW key lights.
   (Desktop terminal LCD display)
   (a) Station A and Station B, Station B and Station C are connected through CCIS line.
   Station B indicates Station A's station number.
   Station C indicates Station A's station number.
   (b) Station A and Station B, Station B and Station C is connected through the interface except CCIS line.
   Station B indicates "HLD" or "HOLD" and Station C indicates Station A's station number.

3. When Station A presses the CW key again, Station A will return to the original call and hold the second call; Station C hears the music on hold at that time.
   (Desktop terminal LCD display)
   (a) Station A and Station B, Station B and Station C are connected through CCIS line.
   Station B indicates Station A's station number.
   Station C indicates Station A's station number.
   (b) Station A and Station B, Station B and Station C are connected through the interface except CCIS line.
   Station B indicates Station A's station number and Station C indicates "HLD" or "HOLD".

4. Station A may alternate between the two calls at each time Station A presses the CW key; the CW key lights.
   (Desktop terminal LCD display)
   (a) Station A and Station B, Station B and Station C are connected through CCIS line.
   Both stations B and C indicate ISDN terminal A's station number.
   (b) Station A and Station B, Station B and Station C are connected through the interface except CCIS line.
   The LCD display is changed at each time the connection is changed.

3. SERVICE CONDITIONS

1. Only ISDN terminal conformed by Recommendation Q.932 can be used to activate this feature.
2. This feature is available when one or more B channel of all B channels used for the ISDN terminal is busy.
3. This feature is available when operating with the proper ISDN terminal that is allowed CALL WAITING service (SFI 123=1 in ASFC).
4. The number of time for switching the connected party is not limited.
5. Two CALL WAITING services can be activated simultaneously using two B channels (2B+D interface).

6. The SFC applied to the operating station restricts this feature. On the side of the third station, there is no way to restrict the service.

7. The table below shows what kinds of the transparency for Bearer Capability is available between the operating station and the third party.

Availability for Bearer Capability Transparency

○ : Available × : Not Available – : Not possible for the ISDN network's specification

Operating Station \ Third Party	VOICE	AUDIO	DATA	H0	H1
VOICE	○	○	○	–	–
AUDIO	○	○	○	–	–
DATA	○	○	○	–	–
H0	–	–	–	×	–
H1	–	–	–	–	×

8. This feature can be activated when the operating terminal user communicates in the two-party connection.

9. The table below shows possible connection of the concerned terminal.

Note: The PRI station (BRI, H0, H1) user can not operate to activate CALL WAITING service.

Possible Connection

○ : Available × : Not Available – : Not possible for ISDN network's specification

Operating station	Originating Station		Third Party								
			Station Note 1	Trunk Note 2	Attendant console	ISDN trunk			PRI station		
						B	H0	H1	B	H0	H1
BRI station	Station		○	○	×	○	–	–	○	–	–
	Trunk		○	○	×	○	–	–	○	–	–
	Attendant console		×	×	×	×	–	–	×	–	–
	ISDN trunk	B	○	○	×	○	–	–	○	–	–
		H0	–	–	–	–	–	–	–	–	–
		H1	–	–	–	–	–	–	–	–	–
	PRI station	B	○	○	×	○	–	–	○	–	–
		H0	–	–	–	–	–	–	–	–	–
		H1	–	–	–	–	–	–	–	–	–

Note 1: "Station" listed in the table indicates the analog station and the Desktop terminal.

Note 2: "Trunk" listed in the table indicates ACIS trunk, CCIS trunk.

4. INTERACTIONS

1. CALL WAITING-TERMINATING [C-12]/CALL WAITING-TERMINATING-PRI [C-114] can not be activated via the stations participating in the CALL WAITING service activation (an operating station, a station originated a call, the third station).
   Also, ISDN terminal user can not set CALL WAITING service while the terminal is held by CALL WAITING-TERMINATING-PRI.

2. The CALL WAITING service is counted with PEG COUNT [P-7]/PEG COUNT-PRI [P-37] service and the counted CW service is included in the area of the current CALL WAITING service.

3. CALL BACK [C-1, 1D] can not be set to the stations participating in this feature (an operating station/an originating station/the third station). Also, ISDN terminal to be set CALL BACK and the service is activating (at the moment the terminal is setting CALL BACK or the terminal is called for CALL BACK call) can not be the operating station.

4. EXECUTIVE RIGHT-OF-WAY [E-1] can not be set to the stations participating in this feature (an operating station/an originating station/the third station).

5. ATTENDANT CAMP-ON WITH TONE INDICATION [A-1] can not be set to the stations participated in this feature (an operating station/an originating station/the third station).

6. ATTENDANT OVERRIDE [A-7] can not be set to the stations participating in this feature (an operating station/an originating station/the third station).

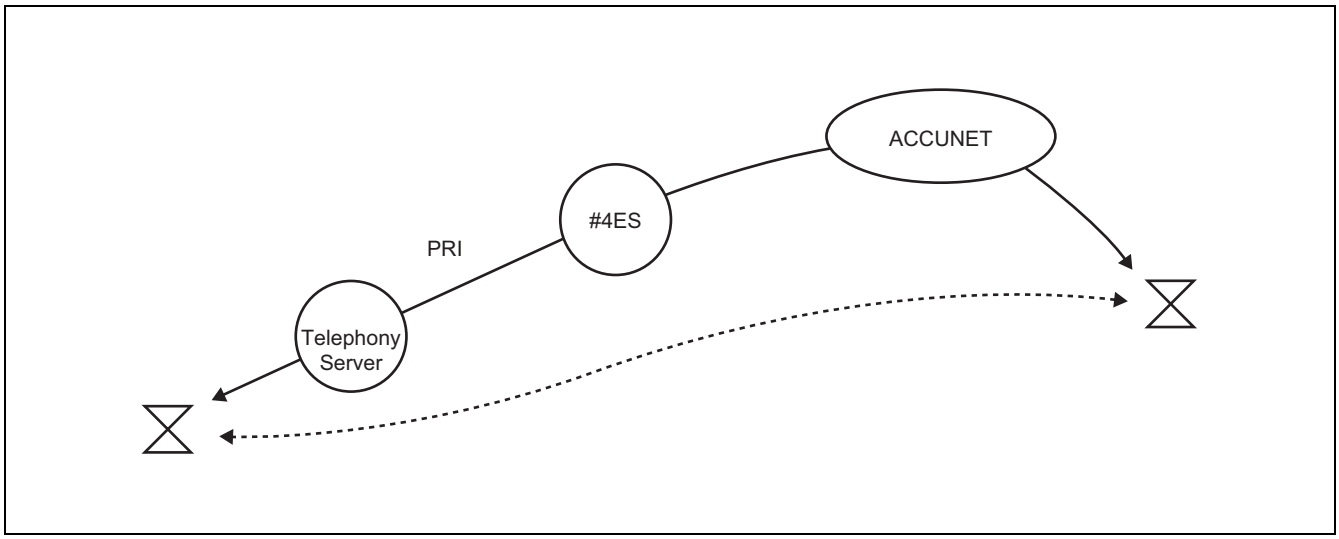
5. PROGRAMMING

STEP: ASFC - Assign SFI=123 (Call Waiting-Terminating Service) and RES=1 (In service).

[A-77] ACCUNET ACCESS154

1. GENERAL DESCRIPTION

Communication using 56 Kbps, 64 Kbps (restricted) or 64 Kbps (unrestricted) is possible with terminals connected to AT&T's ACCUNET network.



Note: The system does not determine communication compatibility; that is dependent on the terminal types.

Note: Data terminals that can be accommodated by the PBX are basically terminals with a transmission speed of 64 Kbps. Communication by terminals with other transmission speeds is not guaranteed.

2. OPERATING PROCEDURE

No manual operation is required.

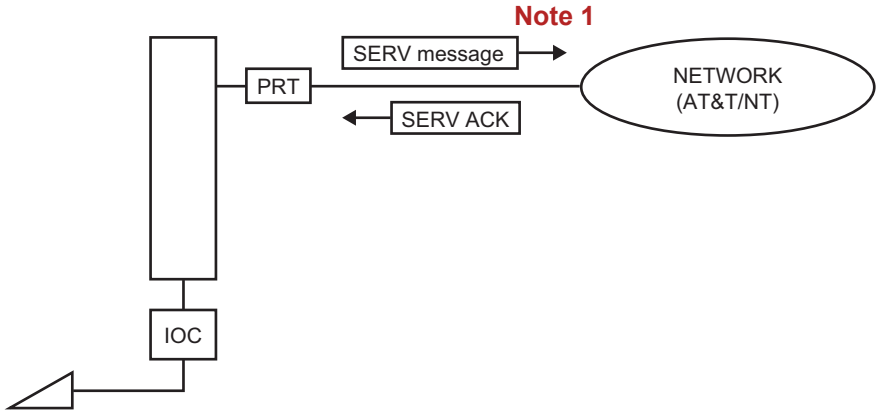
3. PROGRAMMING

STEP: ACBC - Select CODE 6 (= ACCUNET) in this command.

[B-27] B-CHANNEL SERVICE CONTROL

1. GENERAL DESCRIPTION

A PBX can send a trunk maintenance (SERVICE) message to the ISDN (AT&T-#4ESS, NT-DMS100/250) when setting or canceling a trunk make busy using the command MBTK.



Note 1: SERV (Service) message = Trunk Maintenance message.
SERV (Service) ACK = Service acknowledgement.

Whether "In Service" mode or "Out of Service" mode of a PBX is determined by a trunk maintenance message from the network. (Even if a PBX sent a trunk maintenance message setting the PBX to "Out of Service" mode, the PBX would be set "In Service" when the PBX receives a trunk maintenance message for "In Service" from the network.)

<For AT&T>

When a PBX has been set to "Out of Service" mode after receiving a trunk maintenance message from the network, Incoming Calls from the network would not be allowed.

<For NT>

Even if a PBX has been set to "Out of Service" mode after receiving a trunk maintenance message from the network, Incoming Calls from the network would be allowed.

2. OPERATING PROCEDURE

By using MBTK,

Set make busy to a bothway call (MB=2):	A PBX sends a trunk maintenance message.
Cancel the bothway make busy (MB=0):	A PBX sends a trunk maintenance message.

3. PROGRAMMING

None.

[C-105] CALL-BY-CALL SERVICE SELECTION

1. GENERAL DESCRIPTION

Services can be selected on a call-by-call basis to all channels of a single PRI interface according to applications. That is, unlike Trunk Provisioning Service in which services are assigned to specific channels, services may be used on any available channel.

Note: The services that can be designated include the following:
ACCUNET, MEGACOM, MEGACOM800, and SDN.

Note: Channel selection is possible by the LCR function only.

Note: To identify a terminal to which a call has terminated, data must be registered using the "ACDD" command so that a call-terminating terminal can be identified by a terminating number.

Note: During call termination, there is no indication of which service is being used.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

In addition to the Basic Office Data for ISDN, the following data should be assigned.

STEP 1: AFRS - Assign the different OPR (Outgoing Route Selection Pattern Number) on a service type (such as ACCUNET, MEGACOM, etc.) basis. Therefore, the OPR should be determined according to the NPC (Number Pattern Code).

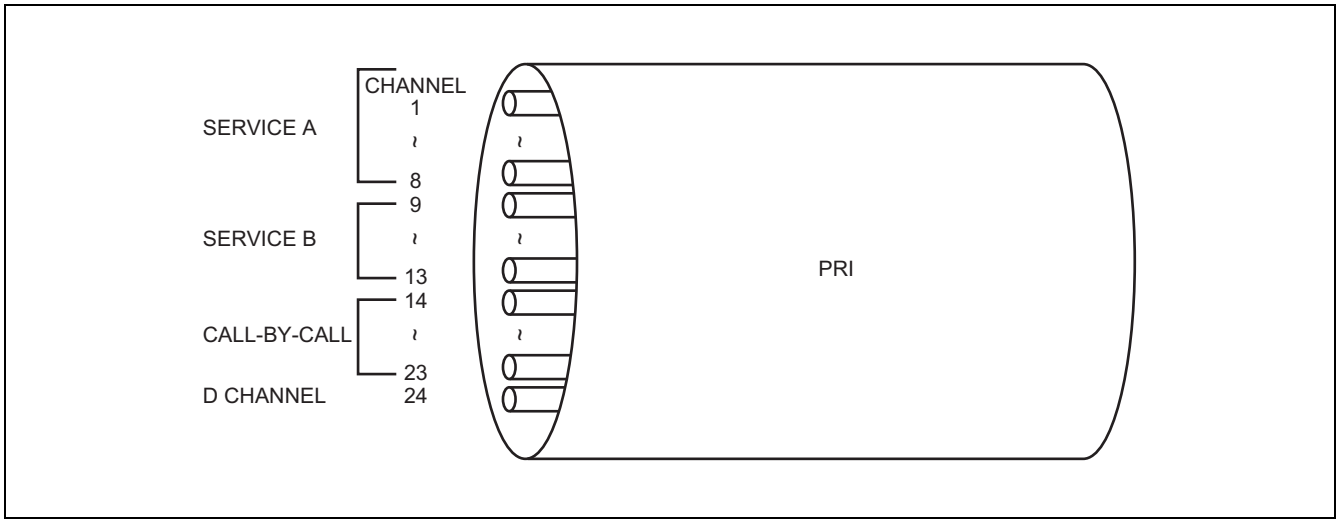
STEP 2: AOPR - Assign the common Route Number to all services (ACCUNET, MEGACOM, etc.).

STEP 3: ACBC - Select desired service on an OPR basis.

[C-106] CALL-BY-CALL POOL MANAGEMENT

1. GENERAL DESCRIPTION

A single PRI interface can be used in common by the TRUNK PROVISIONING [T-42] and CALL-BY-CALL SERVICE SELECTION [C-105]. If all the channels that are used by the TRUNK PROVISIONING SERVICE SELECTION are busy, it is possible to select the channels as used by the CALL-BY-CALL SERVICE SELECTION [C-105].



Note: The services that can be designated include the following: ACCUNET, MEGACOM, MEGACOM800, and SDN.

Note: Channel selection is possible by the LCR function only.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

In addition to the Basic Office Data for ISDN, the following data should be assigned.

STEP 1: AFRS - Assign the different OPR (Outgoing Route Selection Pattern Number) on a service type (such as ACCUNET, MEGACOM, etc.) basis. Therefore, the OPR should be determined according to the NPC (Number Pattern Code).

STEP 2: AOPR - Assign the common Route Number to all services (ACCUNET, MEGACOM, etc.).

STEP 3: ACBC - Select a desired service on an OPR basis.

[C-164] CCIS TANDEM CALL-CALLING PARTY NUMBER (CPN) DELIVERY TO ISDN AND Q.SIG NETWORKS

1. GENERAL DESCRIPTION

This feature is provided for the call from TIE Line (CCIS line or Q-SIG) or a station, Attendant Console for INDIVIDUAL ATTENDANT ACCESS [I-6] is sent to the public ISDN network (AT&T, NT, NI-2) or Q-sig network. With this feature, the calling party number can be changed as programmed and sent to the ISDN network/Q-SIG network. Since the data can be set to designate the received number in addition to the outgoing route to ISDN network, a variety of calling party number assignment is available.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This feature programmed by ACPNCL/ACPNCN command is effective when:
- Calls are originated from CCIS/Q-SIG line to AT&T, NT, NI-2 or Q-sig network.
- Calls are originated from the station to AT&T, NT, NI-2 or Q-sig network.
- Calls are originated from the Attendant Console which is assigned the individual attendant identification number to AT & T, NT, NI-2 or Q-sig network.

(2) This feature is not effective when calls are originated from AT&T, NT, NI-2 network to AT&T, NT, NI-2 network.

(3) When the registered calling party number is received from CCIS line and sent to AT&T, NT, NI-2 network by this feature, the Access Code and the office code, programmed as ACC for RT=0 (self-office) in ARNP, are not deleted automatically as normal operation (take this into consideration when programming. See the [Example Data] in the next page).

(4) ACNP/ACND or AANDE command data are ineffective when the call corresponding to ACPNCL/ACPNCN command data is originated to AT&T, NT, NI-2 or Q-sig network.

(5) In case number of digits of registered number (RCPN in ACPNCL/ACPNCN data) is less than that of calling party number sent from CCIS/Q-sig line, this feature is effective when the first part of the received calling party number is identical with the registered number.

(6) When assigning more than 8 digits' (includes the office code of the self office programmed in ARNP, RT=0) number to be received from CCIS line, the number (RCPN in ACPNCL/ACPNCN data) must be assigned as physical station number since physical station number is sent as the calling party number.

(7) After the system is upgraded from non-FCCS system to FCCS system, physical station number and Telephone Number written in LDM that are programmed in ACPNCL command should be deleted and assign the new Telephone Number using ACPNCN command unless those numbers are identical with Telephone Numbers to be written in NDM. If the numbers are not deleted, the system gets the wrong number data or does not get any number data since the FCCS system reads out the NDM data.

(8) The FCCS system reads out the ACPNCN data. However, if there is no data in ACPNCN, the system reads the ACPNCL data. The non-FCCS system reads out the ACPNCL data only.

(9) This feature is not available for the call originated using OAI/ACD feature.

(10) The maximum of ACPNCL/ACPNCN command entries is 65,535.

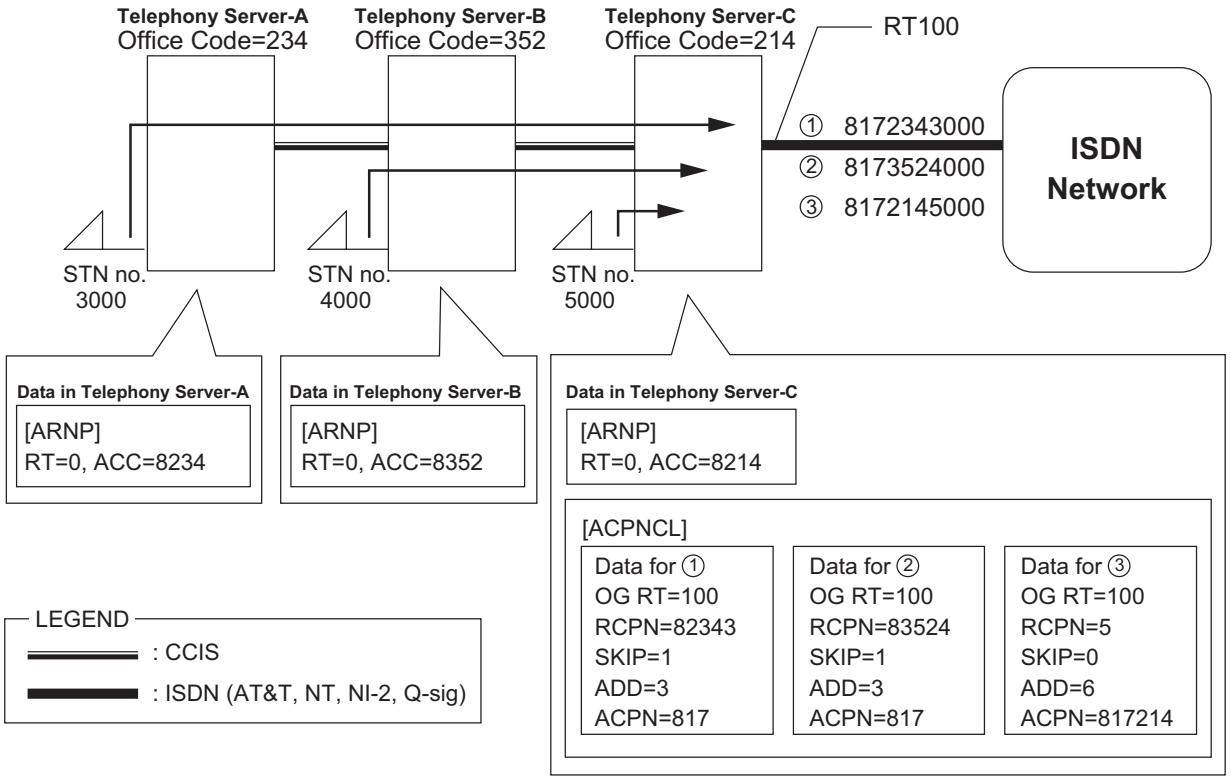
4. PROGRAMMING

(1) When programmed at non-FCCS node (stand-alone system):

STEP: ACPNCL -
OG RT: Outgoing External Route Number
RCPN:Calling party number changed by this service (1~24 digits.)
* Not necessary to assign the whole digits of numbers. See item (5) in Service Conditions.
SKIP: Number of Skip Digits (0~24)
ADD: Number of digits to be added to the calling party number (0~24)
ACPN: Number to be added (up to number of digits assigned at "ADD", max.24 digits)

[Example Data]

An example for the call originated through CCIS line to the corresponding ISDN network.



(2) When programmed at FCCS node:

STEP: ACPNCN -
OG LGRT:Outgoing External Logical Route Number
RCPN:Calling party number changed by this service (1~24 digits.)

Note: Not necessary to assign the whole digits of numbers. See item (5) in Service Conditions.

SKIP: Number of Skip Digits (0~24)
ADD:Number of digits to be added to the calling party number (0~24)
ACPN: Number to be added (up to number of digits assigned at “ADD”, max.24 digits)

[C-165] CALLING PARTY CLIR/CLIP CONTROL

1. GENERAL DESCRIPTION

This feature allows a calling party to change the calling party number from a station when originating a call via an ISDN trunk. The calling party number may be sent as original extension number itself or the DID ADDRESSING number (DID addressing number data is used to convert the calling party number when originating a call using CLIR/CLIP service) + SID (Station Identification Number. See [S-91] SID TO NETWORK-PRESENT), and also rejecting to notify the calling party number is available.

- CLIR: Calling Line Identification Restriction
- CLIP: Calling Line Identification Presentation

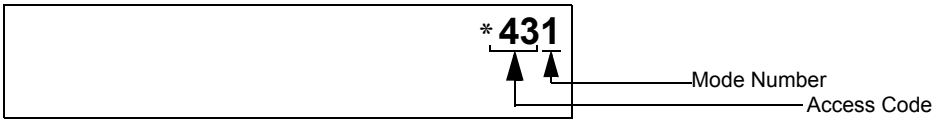
Note: For using this feature for EMEA in ETSI, refer to "SERVICE CONDITIONS FOR EMEA IN ETSI" and "PROGRAMMING FOR EMEA IN ETSI".

2. OPERATING PROCEDURE

In the operating procedure using the Access Code, the Access Code "*43" is used as an example.

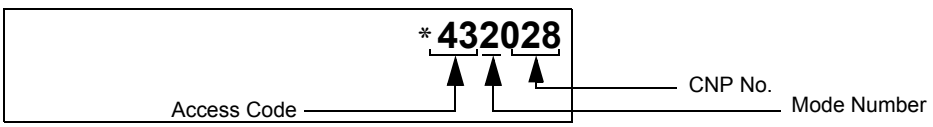
[1] To set to change the original calling party number information

(1) To send the extension number of the calling party
  (a) Lift the handset; Hears the Dial Tone.
  (b) Dial the Access Code "*43" or press the CLIR/CLIP CONTROL Feature key; Hears the Special Dial Tone. **Note 1**
  (c) Dial "1" (this mode number means the extension number is sent as the calling party number) (**Note 2**); Hears the service set tone and the key lamp lights red. LCD displays as shown below when using the Access Code.



  (d) Replace the handset. The LCD display changes to the current time indication.

(2) To send the group number programmed via ACDD, ACNP/ACND:
  (a) Lift the handset; Hears the Dial Tone.
  (b) Dial the Access Code "*43" or press the CLIR/CLIP CONTROL Feature key; Hears the Special Dial Tone. **Note 1**
  (c) Dial "2" (this mode number means the group number data is sent as the calling party number). (**Note 2**) Dial the CNP number (**Note 4**) programmed via ACND or ACNDN command (In this example, "028" is dialed for the data of CNP28): Hears the service set tone (**Note 3**) and the key lamp lights red. LCD displays as shown below when using the Access Code.



  (d) Replace the handset. The LCD display changes to the current time indication.

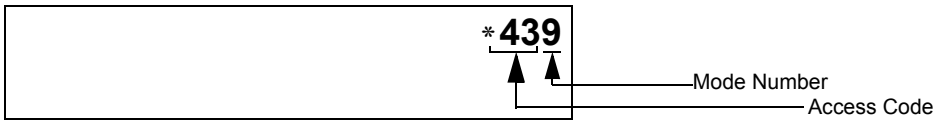
Note 1: If not allowed SFI 172 to the operating station, hears reorder tone instead.

Note 2: The available mode number is 0~2 and 9. If dialing the other number, hears the reorder tone.

Note 3: If the dialed CNP number data was not programmed, hears the reorder tone.

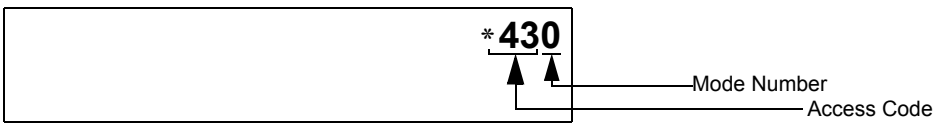
Note 4: CNP number must be assigned by ACND data for this service in addition to CNP number for SID data.

(3) Not to send the calling party number information:
(a) Lift the handset; Hears the Dial Tone.
(b) Dial the Access Code "＊43" or press the CLIR/CLIP CONTROL Feature key; Hears the Special Dial Tone (**Note 5**).
(c) Dial "9" (this mode number means the calling party number is not sent) (**Note 6**): Hears the service set tone and the key lamp lights red. LCD displays as shown below when using the Access Code.



(d) Replace the handset. The LCD display changes to the current time indication.

[2] To cancel this feature:
(a) Lift the handset; Hears the Dial Tone.
(b) Dial the Access Code "＊43" or press the CLIR/CLIP CONTROL Feature key; Hears the Special Dial Tone. **Note 5**
(c) Dial "0" (this mode number means that this feature is canceled) (**Note 6**): Hears the service set tone and the key lamp is extinguished. LCD displays as shown below when using the Access Code.



(d) Replace the handset. The LCD display changes to the current time indication.

[3] To display the setting mode

Note: This operation is available for the terminal in which the CLIR/CLIP CONTROL Feature key is accommodated only.

(a) While this feature is set, the key lamp lights red (LCD displays the current time).
(b) Press the CLIR/CLIP CONTROL Feature key while the terminal is in on-hook status; LCD displays as shown below for five seconds (the display appears on the left side).
- MODE (1) - the calling party number is the extension number
  "1" is displayed on the LCD.
- MODE (2) - the calling party number is the programmed number in CNP data
  "2" + "designated CNP number programmed via the ACND command" + "SID (Station Number Identification)"
- MODE (9) - the calling party number is not sent
  "9" is displayed on the LCD.

Note 5: If not allowed SFI 172 to the operating station, hears reorder tone instead.

Note 6: The available mode number is 0~2 and 9. If dialing the other number, hears the reorder tone.

3. SERVICE CONDITIONS EXCEPT EMEA IN ETSI

(1) This feature is available for the station allowed SFI 172 data.
(2) This feature is available for the terminals as follows.

- Digital terminal
- Analog Station
- Softphone
- IP Terminal
- SIP Multiple Line Terminal

Note: Other terminals are not supported.

(3) This feature can be set, canceled or the setting mode can be displayed from the station in idle status.
(4) When setting this feature to the station that has already been set this feature, the latter set becomes effective (the former set is cleared).
(5) This feature cannot be set using the Soft key of a terminal.
(6) The calling party information to be set using this feature can be sent via the ISDN line assigned the following ARTD data according to the market.

For North America:

ARTD command, CDN65 INT (Interface specification for ISDN)
1 = N-ISDN2
5 = AT&T
7 = NT DMS 100 / DMS 250

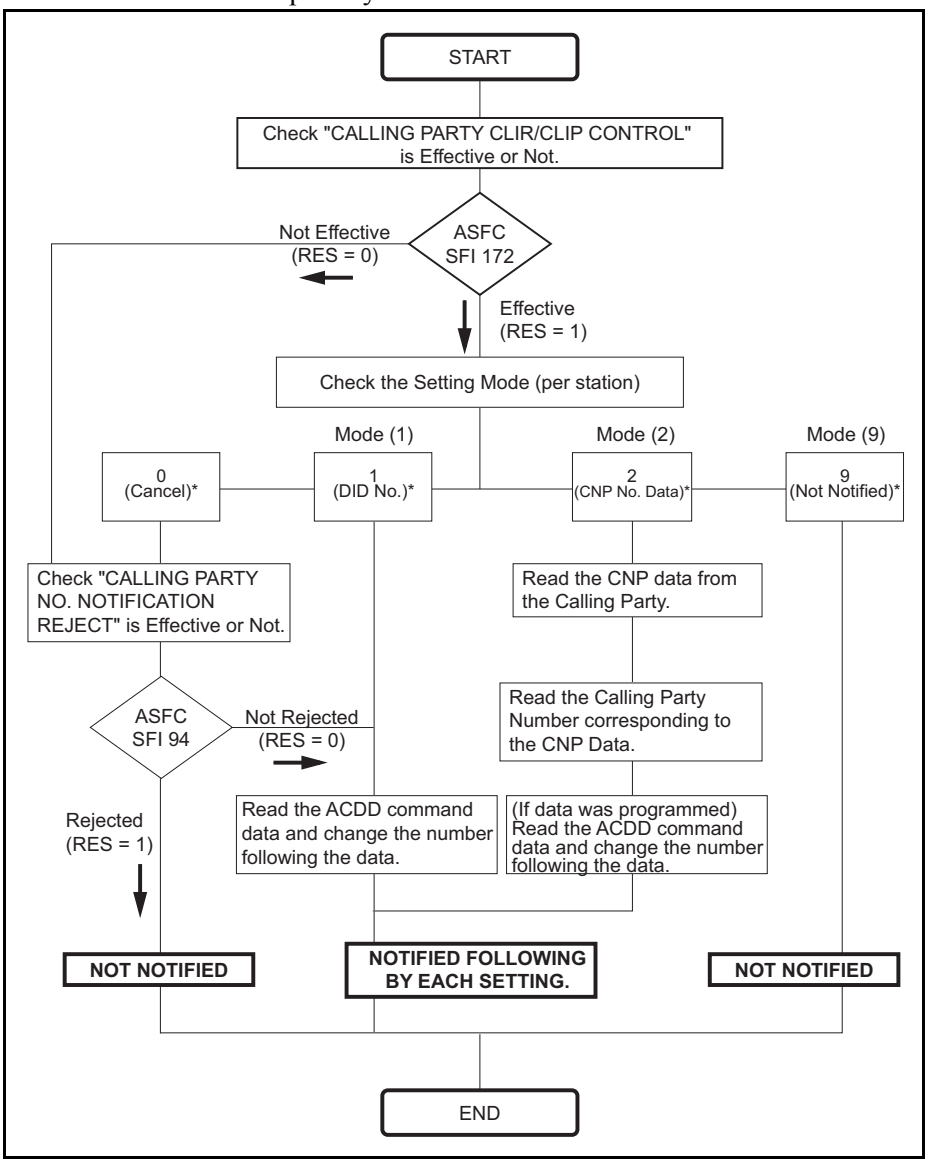
For Australia:

ARTD command, CDN65 INT (Interface specification for ISDN)
2 = Australia TPH1856 specification
4 = PRI (ITU-T/ETSI)

For others:

ARTD command, CDN65 INT (Interface specification for ISDN)
4 = PRI (ITU-T/ETSI)

(7) The flow chart below shows the priority order for data check.



4. SERVICE CONDITIONS FOR EMEA IN ETSI

(1) This feature is available for the station allowed SFI 172 data.
(2) This feature can be set, canceled or the setting mode can be displayed from the station in idle status.
(3) When setting this feature to the station that has already been set this feature, the latter set becomes effective (the former set is cleared).
(4) This feature cannot be set using the soft key of a terminal.
(5) This feature is available for the terminals as follows.

- Digital terminal
- Analog Station
- Softphone
- IP Terminal
- SIP Multiple Line Terminal

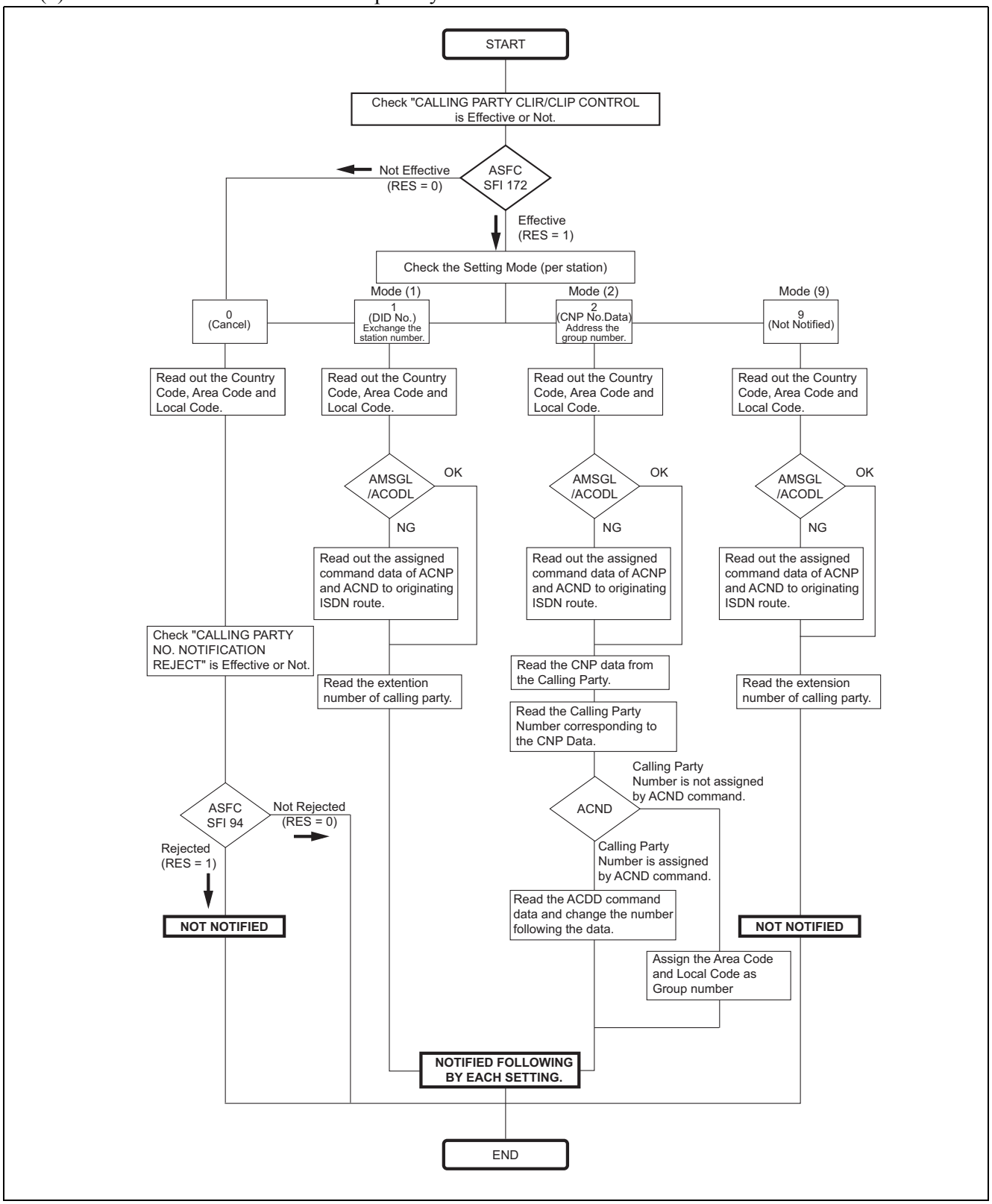
Note: Other terminals are not supported.

(6) The calling party information to be set using this feature can be sent via the ISDN line assigned the following ARTD data.

ARTD command, CDN65 INT (Interface specification for ISDN)
4 = PRI (ITU-T/ETSI)
6 = BRI (ITU-T/ETSI) . **CLIP/CLIR CONTROL Feature key is not supported. Use CLIP/CLIR function with ASFC command SFI=94 (Calling Party's Number Display Reject to ISDN Line) for EMEA.*

(7) In addition, assign the following data for EMEA:
ARTI command, CDN89 REGION = 1 (ETSI ISDN)

(8) The flow chart below shows the priority order for data check.

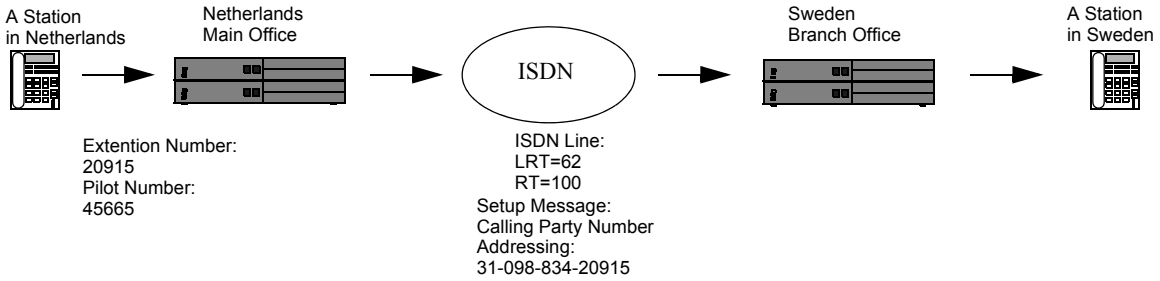


(9) The followings show the examples of calling party number addressing pattern. For the detail of Setting Mode (1, 2, 9), refer to the flow chart in previous page.

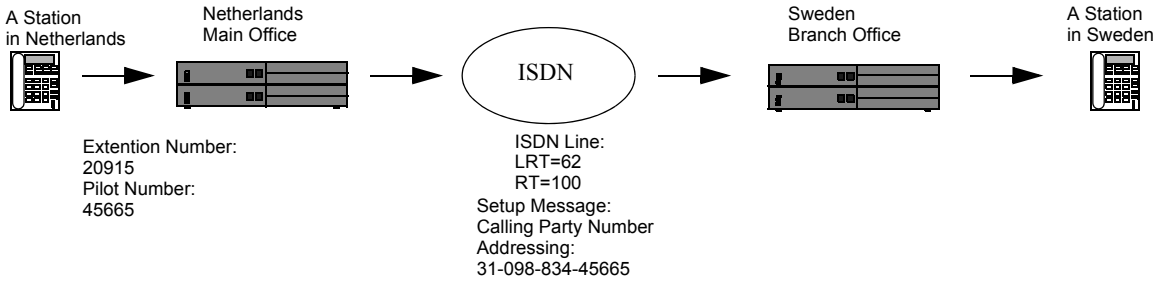
- When a call is originated call from Netherlands to Sweden, system data setting should be as follows:

  ACODL
  NAME = 31 (Netherlands)
  Addressing/COLP: 1
  Area Code: 098
  Local Code: 834
  ACND CNP = 2 CDC: 45665

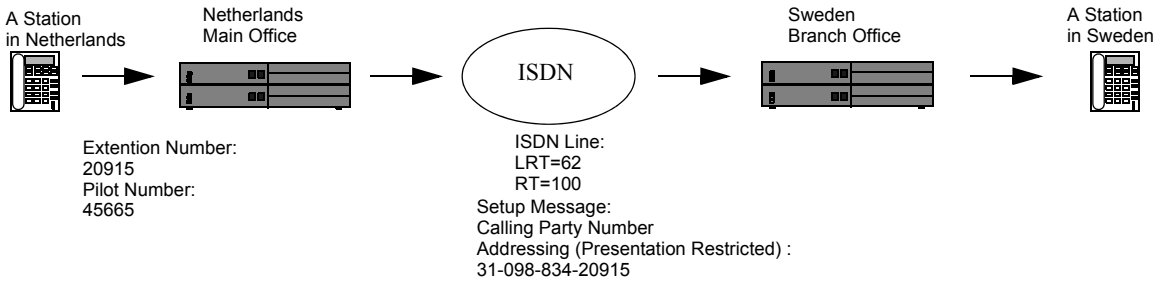
(a) When the station is set as Mode 1 (Displayed as 1 (DID No)).



(b) When the station is set as Mode 2 (Displayed as 2 (CNP No Data)).



(c) When the station is set as Mode 9 (Displayed as 9 (Presentation Restricted)).



(10) This feature setting can be retained even when the station performed each of the following initializations.

- System Initialization
- Circuit Card Initialization
- Terminal Initialization by reassigning the AKYD data **Note 1**

Note 1: If AKYD FKY=130 (CLIR/CLIP Control) is assigned when this feature is already specified, the Feature key will light in red.

(11) Execute office data MEM_HDD command and enable the system to retain the setting data.

(12) This feature is available for FCCS Network.

(13) Setup message (such as TON, NPI, and calling party number) can be modified by using the data settings when ISDN call is originated.

Calling Party Number Information Element (Comprised in SETUP message)

<table>
<tr><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td colspan="8"></td></tr>
<tr><td>0/1</td><td colspan="3"></td><td colspan="4"></td></tr>
<tr><td>1</td><td colspan="2"></td><td colspan="3">0</td><td colspan="2"></td></tr>
<tr><td>0</td><td colspan="7"></td></tr>
</table>

(14) By assigning ARTI/ARTIN, AMSGL/AMSGN, or ACODL/ACODN command, the setting of calling line number information can be changed as following list.

Calling Party Number	Connected Number		
Assigned Value of [AMSGL/N] NPI	**Assigned Value of [ARTI]CDN34.NPI**	**Assigned Value of [ARTI]CDN33.TON**	**CLIP**
E. 164	E. 164 (Fixed)	TON = 0 (Unknown)	ISDN number "1234"
		TON = 1 (International Number)	Country Code-Area Code-Local Office Code-ISDN number "81 - 4 - 7185 - 1234"
		TON = 2 (National Number)	Area Code-Local Office Code-ISDN number "4 - 7185 - 1234"
		TON = 4 (Subscriber Number)	Local Office Code-ISDN number "7185 - 1234"
		Other values	ISDN number "7185 - 1234"
Unknown	NPI = 1 (E.164)	TON = 0 (Unknown)	ISDN number "1234"
		TON = 1 (International Number)	Country Code-Area Code-Local Office Code-ISDN number "81 - 4 - 7185 - 1234"
		TON = 2 (National Number)	Area Code-Local Office Code-ISDN number "4 - 7185 - 1234"
		TON = 4 (Subscriber Number)	Local Office Code-ISDN number "7185 - 1234"
		Other values	ISDN number "7185 - 1234"
	NPI=0 (Unknown)	Unknown (Fixed)	ISDN number "1234"
Other values	Unknown (Fixed)	Unknown (Fixed)	ISDN number "1234"

5. INTERACTIONS

REFERENCE: The calling party number for the Attendant Console/the trunk is notified in the below manner.

(a) Attendant Console

Individual ATT No.	ACNP/ACND (ACNPN/ACNDN), ACID Data	
	Not Assigned	Assigned
Provided	Not Notified	Notified following the programmed data
Not Provided	Not notified	

(b) Trunk

KIND of TRUNK	Calling Party No.			ACNP/ACND (ACNPN/ACNDN), ACID Data	
				Not Assigned	Assigned
MFC	Provided			Original calling party no. is notified	Notified following the programmed data
	Not Provided			Not Notified	
CCIS	Provided			Original calling party no. is notified	Notified following the programmed data
	CPI	0	STA	Not Notified	Notified following the programmed data
		1	ATT	Not Notified	
		2	TRK	Not Notified	
		3	data	Not Notified	Notified following the programmed data
ISDN	Provided			Original calling party no. is notified	Notified following the programmed data
	Not Provided			Not Notified	
THE OTHERS	Provided			Original calling party no. is notified	Notified following the programmed data
	Not Provided			Not Notified	

6. PROGRAMMING EXCEPT EMEA IN ETSI

STEP 1: ASFC - Allow the Service Feature Restriction Class for each station
SFI=172 (CALLING PARTY CLIR/CLIP CONTROL)
RES=1 (Allowed)

STEP 2: ASPA - Assign the Access Code (when using the Access Code).
Assign CI="N: Normal", SRV="SSCA: Service Code Appendix", SIDA=118 (CLIR/CLIP Control)

STEP 3: AKYD - Assign the following data to a Line/Feature key (when using the Access Code).
Assign KYI=1 (function key), FKY=130 (CLIR/CLIP Control)

STEP 4: ACND - Assign the CNP data against the number to be set ID (when the DID number + SID number is sent as the calling party number).

CNP: Calling Number Pattern No. (1-255 for ACND)/(1~999 for ACNDN)
(assign unused number for existing service)
SKIP: Always "0" for this feature
ADD: Number of digits to be added to the DID No.
DC: Number to be set SID

Note: This data is required apart from SID data.

STEP 5: ASYDL- System Data 1, Index 831
Assign Bit 1 = 1: [C-165] Calling Party CLIR/CLIP Control can be used for NI2, AT&T, or NT. **Note 1**

Note 1: For North American Market Only.

7. PROGRAMMING FOR EMEA IN ETSI

STEP 1: ACND/ASFC/ASFCN-Assign the Service Feature Restriction Class for each station
SFI=172 (CALLING PARTY CLIR/CLIP CONTROL)
RES=1 (Allowed)

STEP 2: ASPA - Assign the Access Code (when using the Access Code).
Assign CI="N: Normal", SRV="SSCA: Service Code", SIDA=118 (CLIR/CLIP Control)

STEP 3: AKYD - Assign the following data to a Line/Feature key (when using the Access Code).
Assign KYI=1 (function key), FKY=130 (CLIR/CLIP Control)

STEP 4: ACND/ACNDN-Assign the CNP data against the number to be set ID (when the DID number + SID number is sent as the calling party number).

CNP: Calling Number Pattern No. (1-255 for ACND)/(1-999 for ACNDN)
(assign unused number for existing service)
SKIP: Always "0" for this feature
ADD: Number of digits to be added to the DID No.
DC: Number to be set SID

Note: This data is required apart from SID data.

STEP 5: ARTI/ARTIN - Assign the Trunk Application data
SRV: Additional Service Selection
CDN: 32
Bit 7: For TON and/or NPI

0: Invalid
1: Valid

TON: Type of Number
CDN: 33
Bit 4-6 (TON): Type of Number
0: Unknown
1: International Number
2: National Number
3: Network Specific Number
4: Subscriber Number
6: Abbreviated Number
7: Reserved for Number
Other values: Not used

NPI: Numbering Plan Identification
CDN: 34
Bit 0-3 (NPI) = Number Plan Identification
0: Unknown
1: ISDN / Telephony Numbering Plan (CCITT Recommendation E.164/E.163)
2: Data Numbering Plan (CCITT Recommendation X.121)
3: Telex Numbering Plan (CCITT Recommendation F.69)
4: National Standard Numbering Plan
9: Private Numbering Plan
15: Reserved for Extension
Other values: Not used

COLP: Connected Line Identification Presentation
CDN: 84
0: Invalid
1: Valid

STEP 6: ACODL/ACODN - Assign the Country Code

RT/LGRT: ISDN Route.
Name: Country Code.
Addressing/COLP: Check this item.
Area Code: Area Code.
Local Code: Local Area Code.
Trunk Access: Check this item if you want to add trunk access codes to outgoing calls.
TK_ACC: Trunk Access Code.
International Prefix: Check this item if you want to add International Prefix to outgoing calls.
I_PREFIX Code: Specify an International Prefix Code.
National Prefix: Check this item if you want to add National Prefix to outgoing calls.
N_PREFIX Code: Specify a National Prefix.
Area Code Display: Check this item if you want to make terminals in the same area display the Area Code.
AOC-E: Select this when AOC-E data has been assigned. Do not select this for PNP.
UNIT RATE (Integer): Charge of one unit (integer part) 0-99
UNIT RATE (Decimal): Charge of one unit (decimal part) 0-99

STEP 7: AMSGL/AMSGN - Assign the Number Plan Identification and Type of Number

TDPTN: Time of Day Change Pattern Number (0-7)
OPR: Outgoing Route Selection Pattern Number (0-4)
RA: Route Advancing Order (0-7)

NPI: Numbering Plan Identification (0-15)
0=Unknown
1=ISDN/Telephony Numbering Plan (E.164)
3=Data Numbering Plan (X.121)
4=Telex Numbering Plan (F.69)
8=National Standard Numbering Plan
9=Private Numbering Plan

TON: Type of Number (0-7)
0=Unknown
1=International Number
2=National Number
3=Network Specific Number
4=Subscriber Number
6=Abbreviated Number

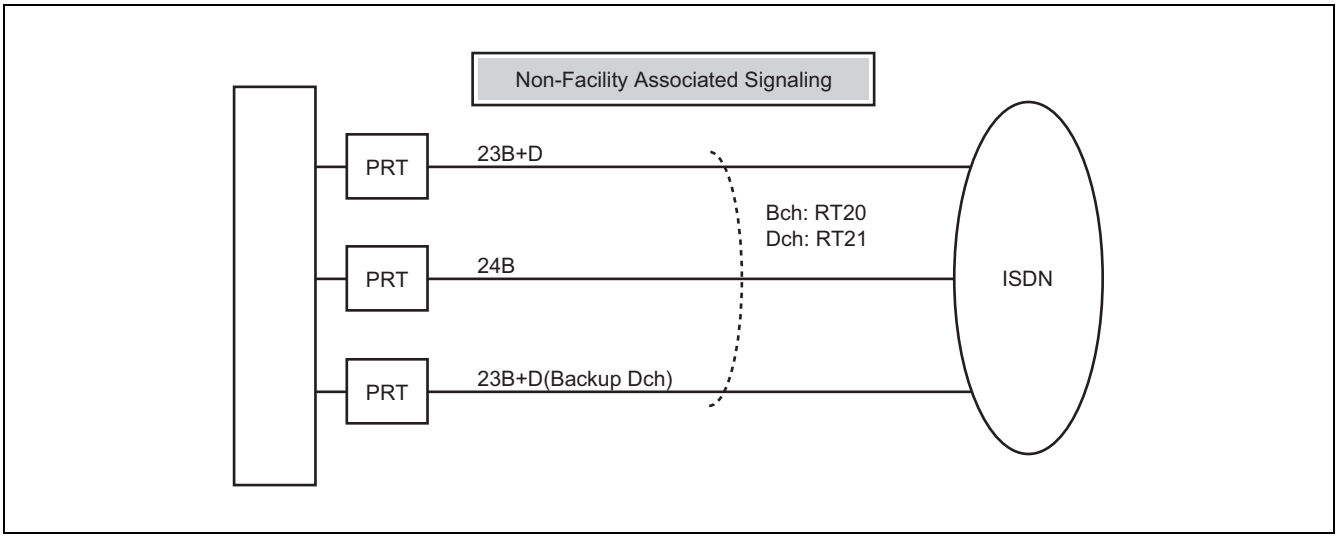
[D-152] D-CHANNEL BACKUP-PRI

1. GENERAL DESCRIPTION

D-channel Backup feature is available in Non-Facility Associated Signaling (for AT&T/NT/N-ISDN2).

Note: Primary Dch must be given the interface ID=0 and Backup Dch must be given the interface ID=1 on a contract with ISDN.

- Changeover to Backup D-channel automatically executes when a link of ACT D-channel is down.
- You can change D-channel from ACT to Backup by using PCPro (The command CDBU).
- Both Primary D-channel and Backup D-channel must be located in the same LP.



2. OPERATING PROCEDURE

- No manual operation is required. (Automatic changeover)
- By the command CDBU of PCPro.

Note: For a changeover, a System Message “23-P” or “23-Q” is output.

3. PROGRAMMING

STEP 1: Assign the numbering (LCR) data to access to ISDN.

STEP 2: ATRK - Assign the trunk data of Bch. (Refer to CHAPTER 3.)
<For example>RT=20 TK1-TK70 (Bch)

STEP 3: ADPC - Assign PC (Point Code) to Bch route and Dch route.
<For example> RT=20 (Bch) PC=20
RT=21 (Dch) PC=20

STEP 4: ACSC - Assign the location of DCH (Dch Handler) and Bch.
<For example>

PIR0

	PRT ① (23B+D)		PRT ② (23B+D)	PRT ③ (24B)

Note: Backup Dch is Located on PRT .

Group No.					
	05	07	09	11	15
	04	06	08	10	14
					13
					12

CSCG=140 (Even No.)	CICG No.= 0	CCH= 00004	—	Dch (DCH)
	1	00008	—	Backup Dch (Backup DCH)
	2	00004	┐	
	3	00004		
	4	00004		Dch (DCH)
	5	00004		
	6	00004		
	7	00004	┘	

CSCG=141 (Odd No.)	CICG No.= 0	CCH= 00004	—	Bch (PRT ①)
	1	00008	—	Bch (PRT ②)
	2	00012	—	Bch (PRT ③)
	3	00004	┐	
	4	00004		
	5	00004		Bch (PRT ①)
	6	00004		
	7	00004	┘	

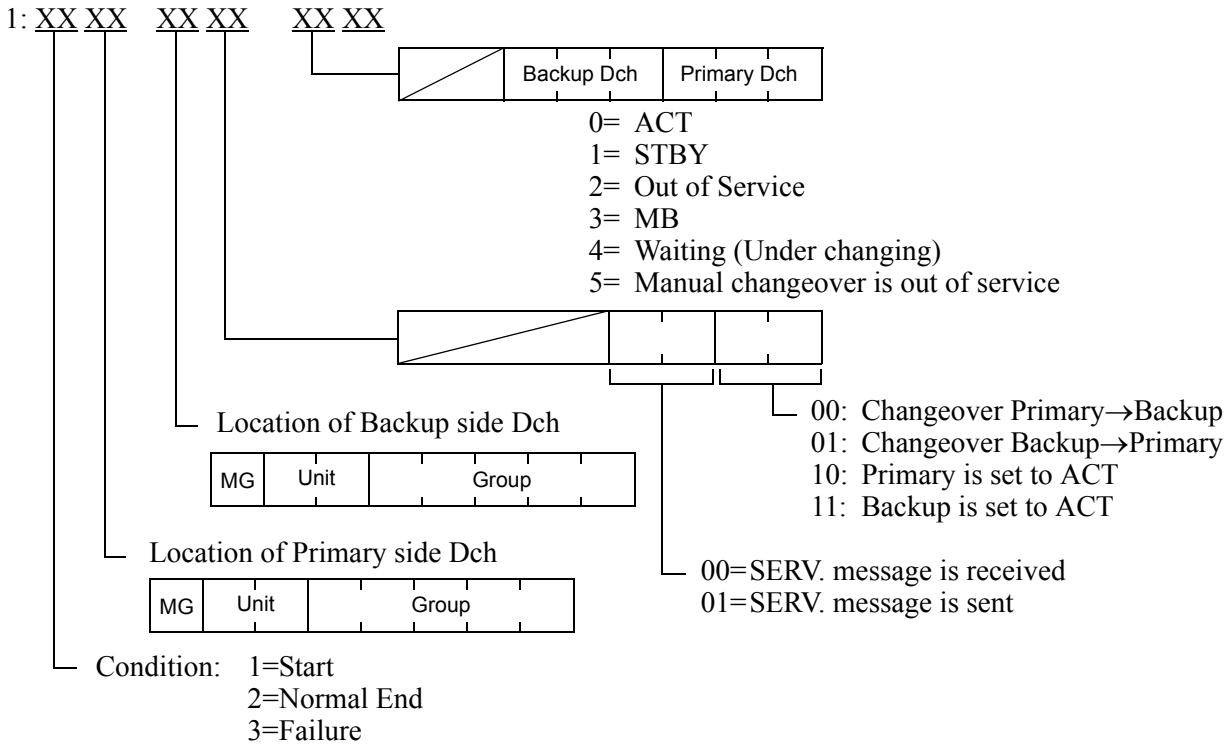
Note that the circuit card initial is required after changing data.

STEP 5: ACIC1 - Assign CSCG corresponding to PC (Point Code).
<For example> PC=20 CSCG=140

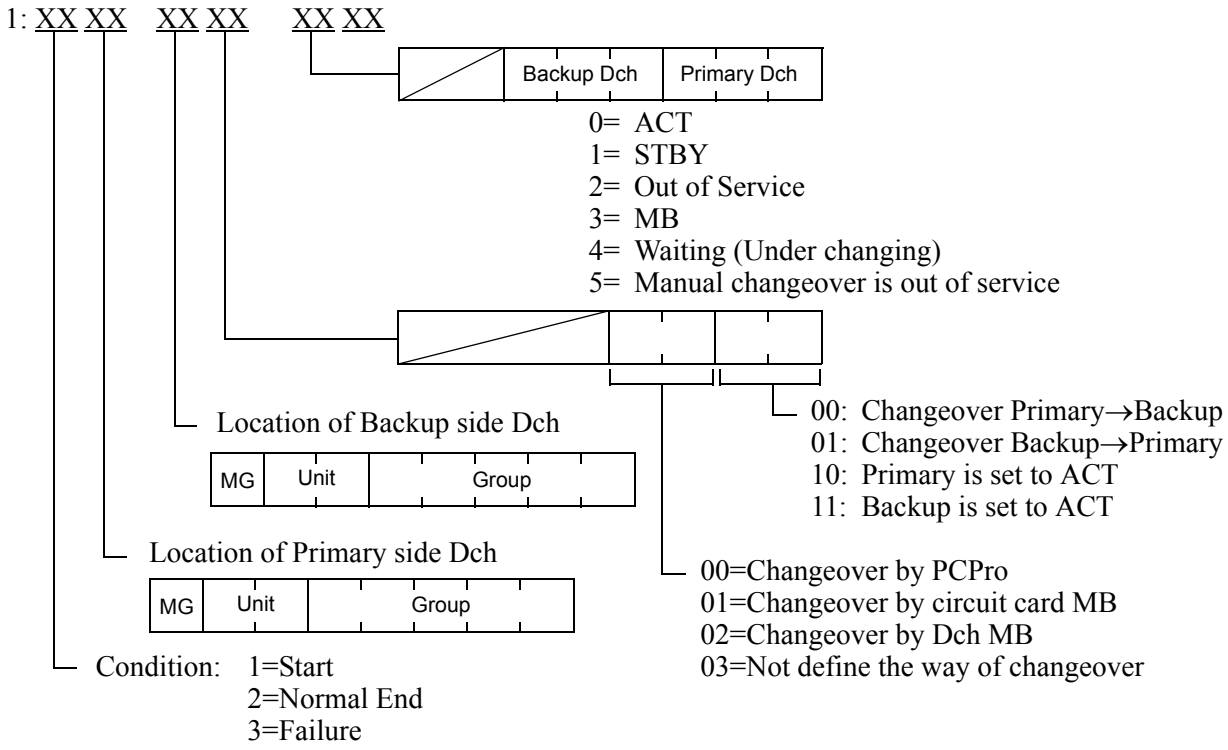
STEP 6: ATRK - Assign the trunk data of Dch.
<For example> RT=21 TK1-TK2 (Dch)
RT=21 TK3-TK4 (Backup Dch)

4. SYSTEM MESSAGE

(1) "23-P" Automatic changeover for Dch Backup



(2) "23-Q" Manual changeover for Dch Backup

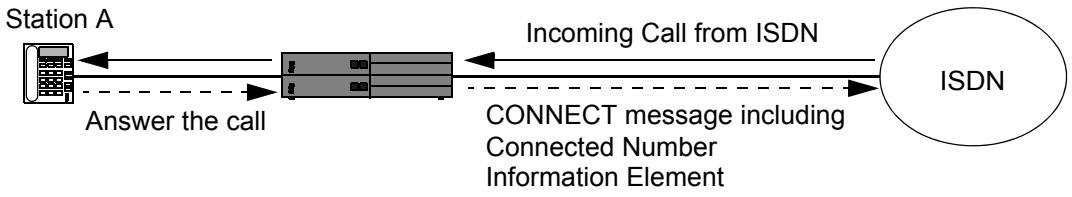


[E-34] ETSI ISDN CONNECTED LINE IDENTIFICATION PRESENTATION/RESTRICTION (COLP/COLR)

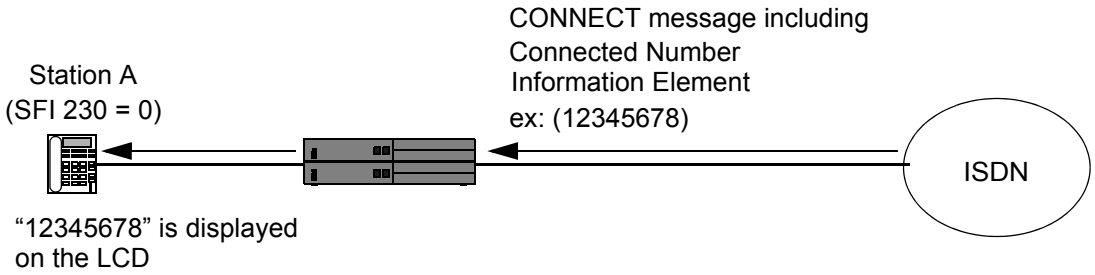
1. GENERAL DESCRIPTION

This feature allows the system to send Connected Number to an ISDN network. Also, when the system receives Connected Number from an ISDN network, the system can display the Connected Number on the appropriate Station's LCD.

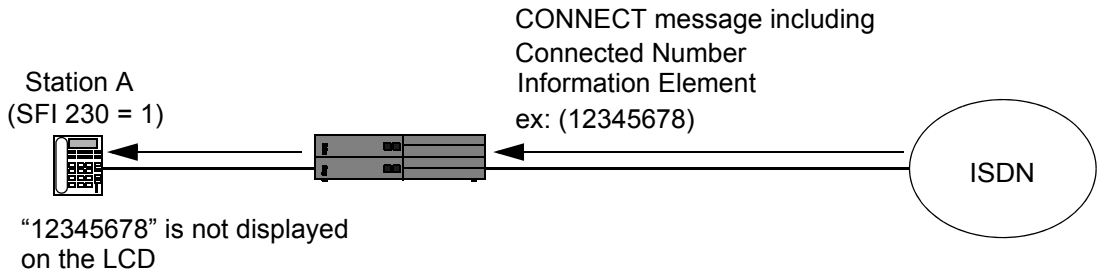
When Station A answers an incoming call from ISDN network:



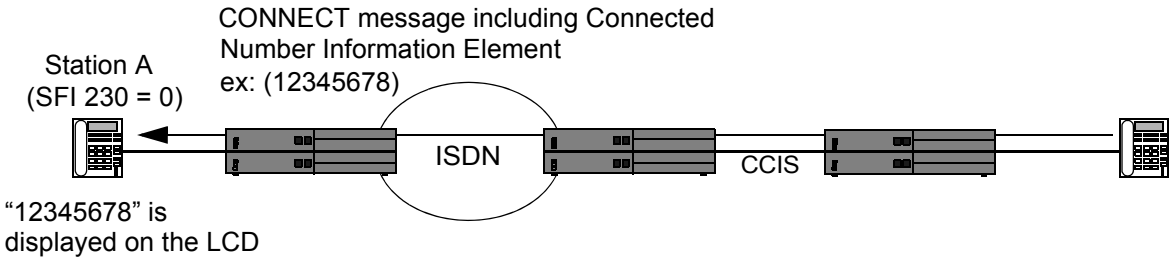
When the system receives CONNECT message including Connected Number Information Element from ISDN network + ASFC SFI 230 = 0 (Connected Number Display is allowed):



When the system receives CONNECT message including Connected Number Information Element from ISDN network + ASFC SFI 230 = 1 (Connected Number Display is restricted):

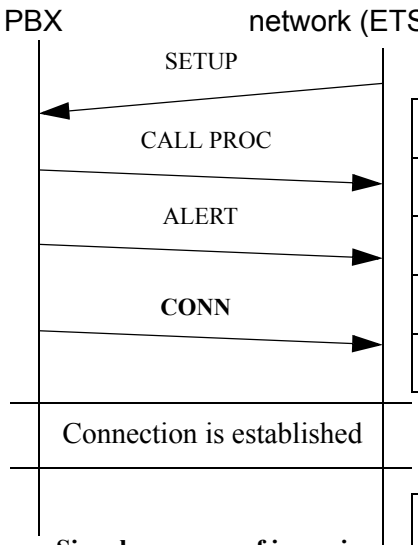


When the system receives CONNECT message including Connected Number Information Element from ISDN network + ASFC SFI 230 = 0 (Connected Number Display is allowed):



Note: COLP: When a Station answers an incoming call from ISDN network, the sending of Connected Number (Called Party Number) to the Calling Party is allowed.
COLR: When a Station answers an incoming call from ISDN network, the sending of Connected Number (Called Party Number) to the Calling Party is restricted.

The following shows a Signal sequence of incoming call from ISDN network and the format of the Connected Number Information Element that is sent by CONNECT message.



Signal sequence of incoming from ISDN network

0	1	0 information	0 element	1 identifier	1	0	0
Length of connected number contents							
0/1 ext	Type of number			Number plan identification			
1 ext	Presentation indication		0	0 Spare	0	Screen indicator	
0 Spare	Number digit (IA5 characters)						

Format of the Connected Number Information Element

0	1	1 information	1 element	1 identifier	1	0	0
1 ext	0	0 Shift	1	0 indicate lock shift	1 New	0	1 codeset
Length of connected number contents							
0/1 ext	Type of number			Number plan identification			
1 ext	Presentation indication		0	0 Spare	0	Screen indicator	
0 Spare	Number digit (IA5 characters)						

Format of the Connected Number Information Element (for Spain)

Note: About Type of Number (TON) and Number Plan Identification (NPI), refer to ARTI/ARTIN Command in "4. PROGRAMMING".

<Extended Addressing/COLP>

Addressing/COLP feature works on a number called Local Number Plan Domain (LNPD) basis. In this method, the office data for Addressing/COLP can be set on an area basis, by using the LNPD. Also, this Extended Addressing/COLP feature is available in the following connections.

Outgoing Route / Incoming Route	ISDN(PRI)	Q-SIG	CCIS	ISDN(BRI)	Station
ISDN(PRI)	X	X	X	X	X
Q-SIG	X	X	X	X	X*
CCIS	X	X	X	X	X
ISDN(BRI)	X	X	X	X	X
Station	X	X*	X	X	-

Note: Only Addressing is available.

X: Available -: Not Available

For more details on Extended Addressing/COLP feature, see the latter part of ETSI ISDN ADDRESSING [E-32].

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This feature is available for both ETSI ISDN Basic Rate Interface (BRI) and ETSI ISDN Primary Rate Interface (PRI).
(2) When Caller Number Information Element (0x6c) is not included in the received SETUP message, the system does not send Connected Number Information Element in CONNECT message.
(3) Connected Number addressing can be valid/invalid in each route by office data assignment ([ARTI]CDN:84 COLP=0/1). When Connected Number addressing is invalid, Connected Number Information Element is not added on CONNECT message.
(4) Connected Number addressing can be allowed/restricted per station class by office data assignment ([ASFC]SFI:230=0/1).
(5) Assign the country code of Spain by office data assignment ([ACODL/ACODN]) to receive Connected Number Information Element for Spain.
(6) For ETSI ISDN addressing [ETSI 300 097], a maximum number of digits for a Connected Number is 20.
(7) This feature cannot be used for the originating/receiving call from ISDN terminal.
(8) Sub-address number of connected party is not supported.
(9) Digital terminal, IP terminal, SIP Multiple Line terminal, Softphone, and SIP Handler Controlled Standard SIP terminal can display Connected Number.

(10) Connected Number displays maximum 24 digits by the office data assignment ([ASYDL]Sys1 Index672 bit1=0/1).

(11) If outgoing office receives a Connected Number and a display restriction (in display identifier) of Connected Number Information Element contained in CONNECT message, the Connected Number is not displayed.

(12) Because Connected Number is addressed from CONNECT message, even if the connected line terminal is shifted by transfer operation after response, the Connected Number is not changed. However, if connected line terminal is shifted by transfer operation on outgoing office, the Connected Number is displayed.

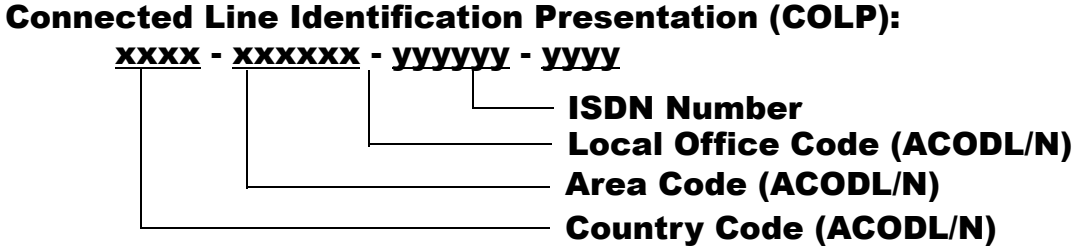
(13) On each terminal, whether Pilot number can be displayed or not for Connected Number is determined by the office data assignment ([ASFC]SFI:233=0/1).

(14) For the tandem connection from CCIS or ISDN to ISDN, Connected Number can be displayed.

(15) The system sends out the Connected Number reflecting the dial-in number when incoming route is assigned as the dial-in number by office data ([ACDD]).

(16) When a system responds to ISDN incoming call, Connected Number information (COL:0x4c) is added to CONNECT message and addressed. Besides, Type of Number (TON), and Number Plan Identification (NPI) of Connected Number is variable, and determined by using office data assignment and the TON of outgoing number information element in the Incoming Setup Message.

The following shows the figure about Connected Number Information sending on the ISDN incoming.



Calling Party Number	Connected Number		
Assigned Value of NPI	**Assigned Value of [ARTI]CDN34.NPI**	**Assigned Value of [ARTI]CDN33.TON**	**COLP**
E. 164	**E. 164 (Fixed)**	**TON = 0 (Unknown)**	**ISDN number** “yyyy”
		TON = 1 (International Number)	**Country Code-Area Code-Local Office Code-ISDN number** “xxxx - xxxxxx - yyyyyy - yyyy”
		TON = 2 (National Number)	**Area Code-Local Office Code-ISDN number** “xxxxxx - yyyyyy - yyyy”
		TON = 4 (Subscriber Number)	**Local Office Code-ISDN number** “yyyyyy - yyyy”
		Other values	**ISDN number** “yyyy”

Calling Party Number	Connected Number		
Assigned Value of NPI	**Assigned Value of [ARTI]CDN34.NPI**	**Assigned Value of [ARTI]CDN33.TON**	**COLP**
Unknown	**NPI = 1 (E.164)**	**TON = 0 (Unknown)**	**ISDN number** “yyyy”
		TON = 1 (International Number)	**Country Code-Area Code-Local Office Code-ISDN number** “xxxx - xxxxxx - yyyyyy - yyyy”
		TON = 2 (National Number)	**Area Code-Local Office Code-ISDN number** “xxxxxx - yyyyyy - yyyy”
		TON = 4 (Subscriber Number)	**Local Office Code-ISDN number** “yyyyyy - yyyy”
		Other values	**ISDN number** “yyyy”
	NPI=0 (Unknown)	**Unknown (Fixed)**	**ISDN number** “yyyy”
	Others values (Except for NPI=0, 1)	**TON = 0 (Unknown)**	**Local Office Code-ISDN number** “yyyyyy - yyyy”
		TON = 1 (International Number)	**Local Office Code-ISDN number** “yyyyyy - yyyy”
		TON = 2 (National Number)	**Local Office Code-ISDN number** “yyyyyy - yyyy”
		TON = 4 (Subscriber Number)	**Local Office Code-ISDN number** “yyyyyy - yyyy”
		Other values	**Local Office Code-ISDN number** “yyyyyy - yyyy”
Other values	**Unknown (Fixed)**	**Unknown (Fixed)**	**ISDN number** “yyyy”

(17) When an ISDN incoming call is terminated to the Station that has been set Call Forwarding-Busy Line/ Don't Answer/All Calls, the forwarding destination number is sent to the Calling Party as Connected Number.

(18) If an incoming call from ISDN network is picked up from a station, the station number is sent to the calling party as Connected Number.

(19) If an incoming call from ISDN network is terminated to a Pilot Number or a member Station of a Hunting Group, the Pilot Number or station number of the member Station is sent to the Calling Party as Connected Number.

4. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN.

STEP 2: ASYD - System Data1, Index 78 Bit 4 Language selection on terminal LCD
0: English (fixed)

STEP 3: ASYDL - System Data1, Index 672, Bit 1
0: Connected Number is displayed up to 16 digits from the first digit.
1: Connected Number is displayed up to 24 digits from the last digit.

STEP 4: ARTI/ARTIN - Assign the Trunk Application data
SRV: Additional Service Selection
CDN: 32
Bit 7: For TON and/or NPI
0: Invalid
1: Valid

TON: Type of Number
CDN: 33
Bit 4-6 (TON): Type of Number
0: Unknown
1: International Number
2: National Number
3: Network Specific Number
4: Subscriber Number
6: Abbreviated Number
7: Reserved for Number
Other values: Not used

NPI: Numbering Plan Identification
CDN: 34
Bit 0-3 (NPI) = Number Plan Identification
0: Unknown
1: ISDN / Telephony Numbering Plan (CCITT Recommendation E.164/E.163)
2: Data Numbering Plan (CCITT Recommendation X.121)
3: Telex Numbering Plan (CCITT Recommendation F.69)
4: National Standard Numbering Plan
9: Private Numbering Plan

15: Reserved for Extension
Other values: Not used

COLP: Connected Line Identification Presentation
CDN: 84
0: Invalid
1: Valid

STEP 5: ASFC/ASFCN - Assign a Service Feature Restriction Class
SFI: 230
0: Connected Number addressing Allowed.
1: Connected Number addressing Restricted.
SFI: 231
0: None.
1: Add International Prefix to originated call and display it.
SFI: 232
0: None.
1: Add National Prefix to originated call and display it.
SFI: 233
0: Responsed terminal number displayed as Connected Number addressing.
1: Pilot number displayed as Connected Number addressing.

STEP 6: ACODL/ACODN - Assign the Country Code
RT: Route Number of ISDN

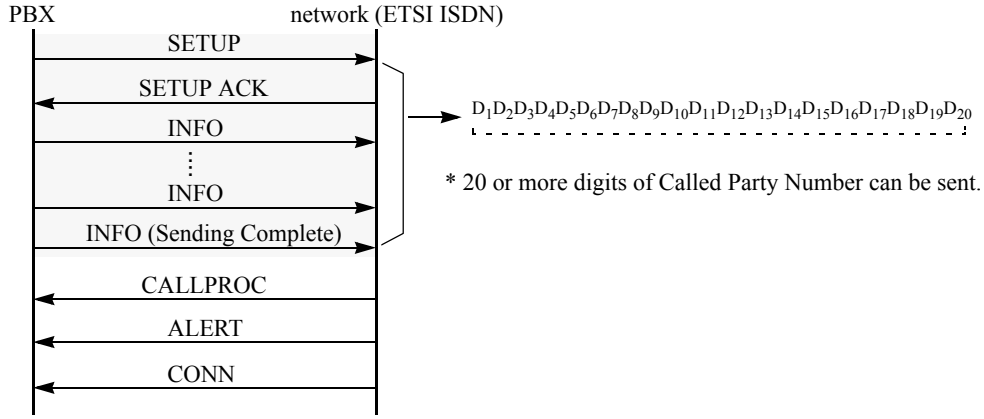
Country Code (1-4 digits): Assign the Country Code for MG.
Area (1-6 digits): Assign the Area Code for MG.
Local Office Code (1-6 digits): Assign the Local Office Code for MG.

[E-35] ETSI OVERLAP SENDING AND RECEIVING

1. GENERAL DESCRIPTION

This feature is twofold; ETSI ISDN Overlap Sending and Receiving. Overlap Sending allows the system to send 20 or more digits of Called Party Number to the network by using overlap-signaling. This can improve the connectivity to ETSI ISDN network, where available digits for SETUP message is 20-digit. Overlap Receiving allows the system to receive an ISDN incoming call by using overlap-signaling.

The following shows an example of normal message sequence (overlap-signaling [sending]).



2. OPERATING PROCEDURE

No manual operation is required once this feature has been programmed.

3. SERVICE CONDITIONS

(1) This feature conforms to the following ETSI recommendations;

- ETS 300 102-1
- ETS 300 102-2
- ETS 300 403-1

(2) This feature is available for both ETSI ISDN Basic Rate Interface (BRI) and ETSI ISDN Primary Rate Interface (PRI).

(3) This feature is available for the route of ETSI ISDN ([ARTI] CDN:89 REGION=1).

<Service Conditions for Overlap Sending>

(4) Refer to the following as to the called party number assigned in SETUP message.

- When only call originating data is assigned:
  Called party number is sent out on dialing Access Code + 1 digit
  e.g.)
  To dial “80-12345” (Access Code: 80), “801” is set to the Called Number Information Element.

- When route data includes Overlap Sending data:
  On condition that the route data Overlap Sending is in service ([ARTI] CDN:87=1) and Number of digits for called number in SETUP message ([ARTI] CDN:88=1-20) are assigned, SETUP message is sent out when the dialed number digits reaches the assigned number of digits for called number.
  (However, SETUP message is not sent out when the number of digits for called number in SETUP message ([ARTI] CDN: 88) is assigned smaller than the Necessary Digit ([ASPA] NND).
  e.g.)
  Dial Number: 80-12345 (Access Code=80)
  Number of digits for called number in SETUP message: 4 digits ([ARTI] CDN:88=4)
  "8012" is set in the Called Number Information Element. *(*1 digit is sent out when [ARTI] CDN: 88=0 is assigned.)*

- When skip digit data is assigned:
  When skip digit is assigned ([AOPR] SKIP), Called Number Information Element applies the digits after skipping the dialed digits. However, called party number of Overlap Sending in SETUP message turns invalid if it is smaller than the number of skipped digits.
  e.g.)
  Dial Number: 80-12345 (Access Code=80)
  Number of skipped digits: 2 digits ([AOPR] SKIP=2)
  Number of digits for called number in SETUP message: 2 digits ([ARTI] CDN:88=2)
  "12" is set in the Called Number Information Element.

- SETUP message is not sent out when the number of digits for called number in SETUP message ([ARTI] CDN:88) is assigned smaller than the Access Code ([ASPA] ACC).
  e.g.)
  Dial Number: 8525000
  Number of skipped digits: 2 digits ([AOPR] SKIP=2)

[ASPA] ACC	85	85	85	852	852	8525	8525
[ARTI] OVRSDC	0	1	2	1	2	0	3
Called Number in SETUP message	2	2	25	2	25	25	250

(5) When sending the last digit of the called party number, Sending Complete Information Element is set to INFO message.
(6) If the caller abandons the call before sending the last digit, DISC message is sent to the network when T304 timer expires.
(7) Only LCRS can be used for originating an ISDN call by this feature.
(8) Number addition or deletion is available by office data assignment.
(9) Even if one of the following messages is received after sending all digits to the network in an overlap manner, the call can be established:
  - Receiving CALL PROC
  - Receiving ALERT and not receiving CALL PROC
  - Receiving CONNECT and not receiving CALL PROC, ALERT

(10) ISDN Reason for Redirection is available when using overlap-sending.
(11) Timing timeout does not work after receiving SETUP ACK.
(12) Timing start is not supported.

<Service Conditions for Overlap Receiving>

(13) This feature is available for all bearer services, speech, 3.1 kHz audio, and unrestricted digital.

(14) On the following conditions, the call is immediately processed:

- Receiving the Sending Complete Information Element
- Receiving the Maximum Necessary Digits (MND) assigned by AINDL/AINDN.
- T302 time-out

(15) Even if Called Party Number Information Element is not included in SETUP message from the network, call termination or tandem connection is available when the Called Party Number Information Element can be obtained by the subsequent INFO messages.

(16) When the number of digits of Called Party Number exceeds the maximum digits (32 digits) on receiving INFO messages from the network, DISC message is sent to the network with Reason Code = 31 (other normal class).

(17) The following are the conditions for T302 timeout:

a.) Operations on T302 timeout are:

- Terminated call is to be forwarded according to the setting of ACFOL/ACFON CF = Call Forwarding - Incomplete Number. Forwarded destination can be selected from ATTCON, station, or monitor number.
- When ACFOL/ACFON is not assigned, DISC message is sent out to ISDN with Reason Code = 01 (unassigned number).
- When ATTCON is selected as the forwarded destination and the system is in night mode, night mode connection is available.
- The call type is CF = ICPT when the forwarded destination is assigned to ATTCON.
- The system follows the setting of MND and DC in the priority order below.

MND	DC	HIGH
AINDN	AINDN	↕
AINDL	AINDL	
AMNDN	ARTDN	
AMNDL	ARTD	
AMND		LOW

- Station in Station Hunting group can be specified as the forwarded destination assigned by ACFOL/ACFON.

4. INTERACTIONS

(1) This feature is available not depending on DIAL PLAN TO SUPPORT IP CENTEREX FUNCTIIONALITY.

(2) This feature is available in an environment where FCCS OVER MULTIPLE PROGRAM VERSIONS is provided

(3) Service conditions for Station Call Termination follow those of ISDN en-bloc Receiving.
(4) Service conditions for Tandem Connection follow those of ISDN en-bloc Receiving.

5. PROGRAMMING

[OVERLAP - SENDING]

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 for the ISDN Basic Data Assignment.)

STEP 2: ASYD - System Data 1, Indexes 464 - 471, ISDN Timer ETSI Specifications

ETSI ISDN TIMER VALUE

Timer	Value (second)	INDEX
T302	15 s	464
T303	4 s	465
T304	30 s	466
T305	30 s	467
T308	4 s	468
T310	60 s	469
T316	60 s	470
T322	4 s	471

STEP 3: ARTI/ARTIN -Assign Overlap Sending data for Bch

CDN: 87 (Divide the digits by LCRS data only)
0/1: Digits are divided by LCRS data only/divided in arbitrary position
CDN: 88 (Number of Digits of Called Number that is set to SETUP)
1 - 20: 1 digit - 20 digits

STEP 4: ASPA/ASPAL/ASPAN - Assign the LCRS Access Code (ACC) and Dummy Route.

ACC: Assign ISDN access code.
CI: “N: Normal”/“H: Hooking” or 3=Failure
SRV: “LCRS: Register Sender LCR”
RT: Assign a dummy route number.

[OVERLAP - RECEIVING]

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3 for the ISDN Basic Data Assignment.)

STEP 2: ASYD - System Data 1, Indexes 464 - 471, ISDN Timer ETSI Specifications

ETSI ISDN TIMER VALUE

Timer	Value (second)	INDEX
T302	15 s	464
T303	4 s	465
T304	30 s	466
T305	30 s	467
T308	4 s	468
T310	60 s	469
T316	60 s	470
T322	4 s	471

STEP 3: ARTI/ARTIN -Assign Overlap Receiving data.

CDN: 86 (OVRRCV)
1: Overlap Receiving is in service.

Note: Assign the Maximum Necessary Digits Data by AINDL/AINDN.

STEP 4: AINDL/AINDN -Assign Incoming Necessary Digits data.

TN: Tenant Number
TON: Type of Number
- 0: Unknown
- 1: International Number
- 2: National Number
- 3: Network Specific Number
- 4: Subscriber Number
- 6: Abbreviated Number

INPC: Incoming Number Pattern Code (Maximum 16 digits)
MND: Maximum Necessary Digits (1-32 digits) **Note 1**
DC: Number of Digits for Development (0-15 digits) **Note 2**, **Note 3**
- 0: Direct-In Termination (DIT)
- 1-14: 1-14 digits
- 15: All digits

Note 1: MND consists of SETUP message and INFO message (MND = 0 is reserved for incoming calls made in a bundle).

Note 2: DC indicates the necessary digits proceeded when the call is terminated.

Note 3: When DC is assigned by ACCDL/ACDDN, DC assigned by ARTD/ARTDN becomes invalid.

STEP 5: ACDDL/ACDDN -Assign Change Digit Code for Dial In Service **Note 4**

D/N: Day/Night Mode

LGRT: Logical Route Number (1-899)
FPC: Fusion Point Code
RT: Route Number
DC: Digit Code (Maximum 8 digits)
CDC: Change Digit Code (Maximum 8 digits)
AD: Additional Dialing
XFR: Transfer Service

Note 4: This data assignment is effective when 1-14 is set as DC of AINDL/AINDN.

STEP 6: ACFOL/ACFON -Assign Forwarded Destination for Call Forwarding - Incomplete Number

TN: Tenant Number of call terminating trunk
CF: Call Forwarding - Incomplete Number
CFI: Attendant Console (ATT), TELN, Monitor
UGN: User group number of forwarding destination **Note 5**
TELN: Telephone number of forwarding destination (Maximum 16 digits) **Note 6**
L_MNO: Local Monitor Number (Maximum 5 digits, used as pilot number) **Note 7**
N_MNO: Network Monitor Number (Maximum 5 digits, used as pilot number) **Note 8**

Note 5: Assign this parameter when Attendant Console (ATT) is not set as CFI.

Note 6: Assign this parameter when TELN is set as CFI.

Note 7: Assign this parameter when Monitor is set as CFI by ACFOL command.

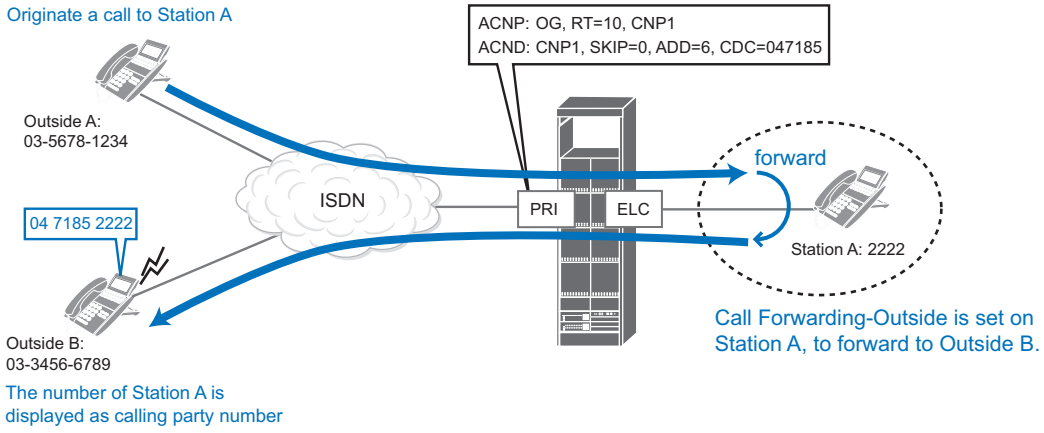
Note 8: Assign this parameter when Monitor is set as CFI by ACFON command.

Note: Assign the Monitor Number which is the same as assigned by AMNOL/AMNON command.

[I-50] ISDN CLI WITH CALL FORWARDING OUTSIDE

1. GENERAL DESCRIPTION

This feature enables the system to send out the number generated in the Self Node as the calling number when transmitting an incoming call to outside by Call Forwarding-All Calls/Busy/Don't Answer and Call Transfer-All Calls in tandem connection, not providing the number of originating party received on the incoming trunk. Using this feature, calling party in own node can be identified clearly to prevent from sending unclear numbers received from other network to outside, and billing information can be counted on the party number basis in own node.



2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

1. This feature is activated in the following conditions:
   a. Available when CDN 78: CLICF=1 is assigned as route class data by ARTI command for the tandem connection to ISDN line (INT=4 or INT=6 **Note 1**) in the features below.
      - Call Forwarding - All Calls/Busy/Don't Answer/Logout (for IP stations)/PS Incoming Incomplete
      - Night Connection-Flexible
      - Call Transfer-All Calls, Blind Transfer to Attendant/Station

      Note 1: INT=6 is available only for EMEA.

   b. Any kind of terminals are allowed to be the intermediate stations in this feature. But for Attendant Console, this feature is available only when receiving Specific Attendant Number as selection signal.

   c. This feature is not available when the route class CDN 66: DC=0 is assigned by ARTD command for the outgoing trunk. (When incoming trunk receives the originating party's number, the number is provided as the calling party's number.)

   d. The following cases are not covered in this feature.
      - When the outgoing route for tandem connection is not ISDN trunk (INT≠4 and INT≠6)
      - No intermediate station is used because tandem connection is directly routed

- OAI/ACD features
- H/M features

2. The calling party's number provided to ISDN line is the same number when the intermediate station originates a call to outside independently.

3. When an incoming call transferred to ISDN line via multiple intermediate stations, which party's number provided to ISDN line can be selected by system data. In this case, the number generated in the specified station is provided.

   ASYD SYS1 Index 20, bit7: 0 = The originating station of the transferred call.
   1 = The station that has set Call Forwarding.

   Note: This system data is used for determining billing party.

   a. In the case of the first intermediate station is specified as the calling party:

      (1) This feature is not available when the incoming trunk cannot receive selection signal, or the selection signal is not station number/Specific Attendant Number.
      - Ring-down termination
      - All the Attendant Consoles are called
      - LDN termination
      - TAS answering

      If this service is not available, the originating party's number received by incoming trunk is provided as the calling number.

      (2) This feature is available for the following patterns in (1) condition. The first intermediate station determined to each pattern is also described.
      - Ring-down, LDN termination, Station call after terminated to Attendant by calling all the Attendant Consoles → The station dialed from Attendant
      - Terminating to station in Night Connection → The station terminated in night mode
      - Direct-In Termination → The specified station for DIT call
      - Remote Access to System, Automated Attendant → The specified station or the Individual Attendant

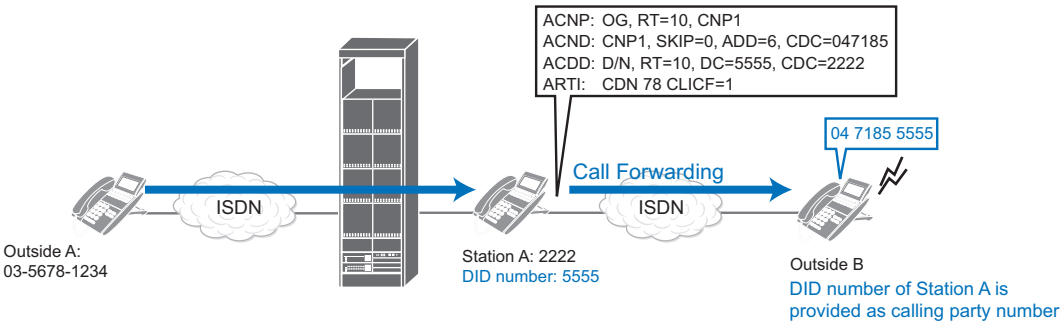
   b. In the case of the last intermediate station is specified as the calling party:
   The last station or the Attendant is determined as the calling party for tandem connection. **Note 2**

   Note 2: If Specific Attendant Number is not assigned to the Attendant Console, this feature is not available and the originating party's number received by incoming trunk is provided as the calling number.

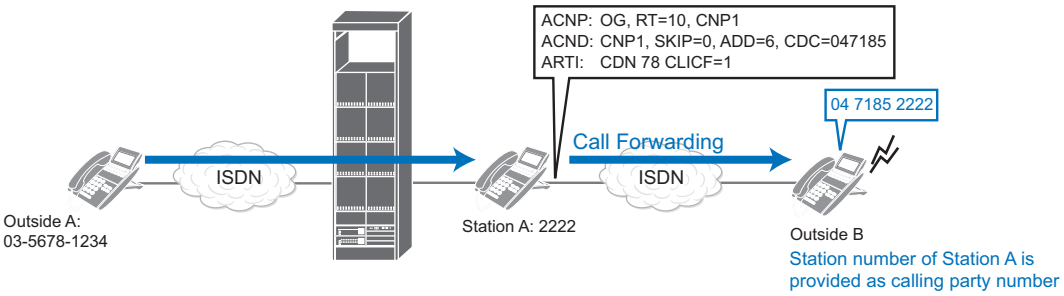
4. Below are some patterns as example for providing calling party number. Calling party number generated in the tandem office is provided to ISDN line when CLICF=1 is assigned to the route class of originating route.

Case 1: Station A transmits an incoming call from Outside A to Outside B using Call Forwarding feature.

[When Direct-In Dialing number is set to Station A]

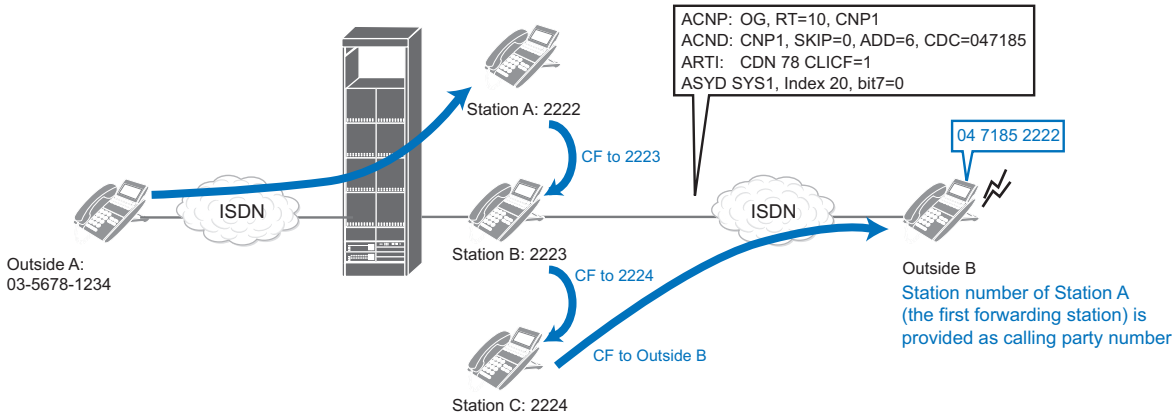


[When Direct-In Dialing number is not set to Station A]

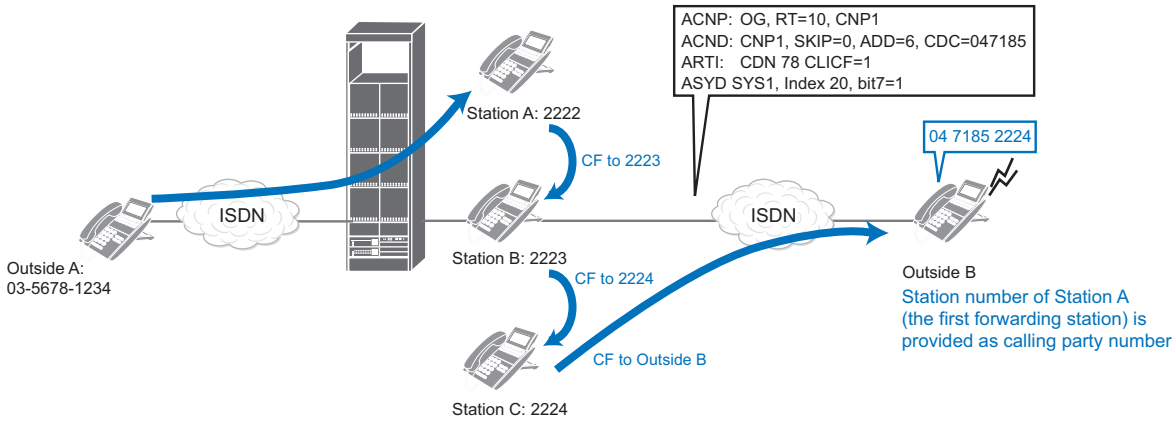


Case 2: An incoming call from Outside A is transmitted to Outside B by Multi-hop setting on Station A, B, and C. (When multiple intermediate stations exist, which station number is provided as calling number, the first or the last forwarding station, can be selected.)

[When the first forwarding station on the tandem office is provided as calling number]

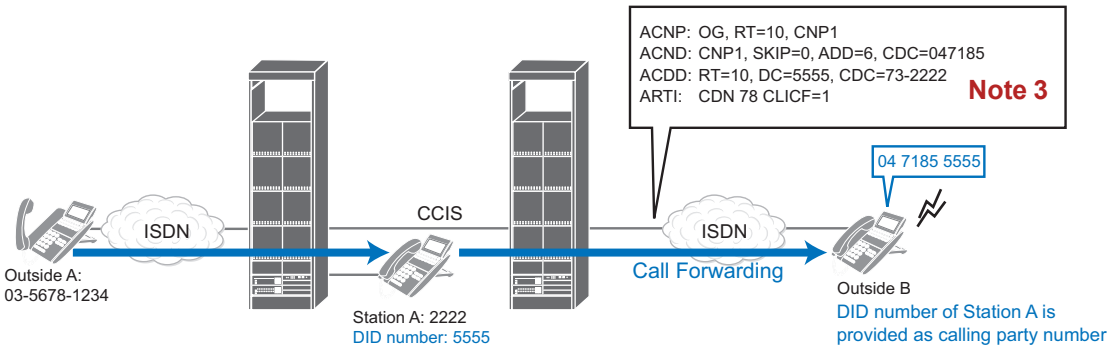


[When the last forwarding station on the tandem office is provided as calling number]



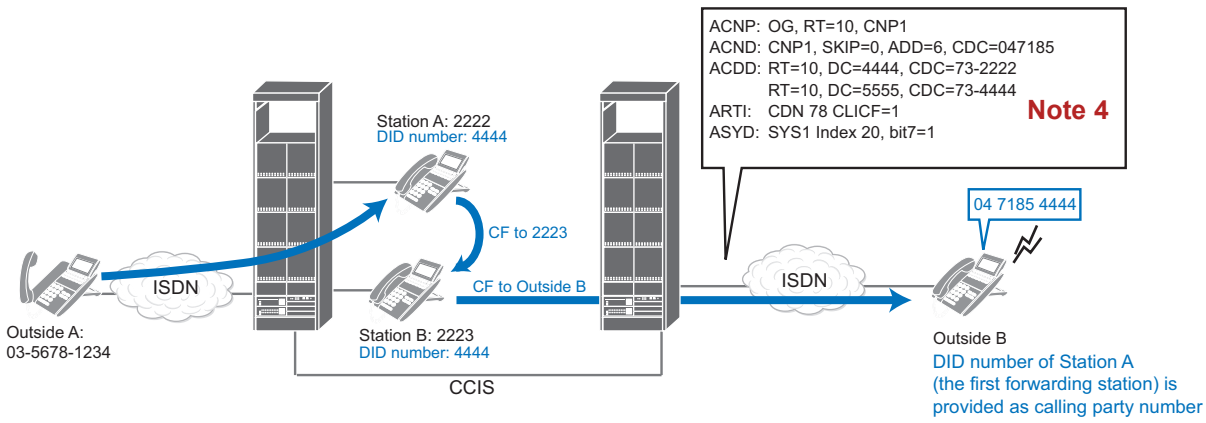
Note: Calling number is provided in the same way when Call Forwarding-All Calls, Busy, Don't Answer, and Blind Transfer are mixed in multi-hop transmitting in the tandem office.

Case 3: Station A (with DID number setting) transmits the incoming call from Outside A to Outside B using Call Forwarding via CCIS.



Note 3: CDC (Change Digit Code) in CCIS routing is set to Office Code + Station Number.

Case 4: Station A (with DID number setting) transmits the incoming call from Outside A to Outside B using Call Forwarding via CCIS.



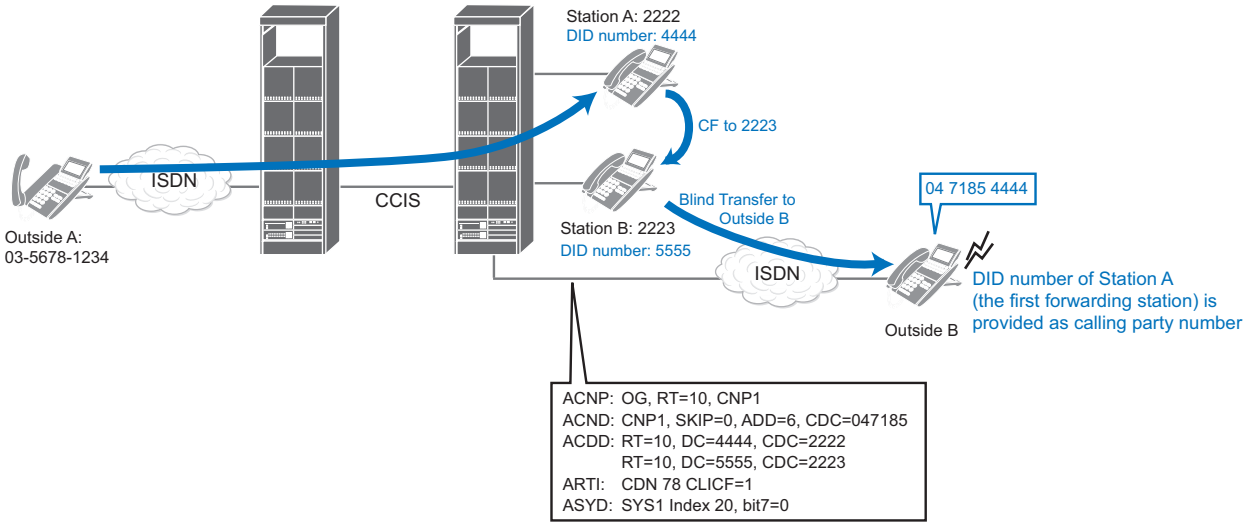
Note: Even if ASYD, SYS1, Index 20, Bit7=1 is assigned (the last forwarding station is provided as originator), Station B number cannot be provided to Outside B because the calling party number is generated from the intermediate number sent by IAI signal of CCIS.

Even if ASYD, SYS1, Index 20 Bit7=0 is assigned (the originating station of the transferred call is provided as the originator), when the last forwarding station (Station B) is forwarded to Outside B by CALL FORWARDING - DON'T ANSWER [C-3], the intermediate number sent by IAI signal of CCIS will be Station B.

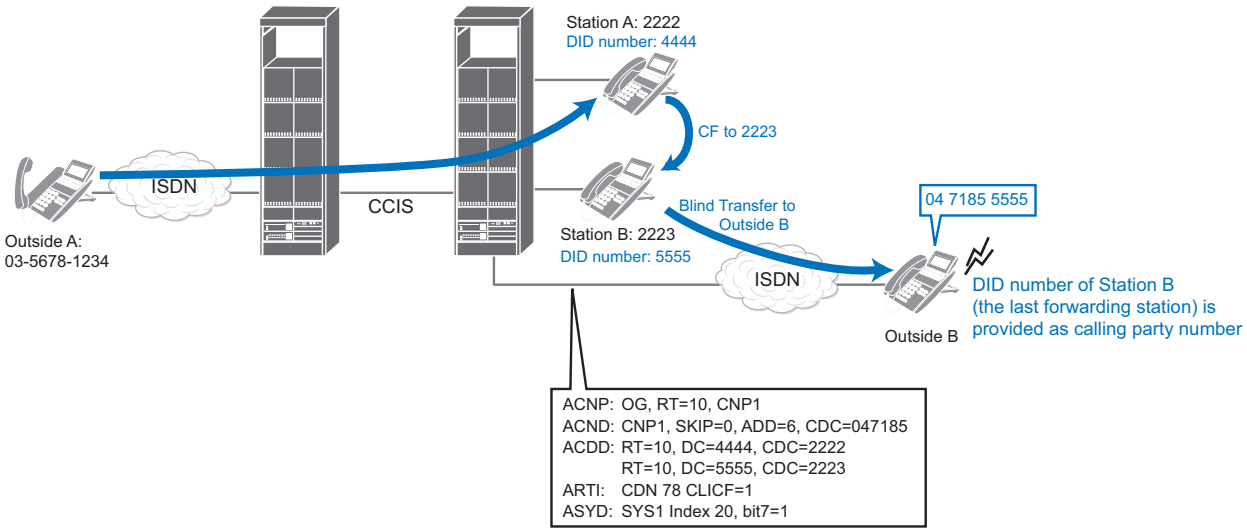
Note 4: CDC (Change Digit Code) in CCIS routing is set to Office Code + Station Number.

Case 5: An incoming call from Outside A via CCIS is transmitted to Outside B by Call Forwarding setting on Station A and B. (When multiple intermediate stations exist, which station number is provided as calling number, the first or the last forwarding station, can be selected.)

[When the first forwarding station on the tandem office is provided as calling number]

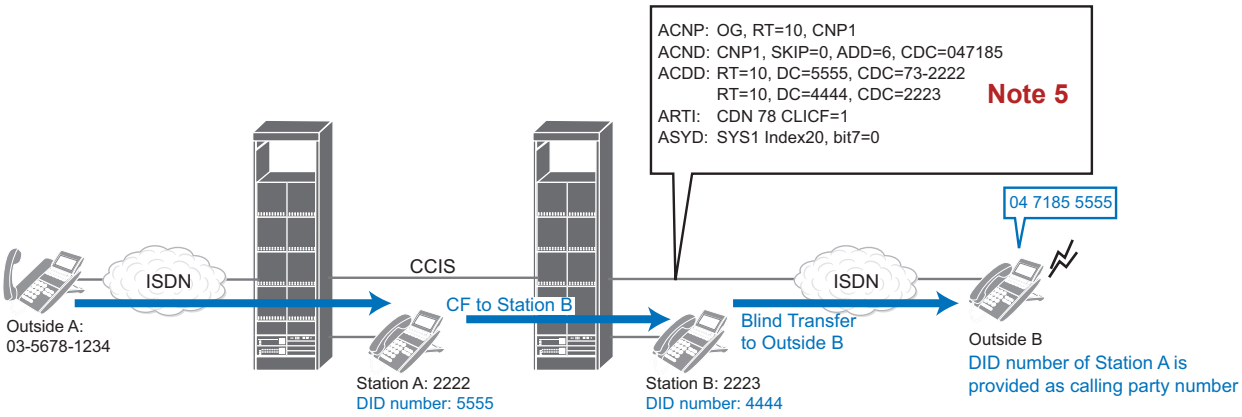


[When the last forwarding station on the tandem office is provided as calling number]

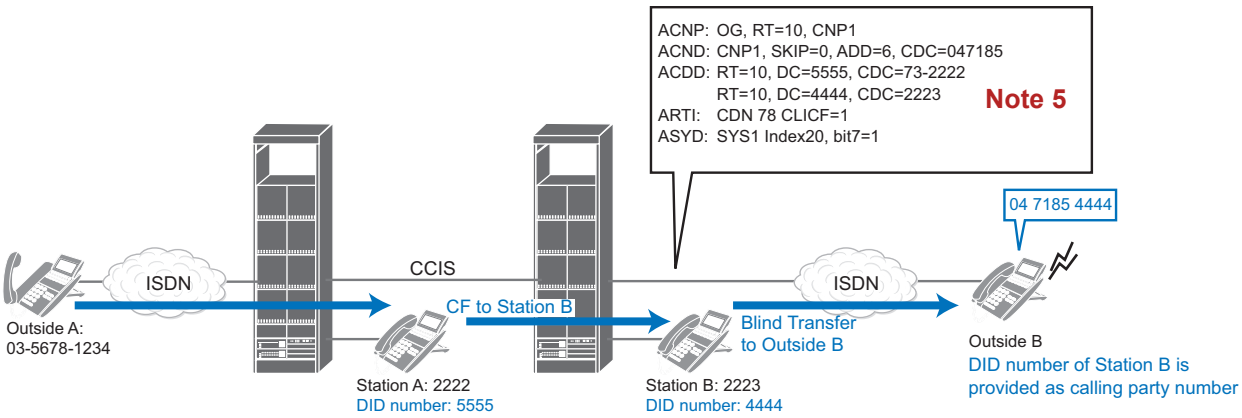


Case 6: Station A transmits an incoming call from Outside A to Station B by Call Forwarding via CCIS, and Station B transmits the call to Outside B by Blind Transfer. Both Station A and Station B have DID setting.

[When the first forwarding station on the tandem office is provided as calling number]



[When the last forwarding station on the tandem office is provided as calling number]



Note 5: CDC (Change Digit Code) in CCIS routing is set to Office Code + Station Number.

4. INTERACTIONS

1. Split Call Forwarding and Call Forwarding Multi-hop are available in this feature. But inter-office Multi-hop between PSTN-Tie Line-PSTN connection is not covered in this feature.
2. Calling Party CLIP/CLIR Control is available in this feature.

5. PROGRAMMING

Assign the following data in addition to the basic office data for ISDN.

STEP 1: ARTD/ARTDN
Assign Route Class data to Bch of Outgoing Route.
CDN 65: INT = 4 or INT = 6

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ARTI/ARTIN
Assign Trunk Application Data to Bch of Outgoing Route.
CDN 78: CLICF 0 = The calling number received from Incoming Trunk is provided to ISDN line when Call Forwarding All Calls/Busy/Don't Answer is set.
1 = The calling number generated in own node is provided to ISDN line.

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: ASYD SYS1, Index 20, bit 7
Specify the billing party when calls are transmitted by Call Forwarding-Outside features
0/1 = Originating party/The station that has set Call Forwarding-Outside

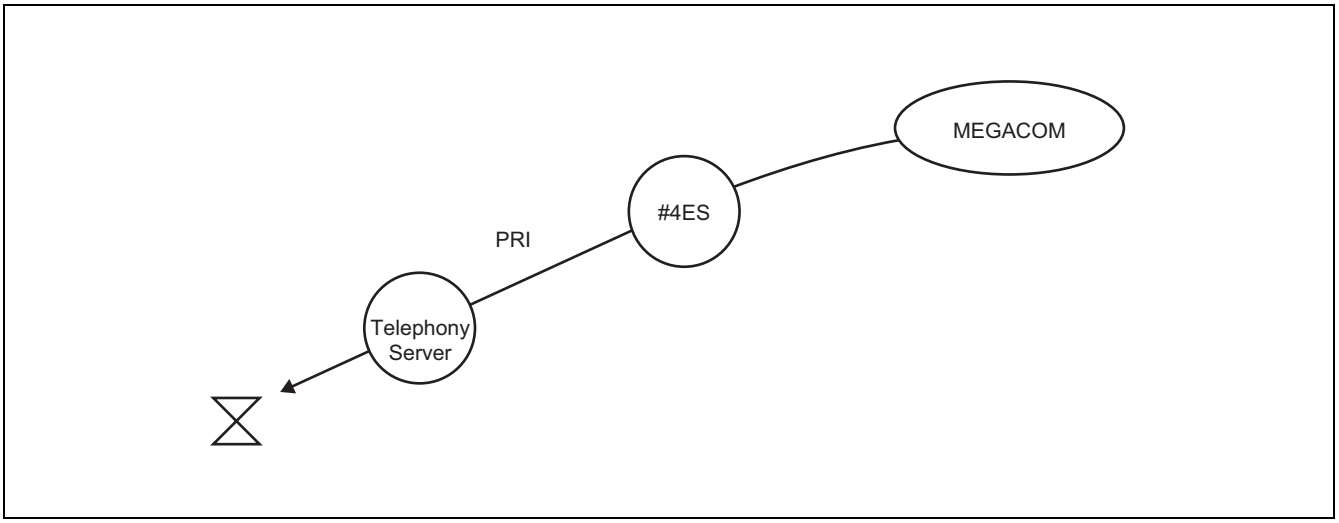
STEP 4: ARRC/ARRCN
Release the restriction between the routes, Incoming Trunk - Outgoing Trunk of ISDN, and Incoming Trunk - Dummy Route.
ICRT: Route Number of the Incoming Trunk [1-255]
OGRT: Route Number of the Outgoing Trunk for ISDN and Dummy Route [1-255]
ARI A-RES: Restriction for tandem connection from PSTN or Tie Line with operator/station assistance
0/1 = Restricted/Allowed
ARI D-RES: Restriction for direct tandem connection from PSTN or Tie Line
0/1/2 = Restricted/Allowed/Toll connection is restricted

STEP 5: ASTD
Assign the State Translation data on system basis. Release the restriction of tandem connection including COT line.
STM: 0
STS: 2
ST: 1 = Allowed (depending on ARRC setting)

[M-76] MEGACOM ACCESS

1. GENERAL DESCRIPTION

AT&T's MEGACOM (WATS) network can be used.



Note: The available WATS service is limited to MSB (Maximal Subscribed WATS Band).

Note: The parameter band service where zone is specified on a call-by-call basis is provided by the #5ESS only.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

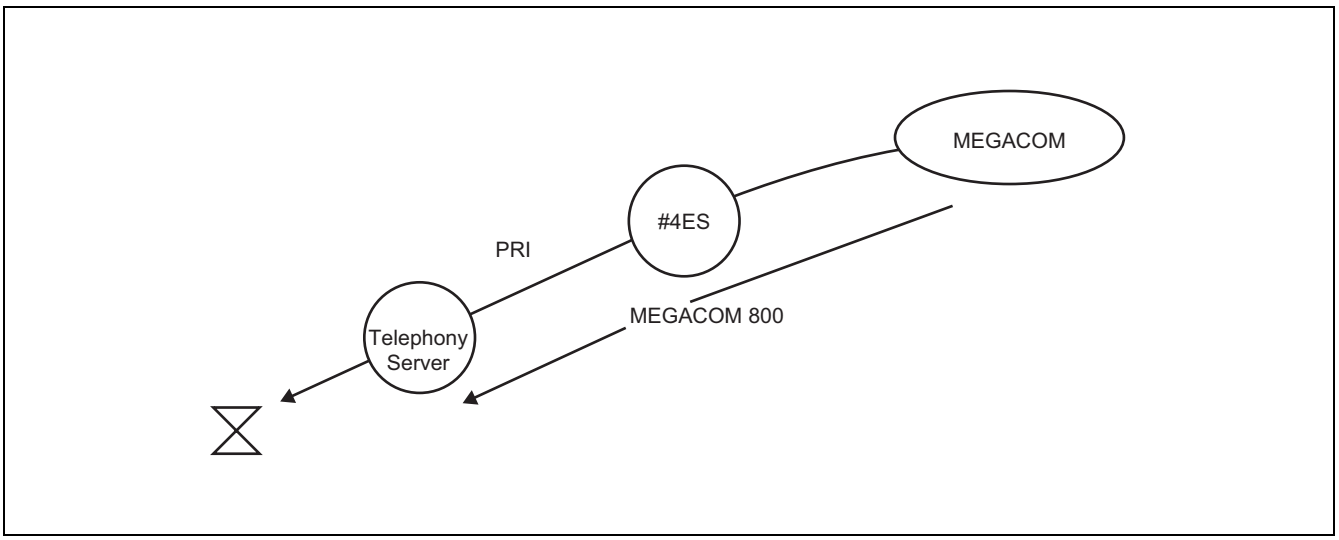
In addition to the Basic Office Data for ISDN, the following data should be assigned.

STEP: ACBC - Select CODE3 (=MEGACOM) in this command.

[M-77] MEGACOM800 SERVICE

1. GENERAL DESCRIPTION

AT&T's MEGACOM 800 (INWARD WATS) network can be used.



Note: When a call has terminated by the CALL-BY-CALL SERVICE SELECTION [C-105], no indication to distinguish it from a call termination by other services is made to a terminating terminal.

Note: To identify a terminal to which a call has terminated, data must be registered using the "ACDD" command so that a call-terminating terminal can be identified by a terminating number.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

In addition to the Basic Office Data for ISDN, the following data should be assigned.

STEP: ACBC - Select CODE2 (=MEGACOM 800) in this command.

[N-40] NON-FACILITY ASSOCIATED SIGNALING-PRI

1. GENERAL DESCRIPTION

A single D-channel can control more than the 23 bearer channels (23 B-channels) resident on the same T1 facility.

Capacity: Max. 167B + D (1-IMG system)
Max. 191B + D (4-IMG system)

Note: Please use this feature together with D-CHANNEL BACKUP service considering an improvement of a reliability.

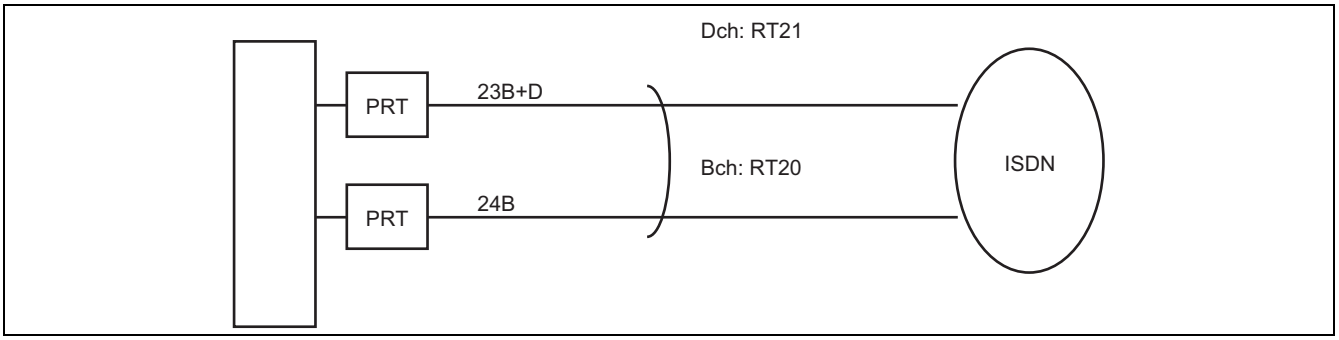
2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

(1) All B-channels use the Common Route Number.

Note: Circuit cards used for the Common Route should be accommodated in the same LP.



STEP 1: Assign the numbering (LCR) data to access to ISDN.

STEP 2: ARTD - Assign the route data. (Refer to CHAPTER 3.)

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: ATRK - Assign the trunk data for Bch. Note that the trunk data for Dch is set after STEP 6: ACIC1 command assignment. (Refer to CHAPTER 3.)
Assign 47 Bch to RT20 in this example.

STEP 4: ADPC - Assign PC (Point Code) to Bch route and Dch route.
<For example> RT=20 (Bch) PC=20
RT=21 (Dch) PC=20

Note: In an FCCS network, when Interface ID (0-7) exceeds 3, Interfaces 4-7 require Network level programming (ADPCN, ACIC1N, and ACSCN).

STEP 5: ACSC - Assign the location of DCH (Dch Handler) and Bch.
<For example>

PIR0

	PRT (23B+D)		PRT (24B)

Group No.				
	05	07	09	11
	04	06	08	10

CSCG=140 (Even No.)	CICG No.= 0	CCH= 00004	Dch (DCH)
	1	00004	
	2	00004	
	3	00004	
	4	00004	
	5	00004	
	6	00004	
	7	00004	

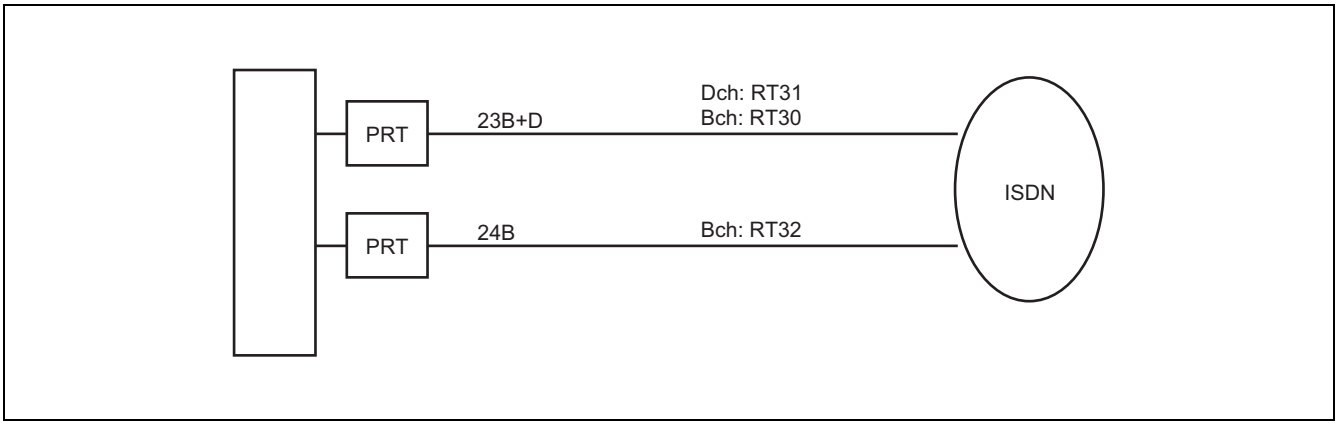
CSCG=141 (Odd No.)	CICG No.= 0	CCH= 00004	— Bch (PRT for 23B+D)
	1	00008	— Bch (PRT for 24B)
	2	00004	Bch (PRT for 23B+D)
	3	00004	
	4	00004	
	5	00004	
	6	00004	
	7	00004	

Note that the circuit card initial is required after changing data.

STEP 6: ACIC1 - Assign CSCG corresponding to PC (Point Code).
<For example> PC=20 CSCG=140

STEP 7: ATRK - Assign the trunk data of Dch.

(2) Each B-channel uses the Individual Route Number.



STEP 1: Assign the numbering (LCR) data to access to ISDN.

STEP 2: ARTD - Assign the route data. (Refer to CHAPTER 3.)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

STEP 3: ATRK - Assign the trunk data of Bch. (Refer to CHAPTER 3.)
Assign 23 Bch to RT30, 24 Bch to RT32 in this example. Note that trunk data assigned in this step is for Bch only. Dch's trunk data should be set after STEP 6: ACIC1 command assignment.

STEP 4: ADPC - Assign PC (Point Code) to Bch route and Dch route.
<For example>RT=30 (Bch)PC=20
RT=31 (Dch) PC=20
RT=32 (Bch) PC=20

STEP 5: ACSC - Assign the location of DCH (Dch Handler) and Bch.
<For example>

PIR0

	PRT (23B+D)		PRT (24B)

Group No.				
	05	07	09	11
	04	06	08	10

CSCG=140 (Even No.)	CICG No.= 0	CCH= 00004	Dch (DCH)
	1	00004	
	2	00004	
	3	00004	
	4	00004	
	5	00004	
	6	00004	
	7	00004	

CSCG=141 (Odd No.)	CICG No.= 0	CCH= 00004	— Bch (PRT for 23B+D)
	1	00008	— Bch (PRT for 24B)
	2	00004	Bch (PRT for 23B+D)
	3	00004	
	4	00004	
	5	00004	
	6	00004	
	7	00004	

Note that the circuit card initial is required after changing data.

STEP 6: ACIC1 - Assign CSCG corresponding to PC (Point Code).
<For example>PC=20CSCG=140

STEP 7: ATRK - Assign the trunk data of Dch.

[Q-5] Q.SIG/ISDN INTERNATIONAL GATEWAY SWITCHING

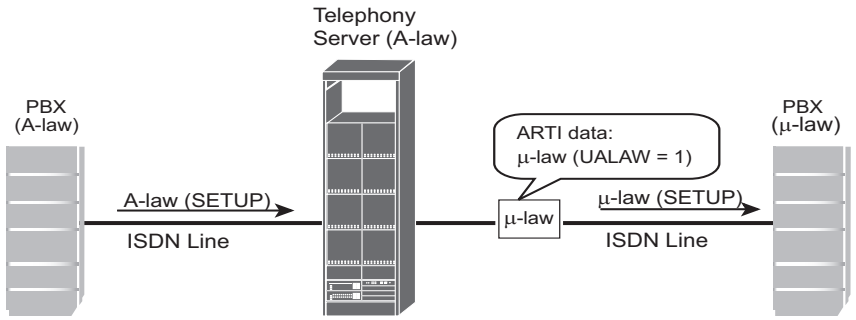
1. GENERAL DESCRIPTION

This feature allows converting a User Information Layer 1 Protocol (μ-law/A-law) of call originated to ISDN line according to the office data. See the figure below for some examples.

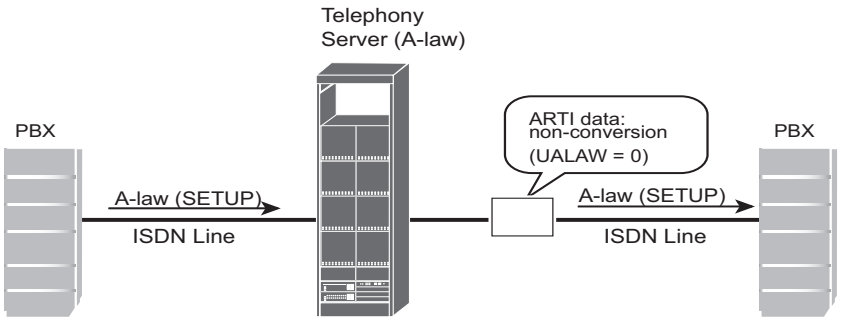
[Case 1: Conversion in tandem office]

(a) Incoming Call from ISDN line (SETUP message is received)

When μ-law is selected as output Layer 1 protocol to outgoing trunk.

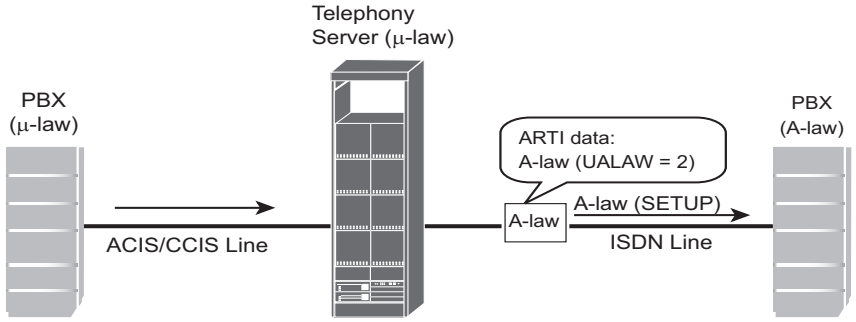


When non-conversion is selected to outgoing trunk (the Layer 1 protocol is output as received).



(b) Incoming Call from ACIS/CCIS line (SETUP message is not received)

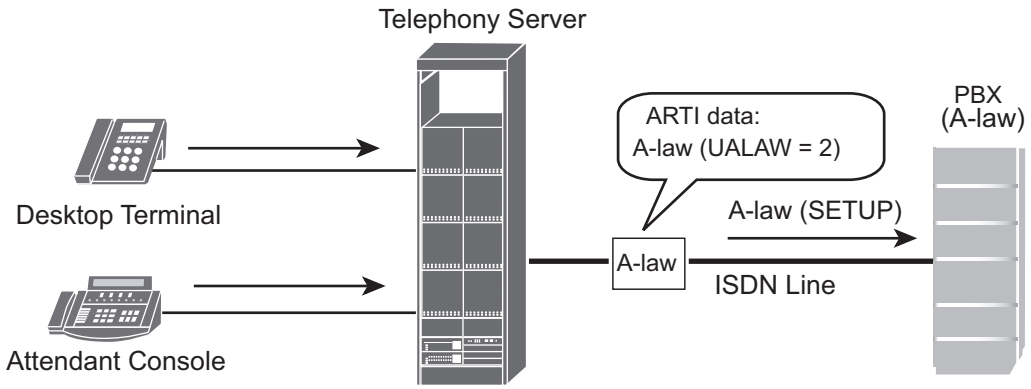
When A-law is selected as output Layer 1 protocol to outgoing trunk.



[Case 2: Conversion in Originating Office]

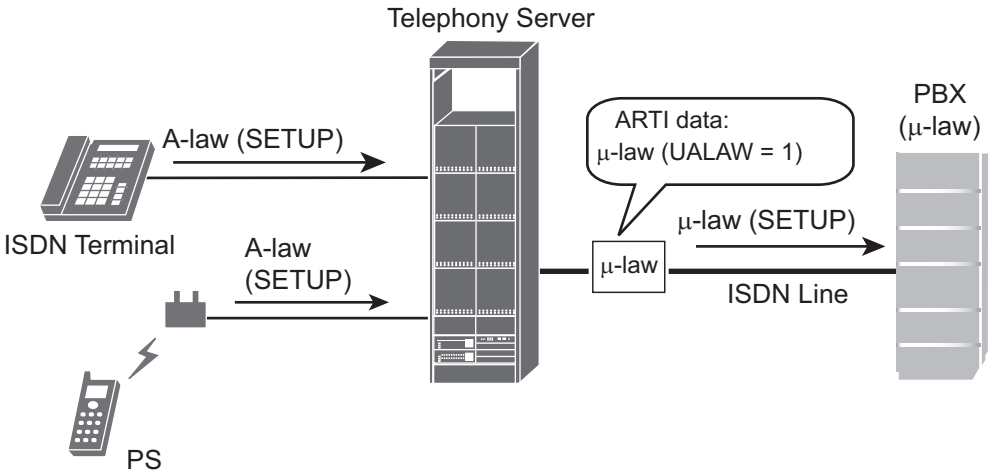
(a) Outgoing Call from Desktop Terminal/ATT (SETUP message is not sent)

When A-law is selected as output Layer 1 protocol to an outgoing trunk.



(b) Outgoing Call from ISDN Terminal/PS (SETUP message is sent)

When μ-law is selected as output Layer 1 protocol to an outgoing trunk.



2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This feature is available for a call to ISDN line (This feature does not support the station-to-station call nor an outgoing call to CCIS line).

(2) Only user information Layer 1 protocol included with Bearer Capability (BC) information element is converted. Layer 1 protocol included with Low Layer Capability (LLC) and the other information element are not applied.

(3) When the protocol is selected as AUSTRALIA in the route class data (assigned in ARTD, CDN65: INT) and the coding standard is "00" in BC information element, call in A-law only can be connected (call in μ-law is disconnected).

(4) This feature is activated when SETUP message is sent.

(5) This feature is available only when user information Layer 1 protocol is A-law or μ-law (JT-V110/X30 or JT-X31, etc. cannot be converted).

(6) The user information Layer 1 protocol is not added to SETUP message if the received BC information element does not contain the Layer 1 protocol.

(7) Law conversion rule varies depending on the kind of outgoing trunk/terminal and incoming trunk/terminal in the office where the law conversion is activated. See the table below.

Reference: Output Layer 1 Protocol

-: Not Applicable

OG \ IC		TRUNK					TERMINAL		
		ISDN trunk			CCIS trunk	ACIS trunk	ISDN terminal (ILC), PS	PRI terminal	Desktop terminal/ Analog station, ATT
		ARTI: non-conversion	ARTI: μ-law	ARTI: A-law					
ISDN trunk	ARTI: non-conversion	Non-Conversion	Non-Conversion	Non-Conversion	Non-Conversion	Note 1	Non-Conversion	Non-Conversion	Note 1
	ARTI: μ-law	μ	μ	μ	μ	μ	μ	μ	μ
	ARTI: A-law	A	A	A	A	A	A	A	A
CCIS trunk		Non-Conversion	Non-Conversion	Non-Conversion	Non-Conversion	Note 1	Non-Conversion	Non-Conversion	Note 1
ACIS trunk		–	–	–	–	–	–	–	–
ISDN terminal (ILC)		Note 2	Note 2	Note 2	Note 1	Note 1	Non-Conversion	Non-Conversion	Note 1
PRI terminal	ARTI: non-conversion	Non-Conversion	Non-Conversion	Non-Conversion	Non-Conversion	Note 1	Non-Conversion	Non-Conversion	Note 1
	ARTI: μ-law	μ	μ	μ	μ	μ	μ	μ	μ
	ARTI: A-law	A	A	A	A	A	A	A	A
PS		Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3
Desktop terminal/Analog station, ATT		–	–	–	–	–	–	–	–

Note 1: Follows the system data assignment (SYS1, INDEX64, b0: 0/1=μ-law/A-law).

Note 2: Non-conversion except when the ISDN terminal interface specification is assigned as N-ISDN1 by the system data assignment (In this case, the output Layer 1 protocol is fixed as μ-law).

Note 3: Varies depending on the terminal type.

4. INTERACTIONS

This feature is applied for H0/H1 terminal when the service conditions described in 3. SERVICE CONDITIONS are satisfied.

5. PROGRAMMING

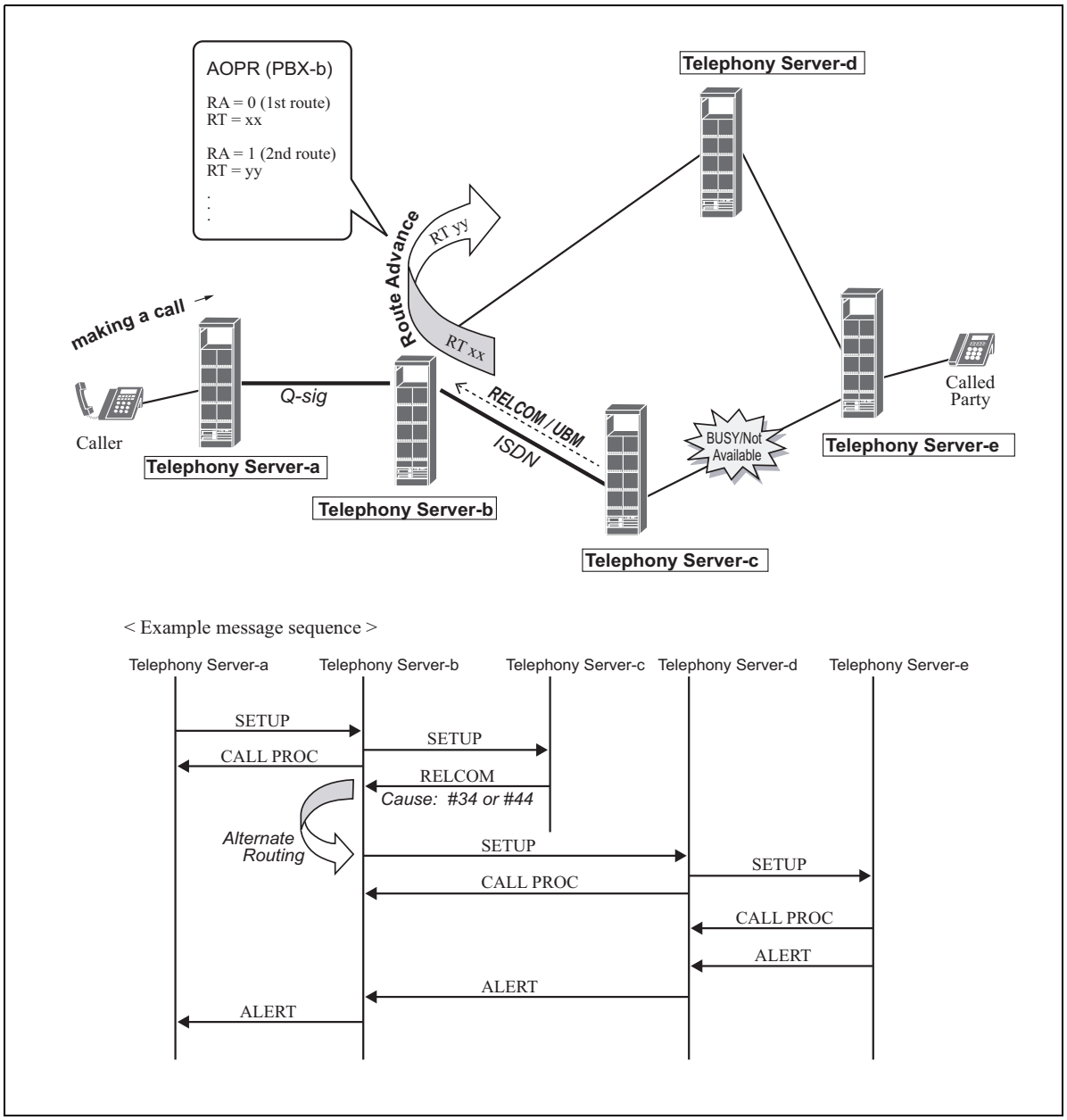
STEP 1: ARTI - Assign the Trunk Application data to the outgoing ISDN trunk.
CDN 57: UALAW (User information Layer 1 protocol designation)
0 = No Conversion
1 = μ-law
2 = A-law
3 = Not used

Note: To change the data for existing route (RT), initialize the circuit card or reboot the MG device.

[Q-7] Q.SIG LOOK AHEAD ROUTING (ETSI ETS 300-172)

1. GENERAL DESCRIPTION

When a call, placed via Q-sig network, cannot terminate to the destination party due to the Tandem Node encountering RELCOM (Release Complete of the call) from the ISDN network, alternate route can be selected at that Tandem Node according to its alternate route selection table.



2. SERVICE CONDITIONS

(1) This service is activated when the following conditions are all met:

a.) The node offering the route selection table is a Tandem Node.

b.) The Tandem Node receives a call from the Q-sig line.
c.) The Tandem Node attempts to forward the (received) call to the ISDN network, but the selected route is not available (busy) due to the failure, etc.
d.) The Cause of the release message (RELCOM from ISDN network) is:
#34: "No Bandwidth"
#44: "Request Line/Channel Not Available"

(2) This feature supports voice, 3.1 KHz Audio and unrestricted digital data, which are specified by ETS 300172, 2nd Edition.

(3) This feature is available for LCR/LCRS. OGC/OGCA is not supported.

(4) This feature is not available when the Tandem Node (Tandem Node mentioned in Condition (1) above) receives the number including its self-office code.

(5) When T303 timer expires at the Tandem Node (Tandem Node mentioned in Condition (1) above), this feature is not available.

(6) This feature does not support the following services:
a.) ISDN Broad Band Services (H0/H1)
- Alternate route is not selected. Call is released.
b.) Tandem Trunk Queuing
- Alternate route is not selected. Call is released.
c.) Outgoing Trunk Busy Announcements
- Announcement is not provided, and then the call is released.
d.) Authorization Code
- Authorization code is not effective.
e.) SS-CCBS: Supplementary Service Completion of Calls to Busy Subscribers
SS-CCNR: Supplementary Service Completion of Calls on No Reply (ISO/IEC 13870)
- Call back is not performed. The call back request is rejected and the call is released.
f.) SS-AOC: Supplementary Service Advice of Charge (ISO/IEC 15050)
- Speech can be made after alternate route selection. However, the related billing information is not collected.
g.) SS-CT: Supplementary Service Call Transfer (ISO/IEC 13869)
- Speech can be made after alternate route selection. However, this service is not provided.

(7) This feature supports the following services:
a.) SS-CNIP: Supplementary Service Calling Name Identification Presentation
SS-CNOP: Supplementary Service Connected Name Identification Presentation (ISO/IEC 13868)
b.) ANF-TC: Transit Counter Additional Network Feature (ISO/IEC 15056)

(8) This feature does not support OAI/ACD related services.

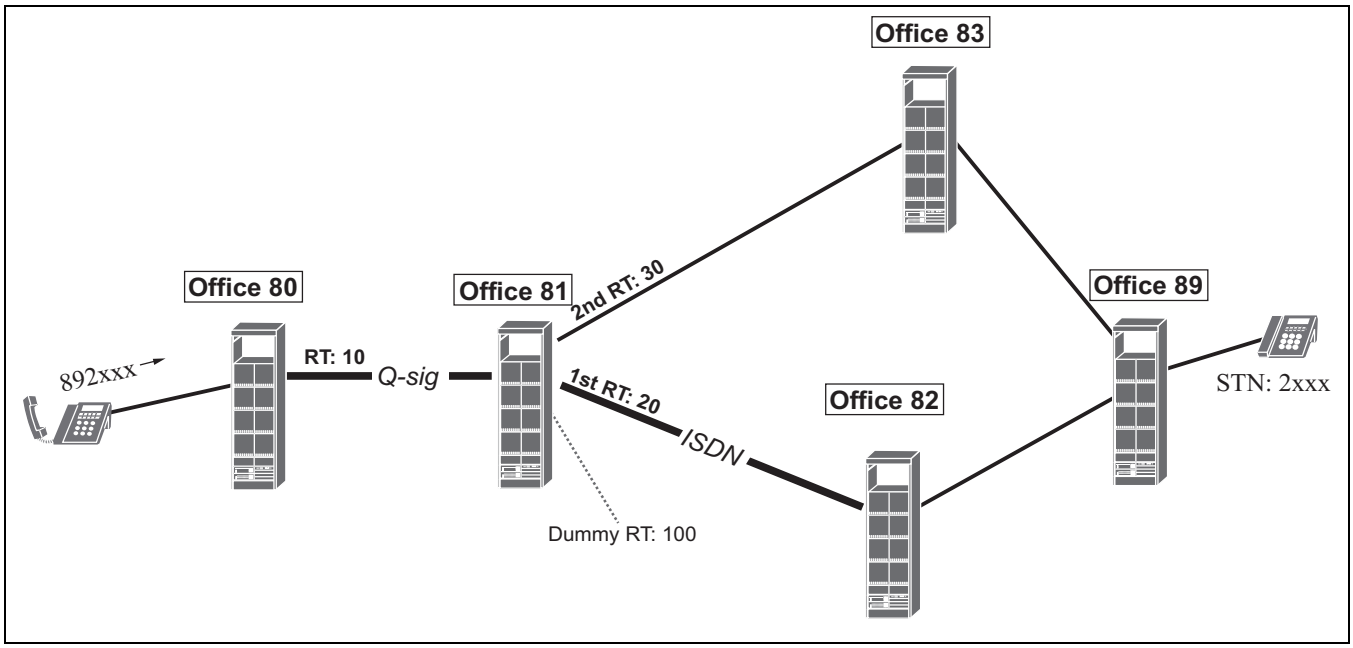
3. PROGRAMMING

STEP: ARTD - Assign the route class data for dummy route. The route class data of the dummy route is ADVPRA (CDN:111) = 1

Example data assignment for the Tandem Node is shown on the next page.

☐ Example data assignment
Example data assignment is shown below, in an assumption of the following network configuration:

Data assignment at Office 81, in case of dialing “892xxx” from a station of Office 80.
Network configuration is as follows:



STEP 1: Assign call origination data, route/trunk data and route restriction data, toward Offices 80, 82, 83.

STEP 2: ANPD - Assign the 1st digit code for LCR access.
1st DC = 8
Select Normal Service (N) from the combo box for Connection Indexes.
NND = 1

STEP 3: ASPA - Assign the LCR Access Code (ACC) and Dummy Route.
ACC = 8
CI = “N: Normal”
SRV = “LCR: Least Cost Routing”
RT = 100 (Dummy Route No.)

STEP 4: AFRS - Assign the NPC (Number Pattern Code) and designate the OPR (Outgoing Route Selection Pattern Number) table No., associated with the Dummy Route assigned by ASPA command.
RT = 100 (Dummy Route No.)
NPC = 89
OPR = 9

STEP 5: AOPR - Develop the details of OPR table for route selection.

TDPN = 0
OPR = 9
RA = 0
E = 1
RT = 20
SKIP = 0
PNL = 0
OVFT = 0
PRSC = 0

TDPN = 0
OPR = 9
RA = 1
E = 0
RT = 30
SKIP = 0
PNL = 0
OVFT = 0
PRSC = 0

STEP 6: AMND - Assign the MND (Maximum Necessary Digits) to be received.

DC = 892
MND = 6

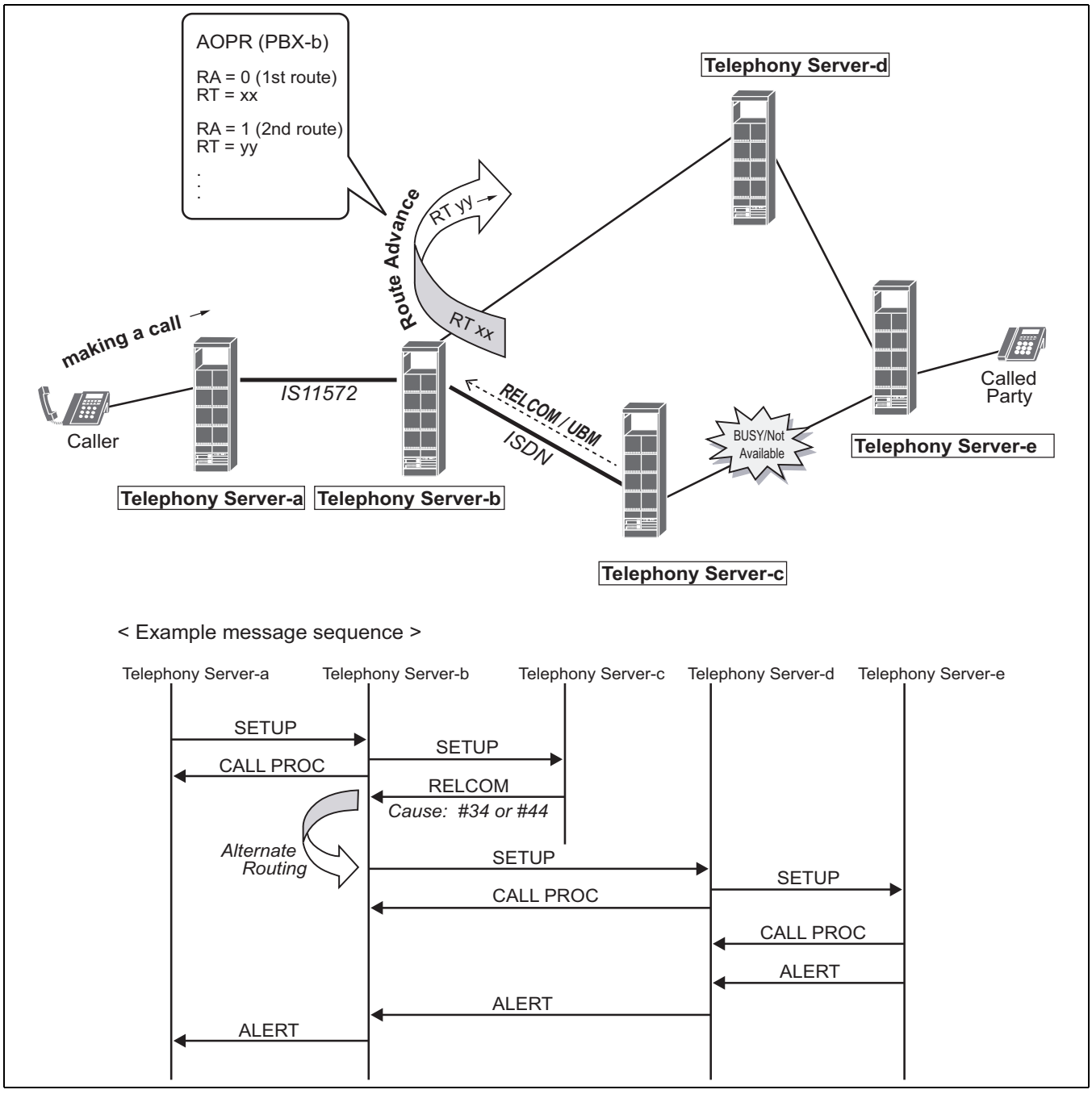
STEP 7: ARTD - Assign the route class data for Dummy RT 100.

RT = 100
ADVPRA(CDN: 111) = 1

[Q-8] Q.SIG LOOK AHEAD ROUTING (ISO IS-11571)

1. GENERAL DESCRIPTION

When a call, placed via IS-11572 network, cannot terminate to the destination party due to the Tandem Node encountering RELCOM (Release Complete of the call) from the ISDN network, alternate route can be selected at that Tandem Node according to its alternate route selection table.



2. SERVICE CONDITIONS

(1) This service is activated when the following conditions are all met:
   a.) The node offering the route selection table is a Tandem Node.
   b.) The Tandem Node receives a call from the IS-11572 line.
   c.) The Tandem Node attempts to forward the (received) call to the ISDN network, but the selected route is not available (busy) due to the failure, etc.
   d.) The Cause of the release message (RELCOM from ISDN network) is:
   #34: "No Bandwidth"
   #44: "Request Line/Channel Not Available"

(2) This feature supports voice, 3.1KHz Audio and unrestricted digital data.

(3) This feature is available for LCR/LCRS. OGC/OGCA is not supported.

(4) This feature is not available when the Tandem Node (Tandem Node mentioned in Condition (1) above) receives the number including its self-office code.

(5) When T303 timer expires at the Tandem Node (Tandem Node mentioned in Condition (1) above), this feature is not available.

(6) This feature does not support the following services:
   a.) ISDN Broad Band Services (H0/H1)
   - Alternate route is not selected. Call is released.
   b.) Tandem Trunk Queuing
   - Alternate route is not selected. Call is released.
   c.) Outgoing Trunk Busy Announcements
   - Announcement is not provided, and then the call is released.
   d.) Authorization Code
   - Authorization code is not effective.
   e.) SS-AOC: Supplementary Service Advice of Charge (ISO/IEC 15050)
   - Speech can be made after alternate route selection. However, the related billing information is not collected.

(7) This feature supports the following services:
   a.) SS-CNIP: Supplementary Service Calling Name Identification Presentation
   SS-CNOP: Supplementary Service Connected Name Identification Presentation (ISO/IEC 13868)
   b.) ANF-TC: Transit Counter Additional Network Feature (ISO/IEC 15056)

(8) This feature does not support OAI/ACD related services.

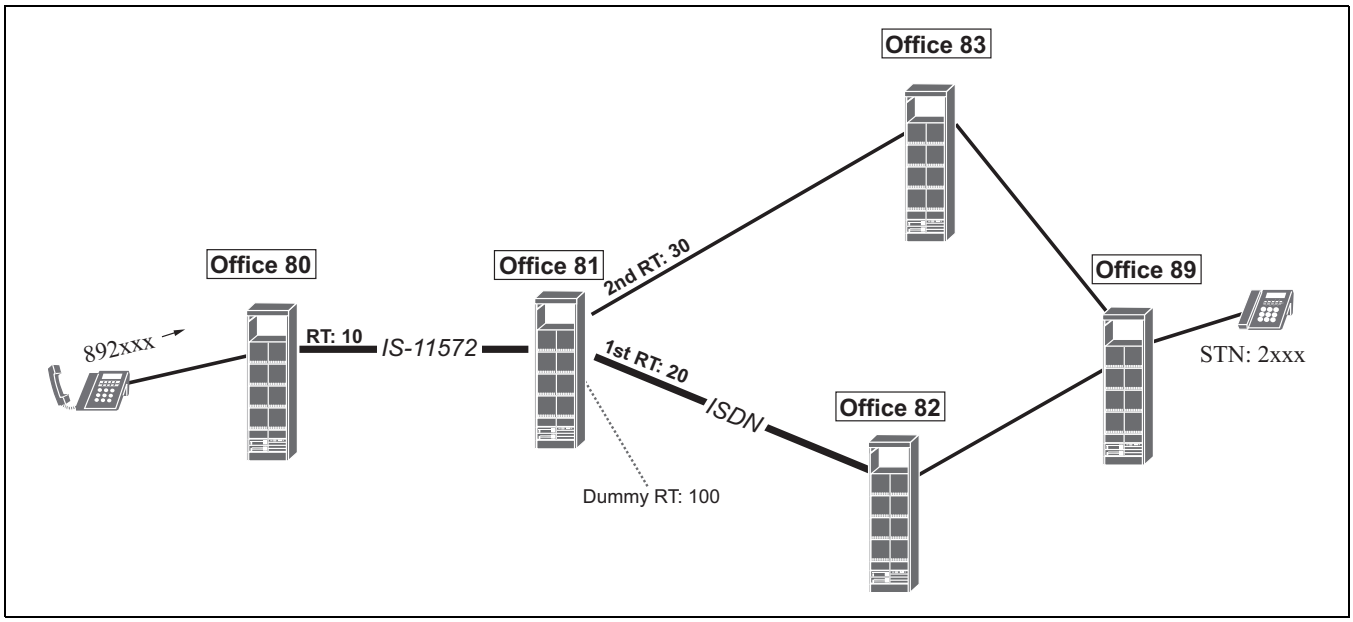
3. PROGRAMMING

STEP: ARTD - Assign the route class data for dummy route. The route class data of the dummy route is ADVPRA (CDN: 111) = 1

Example data assignment for the Tandem Node is shown on the next page.

☐ Example data assignment
Example data assignment is shown below, in an assumption of the following network configuration:

Data assignment at Office 81, in case of dialing “892xxx” from a station of Office 80.
Network configuration is as follows:



STEP 1: Assign call origination data, route/trunk data and route restriction data, toward Offices 80, 82, 83.

STEP 2: ANPD - Assign the 1st digit code for LCR access.
1st DC = 8
Select Normal Service (N) from the combo box for Connection Indexes.
NND = 1

STEP 3: ASPA - Assign the LCR Access Code (ACC) and Dummy Route.
ACC = 8
CI = “N: Normal”
SRV = “LCR: Least Cost Routing”
RT = 100 (Dummy Route No.)

STEP 4: AFRS - Assign the NPC (Number Pattern Code) and designate the OPR (Outgoing Route Selection Pattern Number) table No., associated with the Dummy Route assigned by ASPA command.
RT = 100 (Dummy Route No.)
NPC = 89
OPR = 9

STEP 5: AOPR - Develop the details of OPR table for route selection.

TDPN = 0
OPR = 9
RA = 0
E = 1
RT = 20
SKIP = 0
PNL = 0
OVFT = 0
PRSC = 0

TDPN = 0
OPR = 9
RA = 1
E = 0
RT = 30
SKIP = 0
PNL = 0
OVFT = 0
PRSC = 0

STEP 6: AMND - Assign the MND (Maximum Necessary Digits) to be received.

DC = 892
MND = 6

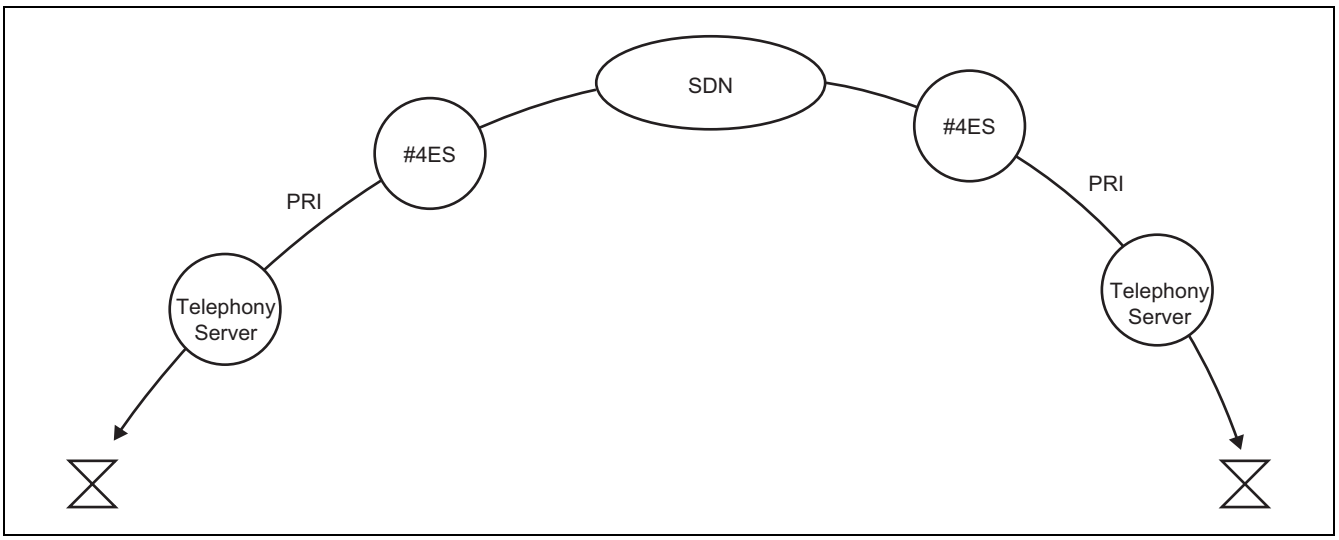
STEP 7: ARTD - Assign the route class data for Dummy RT 100.

RT = 100
ADVPRA (CDN: 111) = 1

[S-90] SDN ACCESS

1. GENERAL DESCRIPTION

AT&T's SDN (Software Defined Network) can be used.



Note: When a call has terminated by the CALL-BY-CALL SERVICE SELECTION [C-105], no indication to distinguish it from a call termination by other services is made to a terminating terminal.

Note: To identify a terminal to which a call has terminated, data must be registered using the "ACDD" command so that a call-terminating terminal can be identified by a terminating number.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

In addition to the Basic Office Data for ISDN, the following data should be assigned.

STEP: ACBC - Select CODE1 (=WATS BAND/SDN) in this command.

[S-91/92] SID TO NETWORK-PRESENT/SID TO NETWORK-PRIVACY

1. GENERAL DESCRIPTION

<SID TO NETWORK-PRESENT>
This feature allows SID (Station Identification Number) to be delivered to the ISDN when a call originates from a terminal connected to the PBX.

<SID TO NETWORK-PRIVACY>
In addition, the originating user may control the transfer of SID to the network by means of AUTHORIZATION CODE dialing through the PBX.

2. OPERATING PROCEDURE

(1) Lift the handset and receive Dial Tone.
(2) Dial an Access Code for "Authorization Code". (For *SID TO NETWORK-PRIVACY*)
(3) Dial "Authorization Code". (For *SID TO NETWORK-PRIVACY*)
(4) Dial an originating call number to ISDN.

Note: Without dialing the authorization code, SID is sent to the destination.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

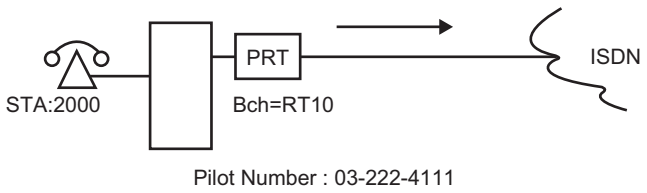
Note: When two or more DID numbers are assigned to a station, the last DID number assigned will be delivered to the ISDN as SID (Station Identification Number). However, when the last DID number assigned has been deleted (even if the other number(s) is/are still in existence), any DID number is not transferred to the network (no SID is transferred to a destination). In this case, reassignment of the DID number(s) is necessary for sending SID to the network.

STEP 2: ACNP - Assign the pattern number for Bch route.
IC/OG=OG: Outgoing Call
RT=Bch External Route Number
CNP=Pattern Number

STEP 3: ACND - Assign the information for the pattern.
CNP=Calling Number Pattern (Must be same pattern No. as one of ACNP).
SKIP=Number of Skip Digits. **Note 1**
ADD=Number of Digits of the Additional Number (Pilot number)
DC=Additional Digit Information

Note 1:

- When the originating PRT employs “Sub addressing” for the terminating call.

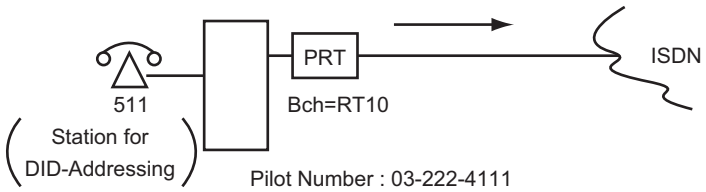


ACNP: IC/OG = OG: Outgoing Call
RT = 10
CNP=1

ACND: CNP = 1
SKIP = 4
ADD = 9
DC=032224111

Digits “032224111” are sent as SID.

- When the originating PRT employs “DID-Addressing” for the terminating call.



ACNP: IC/OG = OG: Outgoing Call
RT = 10
CNP = 2

ACND: CNP = 2
SKIP = 0
ADD = 5
DC=03222

- Digits “03222 + DID No.” are sent as SID.
- When the station that does not require the digit conversion (in the ACDD command) for a Incoming Call originates a call to ISDN, the network will send a pilot number as SID.

<For SID TO NETWORK-PRIVACY>

STEP 4: ASFC - Allow SID to Network-Privacy (SFI 94) to the SFC of the station.
SFI94=0/1=-/SID is not transfer to a destination. (Assign 1 to reject the calling party's number display)

Note: This data is necessary for the temporary class to be converted by Authorization code.

STEP 5: Assign "Authorization Code" data.

[S-96] SUB ADDRESS-PRESENT

1. GENERAL DESCRIPTION

This ISDN feature allows a PRIMARY RATE INTERFACE ISDN trunk to transfer the called-party sub-address information to a destination ISDN station when the call is originated via the PBX. This feature requires dialing of the called-party station number and the called-party sub-address.

2. OPERATING PROCEDURE

1. The Calling Station dials the ISDN subscriber number (including Access Code) followed by an asterisk (*), then dials the called-party sub-address followed by a pound (#).
2. ISDN will automatically recognize the sub-address and transfer this information to the destination party.

3. PROGRAMMING

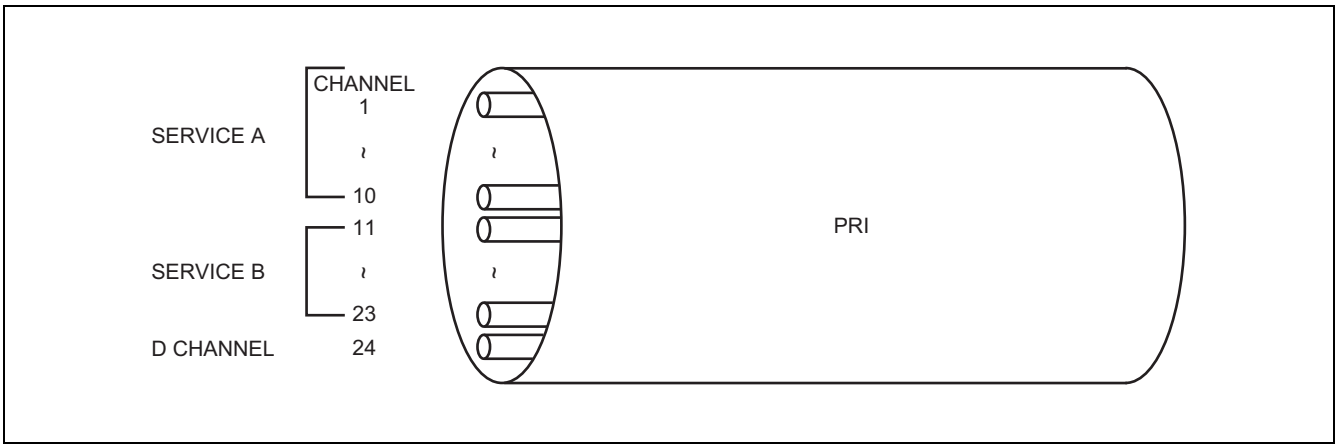
Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

Note: ASPA- Assign SUB=1.

[T-42] TRUNK PROVISIONING SERVICE SELECTION

1. GENERAL DESCRIPTION

Each channel of a PRI interface can be dedicated to a particular service. Services are designated to specific channels; one designated, a channel can only be used for that service.



Note: The services that can be designated include the following: ACCUNET, MEGACOM, MEGACOM800, and SDN.

Note: Channel selection is possible by the LCR function only.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

In addition to the Basic Office Data for ISDN, the following data should be assigned.

STEP 1: AFRS - Assign the different OPR (Outgoing Route Selection Pattern Number) on a service type (such as ACCUNET, MEGACOM, etc.) basis. Therefore, the OPR should be determined according to the NPC (Number Pattern Code).

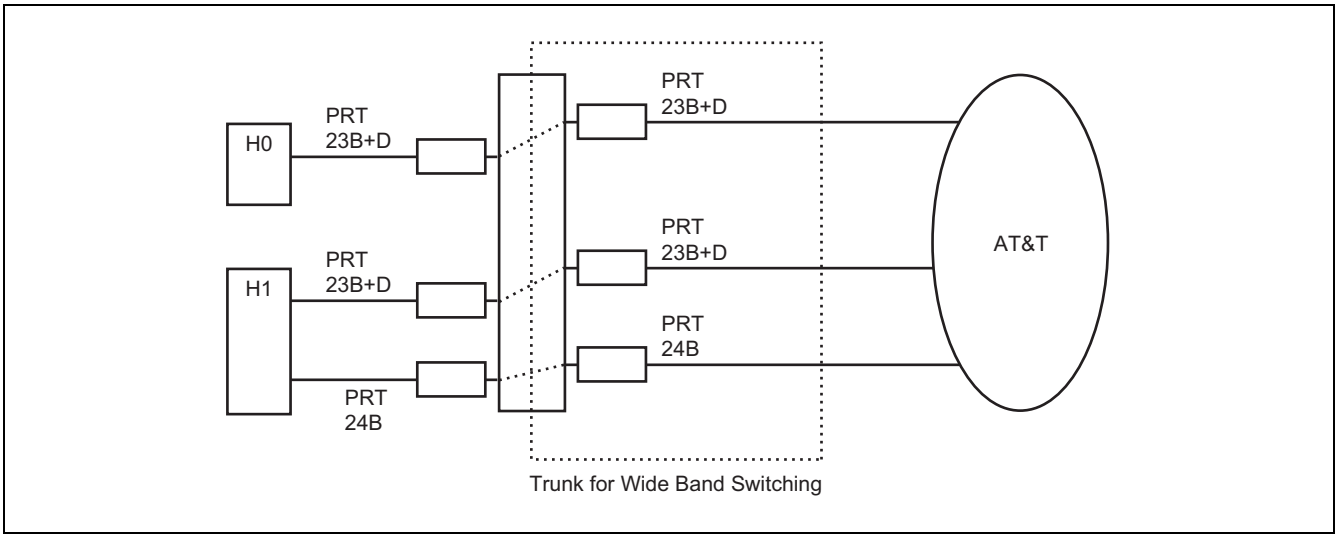
STEP 2: AOPR - Assign the different Route Number to each service (ACCUNET, MEGACOM, etc.).

STEP 3: ACBC - Select a desired service on an OPR basis.

[W-9] WIDE BAND SWITCHING FOR AT&T #4ESS

1. GENERAL DESCRIPTION

This feature allows a PBX to support the H0 (384 kbps)/H1 (1.5 Mbps) switching by using AT&T #4ESS.



2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN/Non-Facility Associated Signaling Data.

ARTD- CDN63 (LYER1)=0 **Note Note:**
CDN65 (INT)=5
CDN96 (H1)=1
CDN118 (BOB)=1

Note: In the case of H0 switching, the continuous 6 channels are required. Separate the Bch route (for H0 switching) from others.

STEP 2: ACBC - Assign the Call by Call Service Data
CODE=1 (SDN) or 6 (ACCUNET)

[C-112/T-44] CALLING PARTY INFORMATION TRANSFER/TRANSFER MESSAGE (TRM)

1. GENERAL DESCRIPTION

<CALLING PARTY INFORMATION TRANSFER>
When attribute data (BC, LLC, HLC) arrives from the ISDN or an ISDN terminal, this service notifies the received attribute data to another office which is connected through CCIS.
This service guarantees transparent transmission of attribute data between an office and another through CCIS.

<TRANSFER MESSAGE (TRM)>
When a station calls another station performing CALL TRANSFER-ALL CALLS-CCIS, this feature allows the originating station number (SID) to be sent to the destination station via TRM (Transfer Message) signal.

CALLER	DIRECT OG CALL TO ISDN			OG CALL TO ISDN VIA CCIS		
	BEARER	LOW LAYER	HIGH LAYER	BEARER	LOW LAYER	HIGH LAYER
Telephone	*Speech*	–	–	*Speech*	–	–
ATT-CON	*Speech*	–	–	*Speech*	–	–
FAX	*3.1KHz*	*3.1KHz*	*G2/G3FAX*	*3.1KHz*	*3.1KHz*	*G2/G3FAX*
DATA (DTE)	*Unrestricted*	*Unrestricted*	–	*Unrestricted*	*Unrestricted*	–
ISDN Station/ Trunk	*Transparent*	*Transparent*	*Transparent*	*Transparent*	*Transparent*	*Transparent*
CCIS Trunk	*Transparent*	*Transparent*	*Transparent*	*Transparent*	*Transparent*	*Transparent*
ACIS Trunk	*3.1KHz*	–	–	*3.1KHz*	–	–

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN.

STEP 2: ASYD - Assign the following system data for CCIS

	SYS-1	Index 4, b4:	Temporary Class Conversion 0/1=Not Required/Required. (always assign “1”)
		Index 82, b4-b7:	Station Number Display Pattern on the ATTCON
		Index 180 and 181:	Originating Point Code
		Index 182 and 183:	Centralized Billing Point Code
		Index 184 and 185:	Centralized Management Report Point Code

Index 186: Service Check
Index 187: Number of CCH/DCH cards
(always assign 00 Hex)
Index 188, b0: No. 7 CCIS Control System Interoffice Audit Test
0/1=Not Required/Required.
Index 189, b4-b7 ACM, UBM Signal "No-Receiving" Timer (Normally assign F0 Hex.)

STEP 3: ARTD - Assign the following route class data for CCIS Trunk
(Signal Channel and Speech Channel)

ROUTE FOR SIGNAL CHANNEL	ROUTE FOR SPEECH CHANNEL	REMARKS
• OSGS = 0 • ONSG = 2 • ISGS = 0 • INSG = 2 • TCL = 4 • L/T = 1 • RLP = 2 • LSG = 13 • ANS = 0 • PAD = 7 • BT = 0 • DPLY = 0 • LYER1 = 0 • NET = 0 • INT = 0	• OSGS = 0 • ONSG = 2 • ISGS = 0 • INSG = 2 • TCL = 4 • L/T = 1 • RLP = 2 • LSG = 12 • ANS = 1 • PAD = 4 • BT = 1 • DPLY = 1 • LYER1 = 0 • NET = 0 • INT = 0	

STEP 4: ARTD - Assign a following data to the speech route of CCIS No. 7.
CDN98 (CI) ISDN transmitting information.
0= Out of service
→ 1= 16-Digit Caller Number Service, Attribute Information Notification service, and Calling Sub-Address Transfer Service.
2-15= Not used.
Assign the data "1" in this CDN.

Note: ISDN transmitting information service is necessary for the transparency of ISDN information between ISDN and CCIS No. 7 network.

Note: Data must be assigned for ALRTN command when assigning data by Telephone Number.

Note: When originating a call from an ISDN network, Calling Party Information added or deleted by ACNP/ACNPN command and ACND/ACNDN command become invalid.

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

STEP 5: ADPC - Assignment of Determinate Point Code Data. **Note 1**

Setting of the counter office point code
RT: Route Number
PC: Determinate Point Code (1 - 16383)

STEP 6: ATRK - Assignment of Trunk Data **Note 1**

Assign of the LENS of the trunks to be used in CCIS
LENS: Line Equipment Numbers (6 digits)

STEP 7: ACSC - Assignment of CSC Data **Note 1**

Setting of CCH/CSE Number of the route to be used in CCIS
CSCG: CSC Group Number (130~255)
CIC GROUPPX: Circuit Identification Code Group Number (0~7)
CCH: Accommodation location of the Common Channel Handler

CCH:	XX	X	XX
	*a	*b	*c

*a: Module Group Number (00~07)
*b: Unit Number (0~3)
*c: Group Number (0~23)

STEP 8: ACIC1 - Assignment of CIC Data **Note 1**

Setting of CIC of each trunk to be used in CCIS
PC: Determinate Point Code (1 - 16383)
CSCG: Common Channel Signalling Controller Group Number (130~255)

STEP 9: ACIC2 - Assignment of CIC Data 2 **Note 1**

PC: Determinate Point Code
CIC: Circuit Identification code Number (1~999)
LENS: Line Equipment Numbers (6 Digits)

LENS:	XX	X	XX	X
	*a	*b	*c	*d

*a: Module Group Number (00~07)
*b: Unit Number (0~3)
*c: Group Number (0~23)
*d: Level Number (0~7)

STEP 10: ARNP - Assignment of Reverse Numbering Plan Data

Assignment of the office code of the self office if necessary.
RT: Route Number (RT=0)
ACC: Access Code (max. 3 digits)

Note 1: For details, see “Data Programming Manual - CCIS”.

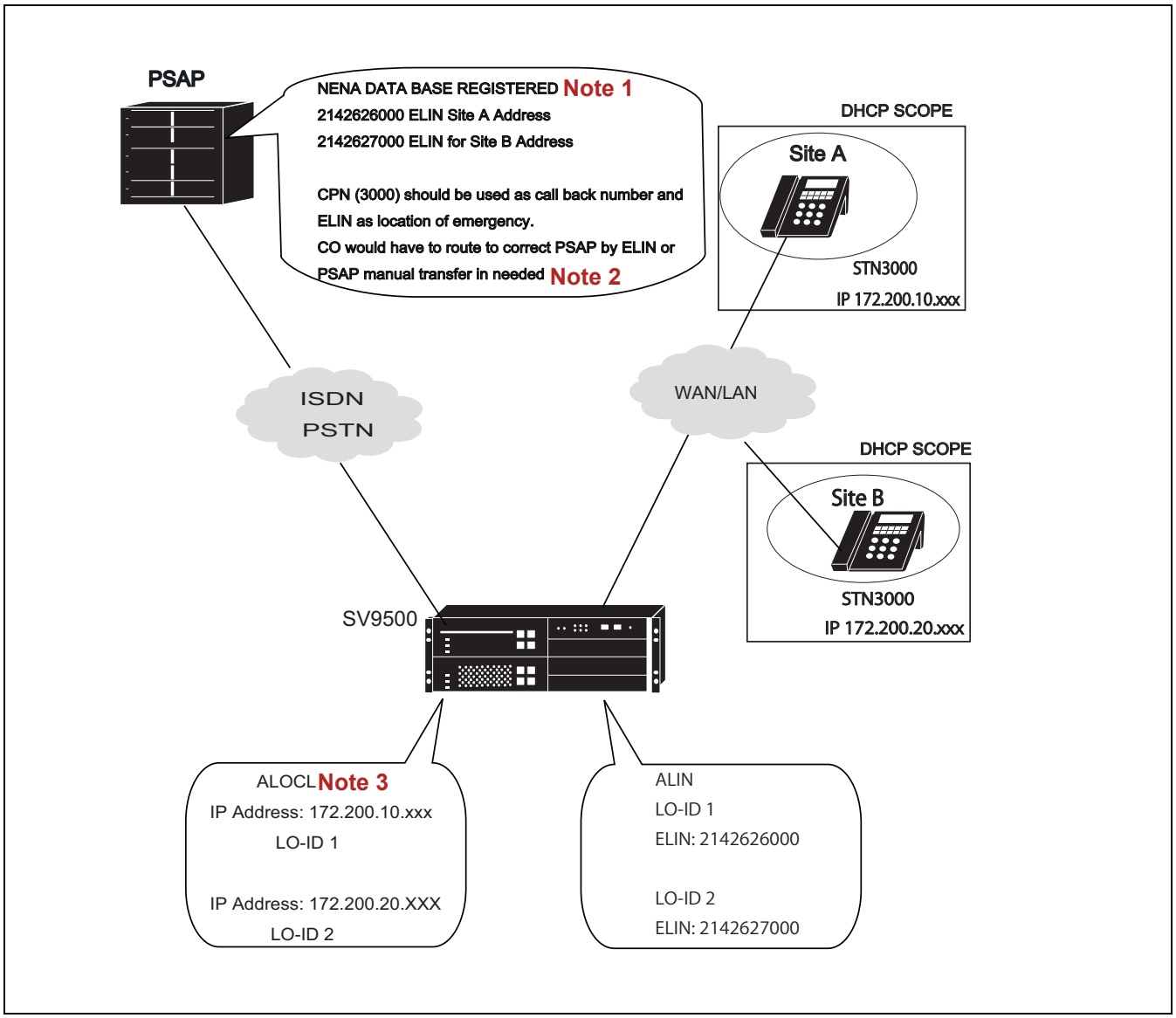
[E-30] E911-LOCATION IDENTIFICATION NUMBER (LIN)

1. GENERAL DESCRIPTION

This feature is used to make E911 emergency calls via a National ISDN-2 (NI-2) network. When 911 is dialed on the Dterm, ISDN terminal, analog telephone, MC accommodated terminal or DtermIP, the dial-in number is identified to the NI-2 network as the Location Identification Number (LIN), which will be used to call back the originating station. When the Registration Manager reads the Location Identification Number on the LINindex, it is uniquely allocated to each station.

This feature provides LIN information based of location IDs of the dialing station without the need of the Registration Manager.

This feature complies with the NI-2 network in North America.



Note 1: Updating NENA data is the responsibility of the system manager. It can be done manually or by the using an external application such as UNIVERGE MA4000.

Note 2: Each network must be assigned to insure a valid location ID is available.

Note 3: CPN is sent based on normal CPN programming such as ACNP/ACND or ACPNCL.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This feature is applied to 911 dialing, which originates from the Dterm, DtermIP, analog telephones, Analog MC accommodated terminals, or ISDN terminals.

(2) 911 dialing is transferred through the external route when the trunk is assigned as:

ARTI/ARTIN: CDN76 E911 (1=911 Outgoing Route)

Note: Even if this data is assigned to the external route, LIN may not be sent out if LINindex and LIN is not assigned using the ALIN command.

(3) If LINindex is not registered to the originating station, the system assumes the LIN is the pilot number (assigned to LINindex=0).

(4) LIN cannot be set to 911 dialing from a PS station, Attendant Console, or the tandem connection party.

(5) E911 emergency calls from IP terminals are transferred from the logged-in PBX (registration is handled).

- MA-ID can be used to choose the proper MG/RT to use for emergency calls. See LEAST COST ROUTING FOR MG-PRI [L-54].

(6) The LINindex for IP terminals reside on the Registration Manager and the LIN is read from the LINindex. Since the LINindex resides on both the Registration Manager and the PBX, these must be the same.

(7) TDM terminals use the default location identification index ‘0’, unless the station number is programmed in ALIN to use a specific LINindex.

(8) LIN cannot be set for PS stations, Attendant Consoles or non-CCIS tandem connection parties.

(9) The default location ID is ‘0’. This default location ID number cannot be changed.

(10) The default LIN index ‘0’ **must** be programmed in ALIN with a location identification number (LIN). A default location identification number (LIN) is **not** automatically assigned by the system.

(11) In the command ALOCL, only the network address, point code and location ID field are valid for this feature enhancement.

- The ALOCL Point Code field is valid only for PHC CCIS.

(12) All FCCS Network nodes must program ALOCL and ALIN values locally.

(13) TDM CCIS routing to the E911 PBX uses the default LIN index number ‘0’.

(14) Methods for legacy terminals using PHC CCIS to output LIN includes:

- Assign the IPPAD address of the local PBX in ALOCL of the E911 local PBX.
- Assign the CCIS point code in ALOCL of the E911 local PBX.

Note: If the IPPAD address and CCIS point code are not assigned as specified system uses the default Location Index Number (LIN) '0'.

(15) IP Terminals using PHC CCIS can be assigned in the local ALOCL IP address or Point Code field.

4. PROGRAMMING

STEP 1: ALIN: - Assign the Location Identification Number Index (LINindex) and the Location Identification Number (LIN)

KIND: Select either of the radio buttons, LINindex or LIN.
<When LINindex is selected>
TN and STN: Enter the Tenant Number and the station number to specify the station.
LENS: Enter the LENS to specify the station.
LINindex: Allocate a unique LINindex to the specified station [1-4000].
<When LIN is selected>
LINindex: Enter the LINindex of the station [0-4000].
LIN: Assign the dial-in number to LIN (maximum 10 digits). (The dial-in number is identified to NI-2 network and is used to call back the originating station.)

STEP 2: ARTI: - Assign the Trunk Application data

CDN 76 (E911): 1 = 911 Outgoing Route

[I-51] ISDN BOTHWAY NAME DISPLAY WITH NORTEL CO OR NI2

1. GENERAL DESCRIPTION

This feature enhances the Nortel ISDN interface of the system to receive name display information from the network for incoming calls and send name information to the network on outgoing calls. This feature also enhances NI-2 PRI to send outgoing name to the Public Network. (See [N-47] NETWORK NAME DISPLAY (NI-2 PRI).) Incoming name information can be displayed on the Desktop terminal or Attendant Console LCD display. The Outgoing name can be implemented on an individual basis (ANDD) or by MA-ID Name for groups of stations.

2. OPERATING PROCEDURE

No station user operation is required for Outgoing Name on Nortel ISDN interface. FKY 113 may be used to toggle name and number full display of Incoming name and number display.

3. SERVICE CONDITIONS

(1) Incoming Calling Name information for Nortel PRI can be received in the SETUP message in a DISPLAY information element only. This service does not support Calling Name information that is received in a NOTIFY Message or any other Messages or information elements.

(2) See [N-47] NETWORK NAME DISPLAY (NI-2 PRI) for incoming name on NI2 PRI.

(3) Outgoing name from system on Nortel PRI will only be sent in the SETUP message as a DISPLAY information element. The system will not send a NOTIFY message for name display.

(4) Calling Name information sent from the system on NI2 can be in the SETUP message in a FACILITY information element only. This service does not support Calling Name information in a NOTIFY, FACILITY Message or any other Messages or information elements of the SETUP.

(5) The system will not send any error information to the network notifying the name information was not received or could not be displayed.

(6) Name and number are displayed on Desktop terminal's in a flexible manner by system data.
   (a) This is determined by ASYD, SYS 1, Index 390, Bit 0-3 and also other system data.
   (b) With ASYD, SYS 1, Index 390, Bit 0 = 0 the default display is 16 digits of Name and 8 digits of calling party number.
   (c) With ASYD, SYS 1, Index 390, Bit 0 = 1 the display is 16 digits of Name and 8 digits of calling party number.
   (d) ASYD, SYS 1, Index 241, Bit 6 also effects which digits are displayed on the top line of the display. If name display is set to be on top by ASYD, SYS 1, Index 390 and 241 Bit 6 is on then the last 8 digits of the name are displayed. Since ISDN may send a 8 digit name as "TESTNAME" only the spaces would be displayed.
      • For this reason it is suggested to set 241 Bit 6 = 0 for this service.
   (e) FKY 113 can be used to toggle name and number.

(7) Calling Name Display on ISDN terminals (BRI) is not supported.

(8) If a name is assigned in the ANDD command or by OAI FLF it will have a higher priority than a MA-ID name.

(9) If no ANDD name or MA-ID name is assigned the DISPLAY information element will not be sent.

(10) Incoming DMS 100 to CCIS tandem will only pass 8 digits of the name and all of the number.
   (a) For this to function ASYD, SYS 1, INDEX 390, Bit 0 must = 1.
   (b) If ASYD, SYS 1, INDEX 390, Bit 0 = 0 only the name and trunk type (TIE) will be displayed.

(11) For ATTCON display to the DESKCON the display is 16 digits of name and 16 digits of number after the answer.

(12) This service does not support Tandem QSIG calls.

4. PROGRAMMING

STEP 1: ARTD/ARTDN - Assign IND =1 for Name display service
Assign CI =1 for expanded IAI service.
All other Route data is the same as normal PRI interface.

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ASYD - System Data 1, INDEX 78, Bit 5 =1 Name display in service.
System Data 1, INDEX 79, Bit 6 = 0 OAI Memory in service.
System Data 1, INDEX 241. Bit 1 = 1 Must be 16 digit Name display for this service.
System Data 1, INDEX 390, Bit 0 =1 for NAME AND NUMBER to be sent over CCIS on tandem calls. This will be 8 digits of the name and all of the number.

STEP 3: AMAIL - Assign the MA-ID and MA-ID NAME.

STEP 4: ANDD - Assign the Name to the station for outgoing number.

STEP 5: ARTI - IONAME: 0 = Incoming name only, 2 = outgoing name only, 3 = incoming and outgoing name.
IONAME is only effective if ARTD: IND = 1.

Note: To change the data for existing route (RT), initialize the circuit card.

[N-39] NI-1 BRI TERMINAL SUPPORT

1. GENERAL DESCRIPTION

This feature supports the Bellcore BRI protocol, National ISDN-1 for connection of Voice and Data circuit switched terminals. The system may send Endpoint Identifier (EPID) to the terminals by receiving their Service Profile Identification (SPID) and provide supplementary service (CALL TRANSFER) by Feature Identifier (FID) assigned on each terminal. The National ISDN-1 Hold feature is also supported. The system enables the N-ISDN1 terminal to display a calling number upon call termination by delivering a SETUP message with the information element of Display Text. The N-ISDN1 terminal may also display Call Hold or Call Transfer service when it is activated.

Note: This feature is available in North America only.

2. OPERATING PROCEDURE

SPID and FID are assigned according to the N-ISDN1 terminals.

3. SERVICE CONDITIONS

1. The SPID is assigned in each terminal (A telephone number + 00 is preferred.). An SPID number of 20 digits or the less may be assigned.
2. The EPID the PBX sends to a terminal is in response to the SPID received from the terminal. The User

   Service Identifier (USID) in EPID is a value using first 2 digits of SPID, and Terminal Identifier (TID) in

   EPID is the value using last 2 digits of SPID. However, if the last 2 digits of SPID is 63 or higher, TID is

   62. When SPID is 1 digit, USID is the first digit plus 0. SPID and TID is the value using SPID.
3. Since Electronic Key Telephone Service (EKTS) is not supported, USID which is included in EPID upon sending a SETUP message to a terminal, is fixed 127 and TID is omitted.
4. The maximum number of patterns for FID is 31 (from 1 to 31), allowing the many different terminal types using different FID fixed values.
5. FID ranges from 1 to 127.
6. An FID pattern is assigned for the number of the station using the B1-channel (even Level). Since the B2-channel is controlled according to the FID pattern assigned to the B1-channel, assignment to the B2-channel is not needed. Therefore if station data of the N-ISDN1 terminal is assigned only to the B2-channel, this service is not activated.
7. Display Text on the SETUP message, which is delivered to the N-ISDN1 terminal from the PBX, is the same as the calling party number.
8. The disconnection (DISC) message including Display Text to clear the display is delivered when a call is disconnected from the PBX.
9. The following are Display Texts which can be displayed on the N-ISDN1 terminal:

Display Number	Display Text	Message	Situation causing delivery of display to user
FC-13	Transfer to:	HOLD or INFO	Transfer request with call reference value of a non-conference related call.

Display Number	Display Text	Message	Situation causing delivery of display to user
FC-19	Transfer denied Try again later	INFO	Transfer request rejected because call not established
HC-1	Call Held	HOLD ACK	If call successfully held
HC-2	Held Call Cleared	clearing	Held call cleared by held user or switch
HC-5	You are on hold	NOTIFY	Notification indicator information coded to remote-hold
HC-6	Request denied	HOLD REJ	Cause #50 in HOLD REJ message.
		INFO	Hold procedure unsuccessful with transfer request
CC-5	Connected	CONN ACK	Sent to called party in CONN ACK
		NOTIFY	Notification indicator information coded to remote-hold release
CC-23	Call blocked Try again later	RET REJ	Cause #34 in RET REJ message Cause #44 in RET REJ message

10. Circuit card PA-8ILCE-A is required.

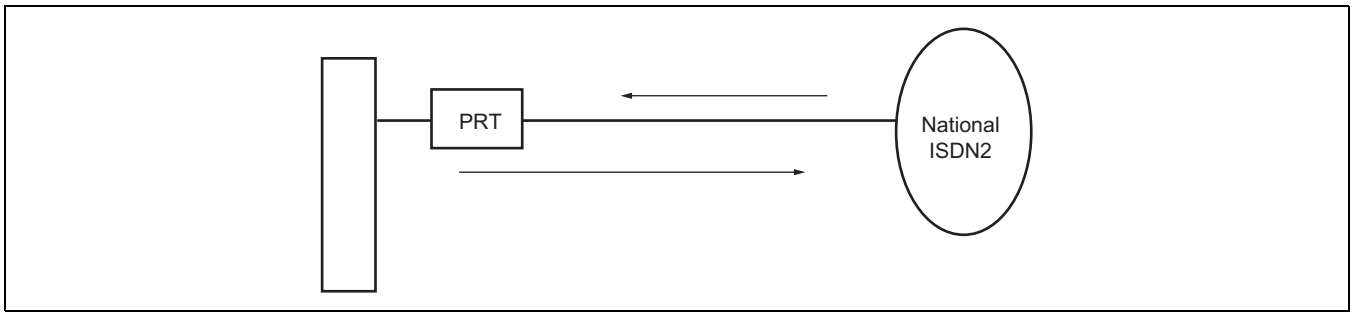
4. PROGRAMMING

See page 231 for programming the data.

[N-42] NATIONAL-ISDN2-PRI

1. GENERAL DESCRIPTION

This feature allows the system to connect with N-ISDN2 network. NON-FACILITY ASSOCIATED SIGNALLING and D-CHANNEL BACKUP are also available.



Note: Network-side services, VIRTUAL TIE LINE, and B-ISDN services are not available.

Note: The following issues of firmware are required.

CIRCUIT CARD	FIRMWARE	ISSUE	REMARKS
CH-PATA (1.5M PRT)	-	-	
CH-PATA (1.5M DTI)	-	-	
PA-PRTC (1.5M PRT)	SP-3874 PRTC PROG-A	3 or later	
PA-PRTC (1.5M DTI)	SP-3910 AMI DTI PROG-A	2 or later	

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: ARTD - Assign the following CDN data for the N-ISDN2 route.
CDN65 (INT):1 (N-ISDN2)

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ACBC - Assign Call by Call data for each OPR.

NET: 2 (N-ISDN2)
SERV: 1 (SERVICE)
CODE: Facility Coding Value
1: INWATS
2: OUTWATS
3: FX
4: Tie Trunk

[N-47] NETWORK NAME DISPLAY (NI-2 PRI)

1. GENERAL DESCRIPTION

This feature provides the Name Display service between Telephony Server and National-ISDN 2 network (NI-2 network or NI-2).

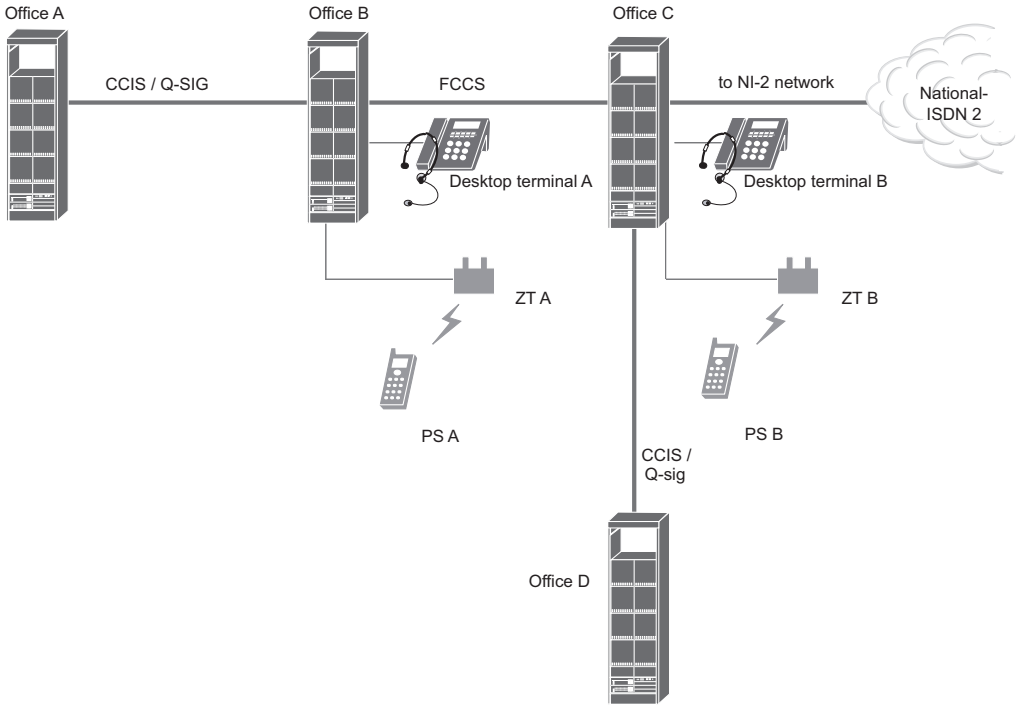
Note: Name Display service supports the following.

(a) When the call is terminated directly from NI-2 network, it displays the received Calling Name information on the Desktop terminal/PS.

(b) When the call from NI-2 network is terminated via tandem connection, it transmits the received Calling Name information through an intermediate network and displays the information on the destination Desktop terminal/PS.

This service is realized in the following case or network. See the illustration below.

Calling Name information received from NI-2 network is displayed on the Desktop terminal or PS terminal in the system connected directly or the system connected via tandem connection.



2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This feature is available on condition that the system data is assigned to allow OAI service (see 4. PROGRAMMING).

(2) This feature is not provided for Calling Name information transmission to NI-2 network.

(3) Calling Name information received from NI-2 network can be displayed on Desktop terminal or PS terminal only.

(4) A maximum of 15 digits of Calling Name information received from NI-2 network is included in the facility information element. The number of digits may depend on the system data assignment (see PROGRAMING).

(5) The system does not check the contents of Calling Name information received from NI-2 network.
(The system displays or transmits Calling Name information as received from NI-2 network.)

(6) When the Calling Name information received from NI-2 network is the information of intermediate party (when NI-2 is the intermediate interface of the tandem connection), the information is not displayed on the terminal nor transmitted to the destination.

(7) When the destination sets the call forwarding service, the Calling Name information is also transmitted (forwarded) to the forwarded destination (This condition is applied to both cases the forwarded destination is in the same network and in other networks such as CCIS or Q-sig, FCCS).

(8) Calling Name information received as FACILITY message is not transmitted to CCIS or Q-sig line (Calling Name information in SETUP message only).

(9) When the Calling Name information is not sent from NI-2 network (if the information notification is rejected), no Calling Name information is displayed on terminals or transmitted to the destination.

4. PROGRAMMING

STEP 1: ASYD - SYS1, Index78, Bit5=1: Name Display service is provided
Bit3: Dialed number display is;
0/1=Not available/Available
Index79, Bit6=0: OAI service is provided
Index241, Bit1: Maximum number of digits displayed for Name Display service
0/1 = 8 digits/16 digits of the first part

STEP 2: ARTD/ARTDN - Assign the route class data of NI-2 trunk.
DPLY (CDN50):1 = Connected party number is displayed on Desktop terminal for Inter-Office connection
IND (CDN112):1 = Inter-Office Name Display service is in service

Note: To change the data for existing route (RT), initialize the circuit card.

[P-58] PRI TERMINAL SUPPORT

1. GENERAL DESCRIPTION

This feature permits terminals which support the AT&T 4ESS protocol and H0/H11 services. The system acts as the terminal network.

Note: This feature is available in North America only.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

1. The protocol for AT&T network is used. The AT&T 4ESS protocol is used for this application.
2. Calls for B/H0/H11 type services can be switched.
3. Connected terminals must have the AT&T protocol.
4. Channel negotiation is not performed for calls using the H0/H11 services.
5. The SMDR record shows the call as a tandem connection. The SMDR record for the H0/H11 channel is the same as for B type call. SMDR information is not sent to terminals.
6. Service peg is not available.
7. Route peg count service for either H0/H11 channel is performed as one count, when the trunks are seized regardless of the number of the trunks.
8. Traffic measurement is performed for all trunks used for either H0/H11 channel.
9. Individual Trunk Access service is not available when the trunks are controlled as the H0/H11 channel.
10. Busy lamp field control is not supported.

4. PROGRAMMING

See page 234 for programming the data.

[P-73] PRI TWO B-CHANNEL TRANSFER (NATIONAL ISDN-98)

1. GENERAL DESCRIPTION

This feature allows the system to release two PRI lines when the local user releases the connection with the two remote users. The released PRI lines are placed in idle to accept other calls, while Remote Users go on talking. TBCT invokes this National ISDN2 function by exchanging ISDN Layer 3 messages. The table below shows a listing of triggers for initiating TBCT.

PRI Two B-Channel Transfer (TBCT)

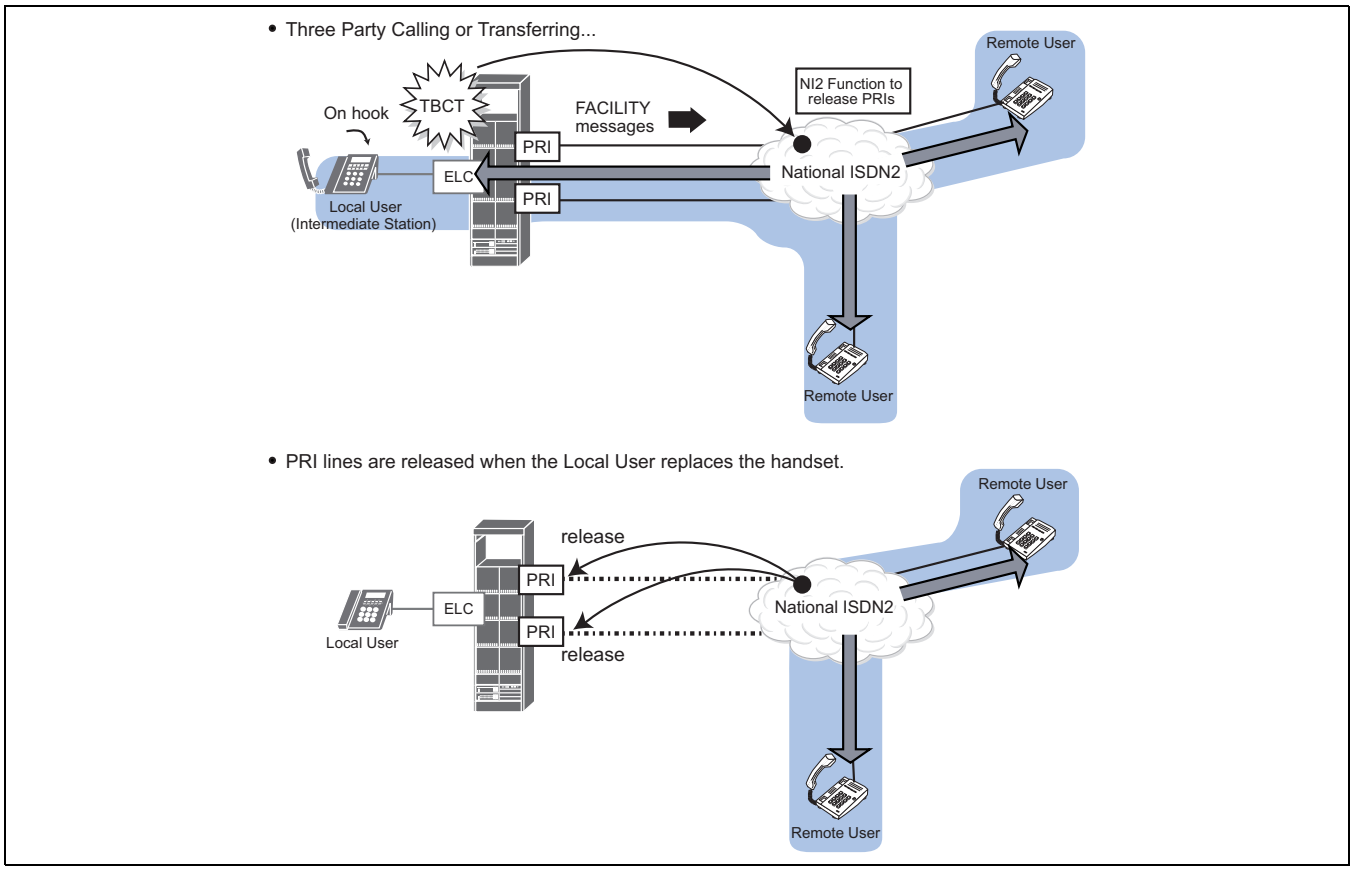


Table 0-1 Connection Status and Trigger for initiating TBCT

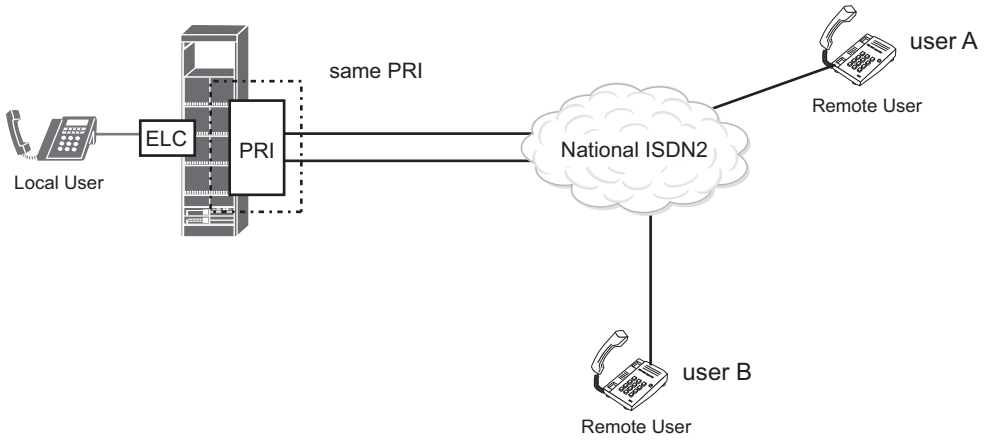
Connection Status		Trigger
with intermediate station	Three Party Calling	"On-hook" at intermediate station
	Consultation Hold	
	Blind Transfer	Receipt of CONN after the intermediate station is released
without intermediate station	Call Forwarding **Note 1**	Receipt of CONN from the destination
	Tandem Connection	Receipt of CONN from the tandem destination

Note 1: Includes Call Forwarding - All Calls - Outside, Call Forwarding - Busy Line - Outside, Call Forwarding - Don't Answer - Outside, Call Forwarding - PS Incoming Incomplete.

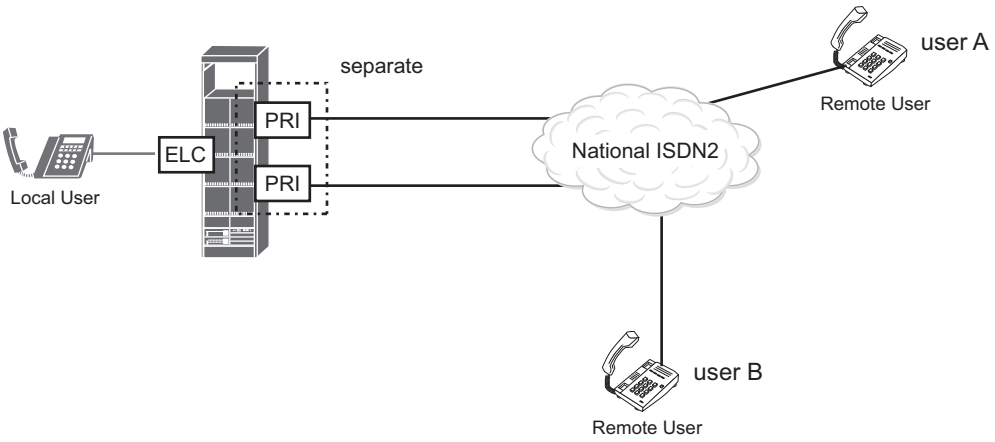
TBCT is available in the following two configurations.

TBCT Available Configurations

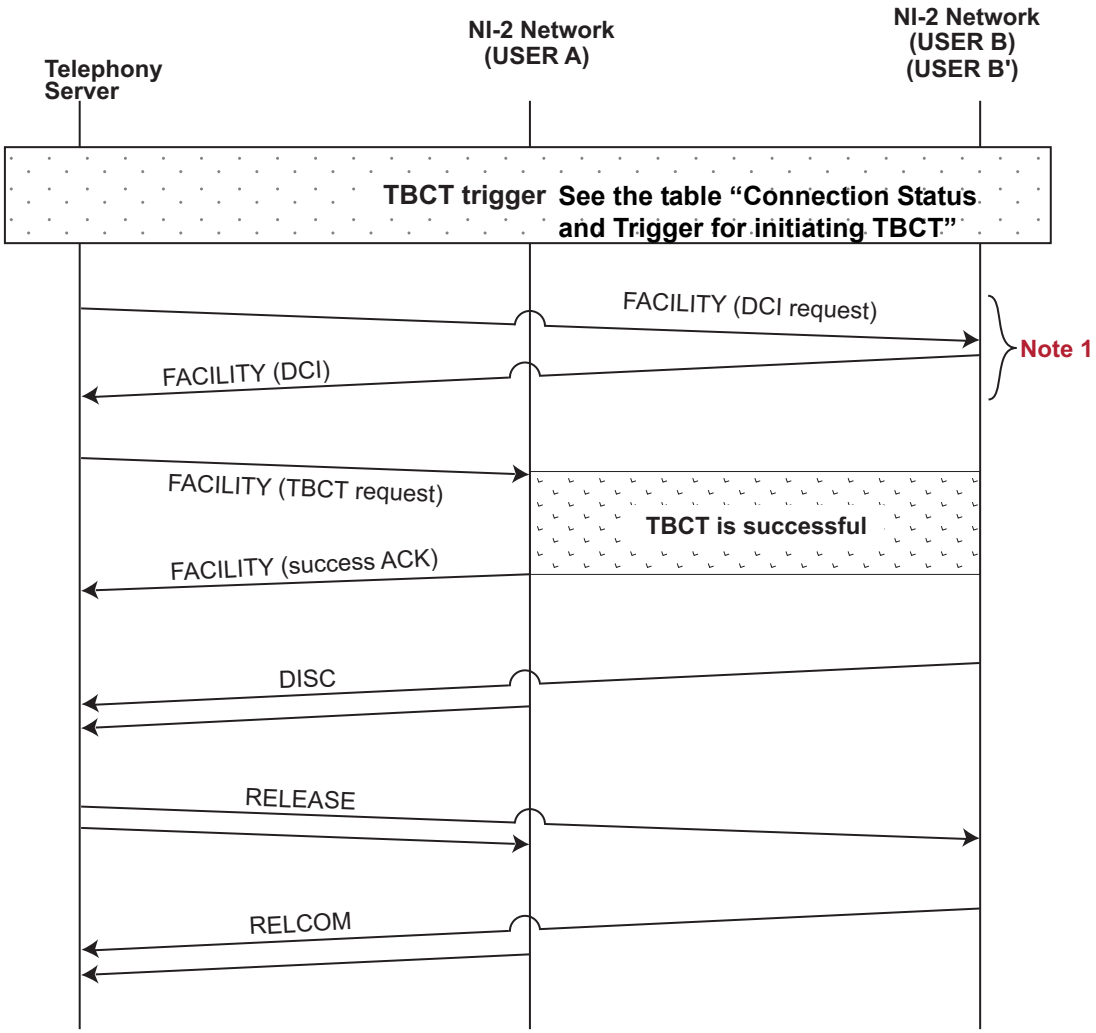
1. Two N-ISDN2 calls are controlled by the same PRI card:



2. Two N-ISDN2 calls are controlled by separate PRI cards:

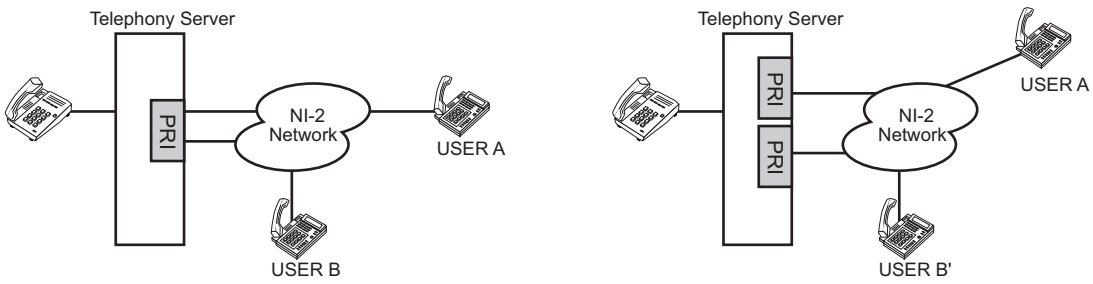


When Receiving FACILITY Messages from Network

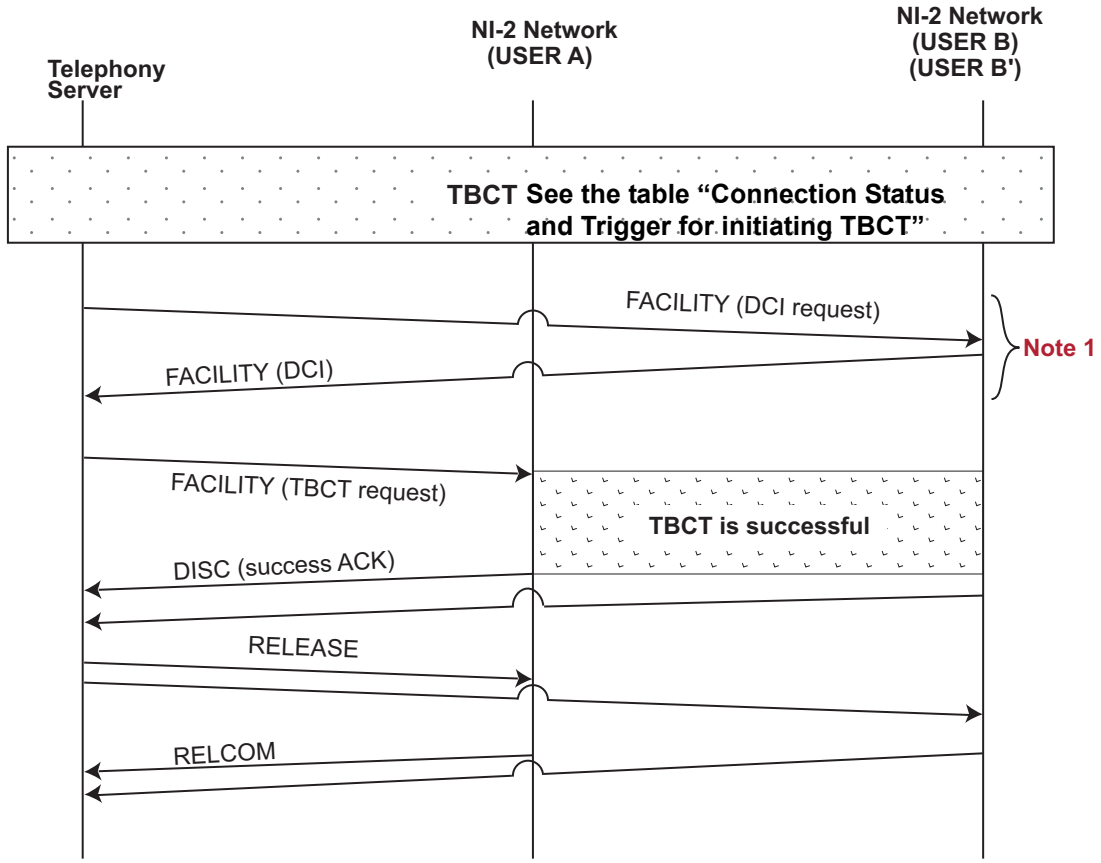


Note 1: Omitted when USER-A and USER-B connect to the same PRI card.

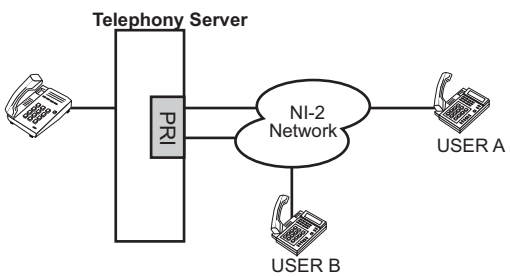
DCI: Identifier allocated to each PRI, managed by the network

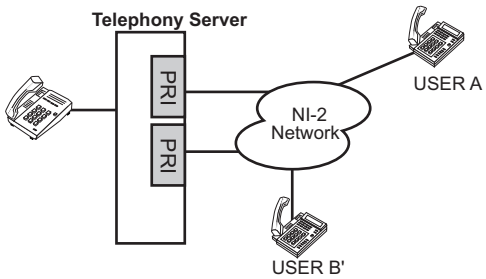


When Receiving DISC message from Network

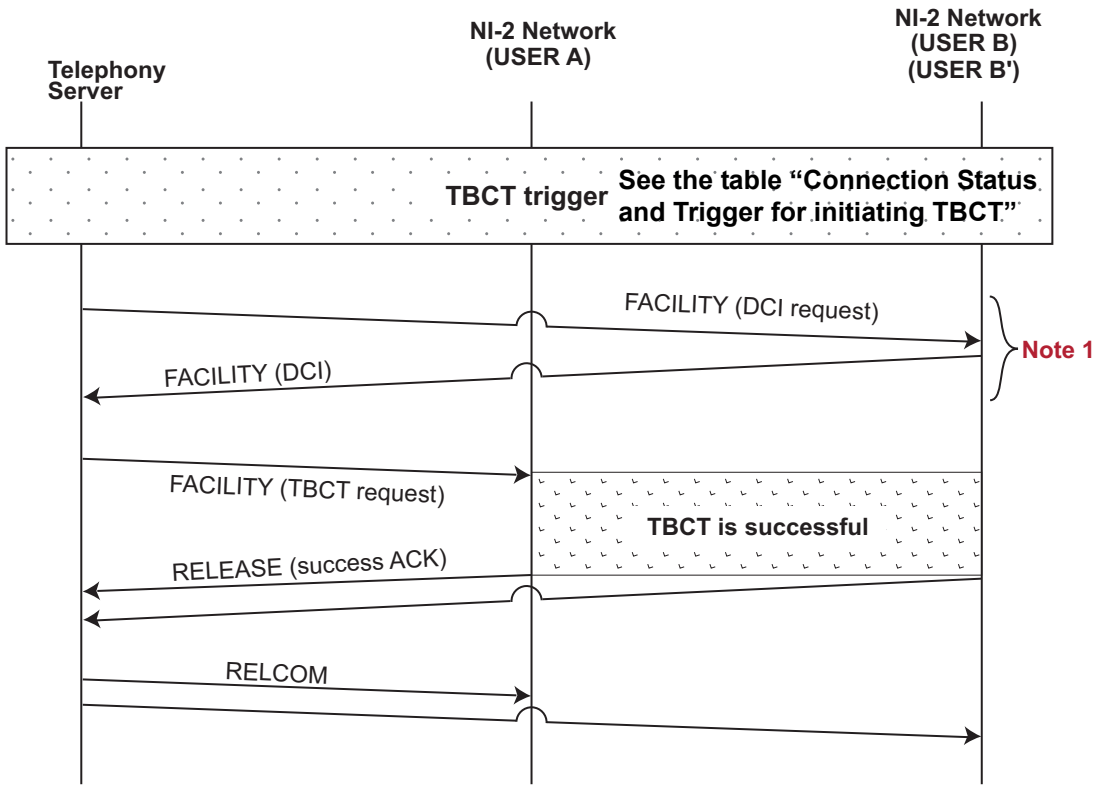


Note 1: Omitted when USER-A and USER-B connect to the same PRI card.

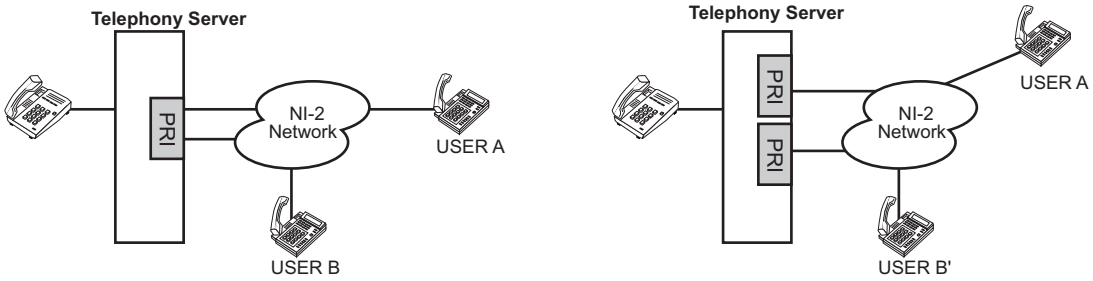




When Receiving RELEASE message from Network



Note 1: Omitted when USER-A and USER-B connect to the same PRI card.



2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This feature supports NI-2 only.

(2) This feature requires two NI-2 calls.

(3) This feature is available when Network ID codes (**Note 1**) are identical between two routes corresponding to the two NI-2 calls to which TBCT request is sent.

Note 1: Network ID is “NI2ID”. Refer to “5. PROGRAMMING”.

(4) This feature is available in one of the following cases:
- At least one call to be transferred is answered. The other call is:
  : “Answered” (outgoing from the PBX)
  : “Answered” (incoming to the PBX)
- By receiving CONN from the tandem destination of NI-2.

(5) The following bearer capabilities are supported. (Circuit-Mode Unrestricted Digital Information is not supported.)
- Circuit-Mode/Speech
- Circuit-Mode 3.1 kHz Audio

(6) TBCT request retransmission is not provided.

(7) Response wait timer for DCI request is 10 seconds (fixed)

(8) Retransmission of DCI request by timeout is only once.

(9) DCI is obtained (DCI request is sent) under the following conditions.
- Two NI-2 calls are handled by different PRI cards.
- Both PRI have not received DCI.
If one party has received DCI, DCI request is not sent even if the other party has not received it.

(10) If PBX receives Return Error Component having one of following, DCI information preserved in PBX is cleared. The new DCI for the PRI is obtained at the next trigger of TBCT request.
- Error Value object ID {1 2 840, 10005 1}, “dCINotAssignedByNetwork”
- Error Value #32, "notAllowed"

(11) DCI information preserved in PBX is cleared by circuit card initialization. However, when Non-Facility Associated Signaling (NFAS) is valid and D channel is not involved in the interface, DCI is not cleared.

(12) Operations concerning to Call Tag are not provided, (e.g., Charging after receiving indication of TBCT accepted)

(13) The following parameters and a counter are not supported.
-Active Transfers variable parameter (Number of TBCTs connected by NI-2 Network)
-Available Transfer variable parameter (Number of acceptable TBCTs by NI-2 Network)
-Transfer Requests in Current Period counter (Number of TBCT requests per 10 seconds)

4. INTERACTIONS

(1) This feature is not used when Serial Call service is valid.

(2) This feature does not support NI-2 calls remained by CCIS Link Reconnection.

5. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 440, Bit 0-7: TBCT Timer (Release guard timer when RELCOM message is not received from NI-2 after receiving TBCT ACK. The timer starts when receiving DISC at one node.)

00 : 10 seconds (default)
01 : 1 seconds
02: 2 seconds
〉
1E : 30 seconds
All others : 10 seconds

STEP 2: ARTI/ARTIN - Assign “Identifier for National ISDN-2” for the route to use this feature. (Assign this data to B-Channel and D-Channel)

CDN: 63 (Identifier for National ISDN-2)

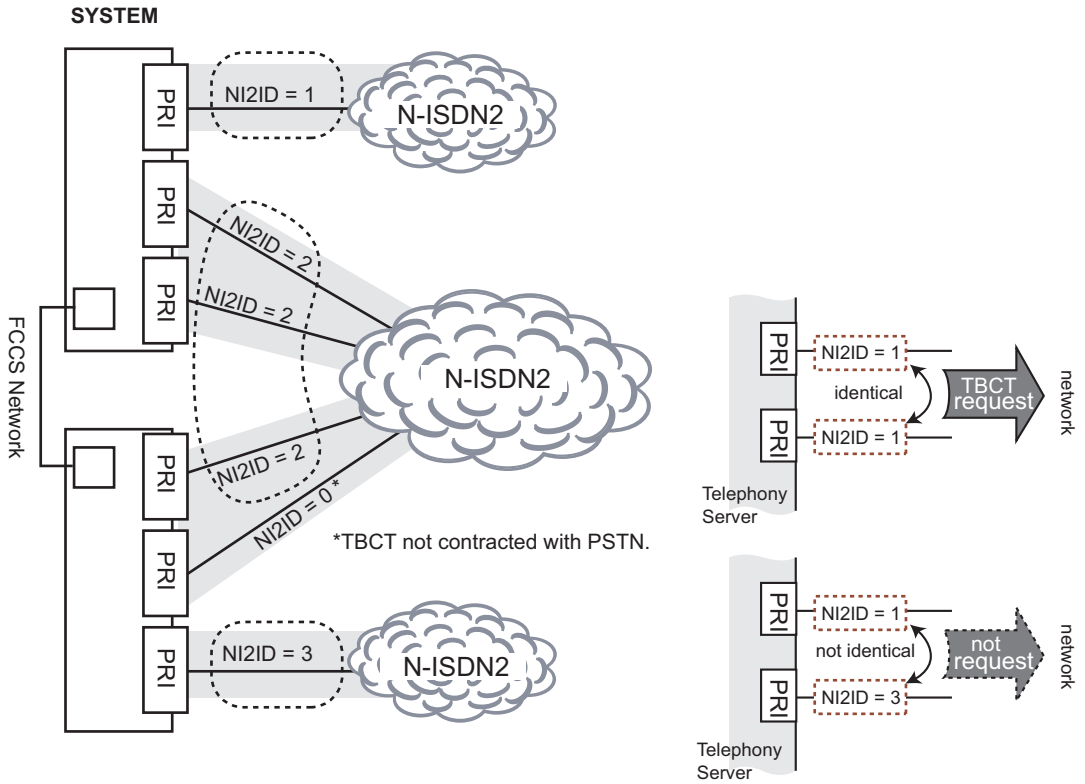
0 : Out of Service (the local carrier doesn’t support TBCT, or PBX doesn’t have it subscribed with local carrier.)
1 - 14: TBCT is in service when own and opposite side NI-2 Trunks match this value. Otherwise out of service. (**Note 1**)
15 : TBCT is in service when own and opposite side NI-2 routes serve a same node (FPC). Otherwise out of service. (**Note 2**)

Note 1: Do not choose 1-14 unless very familiar with this configuration. Assign the same NI2ID to PRI routes which has been contracted with a PSTN.

Note 2: Recommended Configuration: All routes in the same node are supposed to be connected to a single N-ISDN2.

How to Assign NI2ID

Assign a unique NI2ID on a N-ISDN basis. When NI2ID is identical between two PRI lines, TBCT request is performed.

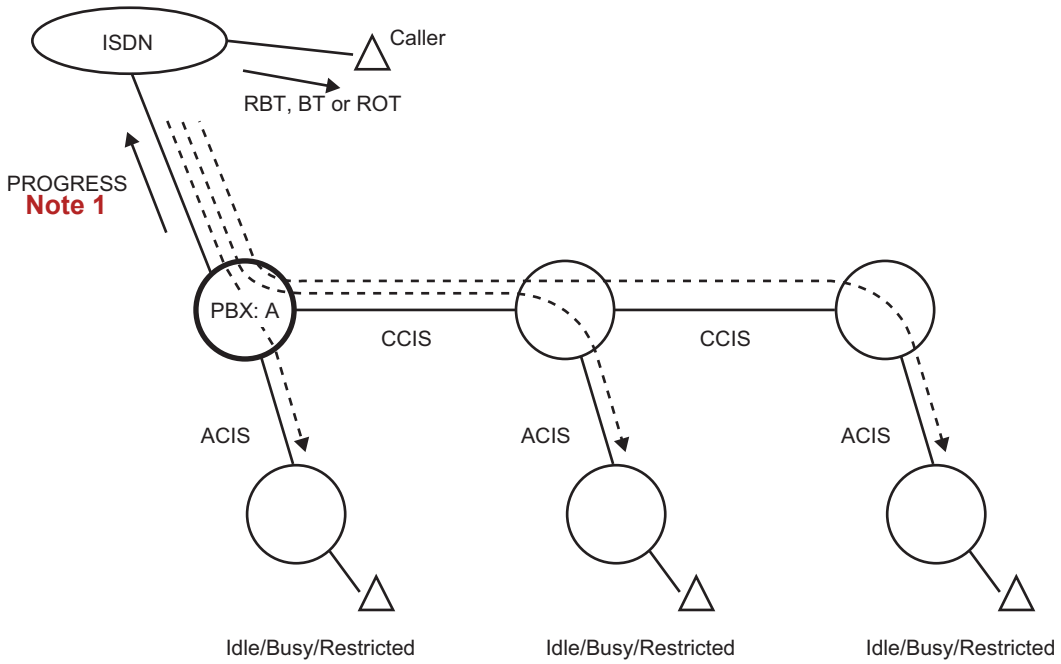


PRI: Primary Rate Access Interface

[R-53] RETURN MESSAGE IN THE TANDEM CONNECTION

1. GENERAL DESCRIPTION

In the tandem connection as the figure below, a PBX can send "CALL PROC. + PROGRESS" as the return message instead of "CALL PROC. + ALERT" depending on the data assignment.
This return message allows a PBX to inform the status of the called station in the office connected via ACIS line, supporting In-band status information such as RBT, BT or ROT.



Note 1: In-band information is available.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

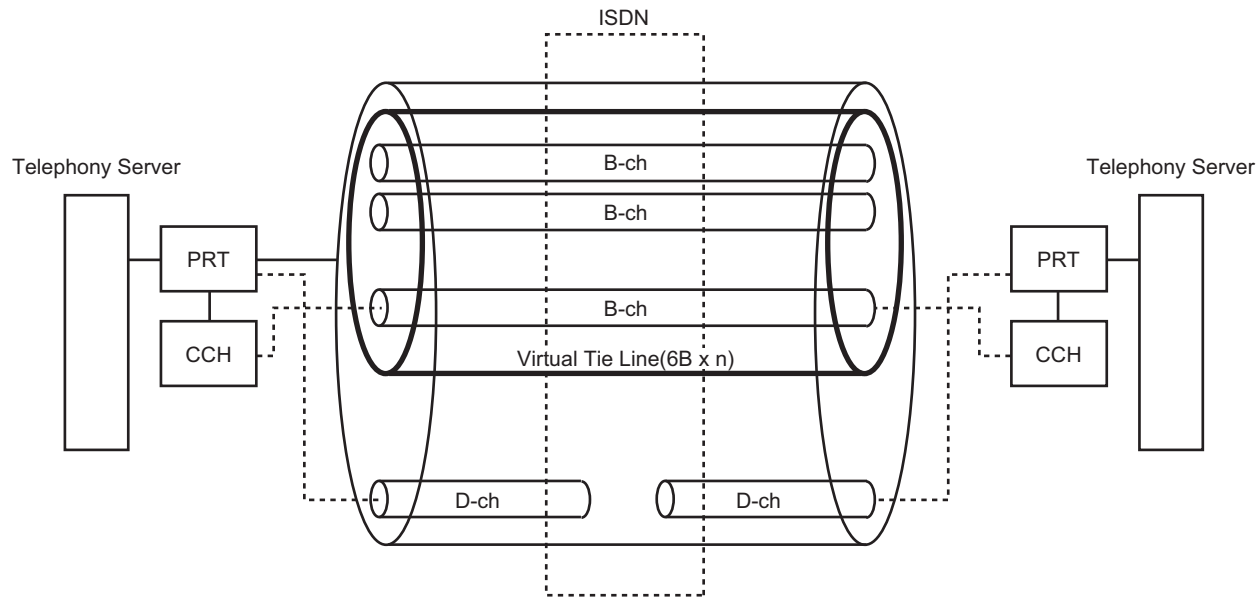
STEP 2: ARTI - Assign the following data for Bch route.
RETMSG: 0=CALL PROC. + ALERT as the return message.
1=CALL PROC. + ALERT or CALL PROC. + PROGRESS

[D-132/P-44] DEMAND ESTABLISHED ISDN-CCIS NETWORK/ PERMANENT ISDN-CCIS NETWORK/SEMI-PERMANENT CONNECTION

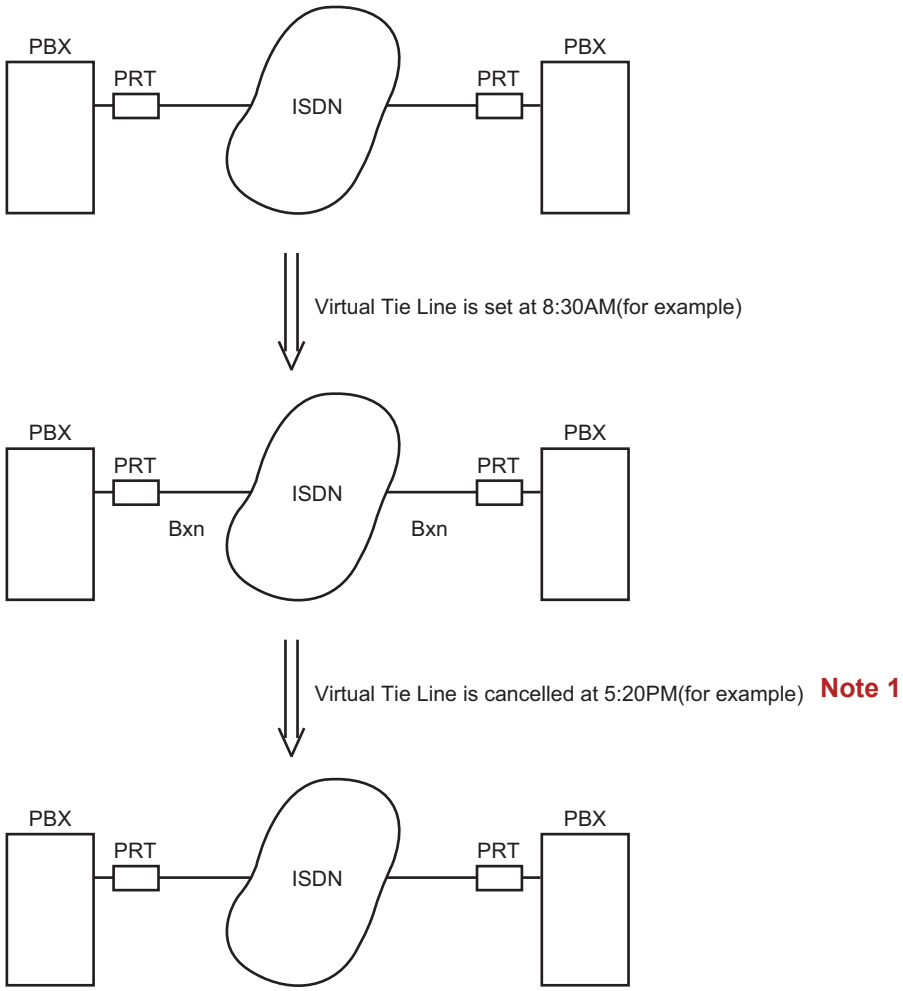
1. GENERAL DESCRIPTION

This feature provides the virtual TIE Line service by setting up a connection between a PBX and another via ISDN network during the designated period of time.
While the virtual TIE Line is set, one of the B-channels on the setup connection is used as a CCIS No. 7 signal channel and other B-channels as CCIS No. 7 voice channels.

<Structure of Virtual TIE Line>

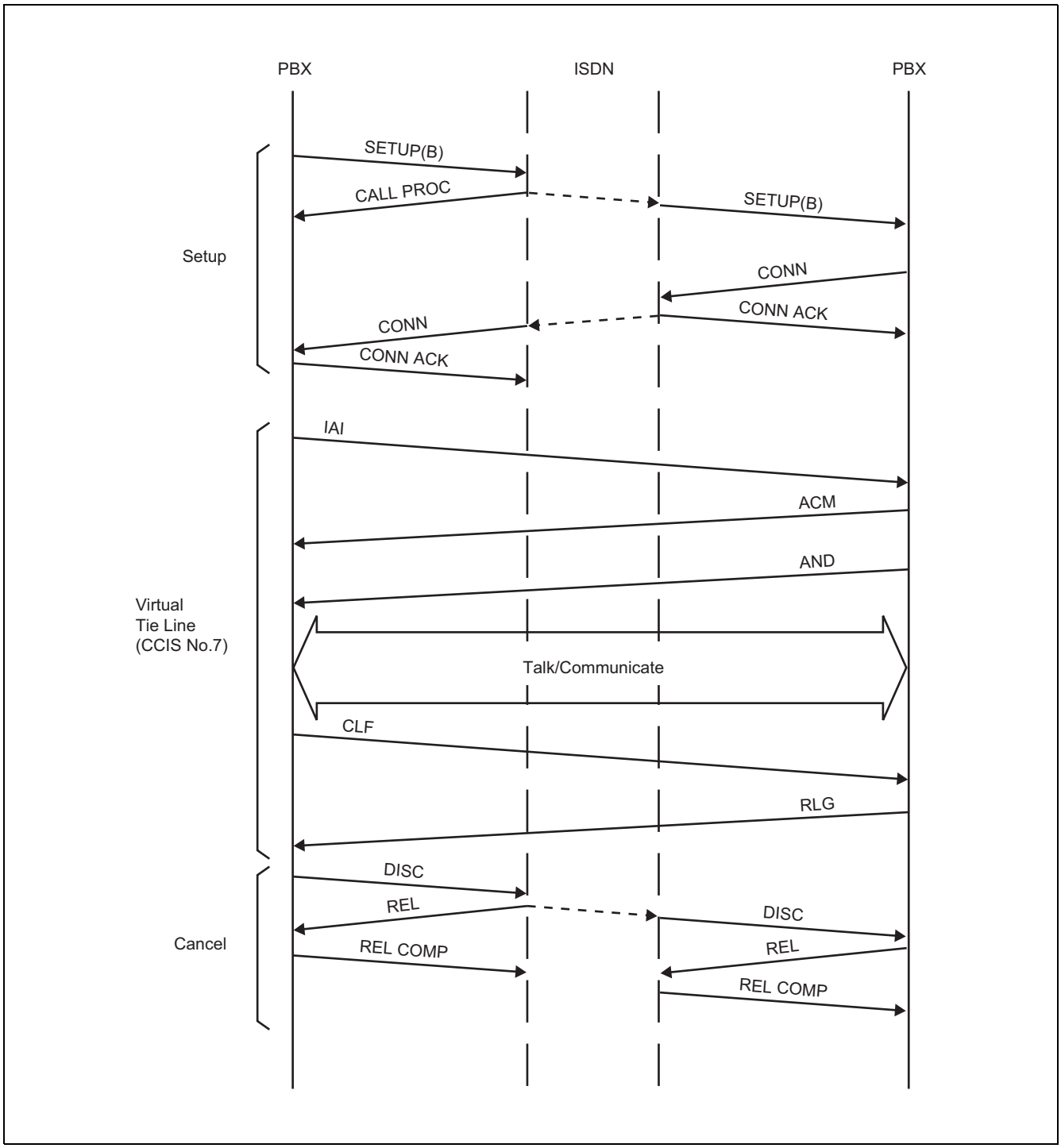


- Service Status



Note 1: When there is a call connected to the Virtual Tie Line at the time designated to cancel the connection, the connection is extended by 10 minutes (max. 30 minutes) to wait for the call to be released. After 30 minutes, the calls connected to the line will be released forcefully.

- Setup/Cancel Protocol for Virtual TIE Line



2. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

Note: In the case of Virtual TIE Line network, an alternative route cannot be assigned.

Note: Example for ports allocation of the command ATRK.

30PRT

Odd	LV7	Bch-15	*SIG-ch*	*CCIS*
	LV6	Bch-14	*Speech*	
	LV5	Bch-13	*Speech*	
	LV4	Bch-12	*Speech*	
	LV3	Bch-11	*Speech*	
	LV2	Bch-10	*Speech*	
	LV1	Bch-9	Bch-24	
	LV0	Bch-8	Bch-23	
Even	LV7	Bch-7	Bch-22	
	LV6	Bch-6	Bch-21	
	LV5	Bch-5	Bch-20	
	LV4	Bch-4	Bch-19	
	LV3	Bch-3	Bch-18	
	LV2	Bch-2	Bch-17	
	LV1	Bch-1	Bch-16	
	LV0	DCH	Dch	

STEP 2: Assign the data for CCIS No. 7.

STEP 3: Assign the Virtual TIE Line data.

For the originating office: AVTL-Assign a schedule for Virtual TIE Line implementation period.

TL/SPC (T/S): Time Link/Semi Permanent Connection
DATE: Start day-End day **Note 1**
PTN: Pattern number (0-15)
IC/OG: OG
RT: Route No. used for Virtual TIE Line
TK: First trunk No. of Virtual TIE Line route.
D-LENS: LENS of DCH used for setting Virtual TIE Line
CH: Number of Bch used for Virtual TIE Line **Note 1**
CALLING:The number of ISDN line of the self office
Key PAD:
CALLED: The Virtual TIE Line number of ISDN line of the facing (terminating) office
SUB: 0
WEEK: Week range **Note 1**
TIME: Start Time and End Time **Note 1**

For the terminating office:AVTL -Assign a schedule for Virtual TIE Line implementation period.

TL/SPC (T/S): Time Link/Semi Permanent Connection
DATE: Start day-End day **Note 1**

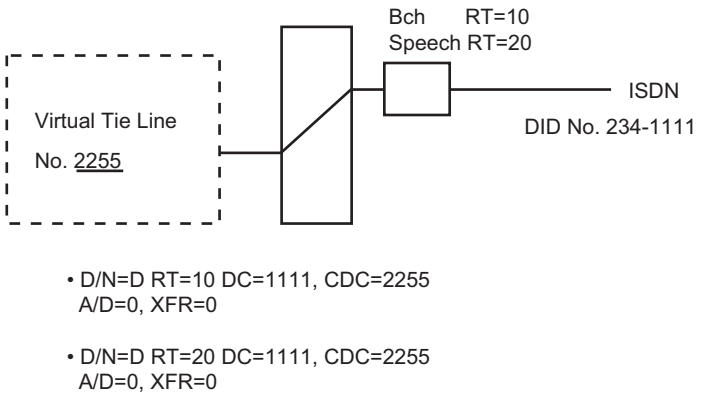
PTN: Pattern number
IC/OG: IC
RT: Route No. used for Virtual TIE Line
TK: First trunk No. of Virtual TIE Line route.
D-LENS: LENS of DCH
CH: Number of Bch used for Virtual TIE Line **Note 1**
CALLING: The number of ISDN line of the facing (originating) office
SUB: 0
WEEK: Week range **Note 1**
TIME: Start Time and End Time **Note 1**

AVTC -Assign a Virtual TIE Line Call data
TN:
STN: **Note 2**

Note 1: Data of DATE, WEEK, TIME and CH must match between the originating office and the terminating office.

Note 2: In addition, “DID-Addressing” data is necessary for both Bch of ISDN and Speech CH of CCIS No. 7.

ARTD- CDN66 (DC)
ACDD-Assign a data for digits conversion to Virtual TIE Line number as follows;



• D/N=D RT=10 DC=1111, CDC=2255
A/D=0, XFR=0

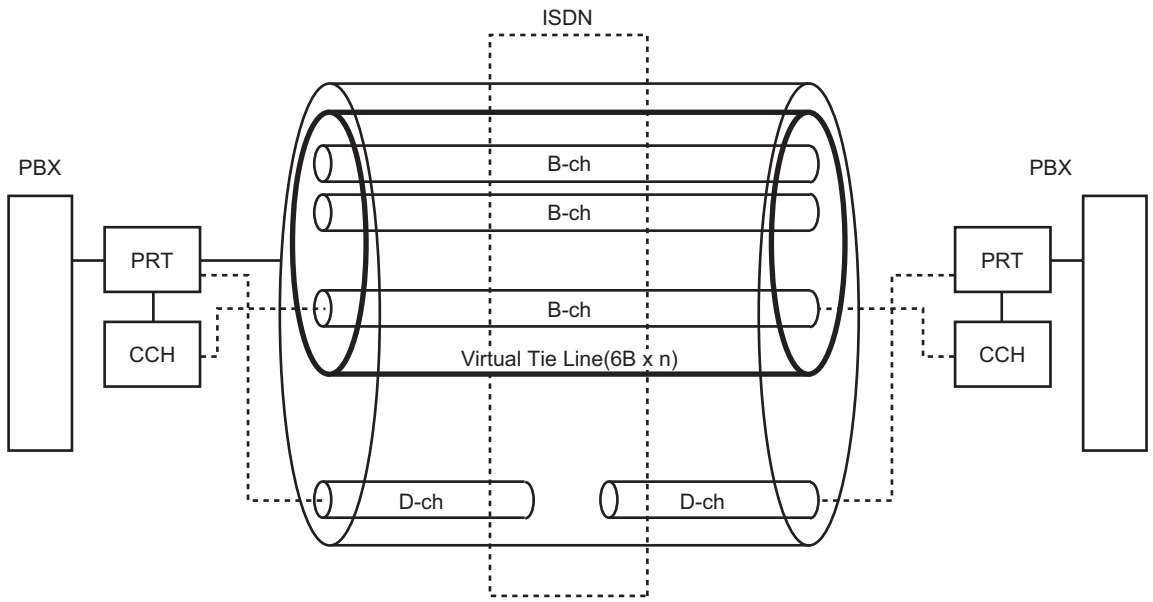
• D/N=D RT=20 DC=1111, CDC=2255
A/D=0, XFR=0

[V-18] VIRTUAL TIE LINE

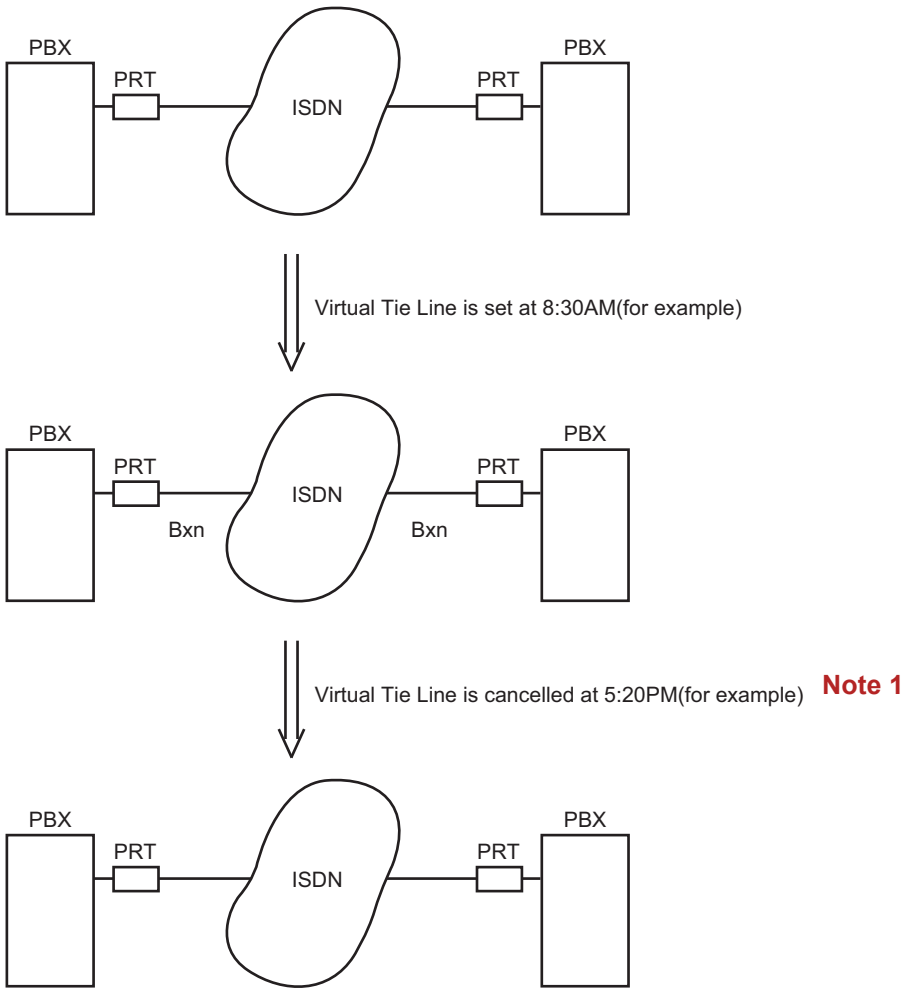
1. GENERAL DESCRIPTION

This feature provides the virtual TIE Line service by setting up a connection between a PBX and another via ISDN network during the designated period of time.
While the virtual TIE Line is set, one of the B-channels on the setup connection is used as a CCIS No. 7 signal channel and other B-channels as CCIS No. 7 voice channels.

<Structure of Virtual TIE Line>

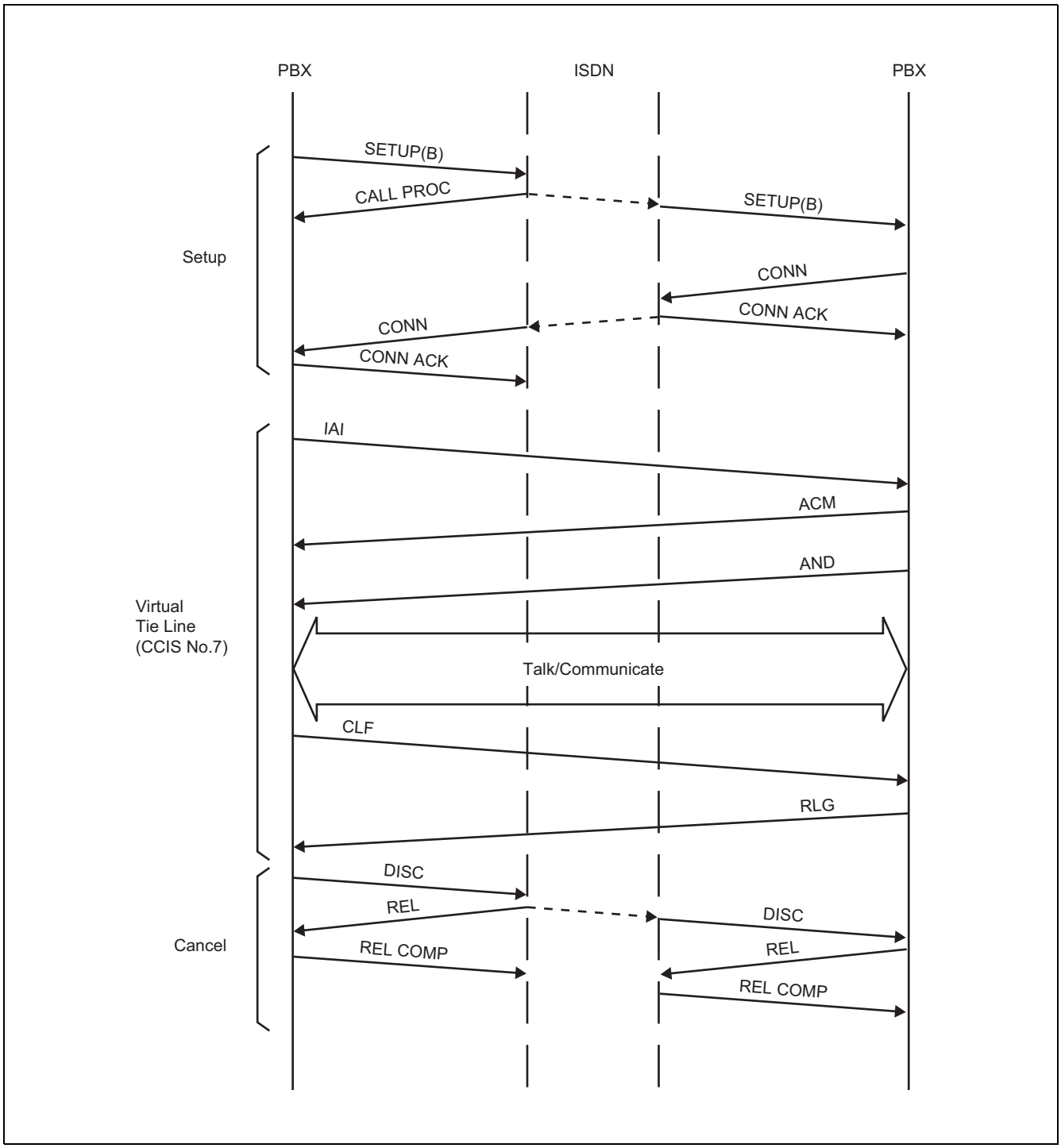


- Service Status



Note 1: When there is a call connected to the Virtual Tie Line at the time designated to cancel the connection, the connection is extended by 10 minutes (max. 30 minutes) to wait for the call to be released. After 30 minutes, the calls connected to the line will be released forcefully.

- Setup/Cancel Protocol for Virtual TIE Line



2. OPERATING PROCEDURE

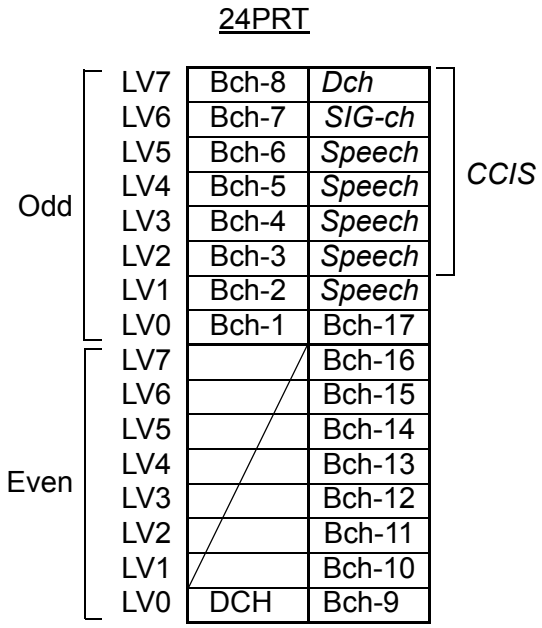
No manual operation is required.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

Note: In the case of Virtual TIE Line network, an alternative route cannot be assigned.

Note: Example for ports allocation of the command ATRK.



STEP 2: Assign the data for CCIS No. 7.

STEP 3: Assign the Virtual TIE Line data.

For the originating office: AVTL-Assign a schedule for Virtual TIE Line implementation period.

TL/SPC (T/S): Time Link/Semi Permanent Connection
DATE: Start day-End day **Note 1**
PTN: Pattern number (0-15)
IC/OG: OG
RT: Route No. used for Virtual TIE Line
TK: First trunk No. of Virtual TIE Line route.
D-LENS: LENS of DCH used for setting Virtual TIE Line
CH: Number of Bch used for Virtual TIE Line **Note 1**
CALLING: The number of ISDN line of the self office
Key PAD:
CALLED: The Virtual TIE Line number of ISDN line of the facing (terminating) office
SUB: 0
WEEK: Week range **Note 1**
TIME: Start Time and End Time **Note 1**

For the terminating office: AVTL -Assign a schedule for Virtual TIE Line implementation period.

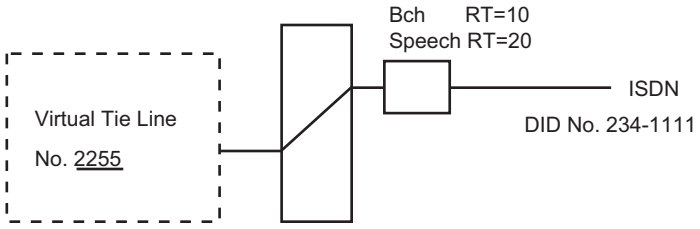
TL/SPC (T/S): Time Link/Semi Permanent Connection
DATE: Start day-End day **Note 1**
PTN: Pattern number

IC/OG: IC
RT: Route No. used for Virtual TIE Line
TK: First trunk No. of Virtual TIE Line route.
D-LENS: LENS of DCH
CH: Number of Bch used for Virtual TIE Line **Note 1**
CALLING: The number of ISDN line of the facing (originating) office
SUB: 0
WEEK: Week range **Note 1**
TIME: Start Time and End Time **Note 1**

AVTC -Assign a Virtual TIE Line Call data
TN:
STN: **Note 2**

Note 1: Data of DATE, WEEK, TIME and CH must match between the originating office and the terminating office.

Note 2: In addition, “DID-Addressing” data is necessary for both Bch of ISDN and Speech CH of CCIS No. 7.
ARTD - CDN66 (DC)
ACDD - Assign a data for digits conversion to Virtual TIE Line number as follows:



• D/N=D RT=10 DC=1111, CDC=2255
A/D=0, XFR=0

• D/N=D RT=20 DC=1111, CDC=2255
A/D=0, XFR=0

[E-23] EVENT BASED CCIS - ISDN TRANSPORT

1. GENERAL DESCRIPTION

This feature provides VIRTUAL TIE LINE for each event such as call origination and MCI message transmission. Inter-PBX link for this feature is established on B-channels of the public ISDN line using CCIS No. 7 signaling protocol. For addressing a specific terminal, Called Sub Address or Called DID Number is used depending on the network configuration.

2. OPERATING PROCEDURE

None.

3. SERVICE CONDITIONS

(1) The ISDN Primary Rate Interface (PRI) trunk is used for this feature.

(2) The following ISDN interfaces are available:
4 ESS
DMS 100
N-ISDN2
ETSI-PRA

(3) When using Called Sub Address as addressing information:
a. channel negotiation and Sub Address-Addressing must be available in the public ISDN network.
b. different DID Numbers must be assigned to the ISDN line, the E-CCIS line and its alternate route. For the E-CCIS line, DID Number is required for each D-channel.
c. Sub Address assigned to the E-CCIS trunk must be common to both offices.

(4) When using Called DID Number as addressing information:
a. a different DID Number is required for each channel of the E-CCIS line.
b. when channel negotiation is not available, call termination to an E-CCIS trunk must not be allowed except when DID Number assigned to the trunk is dialed.
c. different DID Numbers must be assigned to the ISDN line and the E-CCIS line. For the E-CCIS line, DID Number is required for each D-channel.
d. alternate route for the E-CCIS line cannot be assigned.

(5) Each trunk for the E-CCIS line cannot be used for the public ISDN line.

(6) Each channel used for a E-CCIS line must be controlled by a single D-channel (i.e. Each channel must be assigned to a single ISDN line).

(7) Billing information on the E-CCIS line does not include Access Code or Converted Number.

(8) The following features are available for the E-CCIS line:

- Asynchronous Data Switching [A-44] **Note 1**
- Attendant Camp-On with Tone Indication – CCIS [A-45]
- Attendant-Controlled Conference – CCIS [A-46]
- Automatic Recall – CCIS [A-71]
- Automatic Number Identification (ANI) – CCIS [A-87]
- Busy Verification – CCIS [B-9]
- Brokerage Hotline – CCIS [B-10]
- Call Back – CCIS [C-44]
- Call Forwarding – All Calls – CCIS [C-45]
- Call Forwarding – Busy Line – CCIS [C-46]
- Call Forwarding – Don't Answer – CCIS [C-47]
- Call Forwarding – Intercept – CCIS [C-48]
- Call Forwarding – Override – CCIS [C-49]
- Call Transfer – All Calls – CCIS [C-50]
- Called Station Status Display – CCIS [C-51]
- Calling/Called Number Display – CCIS [C-52]
- Call Processing Indication – CCIS [C-53]
- Call Transfer – Attendant – CCIS [C-54]
- Consultation Hold – All Calls – CCIS [C-58]
- Call Forwarding Assignment – Attendant – CCIS [C-94]
- Data Communication – CCIS [D-41] **Note 1**
- Data Interface – Automatic Answer – CCIS [D-65] **Note 1**
- Data Line Security – CCIS [D-66] **Note 1**
- Data Line Privacy – CCIS [D-67] **Note 1**
- Data Privacy on Demand – CCIS [D-68] **Note 1**
- Data Transparency – CCIS [D-69] **Note 1**
- Deluxe Traveling Class Mark – CCIS [D-70]
- Dial Access to Attendant – CCIS [D-71]
- Digital Display – Station – CCIS [D-72]
- Digital Display – Trunk – CCIS [D-73]
- Direct-In Termination – CCIS [D-74]
- Distinctive Ringing – CCIS [D-75]
- Do Not Disturb –D – CCIS [D-76D]

- Data Hotline – CCIS [D-86] **Note 1**
- Dialed Number Display – Recall – CCIS [D-91]
- Dual Hold Dterm – CCIS [D-93D]
- Executive Right-of-Way – CCIS [E-8]
- Elapsed Time Display – CCIS [E-9]
- E-911 ANI Unified Number of Digits – CCIS [E-20]
- Flexible Numbering of Stations – CCIS [F-12]
- Hands-Free Answerback –D – CCIS [H-10D]
- House Phone – CCIS [H-11]
- Hotline – CCIS [H-12]
- Incoming Call Identification – CCIS [I-16]
- Individual Attendant Access – CCIS [I-17]
- Inter-Position Transfer – CCIS [I-18]
- Individual Trunk Access – CCIS [I-19]
- Look Ahead Routing – CCIS [L-25]
- LDN Night Connection – CCIS [L-29]
- Message Reminder – CCIS [M-34]
- Message Waiting Lamp Setting – Attendant – CCIS [M-35]
- Message Waiting Lamp Setting – Station – CCIS [M-36]
- Miscellaneous Trunk Access – CCIS [M-37]
- Miscellaneous Trunk Restriction – CCIS [M-38]
- Modem Pooling – CCIS [M-39] **Note 1**
- Multiple Call Forwarding – All Calls – CCIS [M-40]
- Multiple Call Forwarding – Busy Line – CCIS [M-41]
- Multiple Call Forwarding – Don’t Answer – CCIS [M-42]
- Multiple Console Operation – CCIS [M-43]
- Message Center Interface – CCIS [M-67]
- Night Connection – Fixed – CCIS [N-15]
- Night Connection – Flexible – CCIS [N-16]
- Name Display – System – CCIS [N-37]
- Off-Hook Queuing – CCIS [O-11]
- Outgoing Trunk Queuing – CCIS [O-12]
- Paging Access – CCIS [P-28]
- Restriction from Outgoing Calls – CCIS [R-22]

- Serial Call – CCIS [S-52]
- Service Display –D – CCIS [S-53D]
- Simultaneous Voice and Data Transmission – CCIS [S-54]
- Single-Digit Station Calling – CCIS [S-55]
- Station Controlled Conference – CCIS [S-56]
- Station-to-Station Calling – CCIS [S-57]
- Station-to-Station Calling – Operator Assistance – CCIS [S-58]
- Step Call – CCIS [S-59]
- Synchronous Data Switching – CCIS [S-60]
- Supervisory Call – CCIS [S-73]
- Toll Restriction – 3/6-Digit – CCIS [T-26]
- Trunk Answer from Any Station – CCIS [T-27]
- Uniform Numbering Plan – CCIS [U-5]
- Voice Call – CCIS [V-7]

Note 1: When A/D=1(Digital) is assigned by CDN45. ARTD, this feature is available.

(9) The following features are available only when the signal-channel link of the E-CCIS line is established:

- Centralized Billing-CCIS [C-55]
- Centralized System Management Report - CCIS [C-57]

(10) When a RELEASE COMPLETE message (Cause number 34 [No circuit/channel available] /44 [Requested circuit/channel not available]) or DISCONNECT message is received from an ISDN network, route advance is executed according to the parameter RA (Order of Route Advancing) of AOPR command.
Route advance is available when a calling party is under the following status.

- Station without a held station/trunk
- Station with a held station
- Station with a held trunk
- Tandem Connection
- Attendant Console without a held station/trunk
- Attendant Console with a held station
- Attendant Console with a held trunk

However, route advance is not available in the following cases:

- Call origination from an ISDN terminal
- Tandem connection from an MFC trunk
- Data communication

When route advance is executed, the following services are not available:

- OFF-HOOK QUEUING [O-7]
- OUTGOING TRUNK QUEUING [O-2]
- INTER-OFFICE OFF – HOOK QUEUING [I-11]
- OUTGOING TRUNK BUSY ANNOUNCEMENT [O-21]
- ROUTE RESTRICTION – ANNOUNCEMENT [R-27]
- Dialing AUTHORIZATION CODE [A-21] from an ISDN trunk

4. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

Note: Example of ports allocation by ATRK command is shown below.

24PRT

Odd	LV7	Bch-8	Dch	CCIS
	LV6	Bch-7	Signal	
	LV5	Bch-6	*Speech*	
	LV4	Bch-5	*Speech*	
	LV3	Bch-4	*Speech*	
	LV2	Bch-3	*Speech*	
	LV1	Bch-2	*Speech*	
	LV0	Bch-1	Bch-17	
Even	LV7		Bch-16	
	LV6		Bch-15	
	LV5		Bch-14	
	LV4		Bch-13	
	LV3		Bch-12	
	LV2		Bch-11	
	LV1		Bch-10	
	LV0	DCH	Bch-9	

30PRT

Odd	LV7	Bch-15	Signal	CCIS
	LV6	Bch-14	*Speech*	
	LV5	Bch-13	*Speech*	
	LV4	Bch-12	*Speech*	
	LV3	Bch-11	*Speech*	
	LV2	Bch-10	*Speech*	
	LV1	Bch-9	Bch-24	
	LV0	Bch-8	Bch-23	
Even	LV7	Bch-7	Bch-22	
	LV6	Bch-6	Bch-21	
	LV5	Bch-5	Bch-20	
	LV4	Bch-4	Bch-19	
	LV3	Bch-3	Bch-18	
	LV2	Bch-2	Bch-17	
	LV1	Bch-1	Bch-16	
	LV0	Dch	Dch	

STEP 2: Assign CCIS No. 7 related data.

STEP 3: ARTD - Assign Bearer Capability for the speech channels of the E-CCIS line.

CDN:45 A/D: 0/1 = Analog (Bearer Capability: Speech)/
Digital (Bearer Capability: Unrestricted Digital)

Note that Bearer Capability for the signal channel is Unrestricted Digital only.

Assign Trunk Selection Sequence.

CDN:49 TRKS: 0/1=Select the trunk (CIC No.) in ascending order/descending order, which assigned by the ACSC command.

Note that each office must be assigned a different value to avoid collision at the time of call origination.

Assign Dialed Number confirmation for the E-CCIS (speech channel) RT and the E-CCIS (signal channel) RT.

CDN: 66 DC: Assign the same value as the ARTD command of CDN 66 (DC) which assigned for common ISDN (speech channel RT)

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 4: ARTI - Assign the following CDN data for the E-CCIS route.

CDN: 36 ECCIS (Event Based CCIS): 1

CDN: 37 ECCISTM: Release Timer for the E-CCIS line

0:	3 minutes (Default)
1:	15 seconds
2:	30 seconds
3:	1 minute
4:	2 minutes
5:	5 minutes
6:	10 minutes
7:	15 minutes
8:	30 minutes
9:	1 hour
10-13:	Not used
14:	Immediately after call completion (for Speech Channel)/ 1 minute (for Signal Channel)
15:	Not released

CDN: 38 ECCISOB: OG Billing for E-CCIS Line

0:	Not required
1:	Required

CDN: 39 ECCISIB: IC Billing for E-CCIS Line

0:	Not required
1:	Required

CDN: 42 ECCISTD: Addressing information used in E-CCIS

0:	Called DID Number

1: Called Sub Address

STEP 5: AEVT - Assign virtual TIE Line data for E-CCIS.

RT:	Route Number
TK:	Trunk Number
TYPE:	System type (Dch is used commonly or separately with ISDN trunk)
DESTINATION:	Destination Number (Max. 6 digits)
CALLING:	Calling Number (Max. 24 digits)
CALLED:	Called Number (Max. 24 digits) **Note 1**
C_RT:	CCIS Signal Route Number
C_TK:	CCIS Signal Trunk Number
VRY:	Verification of Connection **Note 1** 0: Not required 1: Required
OPR:	Outgoing Route Selection Pattern Number of CBC Service
RA:	Order of Route Advance of CBC Service

Note 1: When Verification of Connection is in service, if the last four digits of the received number are not equal to those of Called Number, the connection is not established.

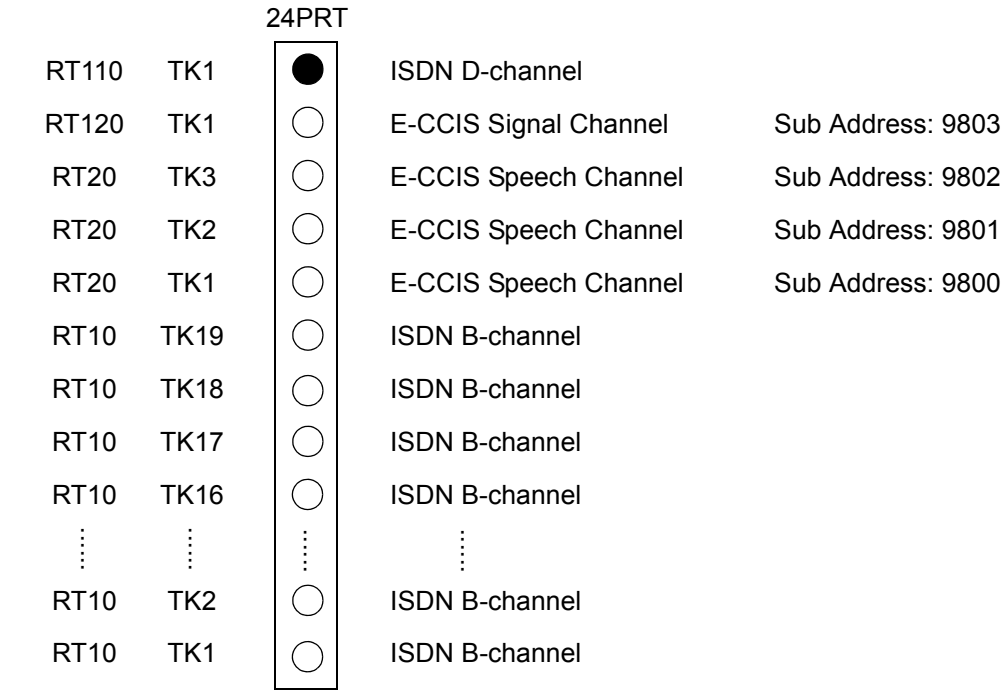
STEP 6: AVTC - Assign Virtual TIE Line Number for the E-CCIS route.

STEP 7: ACBC - If required, assign Call by Call data for the E-CCIS route.45

Examples of Data Assignment for the E-CCIS line - ISDN Transport

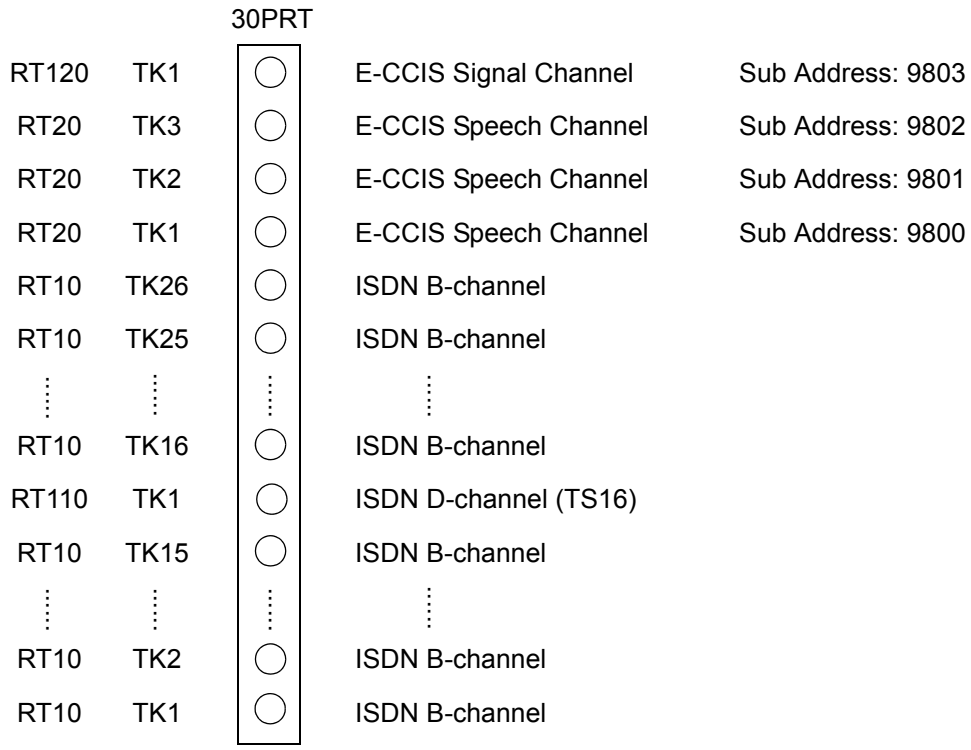
- Example of port allocation when using Called Sub Address as addressing information

- When the 24PRT card is used.



DID Number for Incoming Calls from an E-CCIS line: 0471-81-3500
DID Number for Incoming Calls from an alternate route: 0471-81-3600

- When the 30 PRT card is used.



DID Number for Incoming Calls from an E-CCIS line: 0471-81-3500
DID Number for Incoming Calls from an alternate route: 0471-81-3600

Data assignment procedure related to the E-CCIS line is shown below.

STEP 1: ARTD - RT20 CDN 45 A/D:0 (Voice information is transmitted)
CDN 49 TRKS:0 (Select the trunk (CIC No.) in ascending order)
CDN 66 DC: 4 **Note 2**
RT120 CDN 66 DC: 4 **Note 2**

Note 2: The same value in "DC" assigned for ISDN B channel must be programmed to both E-CCIS Signal and Speech route (RT10-CDN66 DC: 4).

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ARTI - RT20

CDN 36	ECCIS:	1 (E-CCIS Route)
CDN 37	ECCISTM:	5 (Release timer: 5 minutes)
CDN 38	ECCISOB:	1 (OG billing for the E-CCIS line is required)
CDN 39	ECCISIB:	1 (IC billing for the E-CCIS line is required)
CDN 42	ECCISTD:	1 (Addressing information: Sub Address)

RT120

CDN 36	ECCIS:	1 (E-CCIS Route)
CDN 37	ECCISTM:	3 (Release timer: 1 minute)
CDN 38	ECCISOB:	1 (OG billing for the E-CCIS line is required)
CDN 39	ECCISIB:	1 (IC billing for the E-CCIS line is required)
CDN 42	ECCISTD:	1 (Addressing information: Sub Address)

STEP 3: AEVT - RT20

TK1
DESTINATION: 9800 (E-CCIS trunk identification number)
CALLING: 0471813500 (DID number for Incoming Call)
CALLED: 0891245600 (DID number for outgoing call)
C_RT: 120 (CCIS Signal Route Number)
C_TK: 1 (CCIS Signal Trunk Number)
VRY: 1 (Verification of Connection: Required)

TK2
DESTINATION: 9801 (E-CCIS trunk identification number)
CALLING: 0471813500 (DID number for Incoming Call)
CALLED: 0891245600 (DID number for outgoing call)
C_RT: 120 (CCIS Signal Route Number)
C_TK: 1 (CCIS Signal Trunk Number)
VRY: 1 (Verification of Connection: Required)

TK3
DESTINATION: 9802 (E-CCIS trunk identification number)
CALLING: 0471813500 (DID number for Incoming Call)
CALLED: 0891245600 (DID number for outgoing call)
C_RT: 120 (CCIS Signal Route Number)
C_TK: 1 (CCIS Signal Trunk Number)
VRY: 1 (Verification of Connection: Required)

RT120 TK1
DESTINATION: 9803 (E-CCIS trunk identification number)
CALLING: 0471813500 (DID number for Incoming Call)
CALLED: 0891245600 (DID number for outgoing call)
C_RT: 120 (CCIS Signal Route Number)
C_TK: 1 (CCIS Signal Trunk Number)
VRY: 1 (Verification of Connection: Required)

OPR: 20 (OPR number for RT20 specified in the ACBC command)
RA: 0 (RA number for RT20 specified in the ACBC command)

STEP 4: AVTC - TN:1
STN: 3500 (DID Number or Converted Number generated by ACDD command)

The following data is assigned for route advance using Remote Access to System.

STEP 5: AOPR - TDPTN: 0
OPR: 15
RA: 1
E: 0
RT: 10
SKIP: 0
PNL: 30
OVFT: 1
PRSC: 0

STEP 6: AADC - PNL:30
DC: 0891246000*(Calling number for Remote Access to System plus*)

STEP 7: ASYD - System Data 1, Index 43, Bit 0:1 (Forced Account Code Dialing is not required for Remote Access to System)

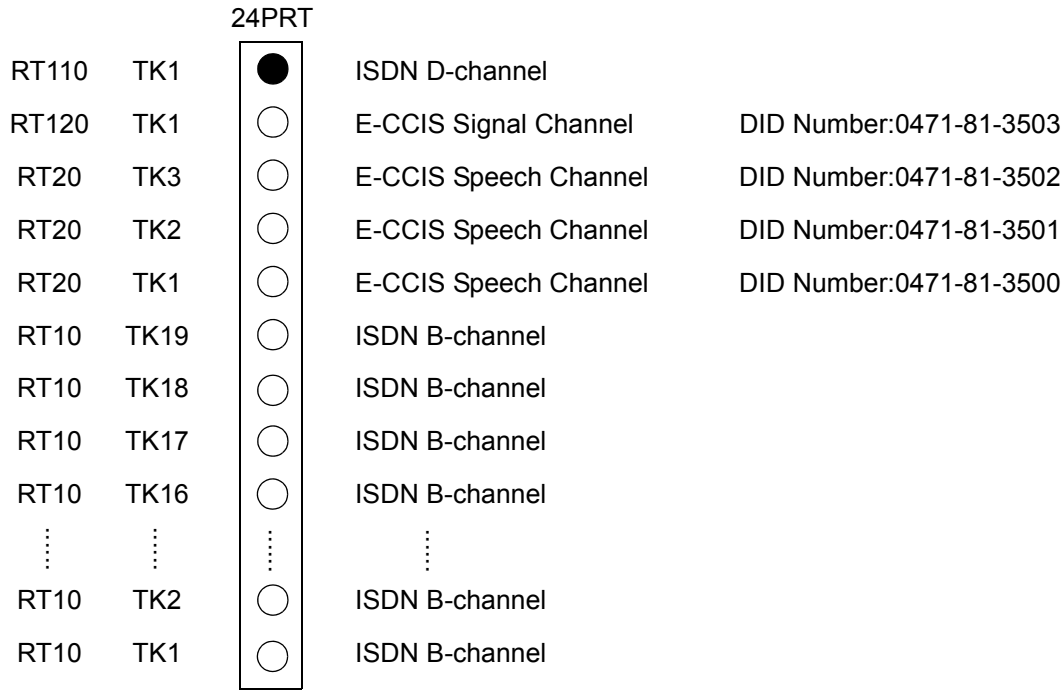
STEP 8: ARTD - For the alternate incoming route, assign CDN 38 (FA) as 1.

Note: To change the data for existing route (RT), initialize the circuit card.

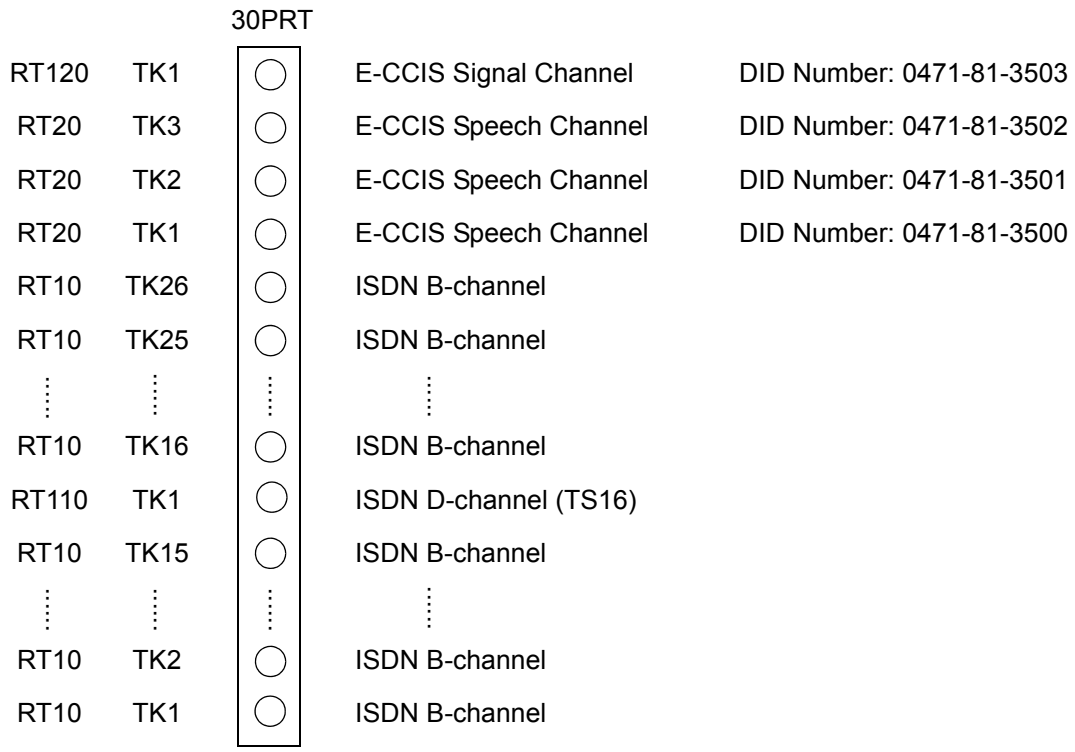
STEP 9: ARAC - ICTN: 1
ACC: 3600 (DID Number or Converted Number generated by ACDD command)
TN: 1

- Example of port allocation when using DID Number as addressing information

- When the 24PRT card is used.



- When the 30 PRT card is used.



Data assignment procedure related to the E-CCIS line is shown below.

STEP 1: ARTD - RT20

	CDN 45 (A/D):	0
	CDN 66 (DC):	4
RT120	CDN 66 (DC):	4

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ARTI - RT20

	CDN 36 (ECCIS):	1 (E-CCIS Route)
	CDN 37 (ECCISTM):	5 (Release timer: 5 minutes)
	CDN 38 (ECCISOB):	1 (OG billing for the E-CCIS line is required)
	CDN 39 (ECCISIB):	1 (IC billing for the E-CCIS line is required)
	CDN 42 (ECCISTD):	0 (Addressing information: Called DID Number)
RT120	CDN 36 (ECCIS):	1 (E-CCIS Route)
	CDN 37 (ECCISTM):	3 (Release timer: 1 minute)
	CDN 38 (ECCISOB):	1 (OG billing for the E-CCIS line is required)
	CDN 39 (ECCISIB):	1 (IC billing for the E-CCIS line is required)
	CDN 42 (ECCISTD):	0 (Addressing information: Called DID Number)

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: AEVT -	RT20	TK1	DESTINATION: 3500 (E-CCIS trunk identification number) CALLING: 0471813500 (DID number for Incoming Call) CALLED: 0891245600 (DID number for outgoing call) C_RT: 120 (CCIS Signal Route Number) C_TK: 1 (CCIS Signal Trunk Number) VRY: 1 (Verification of Connection: Required)
		TK2	DESTINATION: 3501 (E-CCIS trunk identification number) CALLING: 0471813501 (DID number for Incoming Call) CALLED: 0891245601 (DID number for outgoing call) C_RT: 120 (CCIS Signal Route Number) C_TK: 1 (CCIS Signal Trunk Number) VRY: 1 (Verification of Connection: Required)
		TK3	DESTINATION: 3502 (E-CCIS trunk identification number) CALLING: 0471813502 (DID number for Incoming Call) CALLED: 0891245602 (DID number for outgoing call) C_RT: 120 (CCIS Signal Route Number) C_TK: 1 (CCIS Signal Trunk Number) VRY: 1 (Verification of Connection: Required)
	RT120	TK1	DESTINATION: 3503 (E-CCIS trunk identification number) CALLING: 0471813503 (DID number for Incoming Call) CALLED: 0891245603 (DID number for outgoing call) C_RT: 120 (CCIS Signal Route Number) C_TK: 1 (CCIS Signal Trunk Number) VRY: 1 (Verification of Connection: Required) OPR: 20 (OPR number for RT20 specified in the ACBC command) RA: 0 (RA number for RT20 specified in the ACBC command)
STEP 4: AVTC -	TN: 1 STN: 3500 STN: 3501 STN: 3502 STN: 3503		DID Number or Converted Number generated by ACDD command

[E-24] EVENT BASED CCIS - Q.SIG TRANSPORT

1. GENERAL DESCRIPTION

This feature provides VIRTUAL TIE LINE for each event such as call origination and MCI message transmission. Inter-PBX link for this feature is established on B-channels of the private ISDN line using CCIS No. 7 signaling protocol. For addressing a specific terminal, Called Sub Address or Called DID Number is used depending on the network configuration.

2. OPERATING PROCEDURE

None.

3. SERVICE CONDITIONS

(1) The ISDN Primary Rate Interface (PRI) trunk is used for this feature.

(2) ETS 300 172 or ISO/IEC 11572 is available as ISDN interface for this service.

(3) E-CCIS signal channel assignment is not necessary when activating via the private ISDN line because E-CCIS line is controlled by D-channel of ISDN.

(4) This feature is activated between two PBXs directly connected each other. Therefore, this feature is not available for the tandem office.

(5) Since this feature is used the B-channel for ISDN as the speech line, the speech line is not established when all B-channels are busy.

(6) When using Called Sub Address as addressing information:
   a. Sub Address-Addressing must be available in the ISDN network.
   b. different DID Numbers must be assigned to the ISDN line, the E-CCIS line.
      For the E-CCIS line, DID Number is required for each D-channel.
   c. Sub Address assigned to the E-CCIS trunk must be common to both offices.

(7) When using Called DID Number as addressing information:
   a. a different DID Number is required for each channel of the E-CCIS line.
   b. when plural routes are assigned for the terminating office, call termination to an E-CCIS trunk must not be allowed except when DID Number assigned to the trunk is dialed.
   c. different DID Numbers must be assigned to the ISDN line and the E-CCIS line. For the E-CCIS line, DID Number is required by for each D-channel.

(8) Each channel used for a E-CCIS line must be controlled by a single D-channel (i.e. Each channel must be assigned to a single ISDN line).

(9) Billing information
   a. OG billing and IC billing data should be set for each route via the ARTI command.
   b. Trunk identification number assigned at DESTINATION of the AEVT command is output to the SDMR text in place of a station number.
   c. Billing information on E-CCIS line does not include Access Code or Converted Number (ASYD-SYS1 Index32, Bit5/Index34, Bit5/Index62, Bit2=0).

(10) Peg Count service for E-CCIS line (ETS 300 172 or ISO/IEC 11572) is activated for ISDN route setting Virtual TIE Line data.
(Peg Count for ISDN line includes the route for E-CCIS line)

(11) This service is established when no E-CCIS line is established or the call is originated even if the all channels are busy.

(12) The release timer is activated when the CCIS call is disconnected.

(13) The following features are available for the E-CCIS line:

- Asynchronous Data Switching [A-44] **Note 1**
- Attendant Camp-On with Tone Indication – CCIS [A-45]
- Attendant-Controlled Conference – CCIS [A-46]
- Automatic Recall – CCIS [A-71]
- Automatic Number Identification (ANI) – CCIS [A-87]
- Busy Verification – CCIS [B-9]
- Brokerage Hotline – CCIS [B-10]
- Call Back – CCIS [C-44]
- Call Forwarding – All Calls – CCIS [C-45]
- Call Forwarding – Busy Line – CCIS [C-46]
- Call Forwarding – Don’t Answer – CCIS [C-47]
- Call Forwarding – Intercept – CCIS [C-48]
- Call Forwarding – Override – CCIS [C-49]
- Call Transfer – All Calls – CCIS [C-50]
- Called Station Status Display – CCIS [C-51]
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- Call Processing Indication – CCIS [C-53]
- Call Transfer – Attendant – CCIS [C-54]
- Consultation Hold – All Calls – CCIS [C-58]
- Call Forwarding Assignment – Attendant – CCIS [C-94]
- Deluxe Traveling Class Mark – CCIS [D-70]

- Data Communication – CCIS [D-41] **Note 1**
- Data Interface – Automatic Answer – CCIS [D-65] **Note 1**
- Data Line Security – CCIS [D-66] **Note 1**
- Data Line Privacy – CCIS [D-67] **Note 1**
- Data Privacy on Demand – CCIS [D-68] **Note 1**
- Data Transparency – CCIS [D-69] **Note 1**
- Dial Access to Attendant – CCIS [D-71]
- Digital Display – Station – CCIS [D-72]
- Digital Display – Trunk – CCIS [D-73]
- Direct-In Termination – CCIS [D-74]
- Distinctive Ringing – CCIS [D-75]
- Do Not Disturb –D – CCIS [D-76D]
- Data Hotline – CCIS [D-86] **Note 1**
- Dialed Number Display – Recall – CCIS [D-91]
- Dual Hold Dterm – CCIS [D-93D]
- Executive Right-of-Way – CCIS [E-8]
- Elapsed Time Display – CCIS [E-9]
- E-911 ANI Unified Number of Digits – CCIS [E-20]
- Flexible Numbering of Stations – CCIS [F-12]
- Hands-Free Answerback –D – CCIS [H-10D]
- House Phone – CCIS [H-11]
- Hotline – CCIS [H-12]
- Incoming Call Identification – CCIS [I-16]
- Individual Attendant Access – CCIS [I-17]
- Inter-Position Transfer – CCIS [I-18]
- Individual Trunk Access – CCIS [I-19]
- Look Ahead Routing – CCIS [L-25]
- LDN Night Connection – CCIS [L-29]
- Message Reminder – CCIS [M-34]
- Message Waiting Lamp Setting – Attendant – CCIS [M-35]
- Message Waiting Lamp Setting – Station – CCIS [M-36]
- Miscellaneous Trunk Access – CCIS [M-37]
- Miscellaneous Trunk Restriction – CCIS [M-38]
- Modem Pooling – CCIS [M-39] **Note 1**

- Multiple Call Forwarding – All Calls – CCIS [M-40]
- Multiple Call Forwarding – Busy Line – CCIS [M-41]
- Multiple Call Forwarding – Don't Answer – CCIS [M-42]
- Multiple Console Operation – CCIS [M-43]
- Message Center Interface – CCIS [M-67]
- Night Connection – Fixed – CCIS [N-15]
- Night Connection – Flexible – CCIS [N-16]
- Name Display – System – CCIS [N-37]
- Off-Hook Queuing – CCIS [O-11]
- Outgoing Trunk Queuing – CCIS [O-12]
- Paging Access – CCIS [P-28]
- Restriction from Outgoing Calls – CCIS [R-22]
- Serial Call – CCIS [S-52]
- Service Display –D – CCIS [S-53D]
- Simultaneous Voice and Data Transmission – CCIS [S-54]
- Single-Digit Station Calling – CCIS [S-55]
- Station Controlled Conference – CCIS [S-56]
- Station-to-Station Calling – CCIS [S-57]
- Station-to-Station Calling – Operator Assistance – CCIS [S-58]
- Step Call – CCIS [S-59]
- Synchronous Data Switching – CCIS [S-60]
- Supervisory Call – CCIS [S-73]
- Toll Restriction – 3/6-Digit – CCIS [T-26]
- Trunk Answer from Any Station – CCIS [T-27]
- Uniform Numbering Plan – CCIS [U-5]
- Voice Call – CCIS [V-7]

Note 1: When A/D=1 (Digital) is assigned by CDN45, ARTD, this feature is available.

4. PROGRAMMING

STEP 1: ARTD - Assign the Route Class data to the E-CCIS line.

Data setting for speech channels is required here. Refer to ARTD command in Command Manual for the standard Route Class data of No.7 CCIS. Assign the following in addition to the standard data.

CDN45 A/D:0/1= Analog (Bearer Capability: Speech)/Digital (Bearer Capability: Unrestricted Digital)

CDN49 TRKS:0/1= Select the trunk in ascending order/descending order
(Set this data reversing against the counter-office to prevent from causing collision of the speech.)

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ADPC - Assign the PC of the destination office for speech channel route.

STEP 3: ACSC - Assign the CSC group (CSCG) for specifying the D-channel.

CSCG has two kinds of route, Basic Route and Alternate Route. Assign any even number of CSCG for the Basic Route, and its consecutive odd number for the Alternate Route (in the range of 2-255, excepting 128 and 129).
Example: CSCG=130 for Basic Route, and CSCG=131 for Alternate Route

Note: Assign the LENS of the D-channels for ISDN route to the CSCG of Basic Route and Alternate Route.

STEP 4: ACIC1 - This command associates the CSCG of Basic Route and all the PCs in the network (PC of destination node and other nodes in the network).

Enter the PC of destination node assigned by ADPC command to the PC parameter. Enter the even-numbered CSCG of Basic Route to the CSCG parameter. CSCG of Alternate Route is not required.

STEP 5: ARTI - Assign Trunk Application Data to E-CCIS route and ISDN route.

(1) Assign the following data for the E-CCIS route.

ECCISTIM:Release Timer for the E-CCIS line

0:	3 minutes (Default)
1:	15 seconds
2:	30 seconds
3:	1 minute
4:	2 minutes
5:	5 minutes
6:	10 minutes
7:	15 minutes
8:	30 minutes
9:	1 hour
10-13:	Not used
14:	Immediately after call completion
15:	Not released

ECCISOB: OG Billing for E-CCIS Line
0/1=Not required/Required.

ECCISIB: IC Billing for E-CCIS Line
0/1=Not required/Required.

ECCISTD: Addressing information used in E-CCIS
0/1=Called DID Number/Called Sub Address.

ECCIS2 (E-CCIS System): 1=Common Channel System

(2) Assign the following data for the ISDN route.

JECCIS (Common use with E-CCIS RT):1

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 6: AEVT - Assign the virtual TIE Line data for E-CCIS.

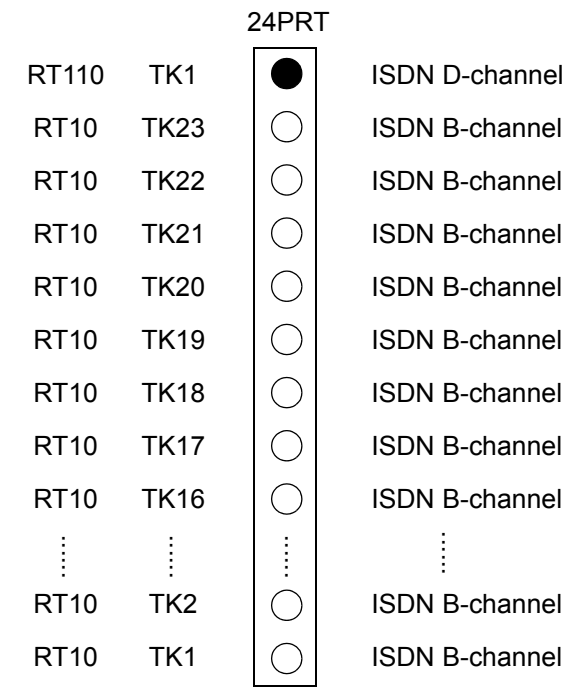
FUNC:	1
RT:	Route Number
TK:	Fixed "0"
TYPE:	3 (Common Channel System)
DESTINATION:	Destination Number (Max. 6 digits)
CALLING:	Calling Number (Max. 24 digits)
CALLED:	Called Number (Max. 24 digits)
ISDN_RT:	ISDN Route Number
VRY:	Verification of Connection **Note 1** 0/1=Not required/Required
FUNC:	2
PC:	Terminating Point Code
RT:	E-CCIS Route Number

Note 1: When Verification of Connection is in service, if the last four digits of the received number is not equal to those of Called Number, the connection is not established.

STEP 7: AVTC - Assign Virtual TIE Line Number for the E-CCIS route.

Examples of Data Assignment for the E-CCIS line - Q.SIG Transport

- Example of port allocation when using Called Sub Address as addressing information



Data assignment procedure related to the E-CCIS line is shown below.
E-CCIS speech line for the office A (PC=2) → RT20
E-CCIS speech line for the office B (PC=3) → RT30

STEP 1: ARTD - Office A

RT20	CDN 45 (A/D):	0 (Bearer capability: speech)
	CDN 49 (TRKS):	0

- Office B

RT30	CDN 45 (A/D):	0 (Bearer capability: speech)
	CDN 49 (TRKS):	0

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ARTI - RT10 JECCIS: 1 (common use with E-CCIS RT)

- Office A

RT20	ECCISTM:	5 (Release timer: 5 minutes)
	ECCISOB:	1 (OG billing for the E-CCIS line is required)

	ECCISIB:	1 (IC billing for the E-CCIS line is required)
	ECCISTD:	1 (Addressing information: Sub Address)
	ECCIS2:	1 (Common channel system)
- Office B		
RT30	ECISTM:	5 (Release timer: 5 minutes)
	ECCISOB:	1 (OG billing for the E-CCIS line is required)
	ECCISIB:	1 (IC billing for the E-CCIS line is required)
	ECCISTD:	1 (Addressing information: Sub Address)
	ECCIS2:	1 (Common channel system)

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: AEVT - Office A

FUNC:		1
	RT20	
	TK:	0 (fixed)
	TYPE:	3 (Common channel system)
	DESTINATION:	9800
	CALLING:	8263500
	CALLED:	81164500
	ISDN_RT:	10
	VRY:	1
FUNC:		2
	PC:	2
	RT:	20

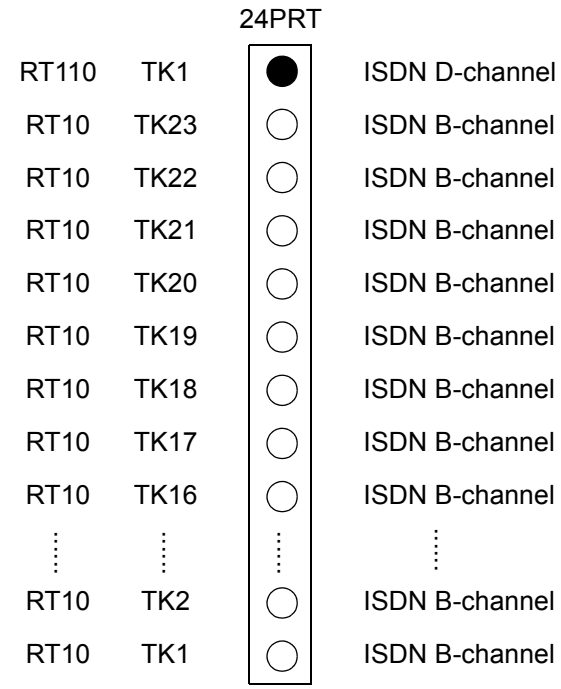
- Office B

FUNC:		1
	RT30	
	TK:	0 (fixed)
	TYPE:	3 (Common channel system)
	DESTINATION:	9801
	CALLING:	8263500
	CALLED:	8205500
	ISDN_RT:	10
	VRY:	1
FUNC:		2
	PC:	3
	RT:	30

STEP 4: AVTC - TN:1

STN: 3500 (DID number or Converted number generated by the ACDD command)

- Example of port allocation when using DID Number as addressing information



[For Office A] DID Number for Incoming Calls from an E-CCIS line: 8-26-3200
[For Office B] DID Number for Incoming Calls from an E-CCIS line: 8-26-3300

Data assignment procedure related to the E-CCIS line is shown below.
E-CCIS speech line for the office A (PC=2) → RT20
E-CCIS speech line for the office B (PC=3) → RT30

STEP 1: ARTD - Office A

RT20	CDN 45 (A/D):	0 (Bearer capability: speech)
	CDN 49 (TRKS):	0

- Office B

RT30	CDN 45 (A/D):	0 (Bearer capability: speech)
	CDN 49 (TRKS):	0

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ARTI - RT10 JECCIS: 1 (common use with E-CCIS RT)

- Office A

RT20	ECISTM:	5 (Release timer: 5 minutes)
	ECCISOB:	1 (OG billing for the E-CCIS line is required)
	ECCISIB:	1 (IC billing for the E-CCIS line is required)

ECCISTD: 0 (Addressing information: DID number)
ECCIS2: 1 (Common channel system)

- Office B
RT30 ECISTM: 5 (Release timer: 5 minutes)
ECCISOB: 1 (OG billing for the E-CCIS line is required)
ECCISIB: 1 (IC billing for the E-CCIS line is required)
ECCISTD: 0 (Addressing information: DID number)
ECCIS2: 1 (Common channel system)

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 3: AEVT - Office A
FUNC: 1
RT20
TK: 0 (fixed)
TYPE: 3 (Common channel system)
DESTINATION: 3200
CALLING: 8263200
CALLED: 81164500
ISDN_RT: 10
VRY: 1
FUNC: 2
PC: 2
RT: 20

- Office B
FUNC: 1
RT30
TK: 0 (fixed)
TYPE: 3 (Common channel system)
DESTINATION: 3300
CALLING: 8263300
CALLED: 8205500
ISDN_RT: 10
VRY: 1
FUNC: 2
PC: 3
RT: 30

STEP 4: AVTC - TN:1
STN: 3200 (DID number or Converted number generated by the ACDD command)
STN: 3300 (DID number or Converted number generated by the ACDD command)

[C-148] CALL COMPLETION TO BUSY SUBSCRIBER (CCBS)

1. GENERAL DESCRIPTION

This feature allows an Inter-Office Call Back when the Calling Station and the called station respectively belong to a different PBX in a Q-SIG network. This feature conforms to ETS 300 366 and IS-13870.

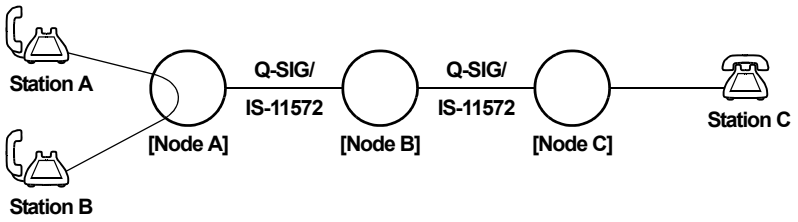
This feature is available in ETSI EN300 359-1 ISDN network (for EMEA only).

2. OPERATING PROCEDURE

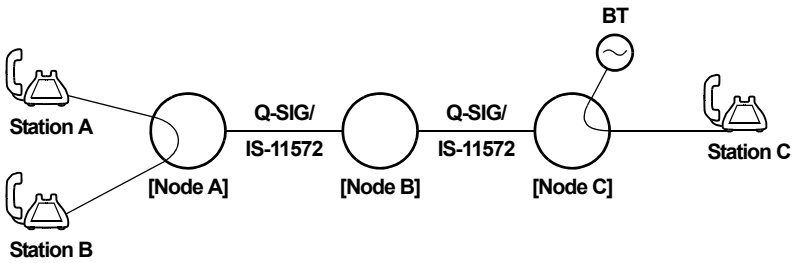
To set CCBS:

[When using the Access Code]

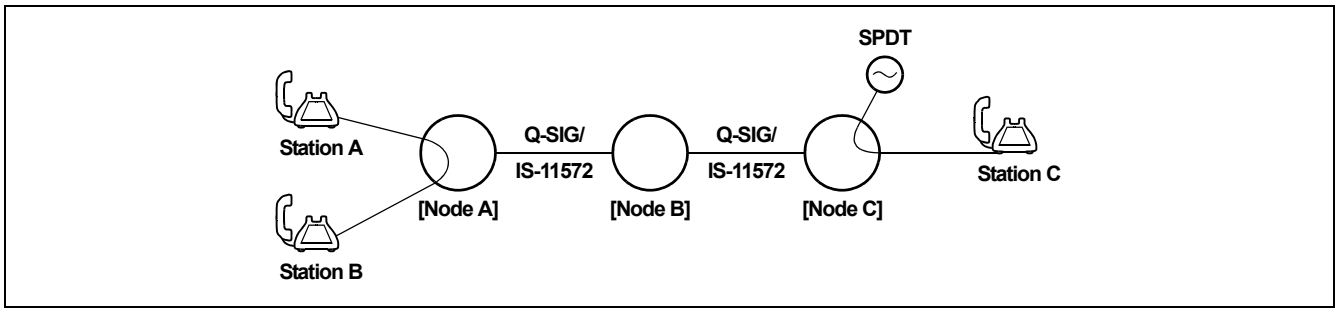
(1) Station A and Station B are in station-to-station connection.



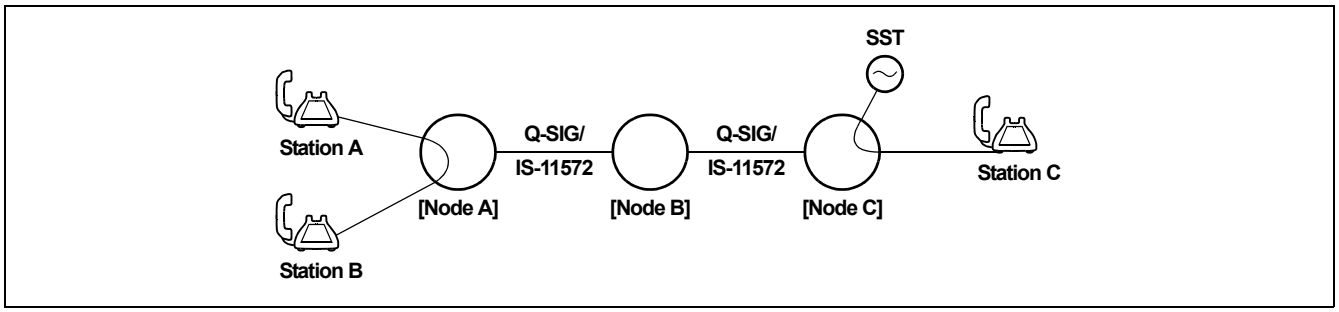
(2) Station C dials the number for Station B; Station C receives Busy Tone.



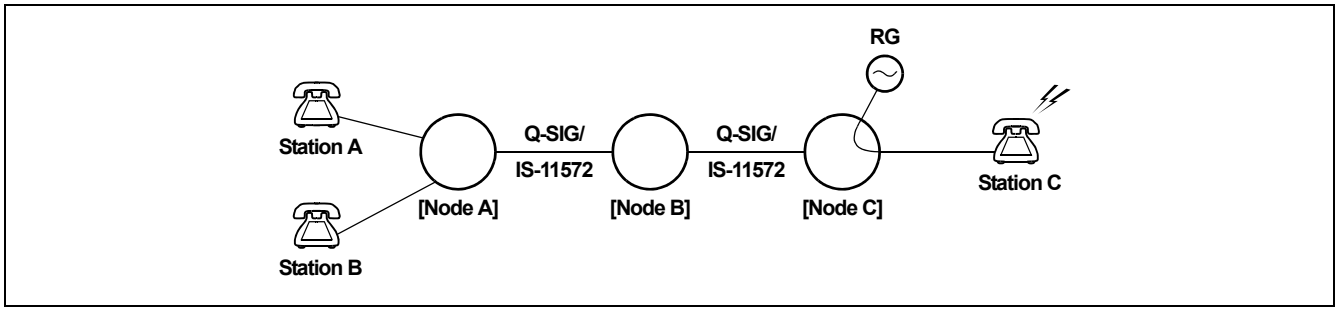
(3) Station C presses the switchhook or dials the last digit of the number for Station B; Station C receives Special Dial Tone.



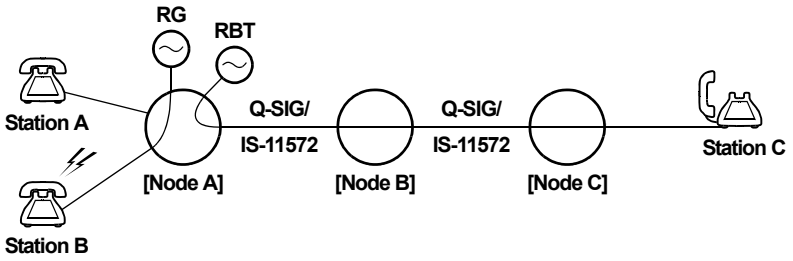
(4) Station C dials the Access Code for setting CCBS; Station C receives Service Set Tone and hangs up.



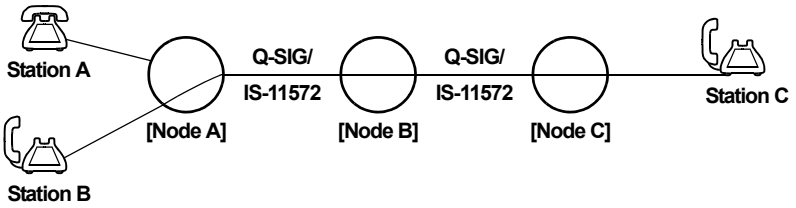
(5) Both stations A and B hang up (i.e. Station B becomes idle); Station C rings.



(6) Station C answers and receives Ringback Tone; Station B rings.

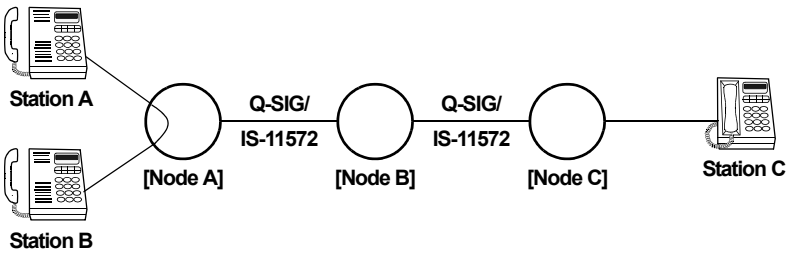


(7) Station B answers; Station C and B are connected.

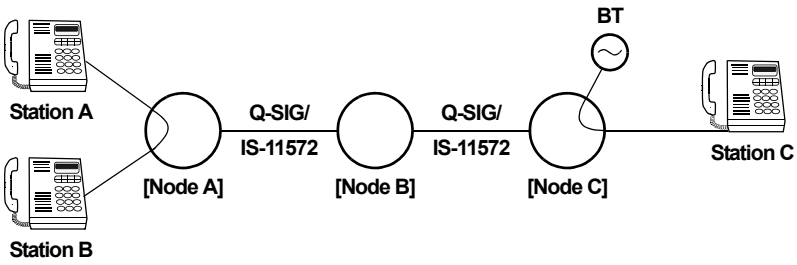


[When using Line/Feature key]

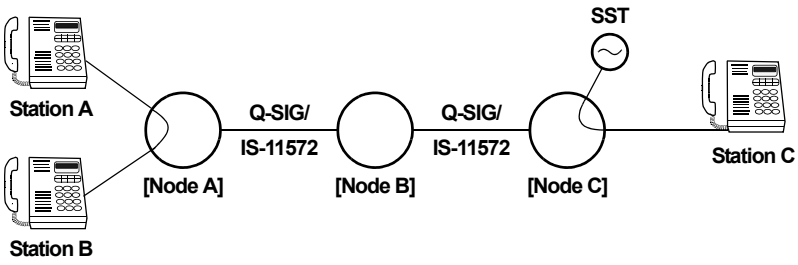
(1) Station A and Station B are in station-to-station connection.



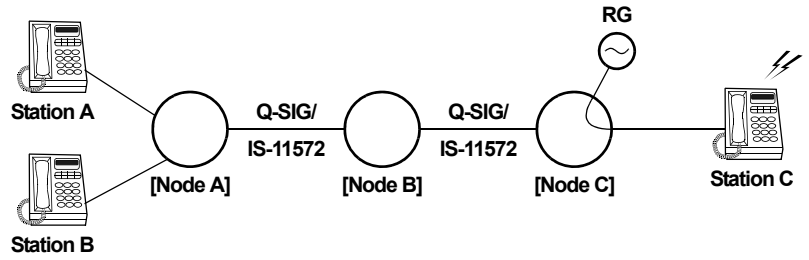
(2) Station C dials the number for Station B; Station C receives Busy Tone.



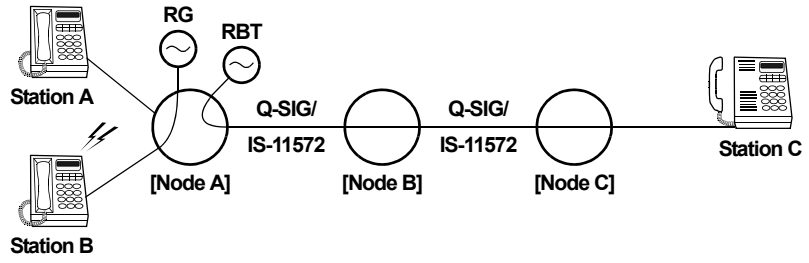
(3) Station C presses the Feature key for setting CCBS; Station C receives Service Set Tone and hangs up.



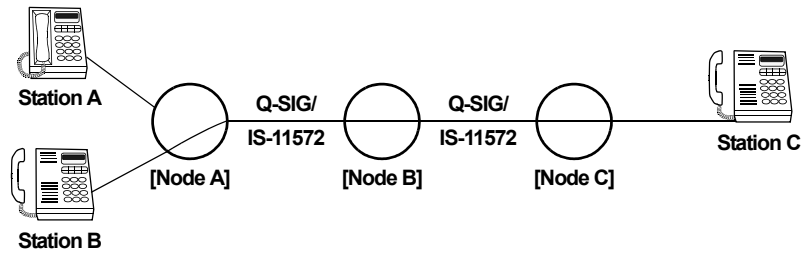
(4) Both stations A and B hang up (i.e. Station B becomes idle); Station C rings.



(5) Station C answers and receives Ringback Tone; Station B rings.



(6) Station B answers; Station B and Station C are connected.



To cancel CCBS:

(1) Station A lifts the handset while the CCBS service is set; Station A hears Dial Tone.

(2) Station A dials the Access Code or presses the Feature key for canceling CCBS; Station A hears Service Set Tone.

(3) Station A replaces the handset.

Note: Operating procedure varies depending on the specifications of the station since ETS 300 306/IS-13870 protocol does not regulate.

3. SERVICE CONDITIONS

<Service Conditions for Q-SIG Network>

(1) CCBS conforming to IS-13870 is available for the Telephony Server.

(2) CCBS conforming to IS-13870 is available when an end-to-end link is established via IS-11572 interface or when the tandem connection of Q-SIG and IS-11572 link is established (Not available for the signaling method other than Q-SIG and IS-11572).

(3) The transfer rate is 64Kbps. Bearer Capabilities are as follows:
- Speech
- 3.1 kHz audio

Note: For more details of CCBS feature regulated by protocol, see the corresponding manual.

(4) CCBS is available for the Desktop terminal or an analog station (i.e. not available for PS terminal, Attendant Console nor ISDN terminal).

(5) CCBS can be set only when the called station is in two-party connection or busy condition and the call is not completed for the called user busy (fault cause is #17).

(6) CCBS is not available while the calling and called station is in one of the following conditions:

(a) Calling Station
- the station sets Call Back or Call Back is set to the station
- the station sets Call Back-CCIS or Call Back-CCIS is set to the station
- the station uses Call Hold
- the station sets Call Waiting service
- the station is restricted this feature

(b) Called Station
- the station is in lockout state or make-busy state.
- the station sets Call Back or Call Back is set to the station
- the station sets Call Back-CCIS or Call Back-CCIS is set to the station
- the station uses Call Hold
- the station sets Call Forwarding-All Calls/Busy Line (providing that these C.F. services are complete)
- Attendant Camp on with Tone Indication is set to the station
- the station sets Call Waiting service
- the station is restricted this feature

(7) CCBS is canceled when:

(a) Automatic Cancel Timer for CCNR expires (ASYD, System data 1, Index 71, b0-b3 decides the timer and b7 makes the timer effective).
* Automatic Cancel for Call Back is applied to this feature also.

(b) No Answer Timer (Calling Station does not answer the CCBS recall) expires (ASYD, System Data 1, Index 139. Default data is 30 seconds).

(c) The system recalls the Calling Station in lockout or make-busy state (CCNR is effective when the Calling Station is called after lockout state or make-busy state is recovered).

(d) All trunks for recalling are busy at the time of recall.
(e) The called station is abnormally released (ex. The handset remains off-hook) and turned into lockout state.
(f) The Calling Station (operating station) is restricted Incoming Calls at the time of recall.

(8) The single station can not set multiple CCBS services and multiple CCBS services can not be set to the single station.

A maximum number of CCBS to be set simultaneously per LP =
480 – (no. of ISDN call to be handled + no. of already set CCBS and CCNR service **Note 1**)

Note 1: Both CCBS and CCNR services conforming to ETS300 366 and IS-13870.

(9) When the called station becomes idle while the Calling Station is in conversation, the system recalls the Calling Station after the conversation ends.

(10) Sub Address-Addressing is not used with CCBS.

(11) If the fault occurs at IS-11572 data link when;

(a) If the fault occurs when the Calling Station is operating to set CCBS, CCBS service can not be set.

(b) If the fault occurs when the Calling Station is operating to cancel CCBS, CCBS is canceled at the side of operating station but not canceled at the side of called station since the cancel message is not sent to the station.

(c) If the fault occurs when informing the Calling Station that the called station becomes idle, CCBS is canceled at the side of station to be set, but not canceled at the side of Calling Station since the message is not sent to the station.

(d) If the fault occurs when the Calling Station answers the recall (CCBS call), CCBS is canceled at the side of the Calling Station but not canceled at the side of the called station since the message is not sent to the station.

(12) The conditions of alternate routing are as follows.

(a) If the data link fault occurs when the station is operating to set CCBS, the message for service set is sent using alternate route providing that the interface is Q-SIG/IS-11572.

(b) The same route is used for sending service set message and recall (the other route can not be used). Therefore, recall is not completed since all trunks (B-channel) of the corresponding route are busy, the system processes the call as follows.

- All B-channel trunks at the system of an Calling Station are busy:
  cancel CCBS and send Busy Tone to the Calling Station.
- All B-channel trunks at the mediate system are busy:
  send the message of CCBS recall fault to the Calling Station and the message of CCBS cancel to the called station.

(13) The description below are interactions between CCBS and Call Forwarding service (All Calls, Busy Line, Don't Answer).

(a) When setting CCBS to the station which is set C.F. service, the time of setting CCBS decides whether the service is set or not.

	C.F. - All Calls	C.F. - Busy Line	C.F. - Don't Answer
C.F. is incomplete C.F. is not applicable (the condition for making C.F. complete is not agreed) (before) C.F. is activated	-	-	CCBS is set to the forwarding station (called station) **Note 2**, **Note 3**
(after) C.F. is complete	Not Available	Not Available	-

Note 2: When the Calling Station recalls the station which is set CCBS service after answering CCBS recall, No Answer Timer time out is effective. If the timer expires, the recall is forwarded to the destination.

Note 3: The station to be set CCBS is not changed after CCBS service set even if C.F. - Don't Answer service is canceled.

(b) When Call Forwarding - All Calls/Busy Line/Don't Answer is set on a Calling Station, the system recalls the calling party.

(c) When a called station is set Call Forwarding - All Calls/Busy Line/Don't Answer after CCBS service is set to the station, a Calling Station recalls the called station (forwarding station). As for a called station to be set Call Forwarding - Don't Answer, the destination station is recalled from the Calling Station if No Answer Timer expires.

<Service Conditions for ETSI Network>

(1) This feature is available for calls via PRT trunk and BRI trunk.
(2) ISDN network must support CCBS additional service for both Called Party and Calling Party.
(3) CCBS is available for Desktop terminal or an analog station.
(4) This feature is not supported by SR-MGC.
(5) This feature is not supported by Hotel System, OAI or ACD System.
(6) CCBS is not available while the station is setting CCBS or Call Back. This applies to both calling and called stations.
(7) In this feature, up to 100 stations (both calling and called stations) may be used at the same time.
(8) Conditions for setting and cancelling CCBS are as follows:

- It is not possible to set CCBS when originating a call via Tandem Connection.
- When setting/cancelling CCBS, the station will receive a Service Set Tone (SST) from the system.
- It is not possible to set CCBS from a station where CCBS is already set.
- When Calling Station is setting CCBS, if the Called Station goes ON HOOK, the system recalls the Calling Station (immediately).
- If all the Speech Channels (Bch) of Called Party Node are busy, it is not possible to set CCBS.

- By using Camp-On automatic periodic cancel, automatic cancelling is possible. When not using Camp-On automatic periodic cancel, CCBS will be automatically cancelled after 30 minutes.

(9) After CCBS is set (Calling Station is recalled and answers)

- When Calling Station does not answer the system, recall will be cancelled by Automatic Cancel Timer for CCBS (ASYD, System Data1, Index 71, Bits 0-3).
- Sixty minutes after setting, CCBS will be cancelled by Automatic Cancel Timer for ISDN network.
- When Calling Station is recalled after it becomes idle, CCBS will be cancelled if calling station is busy. (CCBS-T-Resume or CCBS-T-Suspend is not supported).
- When Calling Station is recalled after it becomes idle, CCBS will be cancelled if all trunks' Bch used when setting CCBS are busy. (CCBS-T-Resume or CCBS-T-Suspend is not supported).

(10) When CCBS is set to the station (Conditions for Called Station)

- It is not possible to set CCBS to a station that uses Tandem Connection.

(11) CCBS can be set when originating a call from My Line. CCBS can not be set when originating a call from Sub Line.
(12) CCBS is available even when originating a call using Speed Calling or Redial.
(13) CCBS is not available when the calling station or called station has a call on hold.
(14) Station Hunting and Call Pickup are not available when the system recalls the Calling Station.
(15) When the Calling Station has set Call Forwarding-All Calls [C-5], call back will not be to a pre-assigned station, but to the Calling station itself.
(16) CCBS cannot be set when the Calling Station has set Outgoing Trunk Queuing [O-2].
(17) CCBS is available when Called Station has set Call Forwarding-Don't Answer [C-2] and Call Forwarding-Busy Line [C-3].
(18) CCBS is not available when Called Station is in the following status:

- has set Call Back [C-1], Call Back-CCIS [C-44] or Do Not Disturb-D [D-11D]
- in make-busy state
- in Line Lockout [L-3]
- is receiving Howler Tone

(19) When Logged Out IP Station - Call Destination [L-53] is set, conditions will be as follows:

[Calling Station]

- It is possible to set CCBS.
- After setting CCBS, if the station logs out, CCBS will be cancelled.

[Called Station]

- It is not possible to set CCBS.

(20) It is not possible to set CCBS when Call Forwarding - All Calls is set to Called Station.

4. PROGRAMMING

Assign the basic data for establishing the Q-sig or the IS-11572 line referring to "IS-11572 (Layer 3 specifications for Inter-PBX signaling protocol)" or "Q-SIG Circuit Switched Basic Call-ETSI Version" in this chapter.

STEP 1: ARTD/ARTDN- This command assigns the Route Class Data.
CDN43(BT): Inter-office Busy Service (0/1)
1: In Service
*Both Bch and Dch needs to be set

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 2: ASYD - System Data 1, Index 68, Bit 0. Operating method for busy station service.
0/1 = SHF + Access Code/Last Digit + Access Code.
System Data 1, Index 71, Bits 0 through 3. Assign the timer value of Cancel Timer for CCBS.
System Data 1, Index 71, Bit 7. Automatic Cancel for CCBS. 0/1 = Out/In Service.
System Data 2, Index 4, Bit 0. CCBS and OG Trunk Queuing Access Code. 0/1 = Separate/Common.
System Data 3, Index 7. Assign Ringer Pattern for Recalling.

STEP 3: ANPD - Reserve a number level for setting/canceling CCBS.

STEP 4: ASPA - Assign an Access Code for setting/canceling CCBS.

STEP 5: ARTI/ARTIN - Assign/cancel application data on trunk side.
CDN 89 REGION: Local interface
1: EMEA ISDN
CDN 93 ICCBS: Completion of Call to Busy Subscriber (0/1)
1: Set
*Both Bch and Dch needs to be set

Note: To change the data for existing route (RT), initialize the circuit card.

STEP 6: ANPD/ANPDN/ANPDL (When using Access Code)
Numbering Plan - Assign the Number of Necessary Digits (NND) needed to determine the service that is required to the first digit received (pre-translation).
TN: XXX
1st DC: 1st Dial Code
Select Busy Service (B) from the combo box for Connection Indexes.
NND: Number of Necessary Digits
BLF: Busy Lamp Field Display Activated on ATT (0/1)

STEP 7: ASPA/ASPAN/ASPAL (When using Access Code)
Assignment of Special Access Code - Assign the Access Code (ACC) for CCBS service.
TN: XXX
ACC: Access Code

- For setting CCBS
  CI = "B: Busy"
  SRV = "SSC: Service Code"
  SID = 3 (Call Back; Entry)

- For canceling CCBS
  CI = "N: Normal"
  SRV = "SSC: Service Code"
  SID = 6 (Call Back; Cancel)

STEP 8: ASYD (When using the same Last Digit + Access Code)
Assignment of System Data.
System Data 1, Index 68, Bit 0. Operating method for busy station service (Call back, Executive Right-of-Way, etc.)
0 = Switch Hook Flash (SHF) + Access Code
1 = Last Digit + Access Code

STEP 9: AKYD (When assigning CCBS to a Feature key)
Assignment of Key Data for Dterm.
TN: XXX
KYI = 1 (Function Key)
FKY = 5 (Call Back)

STEP 10: ADSL/ADSLN (When assigning CCBS to a Soft key)
Assignment of Dterm Soft key on LCD.
SKP=XX
SN=3 (Called station busy: Busy Tone connection)
SKN: Soft Key number (0~15)
FKY=5 (Call Back)

STEP 11: ASFC/ASFCN- Assignment of Service Feature Restriction Class
Assign Service Feature Restriction Class that allows SFI = 2 (Call Back) to the stations allowed this service.
D/N: Day night mode (D/N)
TN: XXX
SFI = 2 (Call Back)
SFC = xx
RES = 1 (Allowed)

STEP 12: ASYD/ASYDN (When using Call Back Automatic Cancel Timer)
Assignment of System Data

- System Data 1, Index 71, Bit 0~3: Call Back Automatic Cancel Timer (TC = 2-F)
  $3.5 \times (TC-1) < t < 3.5 \times TC$ (minutes)

Note: TC = 1 cannot be assigned here. There will be an error in the value assigned via this data with the range of formula above, depending on the timing of Call Back setting.

- System Data 1, Index 71, Bit 7: Enable Call Back Automatic Cancel Timer
  0=No
  1=Yes
  (Example: Timer is 35 minutes: 35[minutes] x 10 = 8A)

<The following setting is necessary for ETSI network>

ARTI/ARTIN - Assign the Trunk application data.
CDN93(ICCBS) = 1(CCBS)

Note: To change the data for existing route (RT), initialize the circuit card.

[C-152] CALL COMPLETION ON NO REPLY (CCNR)

1. GENERAL DESCRIPTION

This feature allows a Calling Station to set Inter-Office Call Back when the called station does not answer. This feature conforms to ETS 300 366 and IS-13870.

2. OPERATING PROCEDURE

To set CCNR:

(1) Station A places a call to Station B and receives Ringback Tone; Station B does not answer.

(2) While hearing Ringback Tone, Station A presses the switchhook flash button and dials the Access Code. On the Desktop terminal, Station A presses HOOKFLASH Feature key, then receive Stutter Dial Tone and then dials the Access Code; Station A receives Service Set Tone.

(3) Station A goes on-hook and waits for call back from Station B. Station B lifts the handset and handles another call.

(4) Station B goes on-hook; Station A rings.

(5) Station A answers; Station B is automatically recalled.

(6) Station B answers; Station A and Station B are connected.

To cancel CCNR:

(1) Station A lifts the handset while the CCNR service is set; Station A hears Dial Tone.

(2) Station A dials the Access Code or presses the Feature key for canceling CCNR; Station A hears Service Set Tone.

(3) Station A replaces the handset.

Note: Operating procedure varies depending on the specifications of the station since ETS 300 306/IS-13870 protocol does not regulate.

3. SERVICE CONDITIONS

(1) CCNR conforming to IS-13870 is available for the Telephony Server.

(2) CCNR conforming to IS-13870 is available when an end-to-end link is established via IS-11572 interface or when the tandem connection of Q-SIG and IS-11572 link is established (Not available for the signaling method other than Q-SIG and IS-11572).

(3) The transfer rate is 64Kbps. Bearer Capabilities are as follows:

- Speech
- 3.1 kHz audio

Note: For more details of CCNR feature regulated by protocol, see the corresponding manual.

(4) CCNR is available for the Desktop terminal or an analog station (i.e. not available for PS terminal, Attendant Console nor ISDN terminal).

(5) CCNR is available while the called party is ringing in two-party connection between calling and called party.

(6) CCNR is not available while the calling/called station is in one of the following conditions:

(a) Calling Station
- the station sets Call Back or Call Back is set to the station
- the station sets Call Back-CCIS or Call Back-CCIS is set to the station
- the station uses Call Hold
- the station sets Call Waiting service
- the station is restricted this feature

(b) Called Station
- the station is in lockout state or make-busy state
- the station sets Call Back or Call Back is set to the station
- the station sets Call Back-CCIS or Call Back-CCIS is set to the station
- the station uses Call Hold
- the station sets Call Forwarding-All Calls/Busy Line (providing that Call Forwarding service is successful)
- Attendant Camp on with Tone Indication is set to the station
- the station sets Call Waiting service
- the station is restricted this feature

(7) CCNR is canceled when:

(a) Automatic Cancel Timer for CCNR expires (ASYD, System data 1, Index 71, b0-b3 decides the timer and b7 makes the timer effective).
* *Automatic Cancel for Call Back is applied to this feature also.*

(b) No Answer Timer (Calling Station does not answer the CCNR recall) expires (ASYD, System Data 1, Index 139. Default data is 30 seconds).

(c) The system recalls the Calling Station in lockout or make-busy state (CCNR is effective when the system recalls after lockout state or make-busy state is recovered).

(d) All trunks for recalling are busy when the system recalls the Calling Station.

(e) The called station is abnormally released (ex. The handset remains off-hook) and turned into lockout state.

(f) The operating station is restricted Incoming Calls at the time of recall.

(8) The single station can not set multiple CCNR services and multiple CCNR services can not be set to the single station.

A maximum number of CCNR to be set simultaneously per LP =
480 – (no. of ISDN call to be handled + no. of already set CCBS and CCNR service **Note 1**)

Note 1: Both CCBS and CCNR services conforming to ETS300 366 and IS-13870.

(9) When the called station becomes idle while the Calling Station is in conversation, the system recalls the Calling Station after the conversation ends.

(10) If the fault occurs at IS-11572 data link;

(a) If the fault occurs when the Calling Station is operating to set CCNR, CCNR service can not be set.

(b) If the fault occurs when the Calling Station is operating to cancel CCNR, CCNR is canceled at the side of operating station but not canceled at the side of called station to be set since the cancel message is not sent to the station.

(c) If the fault occurs when informing the Calling Station that the called station becomes idle, CCNR is canceled at the side of called station, but not canceled at the side of Calling Station since the message is not sent to the station.

(d) If the fault occurs when the Calling Station answers the recall (CCNR call), CCNR is canceled at the side of the Calling Station but not canceled at the side of the called station since the message is not sent to the station.

(11) The conditions of alternate routing are as follows.

(a) If the data link fault occurs when the station is operating to set CCNR, the message for service set is sent using alternate route providing that the interface is Q-SIG/IS-11572.

(b) The same route is used for sending service set message and recall (the other route can not be used). Therefore, recall is not completed since all trunks (B-channel) of the corresponding route are busy, and the system processes the call as follows.

- All B-channel trunks at the system of an Calling Station are busy:
  cancel CCNR and send Busy Tone to the Calling Station.
- All B-channel trunks at the mediate system are busy:
  send the message of CCNR recall fault to the Calling Station and the message of CCNR cancel to the called station.

(12) The description below are interactions between CCNR and Call Forwarding service (All Calls, Busy Line, Don't Answer).

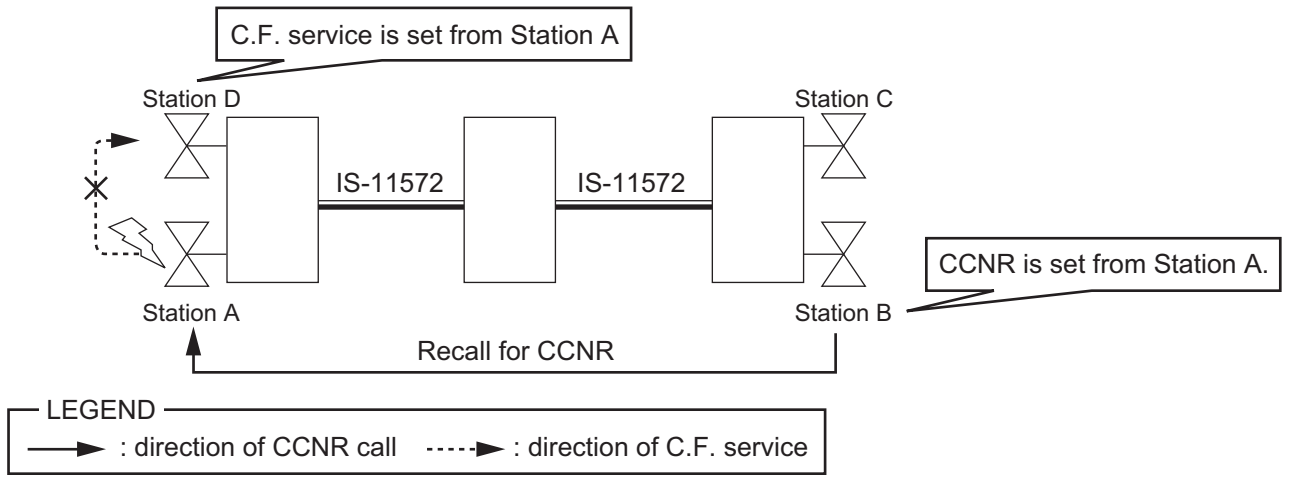
(a) When setting CCNR to the station which is set C.F. service, the time of setting CCNR decides whether the service is set or not.

	C.F. - All Calls	C.F. - Busy Line	C.F. - Don't Answer
C.F. is incomplete C.F. is not applicable (the condition for making C.F. complete is not agreed) (before) C.F. is activated	-	CCNR is set to the forwarding station (called station)	CCNR is set to the forwarding station (called station) **Note 2, Note 3**
(after) C.F. is complete	Not Available	Not Available	CCNR is set to the forwarding station (called station) **Note 2, Note 3**

Note 2: When the Calling Station recalls the station which is set CCNR service after answering CCNR recall, No Answer Timer time out is effective. If the timer expires, the recall is forwarded to the destination.

Note 3: The station to be set CCNR is not changed if C.F. - Don't Answer service is canceled after CCNR service set.

CCNR call is terminated to Station A (the call is not forwarded to Station D).



(b) When Call Forwarding - All Calls/Busy Line/Don't Answer is set on a Calling Station, the system recalls the calling party.

(c) When a called station is set Call Forwarding - All Calls/Busy Line/Don't Answer after CCBS service is set to the station, a Calling Station recalls the called station (forwarding station). As for a called station to be set Call Forwarding - Don't Answer, the destination station is recalled from the Calling Station if No Answer Timer expires.

(13) When the called station is Station Hunting Group member, CCNR is set to the terminated station. If the terminated station is busy, CCNR can not be set.

(14) Sub Address-Addressing is not used with CCNR.

4. PROGRAMMING

Assign the basic data for establishing the Q-sig or the IS-11572 (available to operate CCNR conforming to IS-13870) line referring to "IS-11572 (Layer 3 specifications for Inter-PBX signalling protocol)" or "Q-SIG Circuit Switched Basic Call-ETSI Version" in this chapter.

STEP 1: ASYD - System Data 1, Index 17, Bit 0. Hooking service while hearing Ringback Tone is available for single line stations. 0/1 = No/Yes.
System Data 1, Index 71, Bits 0 through 3. Assign the timer value of Cancel Timer for CCNR.
System Data 1, Index 71, Bit 7. Automatic Cancel of CCNR. 0/1 = Out/In Service.
System Data 2, Index 4, Bit 0. CCNR and OG Trunk Queuing Access Code. 0/1 = Separate/Common.
System Data 3, Index 7. Assign Ringer Pattern for Recalling.

STEP 2: ANPD - Reserve a number level for setting/canceling CCNR.

STEP 3: ASPA - Assign an Access Code for setting/canceling CCNR.

- For setting CCNR

  CI = “H: Hooking”
  SRV = “SSC: Service Code”
  SID = 3 (Call Back; Entry)

- For canceling CCNR

  CI = “N: Normal”
  SRV = “SSC: Service Code”
  SID = 6 (Call Back; Cancel)

STEP 4: Assign Service Feature Restriction Class that allows SFI = 2 (Call Back) to the stations allowed this service.

[C-153] CALLING NAME IDENTIFICATION PRESENTATION (CNIP)/ CONNECTED NAME IDENTIFICATION PRESENTATION (CONP)

1. GENERAL DESCRIPTION

In between Q-SIG networks, this feature allows calling or called party's information, called Name ID, to be displayed on the Desktop terminal LCD. This feature conforms to ETS 300 238 and IS-11572 network.

- Calling Name Identification Presentation (CNIP): Calling party's information (Name ID) is displayed on the called party's Desktop terminal LCD.
- Connected Name Identification Presentation (CONP): Called party's information (Name ID) is displayed on the calling party's Desktop terminal LCD.

This feature is also available when interworking with a CCIS interface.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This service is not available when:
- a tandem office is not provided with this feature or Name Display - System - CCIS [N-37].
- a call is routed through a signaling interface other than Q-SIG or CCIS.

Note: Available with IS-11572 interface.

(2) The routes to the offices not provided with this feature must be separated from the routes to the offices provided with this feature.

(3) While hearing Ringback Tone, Name ID of the called party is displayed on the calling party's Desktop terminal LCD. Note that the display is not changed even if the call is transferred using such features as CALL FORWARDING - ALL CALLS.

(4) When a call is transferred to another office using a forwarding feature such as CALL FORWARDING - ALL CALLS - OUTSIDE, Name ID of the terminated station is displayed on the calling party's Desktop terminal LCD.

(5) Even if the called party is in busy or lockout state, the called party's Name ID is displayed on the calling party's Desktop terminal LCD. However, when the called party is in Do Not Disturb state, Name ID is not displayed.

(6) When a call is transferred using Consultation Hold and Voice Call, Name ID of the calling party is not displayed on the transferred party's Desktop terminal LCD.

(7) This service cannot be used in conjunction with the ISDN Information Transfer service.

(8) The transfer rate is 64 Kbps. Bearer Capabilities are as follows:
- Speech
- 3.1 kHz audio
- 7 kHz audio

(9) When Name ID is not assigned, the calling or called party's number is displayed.

(10) When both 8-digit display and 16-digit display are used for this feature, the calling or called party's name is displayed as shown in the table below.

ORIGINATING OFFICE →TERMINATING OFFICE	CALLING PARTY'S NAME ID DISPLAY	CALLED PARTY'S NAME ID DISPLAY
16 digits → 8 digits	Bottom Line: 16 digits (Right 8 digits: Blank)	Top Line: 8 digits (Front 8-character display)
8 digits → 16 digits	Top Line: 8 digits (Front 8-character display)	Bottom Line: 16 digits (Right 8 digits: Blank)
8 digits → 16 digits → 8 digits	Top Line: 8 digits	Top Line: 8 digits
16 digits → 8 digits → 16 digits	Bottom Line: 16 digits	Bottom Line: 16 digits

(11) When 16-digit display is in service, MULTIPLE LINE OPERATION is not available for the Desktop terminal.

(12) When originating a call to a Q-SIG line using a Desktop terminal Sub Line, Name ID of the Desktop terminal Sub Line is sent to the called party.

(13) CONP is available only for Prime Line of the calling party.

(14) The characters displayed by this service are English alphabets, numerals and symbols of JIS unit codes conforming to ISO-8859-1.

(15) This service is available only for the Desktop terminal equipped with LCD.

(16) This service does not support Calling/Connected Name Identification Restriction (CNIR) conforming to ETS 300 238.

4. PROGRAMMING

Name ID is assigned by ANDD command on a station number basis.

STEP 1: ASYD - System Data 1, Index 78, Bit 3: Station Number Display with 8-Character Name Display. 0/1: Out/In Service.
System Data 1, Index 78, Bit 5: (1) Name Display in service.
System Data 1, Index 79, Bit 6: (0) OAI/ACD in service.
System Data 1, Index 241, Bit 1: User's Information Display service. 0/1: 8-Digit Display Service/16-Digit Display Service.

STEP 2: ARTD - Assign route class data for the Q-SIG trunk route.
BT (CDN=43): 1
DPLY (CDN=50): 1
CI (CDN=98): 0
IND (CDN=112): 1

Note: To change the data for existing route (RT), initialize the circuit card.

5. INTERACTIONS

Name ID is available for the following features:

- Call Forwarding - All Calls - CCIS
- Call Forwarding - Busy Line - CCIS
- Call Forwarding - Don't Answer - CCIS
- Step Call - CCIS
- Call Pickup
- Recalling of Call Hold
- Answering of Call Park
- Call Waiting
- Termination from UCD Queuing
- Outgoing Trunk Queuing
- Off-Hook Queuing
- Inter-Office Off-Hook Queuing

[C-158] CALL FORWARDING SUPPLEMENTARY SERVICE (SS-CF) WITH REROUTING

1. GENERAL DESCRIPTION

This feature provides Call Forwarding service activated to be followed by IS-13873/ETS 300 257 protocol (SS-CF). By using this feature, all Incoming Calls can be forwarded automatically after the destination was programmed against the called party. Also, rerouting function is activated with SS-CF service.
The functions of this feature are divided into the following.

[1] Call Forwarding-Supplementary Service

Example) The service activation procedures below are explained under this condition.
Station A: Calling Station
Station B: Called Station (Forwarding Station)
Station C: Forwarded Station

a.) Supplementary Service - Call Forwarding Unconditional (SS-CFU)
All Incoming Calls routed to the station are forwarded to the designated destination automatically.
(1) Station A originates a call to Station B.
(2) The call is forwarded to Station C.

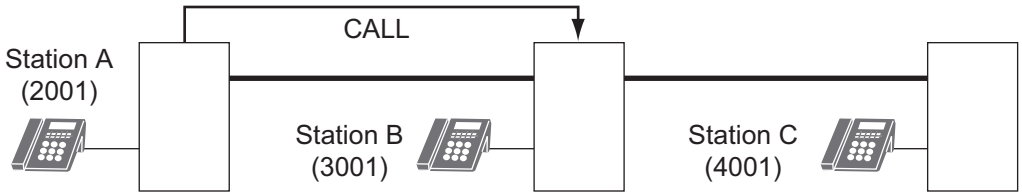
b.) Supplementary Service - Call Forwarding Busy (SS-CFB)
When the called station is busy, an Incoming Call terminated at the station is forwarded to the designated destination automatically.
When Station B is busy, the call is forwarded to Station C.

c.) Supplementary Service - Call Forwarding No Reply (SS-CFNR)
When the called station has not answered for a predetermined time, an Incoming Call terminated at the station is forwarded to the designated destination automatically.
(1) When Station A originates a call to Station B (Station B is ringing).
(2) Since Station B has not answered for a predetermined time a call is forwarded to Station C.

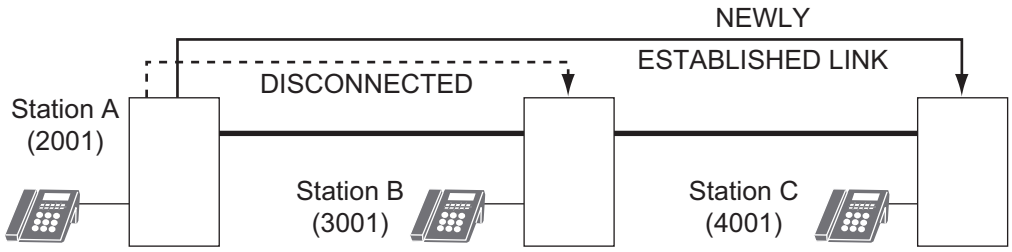
[2] Rerouting Function
In order to select the most proper routing (prevent to keep holding the unnecessary line), the line from the calling party to the forwarded destination is newly established when SS-CF service is successful. LCDs of stations concerned with this service are shown below.

Example) SS-CFU is used in this example.
Station A: Calling Party
Station B: Called Party (Forwarding Party)
Station C: Forwarded Party

1) Station A originates a call to Station B. LCD display on station A is "3001".



2) As the SS-CFU is activated, a new call is automatically originated from Station A to Station C and the line used for Station A through Station C is reestablished. LCD display on Station A is "4001" and "2001" is displayed on Station C's LCD.



: IS-11572 or Q-SIG

2. OPERATING PROCEDURE

[Set the service]
The SS-CF service setting should not be duplicated. The following operations (either by the Access Code or by the function/soft key) should be performed for each service.

Note: The CF-B and CF-NR can be set/cancel at one time depending on the system data.

- Using the Access Code

(1) Lift the handset; a Dial Tone is heard.
(2) Dial each Access Code for setting the corresponding Call Forwarding service; the Special Dial Tone is heard.
(3) Dial the destination's number; the service set tone is heard.
(4) Replace the handset.

- Using the function/soft key

(1) Lift the handset; a Dial Tone is heard.
(2) Press each function/soft key for setting the corresponding Call Forwarding service; the Special Dial Tone is heard.
(3) Dial the destination's number; the service set tone is heard.
(4) Replace the handset.

[Cancel the service]

- Using the Access Code

(1) Lift the handset; a Dial Tone is heard.
(2) Dial each Access Code for canceling the corresponding Call Forwarding service; the service set tone is heard.
(3) Replace the handset.

- Using the function/soft key

(1) Lift the handset; a Dial Tone is heard.
(2) Press each function/soft key for canceling the corresponding Call Forwarding service; the service set tone is heard.
(3) Replace the handset.

3. SERVICE CONDITIONS

[1] Call Forwarding-Supplementary Service

(1) The conditions for service set/cancel are the same as the that of CALL FORWARDING - ALL CALLS/ BUSY LINE/DON'T ANSWER. Refer to "Data Programming Manual - Business" for those conditions.

(2) The allowable terminals for this service are Desktop terminals, analog stations, ISDN terminals, PCS, and Attendant Consoles.

(3) This feature is available with IS-11572/ETS 300 172 interface.

(4) This feature is restricted by the Service Feature Restriction Class (SFC in ASFC) that denies CALL FORWARDING - BUSY LINE [C-2]/DON'T ANSWER [C-3]/ALL CALLS [C-5] provided in the business system.

(5) The name display for supplementary information is available with this feature if Name Identification supplementary-services (IS-13868/ETS 300 238) is provided.

(6) The conditions for the display, transmission, set or cancel of the name display function, the supplementary service of this feature, are the same as one of Name ID function provided as the supplementary service of IS-11572/Q-SIG. Refer to "CALLING NAME IDENTIFICATION PRESENTATION (CNIP)/ CONNECTED NAME IDENTIFICATION PRESENTATION (CONP)".

(7) When the station is called back, the SS-CF service is not activated (The call is not forwarded to the destination, but the call is terminated at the called station.)

(8) When multiple SS-CF services are set;

- Maximum number of time for Call Forwarding is five (depending on the system data).
- The above-mentioned number is described on the number of time that service is continuously activated through Q-SIG/IS-11572.
- The number of time that Call Forwarding service is activated within the system is not included in the above-mentioned number.
- Call Forwarding is not activated after the service has been performed the preprogrammed number of times.

(9) When the forwarded party or the forwarded trunk is busy;
SS-CFU: The call is forwarded. The caller hears Busy Tone.
SS-CFB: The call is forwarded. The caller hears Busy tone.
SS-CFNR: The call is not forwarded. The call continues to be placed at the party to be set SS-CFNR to the busy party.

(10) When the forwarded destination is the calling party;
(For example, Station A originates a call to Station B and Station B is set the SS-CF service to forward a call to Station A)
SS-CFU: The call is forwarded. The caller hears Busy Tone.
SS-CFB: The call is not forwarded. The caller hears Busy Tone.
SS-CFNR: The call is not forwarded. The call continues to be placed at the party programmed SS-CFNR to the calling party.

(11) When a forwarded party is set multiple SS-CF and its destination is the forwarding party (the number of times for activating the service is not exceeded the preprogrammed number);
Example 1) Station A originates a call to Station B, and Station B set to forward a call to Station C. Station C is set a call to forward to Station B.
The call is terminated at the Station B after being forwarded to Station C.
Example 2) Station A originates a call to Station B, and Station B set to forward a call to Station C. Station C is set a call to forward to Station D and then Station D set to Station B.
The call is terminated at the Station B after being forwarded to Station C and D.

(12) When the service is used to be interworked with the interface except IS-11572 or Q-SIG, the displayed number is as follows.

- On the caller's LCD, the display that indicates the connected party's number will not be changed until the forwarded destination answers the call (If using IS-11572 or Q-SIG interface, the display is changed when the call is forwarded and the called party starts to ring). After the call is answered, the display is changed from the caller number to the destination's number.
- On the destinations LCD, the display is the same as that of the forwarded station using CALL FORWARDING service.

(13) When using IS-11572 or Q-SIG with other types of trunk signaling, call connection can be established, but path replacement cannot occur.

(14) In the case where calling station is holding another line and called station is set to use this service, Facility Information Element of the called station will not be notified to node to which forwarded station belongs.

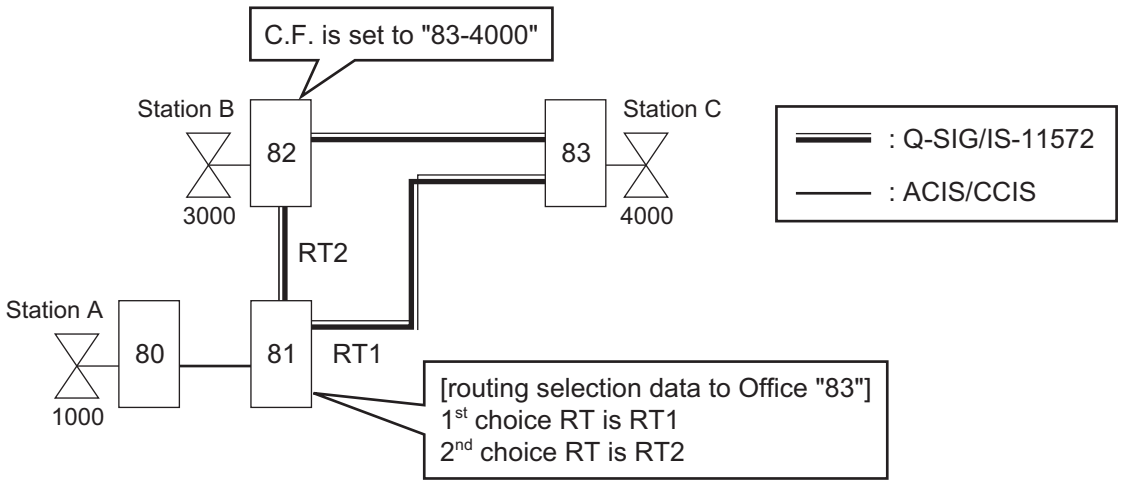
[2] Rerouting Function

(1) Rerouting function is available when:

(a) SS-CF service is available.
(b) Bearer Capability information of speech or 3.1 kHz audio is available for rerouting function (Unrestricted digital data can not be forwarded and the line is disconnected).
(c) Transmission speed rate is 64Kbps.
(d) The calling and called party are Desktop terminal or analog station. (When one of those stations is ISDN terminal, PS terminal, or Attendant Console, C.F. service is activated without rerouting function). As for the forwarded station, any terminal is available for this service.
(e) Another service is activated on the calling party.

(2) Rerouting function is also available for the call in the case below.

Calling Station (Station A): Office Code = 80, Station no. = 1000
Called Station (Station B): Office Code = 82, Station no. = 3000
Destination Station (Station C): Office Code = 83, Station no. = 4000



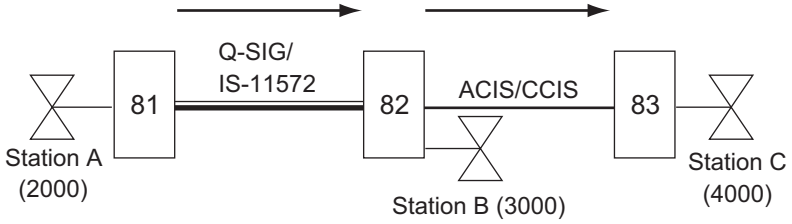
① Station A originates a call to Station B through Office "81".
(the call is routed to Station B through ACIS/CCIS and Q-SIG/IS-11572 line)
② Since Station B is set Call Forwarding service, the call is forwarded to Station C.
③ New line from Office "81" to "83" is established for the call (RT1 is the first choice routing from Office "81" to "83"). Rerouted line connection is Office "80" → Office "81" → Office "83".
Note: ACIS/CCIS line (Office “80” to “81”) is not reestablished and Station C’s number is not displayed on the of Station A belonging to Office “80”.

(3) When interworking through FCCS link, rerouting function is activated with no restriction.

(4) When station-to-station connection is established between a calling party and a called party, the called party and a forwarded party, rerouting function is not activated (Station-to-station connection in a FCCS Network is also applied to this condition).

(5) When the selected route for forwarding a call (from the called station to the forwarded station) is other than Q-SIG, IS-11572 line, Call Forwarding service is activated without rerouting function. See the figure below.

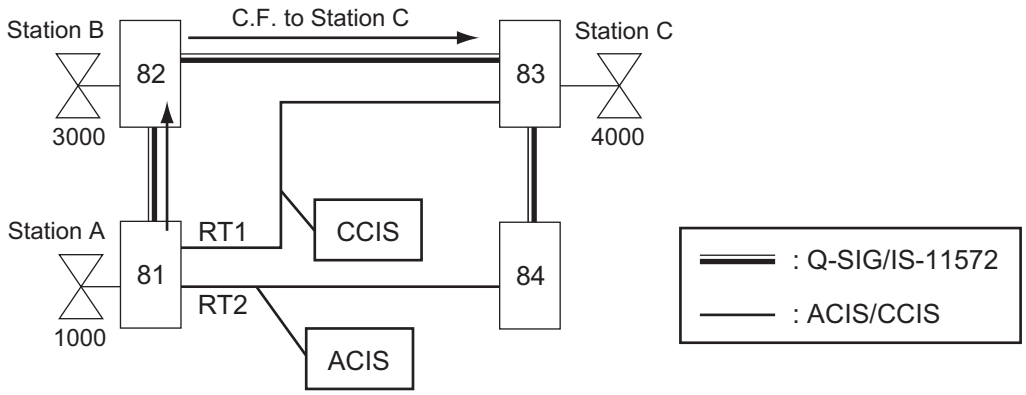
In this case, rerouting function is not activated.



Station A calls to Station B, which is set C.F. service to Station C.
The call is forwarded to Station C using the protocol other than Q-SIG/IS-11572.

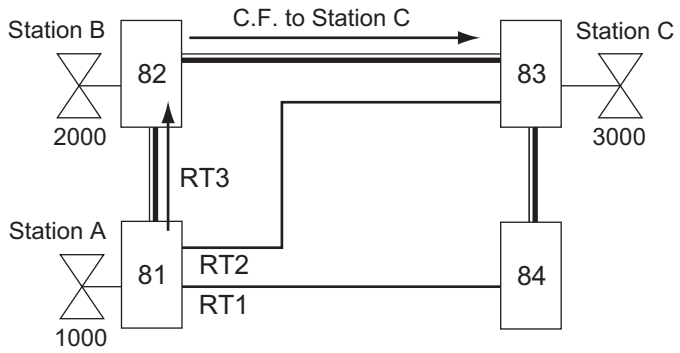
(6) When there is no route that supports Q-SIG, IS-11572 protocol in the route selection data from a calling party to a called station, Call Forwarding service is activated without rerouting function.

In this example, since the Q-SIG, IS-11572 line can not be selected for a route from Station A (calling station) to Station C (forwarded station), rerouting function is not activated even if RT1 or RT2 is idle.



(7) Reestablished route is decided by the routing selection pattern data programmed at the office where the calling party is accommodated or the gateway PBX office to the called station. Therefore, the improper route or the route that is the same as before rerouting function may be selected depending on the office data.

For Example 1) through 4), see the figure below.



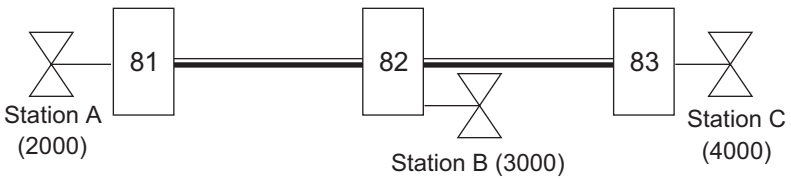
Example 1) the most proper routing is selected by the office data
Routing selection data to Office "83" programmed at Office "81": 1st RT2, 2nd RT1, 3rd RT3
RT2 is selected by rerouting function after Call Forwarding is successful.

Example 2) the improper routing is selected by the office data
Routing selection data to Office "83" programmed at Office "81": 1st RT1, 2nd RT2, 3rd RT3
RT1 is selected by rerouting function after Call Forwarding is successful.

Example 3) the improper routing is selected because of alternate routing
Routing selection data to Office "83" programmed at Office "81": 1st RT2, 2nd RT1, 3rd RT3
All trunks of RT2 (the first choice) are busy.
RT1 is selected for alternate routing after Call Forwarding is successful.

Example 4) the improper routing is selected because of the difference of protocol
Routing selection data to Office "83" programmed at Office "81": 1st RT2, 2nd RT1, 3rd RT3
RT2 (the first choice) is ACIS/CCIS line (not Q-SIG or IS-11572 line).
RT1 is selected for alternate routing after Call Forwarding is successful.

For Example 5), see the figure below.



Example 5) the rerouting pattern is not changed from that before rerouting function.

4. INTERACTIONS

[1] Call Forwarding-Supplementary Service

(1) When CALL COMPLETION ON NO REPLY (CCNR) is used with this feature that conforms to Q-SIG:

Note: CCNR available for the Q-SIG network.

SS-CFU: CCNR is not available for the station to be set the SS-CFU.
SS-CFB: CCNR is activated against the forwarding station (called station) even when the feature is set to the station to be set SS-CFB.
SS-CFNR: CCNR is activated against the forwarded station no matter when (before or after Call Forwarding) the CCNR is set.

(2) When CALL COMPLETION TO A BUSY SUBSCRIBER (CCBS) is used with this feature that conforms to Q-SIG:

Note: CCNR available for the Q-SIG network.

SS-CFU: CCNR is not available for the station to be set the SS-CFU
SS-CFB: CCNR is activated against the forwarding station (called station) even when the feature is set to station to be set SS-CFB (If the forwarding station is busy at that time, CCBS is restricted).

(3) When CONNECTED NAME IDENTIFICATION PRESENTATION (CONP) is used together with this feature;
SS-CFU: if the name information has been programmed, CONP is not effective and the connected party name is displayed followed by the name information programmed with SS-CFU data.
SS-CFB: if the name information has been programmed, CONP is not effective and the connected party name is displayed followed by the name information programmed with SS-CFB data.
SS-CFNR: if the name information has been programmed, CONP is not effective and the connected party name is displayed following by the name information programmed with SS-CFNR data.

(4) When CALL WAITING - TERMINATING [C-12] is used together with this feature;
When automatic CALL WAITING - TERMINATING is set to the station that has already been set this feature, this feature has priority over CALL WAITING - TERMINATING service and the call is forwarded.

(5) When DO NOT DISTURB [D-11D] service is used together with this feature;
SS-CFU: If Incoming Calls are terminated at the station to be set both features (SS-CFU and DND), the calls are forwarded by the SS-CFU data.
SS-CFB: If Incoming Calls are terminated at the station to be set both features (SS-CFB and DND), the calls are forwarded by the SS-CFB data.
SS-CFNR: If Incoming Calls are terminated at the station to be set both features (SS-CFNR and DND), the DND service takes priority and the caller hears the reorder tone.

(6) When OUTGOING TRUNK QUEUEING [O-2] service is used with this feature;
When the call is forwarded to the trunk by the SS-CF service and the destination trunk is busy, OGQ service is not effective if the Automatic OGQ is available (the call continues to place at the trunk).

(7) When the OFF HOOK QUEUEING [O-7] service is used with this feature;
SS-CFNR: When the call is forwarded to the trunk by SS-CFNR and the destination trunk is busy, OFF HOOK QUEUEING is not available (the call continues to be placed at the trunk).
SS-CF (except SS-CFNR):
When the idle destination picks up the call after the call is queued using OFF HOOK QUEUEING, the calling number display or the name display will not be provided.

(8) When the call forwarded by this feature is forwarded by AUTOMATIC ANNOUNCEMENT-PS OUT OF ZONE/C.F.-PS INCOMING INCOMPLETE service since the call cannot terminate to the destination PS which is out of zone or whose power is OFF, the calling number display or name display is not provided.

(9) This feature requires 24DTI/30DTI circuit card.

(10) The conditions of displayed number at the destination are described below comparing with the CCIS service.
a.) Call Forwarding - All Calls/Busy Line;
IS-11572/Q-SIG - the displayed number that indicates the connected party is changed from the called party (forwarding party) to the destination before the destination answers the call (at the moment the call is forwarded).
CCIS - the displayed number that indicates the connected party is changed from the called party (forwarding party) to the destination after the destination answers the call.
b.) Call Forwarding - Don't Answer;
IS-11572/Q-SIG - the displayed number that indicates the connected party is changed from the called party (forwarding party) to the destination before the destination answers the call (at the moment the No Answer timer has been elapsed).
CCIS - the displayed number that indicates the connected party is changed from the called party (forwarding party) to the destination after the destination answers the call.

[2] Rerouting Function
The calling party name or identification information is not displayed on the LCD of the destination station (Calling Name Identification Presentation (CNIP)/Connected Name Identification Presentation (CONP) is not available) while rerouting function is activated.

5. PROGRAMMING

First, assign the data for IS-11572/Q-SIG interface establishment referring to "IS-11572 (Layer 3 specifications for Inter-PBX signaling protocol)/Q-SIG (Circuit Switched Basic Call-ETSI Version)" on this manual.

- SS-CFU

STEP 1: ASFC - Assign the Service Feature Restriction Class (SFC) for allowing this service.
SFI=7 (Call Forwarding - All Calls)RES=1 (Available)

STEP 2: ATNR - Allow the tenant connection between the station to the station and/or the station to the Attendant Console.
TRI=1 (Station within the originating tenant <OGTN> sets Call Forwarding-All Calls / Busy Line / Don't Answer to a station within the terminating tenant <TMTN>)
RES=1 (Available)

STEP 3: ARSC - Assign the Route Restriction Class (RSC).

STEP 4: ARRC - Allow the route connection between the outgoing route and the incoming route.

STEP 5: ASYD - Assign the system data concerned with this feature.
SYS1, INDEX4, b6. One Burst of Ringing is sent to the station which has been set C.F.-All Calls service on each an Incoming Call (analog phones only).
0/1 = Not Required/Required
SYS1, INDEX5, b1-3. Maximum number of times Multiple Call Forwarding - Busy Line/All Calls occurrences. **Note 1**

Note 1: This data is valid when SYS1, INDEX 69, Bit 7 is set to 1 (Multiple Call Forwarding - Busy Line/All Calls is in Service).

SYS1, INDEX69, b7. Multiple Call forwarding - Busy Line/All Calls
0/1 = Out/In Service
SYS1, INDEX248, b7. Tone to be sent out when the handset is off-hook at the station on which C.F.-All Calls service is set.
0/1 = Dial Tone (DT)/Special Dial Tone (SPDT)
SYS2, INDEX1, b3. Toll Restriction for Speed Calling Station/Group services
0/1 = Required/Not Required
SYS2, INDEX1, b7. Speed Calling Override Service (System basis)
0/1 = Required/Not Required
SYS2, INDEX6, b4. Call Origination Restriction of Station upon setting C.F.-All Calls
0/1 = Required/Not Required

STEP 6: ANPD - Reserve a number level for the feature access and cancel.

STEP 7: ASPA - Assign the Access Code for the Call Forwarding - All Calls.
SRV="SSC: Service Code", SID=8 (Call Forwarding - All Calls; Entry)
SRV="SSC: Service Code", SID=9 (Call Forwarding - All Calls; Cancel)

STEP 8: ARTI - Assign the trunk application data.
CDN52: CTCF - 1 = SS-CT/SS-CF service is effective.
CDN53: RERT - 1 = Rerouting function is effective.

Note: To change the data for existing route (RT), initialize the circuit card.

- SS-CFB

STEP 1: ASFC - Assign the Service Feature Restriction Class.
SFI=9 (Call Forwarding - Busy Line) RES=1 (Available)

STEP 2: ARSC - Assign the Route Restriction Class (RSC).

STEP 3: ARRC - Allow the route connection between the outgoing route and the incoming route.

STEP 4: ASYD - Assign the system data concerned with the service.

SYS1, INDEX5, b0. Destination of Call Forwarding - Busy Line and Call Forwarding - Don't Answer
0/1 = Same/Separate
SYS1, INDEX5, b1-3. Maximum number of times that Multiple Call Forwarding - All Calls/Busy Line occurrences. **Note 2**

Note 2: This data is valid when SYS1, INDEX 69, Bit 7 is assigned as "1 (Multiple Call Forwarding - Busy Line/All Calls is in service)".

SYS1, INDEX69, b7. Multiple Call Forwarding - Busy Line/All Calls
0/1 = Out/In Service
SYS2, INDEX1, b3. Toll Restriction for Speed Calling Station/Group services
0/1 = Required/Not Required
SYS2, INDEX1, b7. Speed Calling Override Service (System basis)
0/1 = Required/Not Required

STEP 5: ANPD - Reserve a number level for the feature access and cancel.

STEP 6: ASPA - Assign the Access Code for the Call Forwarding - Busy Line.

SRV="SSC: Service Code", SID=10(Call Forwarding - Busy Line; Entry)
SRV="SSC: Service Code", SID=11(Call Forwarding - Busy Line; Cancel)

STEP 7: ARTI - Assign the trunk application data.

CDN52: CTCF - 1 = SS-CT/SS-CF service is effective.
CDN53: RERT - 1 = Rerouting function is effective.

Note: To change the data for existing route (RT), initialize the circuit card.

- SS-CFNR

STEP 1: ASFC - Assign the Service Feature Restriction Class.
SFI=8 (Call Forwarding - Don't Answer) RES=1(Available)

STEP 2: ATNR - Allow the tenant connection between the station and the station and/or the station and the Attendant Console.
Assign the RES=1 (Not restricted) at the following indexes.
TRI=0 (Station within the outgoing tenant <OGTN> calls to a station within the terminating tenant <TMTN>)
TRI=1 (Station within the outgoing tenant <OGTN> sets Call Forwarding-All Calls / Busy Line / Don't Answer to a station within the terminating tenant <TMTN>)
TRI=3 (Attendant Console within the outgoing tenant <OGTN> sets Call Forwarding-All Calls for a station within the terminating tenant <TMTN> (Call Forwarding-All Calls set/cancel by ATT))

STEP 3: ARSC - Assign the Route Restriction Class (RSC).

STEP 4: ARRC - Allow the route connection between the outgoing route and the incoming route.

STEP 5: ASYD - Assign the system data concerned with the service.
SYS1, INDEX5, b0. Destination of Call Forwarding - Busy Line and Call Forwarding - Don't Answer
0/1 = Same/Separate
SYS1, INDEX139, b0-b6. No Answer Timer for station to station, DID, and TIE Line calls. Time value setting is MTC × TC second.
SYS1, INDEX140, b0-b6. No Answer Timer for Recall on Call Transfer: the duration for which a call will ring at the transfer destination before it will recall to the transferring party. The timer value is effective when INDEX69, b0=0. Timer value setting is MTC (1-15) × TC (2 or 8) seconds.
SYS2, INDEX6, b7. C.F.-Don't Answer service to be set at the destination when the call is transferred by the Attendant Console in the way of BLIND TRANSFER.
0/1 = Out of Service (Recall to Attendant Console)/In Service

STEP 6: ANPD - Reserve a number level for the feature access and cancel.

STEP 7: ASPA - Assign the Access Code for the Call Forwarding - Don't Answer.
SRV="SSC: Service Code", SID=12 (Call Forwarding - Don't Answer; Entry)
SRV="SSC: Service Code", SID=13 (Call Forwarding - Don't Answer; Cancel)

STEP 8: ARTI - Assign the trunk application data.
CDN52: CTCF - 1 = SS-CT/SS-CF service is effective.
CDN53: RERT - 1 = Rerouting function is effective.

Note: To change the data for existing route (RT), initialize the circuit card.

[C-159] CALL TRANSFER SUPPLEMENTARY SERVICE (SS-CT) WITH REROUTING

1. GENERAL DESCRIPTION

This feature provides CALL TRANSFER activated to be followed by IS-13869/ETS 300 261 protocol (SS-CT). By using this feature, the station can hold the handling call to transfer to the remote terminal. Also, rerouting function is activated with SS-CT service.
The functions of this feature are divided into the following.

[1] Call Transfer-Supplementary Service

Note: Call TRANSFER service that conforms to IS-13869/ETS 300 261 Protocol

Example) Station A: Calling Party
Station B: Called Party (Forwarding Party)
Station C: Forwarded Party

a.) When the intermediate party is disconnected after the forwarded party answers the call.
(1) Station B holds a call from Station A.
(2) Station B calls to Station C and Station C answers the call.
(3) Station A connects to Station C as Station B is disconnected

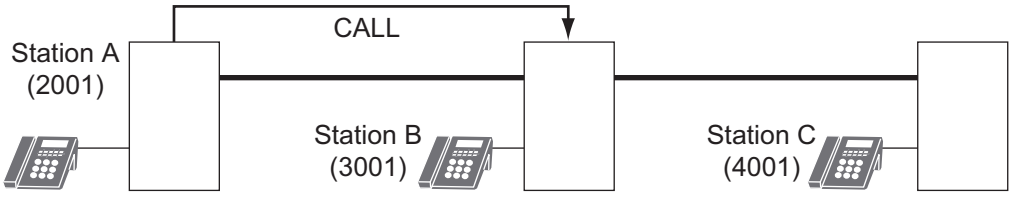
b.) When the intermediate party disconnects before the forwarded party answers the call (BLIND TRANSFER)
(1) Station B holds a call from Station A.
(2) Station B places a call to Station C
(3) Station B disconnects and the tone that Station A receives changes from the hold tone to the Ringback Tone.
(4) Station A connects with Station C.

[2] Rerouting Function

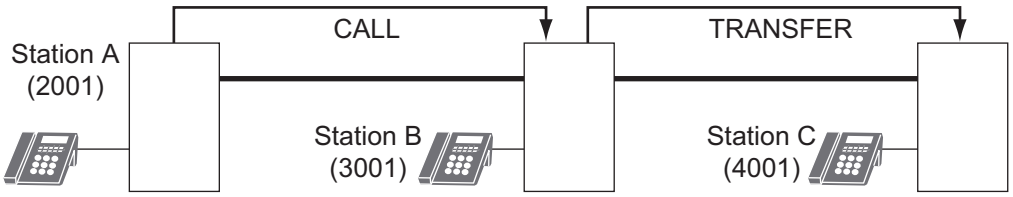
In order to prevent to keep holding the unnecessary line, the line from the calling party to the forwarded destination is newly established when SS-CT service is successful. LCDs of stations concerned with this service are shown below.

Station A: Calling Party
Station B: Called Party (Forwarding Party)
Station C: Forwarded Party

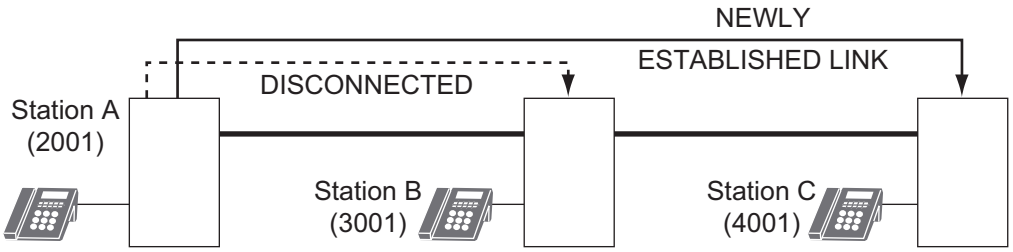
1) Station A originates a call to Station B. LCD display on Station A is "3001" and LCD display on Station B is "TRANSFER" or "XFR".



2) Station B transfers the call to Station C and Station C answers the call.
LCD display on Station A is "3001", LCD display on Station B is "TRANSFER" or "XFR" and LCD display on Station C is "3001".



3) As Station B is released from the connection, a new call is automatically originated from Station A to Station C and the line used for Station A through Station C is reestablished.
LCD display on Station A is "4001" and "2001" is displayed on Station C's LCD.



: IS-11572 or Q-SIG

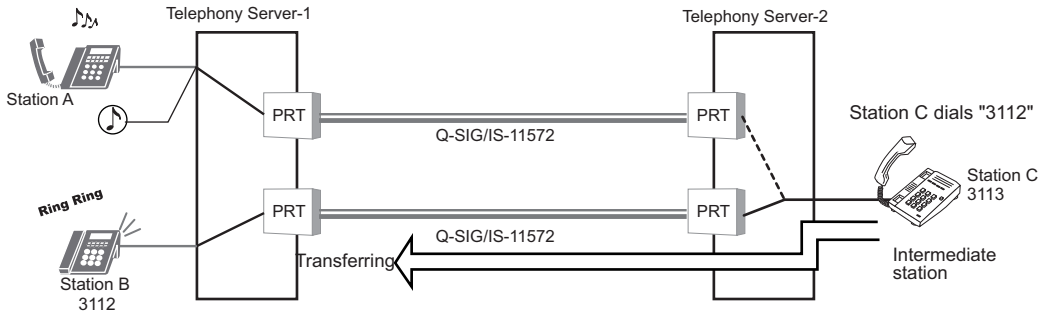
[3] Path Replacement Function

This feature is Path Replacement service based on ISO/IEC 13874 2nd edition. Path Replacement is activated when a redundant path is detected after performing Call Transfer Supplementary Service (SS-CT).
As a precondition 'transfer without rerouting' is required for this feature. The following figures show general sequence of this feature.

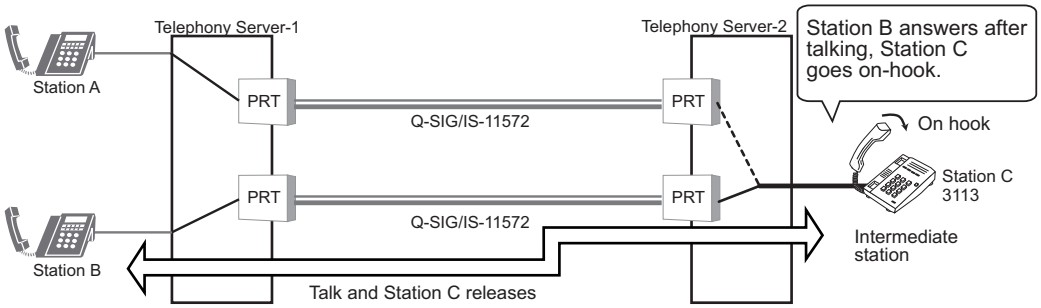
- Path Replacement while Talking:

Path Replacement Service while Talking

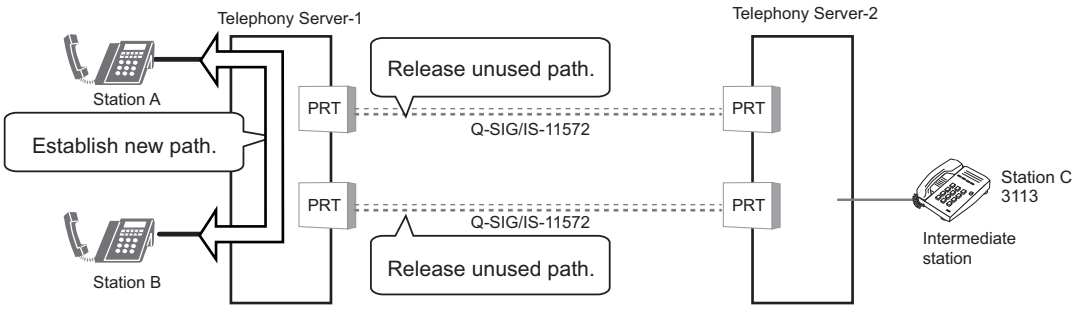
[1] Station C places Station A on hold and dials "3112."



[2] Station B answers and Station C replaces the handset.



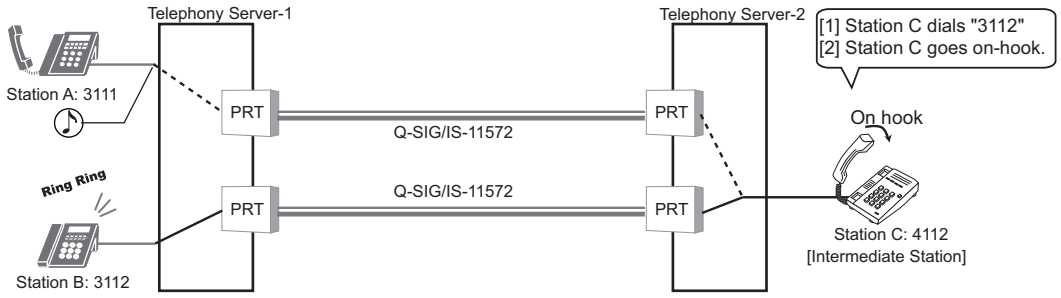
[3] Path Replacement is performed.



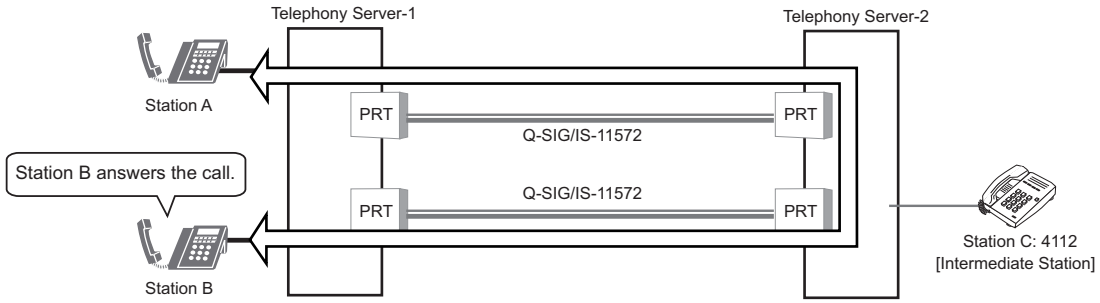
- Path Replacement while Ringing:

Path Replacement while Ringing

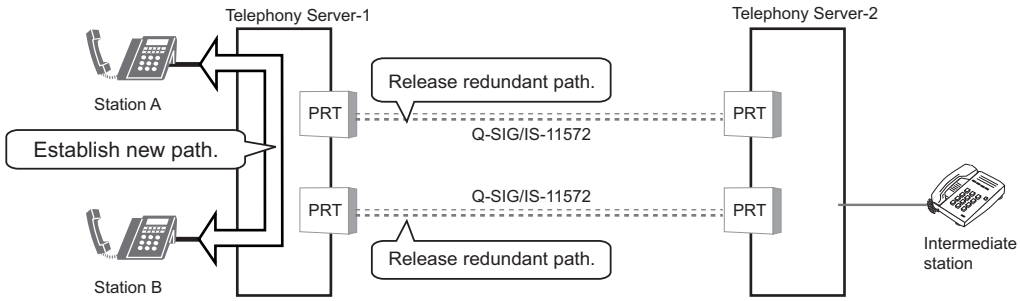
[1] Station C places Station A on hold and dials "3112."
[2] Station B rings. Station C goes on-hook before Station B answering the call.



[3] Station B answers the call.



[4] Path replacement is performed when Station A answers the transferred call.



2. OPERATING PROCEDURE

This feature is operated when the station is in the two-party connection

[Set the service]
(1) The user performs the switch hook flash; the Special Dial Tone is heard.
(2) Dial the destination's number; the Ringback Tone is heard.
(3) The destination party answers the call.
(4) The user replaces the handset. **Note 1**
(5) The calling party and the transferred party are connected.

Note 1: The user may replace the handset before the transferred party answering the call. In that case, the caller hears the Ringback Tone in place of the hold tone.

3. SERVICE CONDITIONS

[1] Call Transfer-Supplementary Service

(1) This service is available for Desktop terminals, the analog stations, ISDN terminals, PCS terminals, or Attendant Consoles.

(2) This feature is available with IS-11572/ETS 300 172 interface.

(3) Available Bearer Capability information for this service is speech and 3. 1kHz audio.

(4) When the transferring party gets into a conversation with the destination party after the destination answers the call, the switch hook flash may use to switch the connected party to the held party.

(5) If the transferring party hangs up before the destination answers the call (transfers in the way of BLIND TRANSFER) and transferred party is busy, the transferring party will be recalled.

(6) If the call is transferred to release from the connection after the destination answers the call, the switchhook flash is available for the transferring party to place back the original connection since the destination is busy. (One digit dialing is not available for this operation)

(7) When the transferring station is released from the connection after flashing the switchhook and hears the Special Dial Tone (before dialing the destination's number), the caller hears the reorder tone. In this case, the transferring station is not recalled.

(8) When the call transfer service is not available because of Register Prepause Timer time out or Register Inter-Digit Timer time out, the transferring party hears the reorder tone. In this case, the transferring party can perform the switchhook flash to reconnect with the calling party.

(9) In this service, Incoming Call via the COT can not be transferred by the way of BLIND TRANSFER service (When IS-11572 is interworked with ACIS, this service to be operated by BLIND TRANSFER method is not available).

(10) When the service is used to be interworked with the interface except IS-11572 or Q-SIG, the displayed number will not be changed at the Calling Station (The display is the same as before the SS-CT service is activated and the LCD of Calling Station displays the called station (forwarding party)). However, the LCD of destination displays the Calling Station.

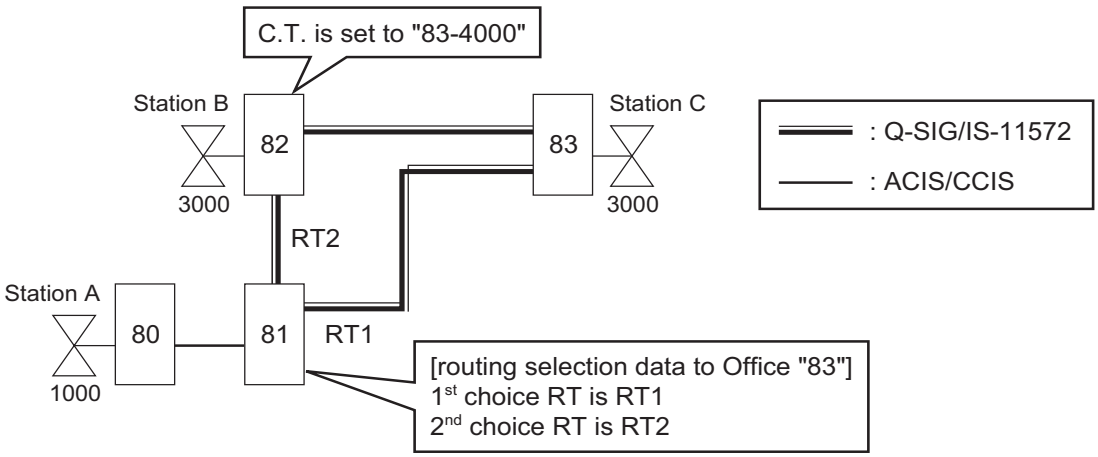
[2] Rerouting Function

(1) Rerouting function is available when:

(a) SS-CT service is available.
(b) Bearer Capability information of speech or 3.1 kHz audio is available for rerouting function (Unrestricted digital data can not be forwarded and the line is disconnected).
(c) Transmission speed rate is 64Kbps.
(d) The calling party, the called party, and the destination station are Desktop terminal or analog station.
(e) Another service is activated on the calling party, the called party, and the destination station.

(2) Rerouting function is also available for the call in the case below.

Calling Station (Station A): Office Code = 80, Station no. = 1000
Called Station (Station B): Office Code = 82, Station no. = 3000
Destination Station (Station C): Office Code = 83, Station no. = 4000



① Station A originates a call to Station B through Office "81".
(the call is routed to Station B through ACIS/CCIS and Q-SIG/IS-11572 line)
② Station B transfer the call from Station A to Station C, Station B is released from the connection.
③ New line from Office "81" to "83" is established for the call (RT1 is the first choice routing from Office "81" to "83"). Rerouted line connection is Office "80" → Office "81" → Office "83"

Note: ACIS/CCIS line (Office “80” to “81”) is not reestablished and Station C's number is not displayed on the LCD of Station A belonging to Office “80”.

(3) When interworking through FCCS link, rerouting function is activated with no restriction.

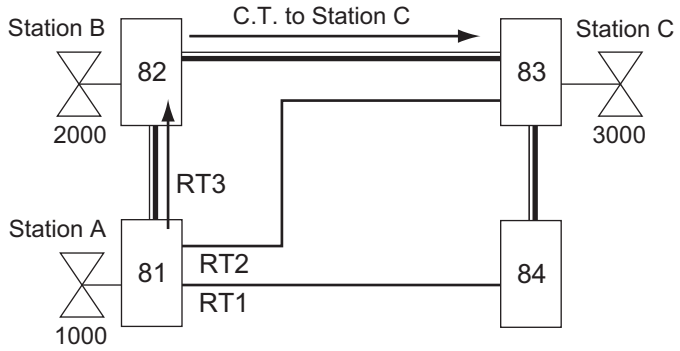
(4) When using IS-11572 or Q-SIG with other types of trunk signaling, call connection can be established, but path replacement cannot occur.

(5) When station-to-station connection is established between a calling party and a called party, the called party and a forwarded party, rerouting function is not activated.

(6) When rerouting function is not available or the activation is failed, Call Transfer service is activated without rerouting function.

(7) Reestablished route is decided by the routing selection pattern data programmed at the office where the calling party is accommodated or the gateway PBX office to the called station. Therefore, the improper route or the route that is the same as before rerouting function may be selected depending on the office data.

For Example 1) through 4), see the figure below.



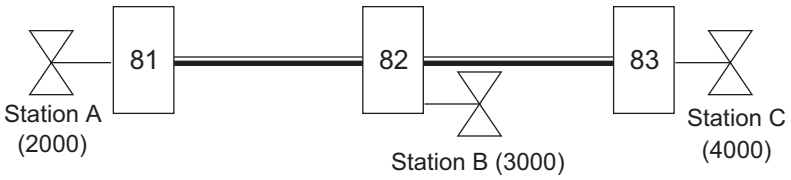
Example 1) the most proper routing is selected by the office data
Routing selection data to Office "83" programmed at Office "81" : 1st RT2, 2nd RT1, 3rd RT3
RT2 is selected by rerouting function after Call Transfer is successful.

Example 2) the improper routing is selected by the office data
Routing selection data to Office "83" programmed at Office "81": 1st RT1, 2nd RT2, 3rd RT3
RT1 is selected by rerouting function after Call Transfer is successful.

Example 3) the improper routing is selected because of alternate routing
Routing selection data to Office "83" programmed at Office "81": 1st RT2, 2nd RT1, 3rd RT3
All trunks of RT2 (the first choice) are busy.
RT1 is selected for alternate routing after Call Transfer is successful.

Example 4) the improper routing is selected because of the different protocol
Routing selection data to Office "83" programmed at Office "81": 1st RT2, 2nd RT1, 3rd RT3
RT2 (the first choice) is ACIS/CCIS line (not Q-SIG or IS-11572 line).
RT1 is selected for alternate routing after Call Transfer is successful.

For Example 5), see the figure below.



Example 5) the rerouting pattern is not changed from that before rerouting function.

[3] Path Replacement Function

(1) For this feature the following conditions must be satisfied:
Call is transferred by SS-CT (Supplementary Service - Call Transfer) without Rerouting Two-party connection via Q-SIG/IS-11572.
Terminal Kind is analog terminal, Desktop terminal, PS.
(Attendant Console (**Note 1**), ISDN terminal, and PS in roaming are not included.)

Note 1: Available when “intermediate station” is Attendant Console.

(2) Bearer capabilities:
- Speech (Specified in ETS 300 172 2nd edition)
- 3.1 kHz audio

(3) Numbering plan must conform to the following:
- Closed Numbering Plan
or
- Stations must be called by the identical number from any nodes on the network

(4) Path replacement is performed according to data assignment for alternate routing.

4. INTERACTIONS

[1] Call Transfer-Supplementary Service

(1) When CALL PARK [C-29] is used with this feature:
The call parked by CALL PARK feature can not be transferred by the SS-CT service. While, the station operated CALL PARK can use the SS-CT service for the another Incoming Call.

(2) When CALL HOLD [C-6] is used with this feature:
The call held by Call Hold feature can not be transferred by the SS-CT service.

(3) When STEP CALL [S-13] is used with this feature:
When the destination to be transferred with the SS-CT service is busy, a new call can be originated using STEP CALL.

(4) When OUTGOING TRUNK QUEUEING [O-2, 2D]/OFF HOOK QUEUEING [O-7, 7D]/INTER-OFFICE OFF HOOK QUEUEING [I-11] service is used with this feature;
When the call is transferred to the trunk by the SS-CT service, those services can not be set against the busy trunk.

(5) When Service Peg Count function of PEG COUNT [P-7] is used with this feature;
a.) When the transferring party operates to release from the connection after the station answers the call, this service is included in “CALL TRANSFER - ALL CALLS” service count.
b.) When the SS-CT service is operated in the way of BLIND TRANSFER service, this service is not counted.

(6) This feature requires 24DTI/30DTI circuit card.

(7) When operating this service in the way of BLIND TRANSFER, the number that indicates the connected party at the calling party's LCD are different between CALL TRANSFER service activated through IS-11572/Q-SIG and the service activated through CCIS.
- IS-11572/Q-SIG - The display of the calling party is changed from the transferring party's number (caller party's number) to the destination's number at the moment the transferring party releases from the connection.
- CALL TRANSFER to be activated through CCIS - the LCD display of the calling party is changed after the transferring party answers the call.

[2] Rerouting Function

(1) The calling party name or identification information is not displayed on the LCD of the destination station while rerouting function is activated.
(2) When the mediate user originates a call to the station on which Call Forwarding-Don't Answer is set and releases before the destination station answers the call, Call Forwarding-Don't Answer is not effective while rerouting function is activated.

[3] Path Replacement Function

(1) CNIP/CONP (**Note 1**) is also available when this feature is performed.

Note 1: CALLING NAME IDENTIFICATION (CNIP)/CONNECTED NAME IDENTIFICATION PRESENTATION (CONP) <ETS 300 238>.

5. PROGRAMMING

Assign the data for IS-11572/Q-SIG interface establishment referring to "IS-11572 (Layer 3 specifications for Inter-PBX signaling protocol)/Q-SIG (Circuit Switched Basic Call-ETSI Version)" on this manual.

STEP 1: ASYD - Assign the system data concerned with this feature.
SYS1, INDEX17, b4. Blind Transfer to Attendant 0/1 = Out/In Service
SYS1, INDEX69, b0. Return transferred call to transferring party after Recall Timer expires
0/1 = Recall/No Recall (when C.F. - Don't Answer is set at the transfer destination)
SYS1, INDEX140, b0-b6. The duration for which a call will ring at the transfer destination before it will recall to the transferring party. (Assign this data when ASFC, SFI103=0)
SYS1, INDEX247, b0-b6. No Answer timer for Blind Transfer station. (Assign this data when ASFC, SFI103=1)

STEP 2: ASFC - Assign the Service Feature Restriction Class (SFC) for allowing this service.
SFI103 (Assign the timer value of No Answer Timer for BLIND TRANSFER TO STATION)
0=followed by Index 140/Index 247 assigned by ASYD.
SFI104 (Processing in a case when the transfer destination does not answer within a predetermined period of time.) **Note 1**
0=The transfer destination station rings continuously
1=C.F. - Don't Answer is executed if it is set at the transfer destination

Note 1: This data is available when SYS1, INDEX69, b0=1.

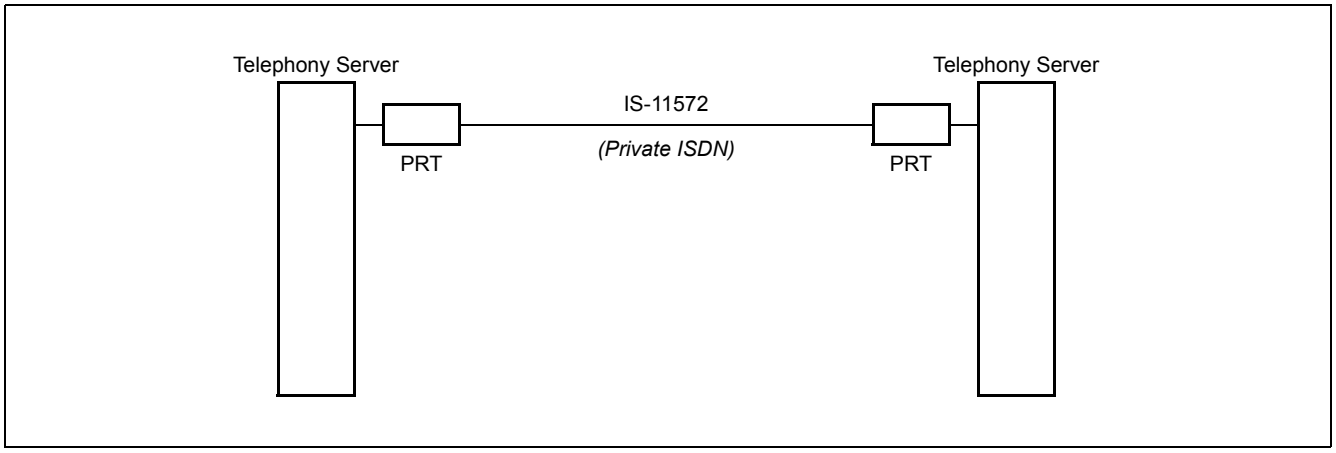
STEP 3: ARRC - Allow the alternative route connection between the outgoing trunk and the incoming trunk.

[I-42] IS-11572 (LAYER 3 SPECIFICATIONS FOR INTER-PBX SIGNALING PROTOCOL)

1. GENERAL DESCRIPTION

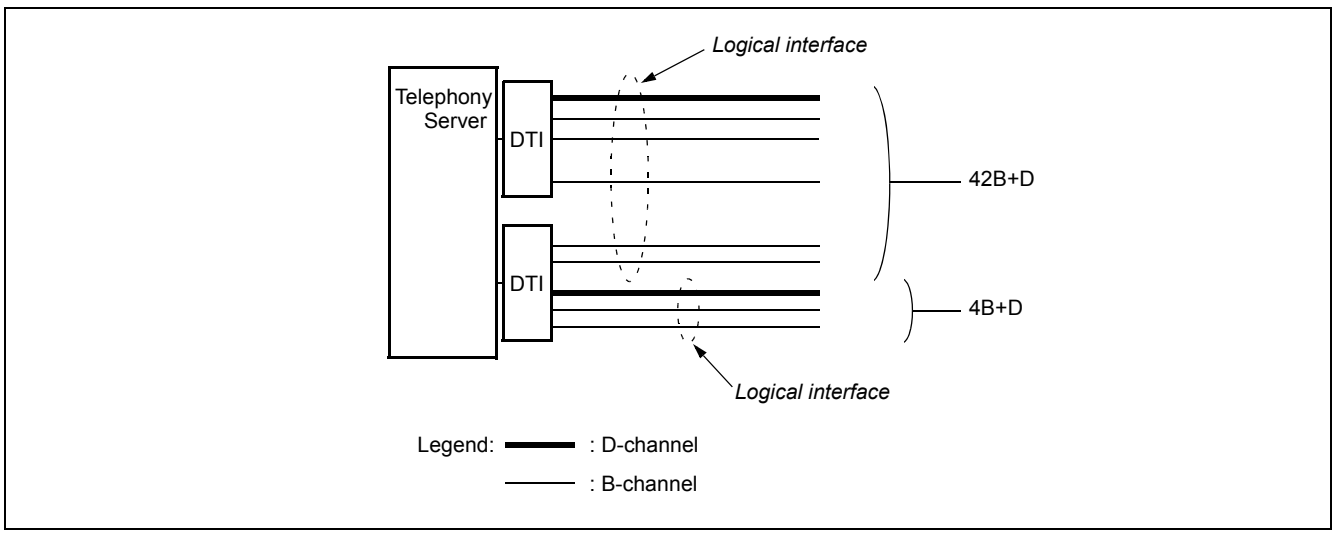
This feature allows Inter-PBX link by using Layer 3 signalling protocol supporting circuit mode bearer services (ISO/IEC IS-11572). This feature has the following functions:

- Outgoing/Incoming Call Connection
- Tandem Connection
- Inter-PBX Link



(1) Physical Interface

A maximum of 63 channels are to be controlled by a single Data Link channel. This feature, however, does not support D-CHANNEL BACKUP.



(2) Bearer Capability

- The transfer rate is 64 Kbps/384Kbps/1,536Kbps/64 Kbps × n only.
- This feature provides the following Bearer Capabilities:

  – Speech
  – Unrestricted Digital Information
  – Restricted Digital Information (only in the case of interworking)
  – 3.1 kHz audio
  – Unrestricted Multi-Rate

- At terminating PBX, received bearer capabilities are converted as shown below.

  Speech, 3.1 kHz audio, 7 kHz audio → Speech
  Unrestricted/Restricted Digital Information, Video → Unrestricted Digital Information

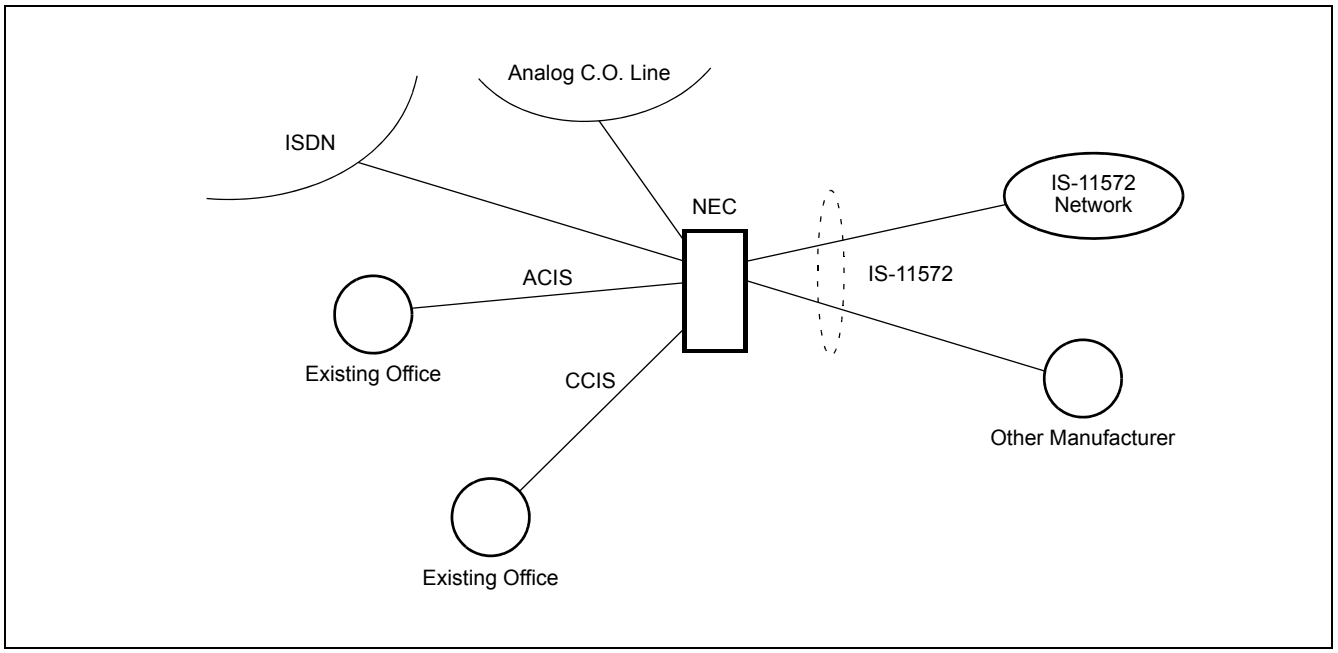
- Transparency of Bearer Capability when interworking with the C.O./TIE Line is shown in the table below.

INTERWORKING \ BEARER CAPABILITY		SPEECH	3.1k AUDIO	7.1k AUDIO	UNRESTRICTED DIGITAL	RESTRICTED DIGITAL	VIDEO
Central Office Line	ISDN → IS-11572	○	○	–	○	–	–
	IS-11572 → ISDN	○	○	Converted to 3.1k audio	○	Converted to Unrestricted digital	Converted to Unrestricted digital
	Analog Central Office→ IS-11572	–	○	–	–	–	–
	IS-11572 → Analog C.O.	–	–	–	–	–	–
TIE Line	CCIS → IS-11572	○	○	–	○	–	–
	IS-11572 → CCIS	○	○	Converted to 3.1k audio	○	Converted to Unrestricted digital	Converted to Unrestricted digital
	ACIS → IS-11572	–	○	–	–	–	–
	IS-11572 → ACIS	–	–	–	–	–	–

○ : Transparent
– : Not Available

(3) Connectivity

IS-11572 is available for the following connection and interworking with the other networks.
Note that connection test is required when the NEC's PBX and other manufacturer's PBX coexists in an IS-11572 network.



- Connectivity between IS-11572 and terminal equipment is shown below.

	CONNECTIVITY	REMARKS
BRI Station → IS-11572	○	
IS-11572 → BRI Station	○	
PRI Station → IS-11572	○	
IS-11572 → PRI Station	○	
IS-11572 → Desktop terminal	○	
Desktop terminal → IS-11572	○	
Analog Station → IS-11572	○	
IS-11572 → Analog Station	○	

○ : Available

(4) Calling/Called Party Number Information

- As a calling/called party number, a maximum of 32 digits can be transmitted and received.
  (Note that the contents of the calling/called party number display vary depending on the type of terminal.)
- When different signalling systems are involved, transparency of calling/called party number is as shown below:

TYPE OF NETWORK	TRANSPARENCY	REMARKS
CCIS Network	The former 16 digits are transferred.	
ISDN Network	Transparent	
ISDN Private Network	Transparent	

- Desktop terminal or analog telephone user can select whether to send the calling number or not.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) The multi-rate bearer service is available.

Multi-rate bearer service: Desirably multiplied value of 64 (64Kbps × "n"-desired number) is available for the data transmission speed in addition to the current speed such as 384K (64K × 6), 1536K (64K × 24) and 1920K (64K × 30).

The following are the service conditions concerned with the multi-rate bearer service.

(a) Routing data must be assigned per physical interface (PRT/DTI).

(b) Overlap sending (LCRS) is not provided with this feature.

(c) Multi-rate bearer service is provided for the PBXs connecting directly with the Q-sig interface. (If the PBXs are connected with the different interface such as the interface defined by Q.931/Q.931-a or CCIS, only H0/H1 service (transfer rate is 384kbps/1.5Mbps) is available.)

(2) The User-to-User Signaling (UUS) can be sent via Q-sig interface.

The following are the conditions for the UUS transmission.

(a) The maximum data capacity for the UUS is 128 bytes and the latter part of excessive data is automatically omitted.

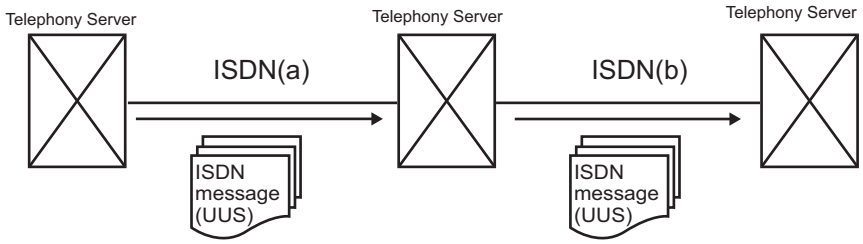
(b) The following messages for call establishment/clearing may include the UUS.

- Setup
- Alerting
- Connect
- Progress
- Disconnect
- Release
- Release Complete

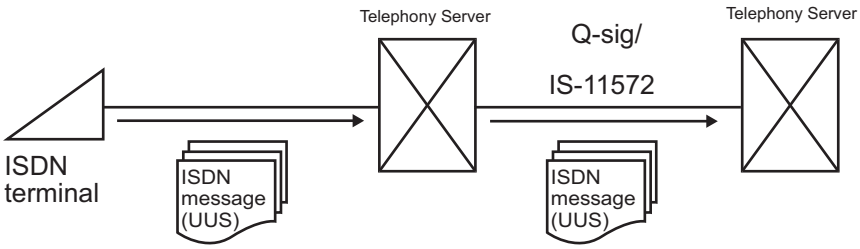
(c) The connection patterns for the UUS transmission are shown in the figure below.

Pattern 1: The ISDN tandem connection

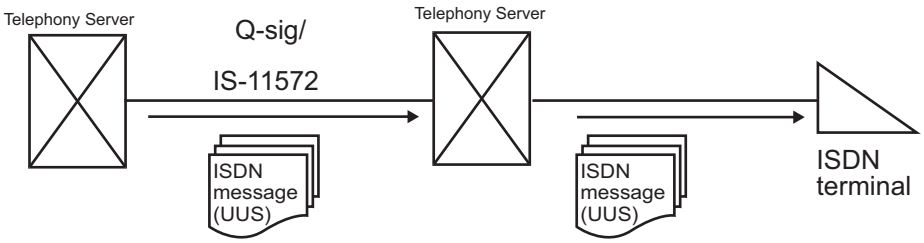
Note: Either ISDN(a) or ISDN(b) is Q-sig/IS-11572 interface.



Pattern 2: The interface used in the terminating office is Q-sig/IS-11572.



Pattern 3: The interface used in the originating office is Q-sig/IS-11572.



4. Programming

STEP 1: ASYD - Assign the following data.
SYS-1 Index186 Bit6=1 (ISDN/CCIS is in service)
187=00 Hex
220 Bit6=0 (ISDN is in service)

STEP 2: Assign the numbering plan data for call origination.

STEP 3: ARTD - Assign the route data for Bch and Dch at each physical interface.

B-channel route data

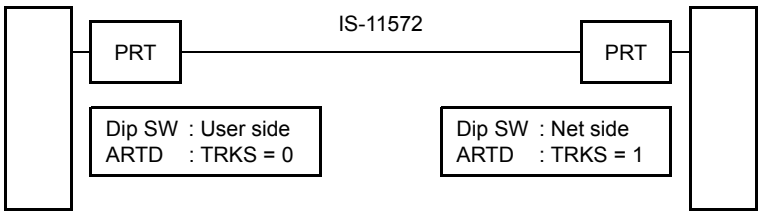
CDN	2 (ONSG)	=	2	
	4 (INSG)	=	2	
	5 (TF)	=	3	
	6 (TCL)	=	4	
	7 (L/T)	=	1	
	8 (RLP)	=	2	
	15 (LSG)	=	12	
	28 (ANS)	=	1	
	30 (PAD)	=	4	**Note 1**
	31 (OGRL)	=	1	
	32 (ICRL)	=	1	
	34 (GUARD)	=	1	
	45 (A/D)	=	1	
	49 (TRKS)	=	0/1	**Note 2**
	50 (DPLY)	=	1	**Note 3**
	65 (INT)	=	10	
	66 (DC)	=	15	
	113 (UUI)	=	1	**Note 4**
	118 (BOB)	=	1	**Note 5**

D-channel route data

CDN	2 (ONSG)	=	2	
	4 (INSG)	=	2	
	5 (TF)	=	3	
	6 (TCL)	=	4	
	7 (L/T)	=	1	
	15 (LSG)	=	13	
	30 (PAD)	=	7	
	31 (OGRL)	=	1	
	32 (ICRL)	=	1	
	34 (GUARD)	=	1	
	45 (A/D)	=	1	
	65 (INT)	=	10	
	118 (BOB)	=	1	**Note 5**

Note 1: Depending on the level diagram of the network. Data “4” is for standard.

Note 2: Note that each office must be assigned a different value to avoid collision at the time of call origination.
TRKS=0 (When PRT/DCH is set as “User side” by DIP switch.)
TRKS=1 (When PRT/DCH is set as “Net side” by DIP switch.)



Note 3: Assign “1” when the number display on LCD of terminal is required.

Note 4: Assign “1” when the User-to-User signaling notification is required.

Note 5: Assign “1” when the multi-rate bearer service is used.

STEP 4: ARTI - Assign the trunk application data.
INTD = 1 (IS-11572)

STEP 5: ATRK - Assign Bch trunks. Note that the LENS of Dch trunk should be assigned after STEP 10:ACIC2

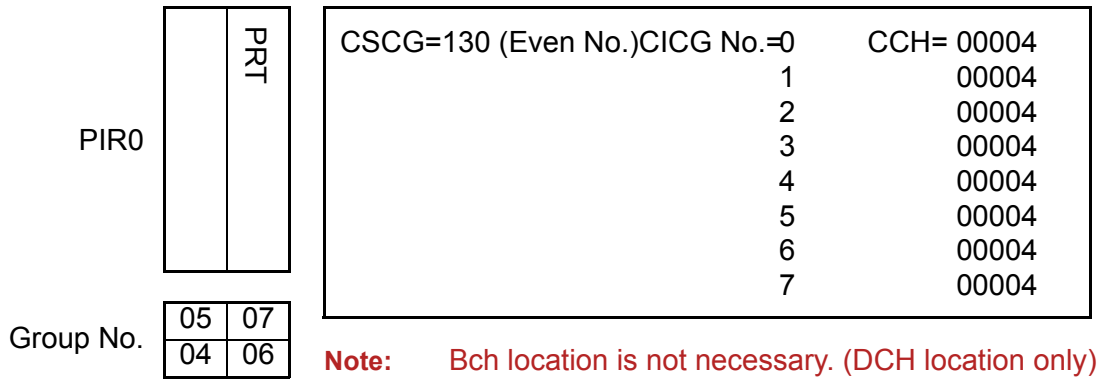
command assignment.

STEP 6: MBTK - Make idle Bch trunks.

STEP 7: ADPC - Assign PC (Point Code) for both Bch and Dch at each physical interface.

Note: Same PC (not existing PC for CCIS) must be assigned for both Bch and Dch.

STEP 8: ACSC - Assign the location of DCH (Dch Handler).
(Refer to the following example)



Note: Bch location is not necessary. (DCH location only)

STEP 9: ACIC 1 - Assign CSCG
PC=xxx CSCG=Even No. (130-254)

STEP 10: ACIC 2 - Assign CIC No.
PC=xxx CIC(1~999) LENS (for speech channel)

STEP 11: ATRK - Assign the LENS of Dch trunk.

Attention: The circuit card initial is required after changing data.

Note: The following data is available if necessary.
ASFC - SFI 139: SID to Network - Privacy [COLR]
0 = -
1 = SID to Network - Privacy

[P-82] PRIVATE TELECOMMUNICATION NETWORK Q-SIG ADDRESSING

1. GENERAL DESCRIPTION

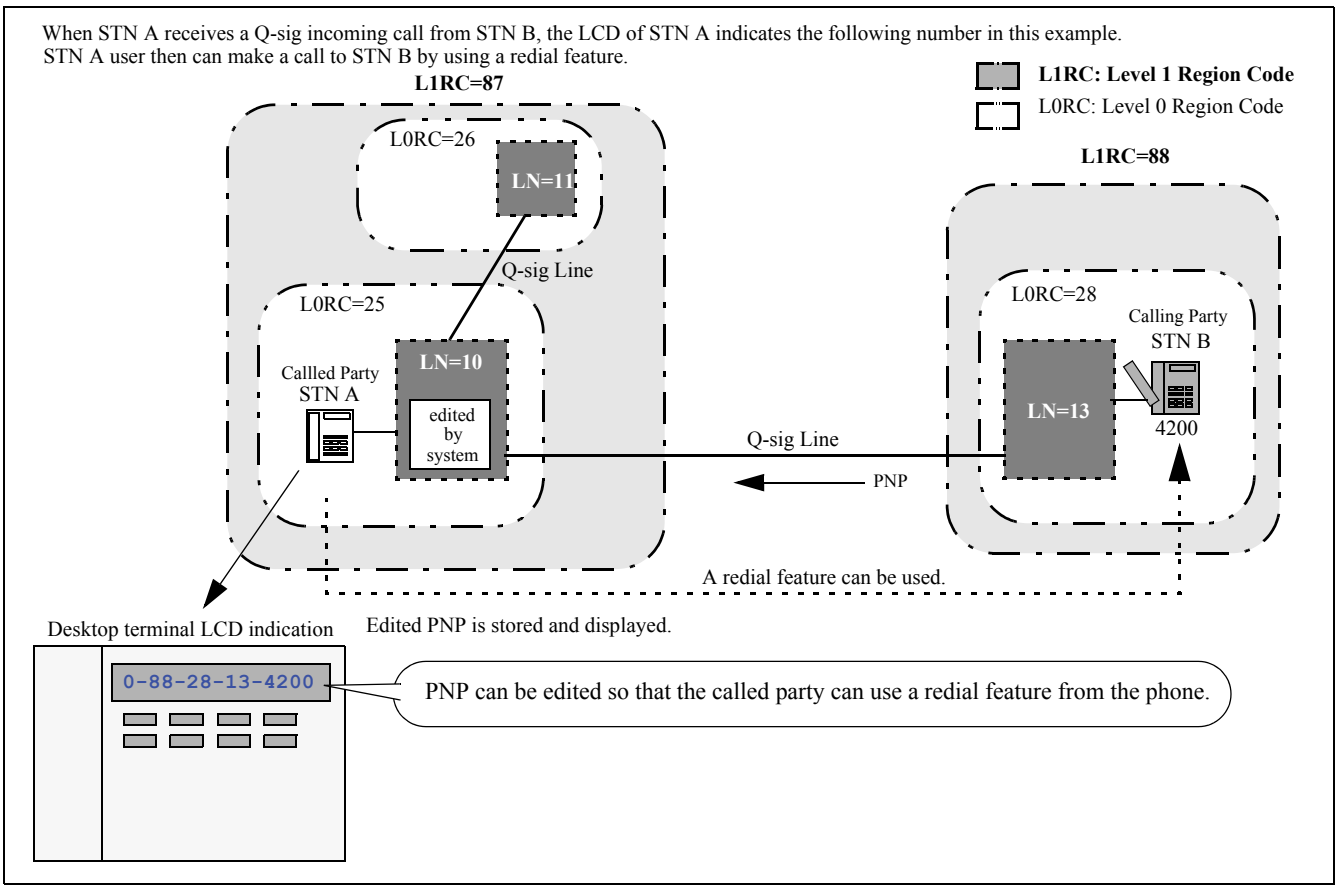
This feature allows the system to edit Private Numbering Plan (PNP) when using Q-sig line. The notification and edit of PNP are also available, which allows the called party to see the area code and number of the calling party on the LCD. Thus, the called party can use redial features such as "call back." The following functions are included:

- Calling Party Number indication on LCD

  By using Type of Number (TON) and Number Plan Identification (NPI) of Calling Number Information Element that are contained in SETUP message, the calling number information can be displayed on the LCD of the called Desktop terminal. In this instance, the system can add an appropriate access code, which allows the called party to use redial feature on the phone.

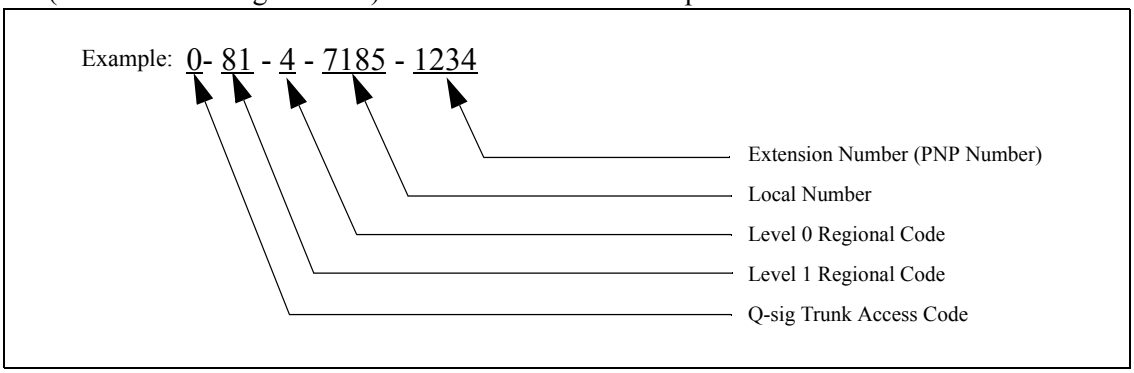
- TON and NPI of Called/Calling Number Information Element editing

This feature conforms to ETSI recommendation ETS 300 189.



1.1 Relationship between Called Number Information Element and Calling Number Information Element

The relationship between Called Number Information Element (NPI) and Calling Number Information Element (NPI/TON/Calling Number) is as follows in this example:



Relationship between Called Number Information Element and Calling Number Information Element

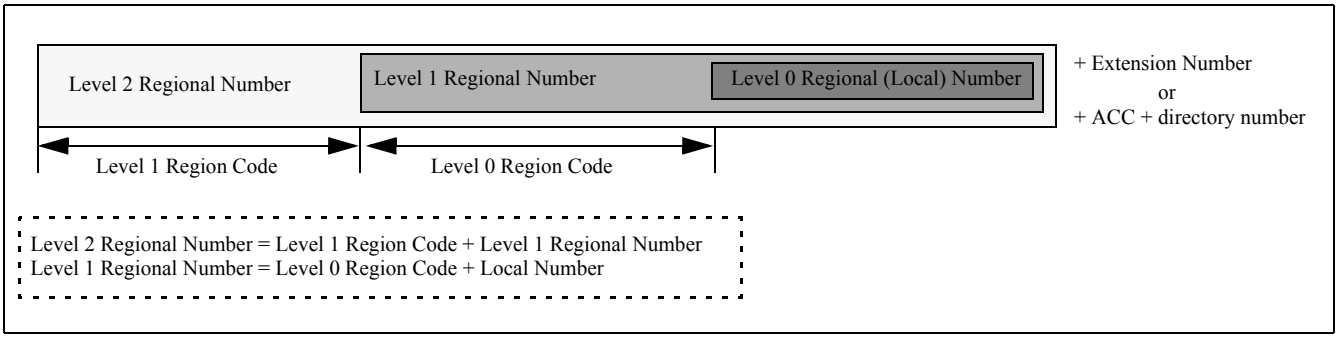
Called Number Information Element	Calling Number Information Element		
NPI	NPI	TON	Calling Number
specified by AMSGL/AMSGN	specified by ARTI/ARTIN CDN34: NPI	specified by ARTI/ARTIN CDN33: TON	
PNP	PNP (not variable)	TON=0 (Unknown)	1234
		TON=1 (Level 2 Regional Number)	81+4+7185+1234
		TON=2 (Level 1 Regional Number)	4+7185+1234
		TON=4 (Level 0 Regional Number/Local Number)	7185+1234
		other than TON=0, 1, 2, 4	1234
Unknown	Unknown	Unknown (not variable)	1234
	E.164	Refer to [E-32] ETSI ISDN ADDRESSING in this manual.	
	PNP	TON=0 (Unknown)	1234
		TON=1 (Level 2 Regional Number)	81+4+7185+1234
		TON=2 (Level 1 Regional Number)	4+7185+1234
		TON=4 (Level 0 Regional Number/Local Number)	7185+1234
		other than TON=0, 1, 2, 4	1234
E.164	Refer to [E-32] ETSI ISDN ADDRESSING in this manual.		
E.164/PNP/other than Unknown	Unknown (not variable)	Unknown (not variable)	1234

: not variable

1.2 Numbering Plan

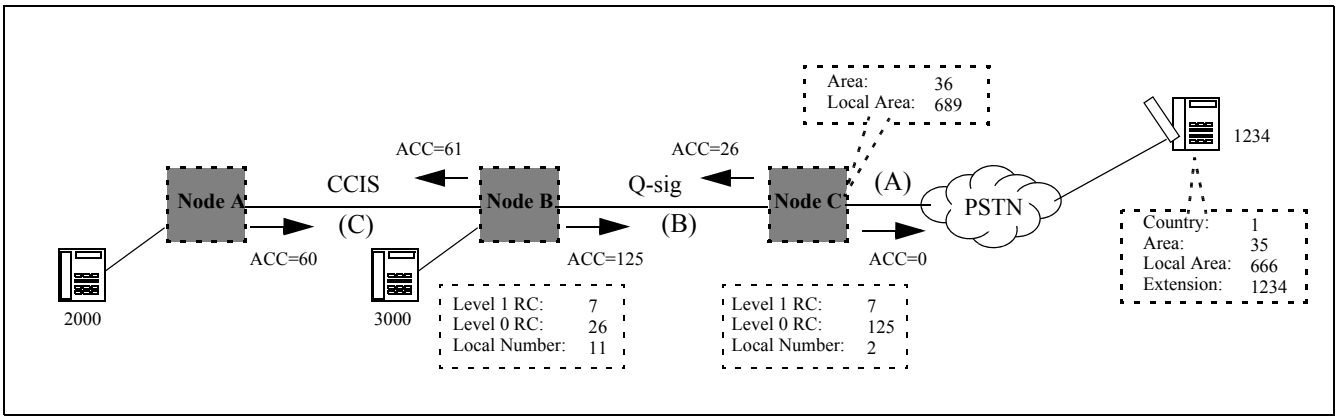
1.2.1 Private Numbering Plan (PNP) definition

PNP is defined as follows:



1.2.2 Calling/Called Party Number involving CCIS - Q-sig Tandem Connection

In the following case, where CCIS - Q-sig tandem connection is involved, Calling/Called Party Number is as follows.



(1) When an ISDN call terminates Station 2000 in Node A via ISDN-Q-sig-CCIS Tandem

Connection		Called Party Number	Calling Party Number
(A)	PSTN - Node C (ISDN)	36-689-xxxx* NPI = E.164, TON = National **Note:** xxxx is indial number	35-666-1234 NPI = E.164, TON = National
(B)	Node C - Node B (Q-sig)	26-11-612000 NPI = PNP, TON = Level1RN	125-2-0035-666-1234 Access code for ISDN Route, National Prefix (= 0) are added. NPI = PNP, TON = Level1RN
(C)	Node B - Node A (CCIS)	612000	125-2-0035-666-1234 The calling party number between Q-sig and CCIS goes through.

(2) When Station 4000 in Node A places an ISDN call via CCIS-Q-sig-ISDN Tandem

Connection		Called Party Number	Calling Party Number
(C)	Node A - Node B (CCIS)	125-2-0035-666-1234 Dialed number from Station 2000 in Node A: 60-125-2-0035-666-1234	612000
(B)	Node B - Node C (Q-sig)	125-2-0035-666-1234 NPI = PNP, TON = Level1RN Dialed number from Station 3000 in Node B: 125-2-0035-666-1234	26-11-612000 NPI = PNP, TON = Level1RN
(A)	Node C - PSTN (ISDN)	35-666-1234 NPI = E.164, TON = National	36-689-xxxx NPI = E.164, TON = National

2. OPERATING PROCEDURE

No manual operation is required once this feature has been programmed.

3. SERVICE CONDITIONS

(1) After receiving a Q-sig incoming call, the terminal can place a call by selecting the calling number in the call record that is automatically made. The stored number shall be exactly same as the number that is displayed on the LCD of the terminal.

(2) Calling Party Number Indication/Automatic Save will not be performed in the following cases:

- when Information Element regarding Connected Line Identification Restriction (CLIR) is set in the SETUP message
- when Calling Party Number Information has not been set

(3) Calling Party Number Automatic Save/Redial can be used for Dterm, DtermIP, SoftPhone.

(4) A maximum of 24 digits can be displayed on Desktop terminal LCD. If the number of digits exceeds 24, one of the following can be selected by system data (ASYD SYS1, Index 241, Bit 6).

- Bit 6 = 0: only the former part of data appears on the LCD
- Bit 6 = 1: only the latter part of data appears on the LCD

(5) When overlap dialing is used, Called Party Number Information Element will be set in SETUP and INFO messages. However, Calling Party Number Information Element is set in SETUP message only.

(6) The following TON will be processed as Unknown when NPI = PNP:

- Partial Number
- PTN Specific Number
- Abbreviated Number

(7) Numeric value (0-9) only can be used for Regional Number.

(8) When using this feature, the data assignment of RT=0 for Q-sig by ARNP command becomes invalid.

(9) When using this feature, ACNP/ACND data assignment for specifying Calling Number Pattern (CNP data used for Calling Party Number Notification - outgoing) data becomes invalid.

(10) When using this feature, if number conversion is made by ACPNCL/ACPNCN, Q-sig Addressing access code is added by ACODL/ACODN after the number conversion.

(11) When NPI of Calling Party Number Information Element is PNP, the LCD indication for a Station Call will be displayed without adding International Prefix or National Prefix.

(12) The availability of Q-sig additional features when using this feature is as follows:

CODE	SERVICE FEATURES	PROVIDED
[C-153]	CALLING NAME IDENTIFICATION PRESENTATION (CNIP)/CONNECTED NAME IDENTIFICATION PRESENTATION (CONP)	×
[C-148]	CALL COMPLETION TO BUSY SUBSCRIBER (CCBS)	–
[C-152]	CALL COMPLETION ON NO REPLY (CCNR)	–
[C-158]	CALL FORWARDING SUPPLEMENTARY SERVICE (SS-CF) WITH REROUTING	–
[C-159]	CALL TRANSFER SUPPLEMENTARY SERVICE (SS-CT) WITH REROUTING	–
[R-56]	RECALL WITH CONNECTED NUMBER DISPLAY	×
[A-136]	ADVICE OF CHARGE (AOC) - RECEIPT AND DISPLAY OF AOC FROM A FOREIGN Q-SIG NETWORK	×

×: available -: not available

(13) This feature supports OAI service since S2E.

4. PROGRAMMING

STEP 1: ASYD - System Data 1

Index 241, Bit6: When the length of Caller ID exceeds the limit
0/1 = only the former/latter part of data appears on the LCD

STEP 2: ASYDL- System Data 1

Index 672, Bit 1: Use of Desktop terminal
0/1 = Not used/Used

STEP 3: ARTI/ARTIN

CDN 32, SRV: 128 (Bit 7 = 1) TON/NPI is used
CDN 33, TON (Type of Number)
0 = Unknown
1 = International Number/Level 2 Regional Number
2 = National Number/Level 1 Regional Number
4 = Subscriber Number/Local Number
CDN 34, NPI (Numbering Plan Identification)
0 = Unknown
1 = ISDN/Telephony Numbering Plan [Recommendation E. 164]
9 = Private Numbering Plan
CDN 85, ADRSING (Addressing Feature)
1 = In Service

STEP 4: AMSGL/AMSGN

TDPTN: 0-7
OPR: 0-4000
RA: 0-7
NPI (Numbering Plan Identification):
0 = Unknown
1 = ISDN/Telephony Numbering Plan [Recommendation E. 164]
3 = Data Numbering Plan [Recommendation X. 121]
4 = Telex Numbering Plan [Recommendation F. 69]
8 = National Standard Numbering Plan
9 = Private Numbering Plan
TON (Type of Number)
0 = Unknown
1 = International Number
2 = National Number
3 = Network Specific Number
4 = Subscriber Number
6 = Abbreviated Number

STEP 5: ACODL/ACODN (used for PTNX Regional Number Data)

RT/LGRT: Outgoing/Incoming Route of ISDN
Country Name: Set your country.
Code: Set Level 1 Region Code.
Addressing/COLP: Addressing/Connected Line ID Presentation Flag

Area Code: Set Level 0 Region Code for PNP.
Local Code: Set Local Number for PNP.
Trunk Access: Trunk Access Code Flag
Select this when the trunk access code should be added to the Calling Party Number for display.
Trunk Access Code:
International Prefix: International Prefix Flag
Select this when International Prefix should be added to the Calling Party Number for display. Do not select this for PNP.
I_PREFIX Code: International Prefix (1-4 digits)
National Prefix: Select this when National Prefix should be added to the Calling Party Number for display. Do not select this for PNP.
N_PREFIX Code: National Prefix (1-4 digits)
Area Code Display: Select this when Area Code should be added to the Calling Party Number for display even if the connection is in the same area.
AOC-E: Select this when AOC-E data has been assigned. Do not select this for PNP.
AMOUNT (Integer):Charge of one unit (integer part) 0-99
AMOUNT (Decimal):Charge of one unit (decimal part) 0-99

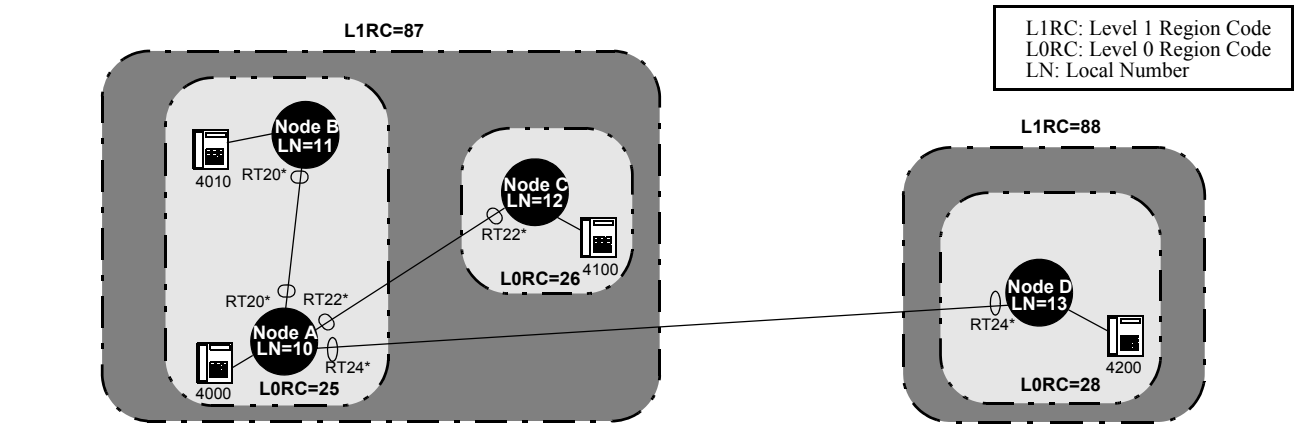
Programming Reference - Sample Data Sheets

The following shows sample data programming under the following network configuration. **Note 1**

Note 1: The following example assumes that Q-sig basic data has been already programmed.

Network 1

In this example, 0 is used for accessing Q-sig line in all nodes.



** Route Number of Q-sig B channel*

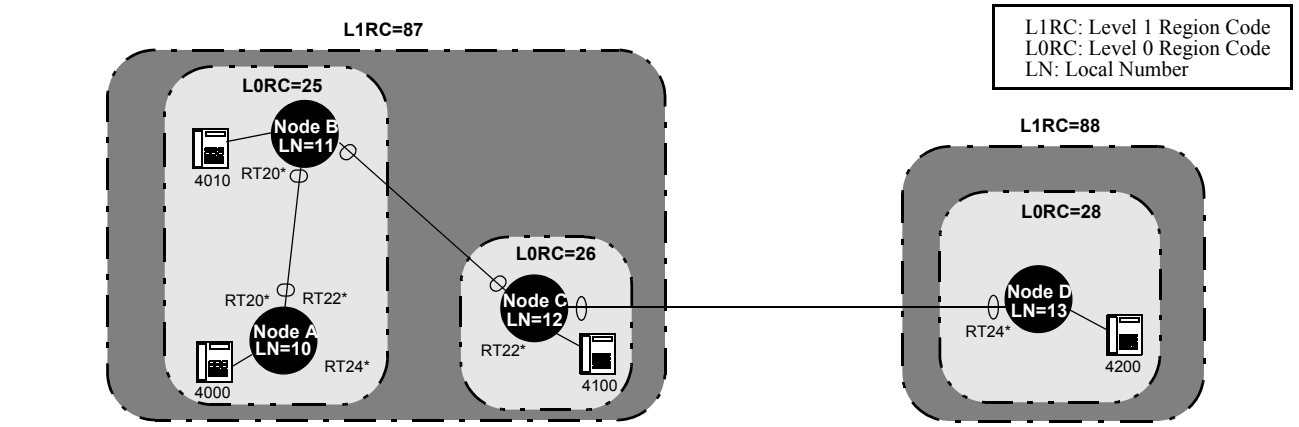
COM.	Sample Data Programming (Network 1) for Node A						
ARTI	RT = 20 RT = 22 RT = 24	SRV = 128	TON = 4 TON = 2 TON = 1	NPI = 9			
ANPD	1st = 0 1st = 1 1st = 2 1st = 8	CI = N/H	NND = 1				
ASPA	ACC = 0 ACC = 1 ACC = 2 ACC = 8	CI = “N: Normal” “H: Hooking”	SRV = “LCR: Least Cost Routing” “LCRS: Register Sender LCR”			RT = dummy route	
AFRS	RT = dummy route	NPC = 011 NPC = 026 NPC = 088	OPR = 11 OPR = 26 OPR = 88				
AOPR	TDPTN = 0	OPR = 11 OPR = 26 OPR = 88	RA = 0	E = 1	RT = 20 RT = 22 RT = 22	SKIP = 1	PNL = 0
AMSGL	TPPTN = 0	OPR = 11 OPR = 26 OPR = 88	RA = 0	NPI = 9	TON = 4 TON = 2 TON = 1		
ACODL	RT/LGRT = 20 RT/LGRT = 22 RT/LGRT = 24	Country = other	CountryCode = 87	AreaCode = 25	LocalCode =10	TrunkAccessCode = 0	
AUNE	RT = dummy route	NPC = 10 NPC = 2510 NPC = 872510	SKIP = 2 SKIP = 4 SKIP = 6				
AMND	DC = 10 DC = 2510 DC = 872510	MND = 6 MND = 8 MND = 10					

Node B							
ARTI	RT = 20	SRV = 128	TON = 4	NPI = 9			
ANPD	1st = 0 1st = 1 1st = 2 1st = 8	CI = N/H	NND = 1				
ASPA	ACC = 0 ACC = 1 ACC = 2 ACC = 8	CI = “N: Normal” “H: Hooking”	SRV = “LCR: Least Cost Routing” “LCRS: Register Sender LCR”			RT = dummy route	
AFRS	RT = dummy route	NPC = 010 NPC = 026 NPC = 088	OPR = 10 OPR = 26 OPR = 88				
AOPR	TDPTN = 0	OPR = 10 OPR = 26 OPR = 88	RA = 0	E = 1	RT = 20	SKIP = 1	PNL = 0
AMSGL	TPPTN = 0	OPR = 10 OPR = 26 OPR = 88	RA=0	NPI=9	TON = 4 TON = 2 TON = 1		
ACODL	RT/LGRT = 20	Country = other	CountryCode = 87	AreaCode = 25	LocalCode =11	TrunkAccessCode = 0	
AUNE	R T= dummy route	NPC = 11 NPC = 2511 NPC = 872511	SKIP = 2 SKIP = 4 SKIP = 6				
AMND	DC = 11 DC = 2511 DC = 872511	MND = 6 MND = 8 MND = 10					
Node C							
ARTI	RT = 22	SRV = 128	TON = 2	NPI = 9			
ANPD	1st = 0 1st = 2 1st = 8	CI = N/H	NND = 1				
ASPA	ACC = 0 ACC = 2 ACC = 8	CI = “N: Normal” “H: Hooking”	SRV = “LCR: Least Cost Routing” “LCRS: Register Sender LCR”			RT = dummy route	
AFRS	RT = dummy route	NPC = 025 NPC = 088	OPR = 25 OPR = 88				
AOPR	TDPTN = 0	OPR = 25 OPR = 88	RA = 0	E = 1	RT = 22	SKIP = 1	PNL = 0
AMSGL	TPPTN = 0	OPR = 25 OPR = 88	RA = 0	NPI = 9	TON = 4 TON = 1		
ACODL	RT/LGRT = 22	Country = other	CountryCode = 87	AreaCode = 26	LocalCode =12	TrunkAccessCode = 0	
AUNE	RT = dummy route	NPC = 2612 NPC = 872612	SKIP = 4 SKIP = 6				
AMND	DC = 2611 DC = 872611	MND = 8 MND = 10					
Node D							
ARTI	RT = 24	SRV = 128	TON = 1	NPI = 9			
ANPD	1st = 0 1st = 8	CI = N/H	NND = 1				
ASPA	ACC = 0 ACC = 8	CI = “N: Normal” “H: Hooking”	SRV = “LCR: Least Cost Routing” “LCRS: Register Sender LCR”			RT = dummy route	
AFRS	RT = dummy route	NPC = 087	OPR = 87				
AOPR	TDPTN = 0	OPR = 87	RA = 0	E = 1	RT = 24	SKIP = 1	PNL = 0
AMSGL	TPPTN = 0	OPR = 87	RA = 0	NPI = 9	TON = 1		
ACODL	RT/LGRT = 24	Country = other	CountryCode = 88	AreaCode = 28	LocalCode =13	TrunkAccessCode = 0	
AUNE	RT = dummy route	NPC = 882813	SKIP = 6				
AMND	DC = 882813	MND =10					

The following shows sample data programming under the following network configuration.

Network 2

In this example, 0 is used for accessing Q-sig line in all nodes.



** Route Number of Q-sig B channel*

COM.	Sample Data Programming (Network 2) for Node A						
ARTI	RT = 20	SRV = 128	TON = 4	NPI = 9			
ANPD	1st = 0 1st = 1 1st = 2 1st = 8	CI = N/H	NND = 1				
ASPA	ACC = 0 ACC = 1 ACC = 2 ACC = 8	CI = "N: Normal" "H: Hooking"	SRV = "LCR: Least Cost Routing" "LCRS: Register Sender LCR"			RT = dummy route	
AFRS	RT = dummy route	NPC = 011 NPC = 026 NPC = 088	OPR = 11 OPR = 26 OPR = 88				
AOPR	TDPTN = 0	OPR = 11 OPR = 26 OPR = 88	RA = 0	E = 1	RT = 20 RT = 26 RT = 26	SKIP=1	PNL=0
AMSGL	TPPTN = 0	OPR = 11 OPR = 26 OPR = 88	RA = 0	NPI = 9	TON = 4 TON = 2 TON = 1		
ACODL	RT/LGRT = 20	Country = other	CountryCode = 87	AreaCode = 25	LocalCode =10	TrunkAccessCode = 0	
AUNE	RT = dummy route	NPC = 10 NPC = 2510 NPC = 872510	SKIP = 2 SKIP = 4 SKIP = 6				
AMND	DC = 10 DC = 2510 DC = 872510	MND = 6 MND = 8 MND =10					

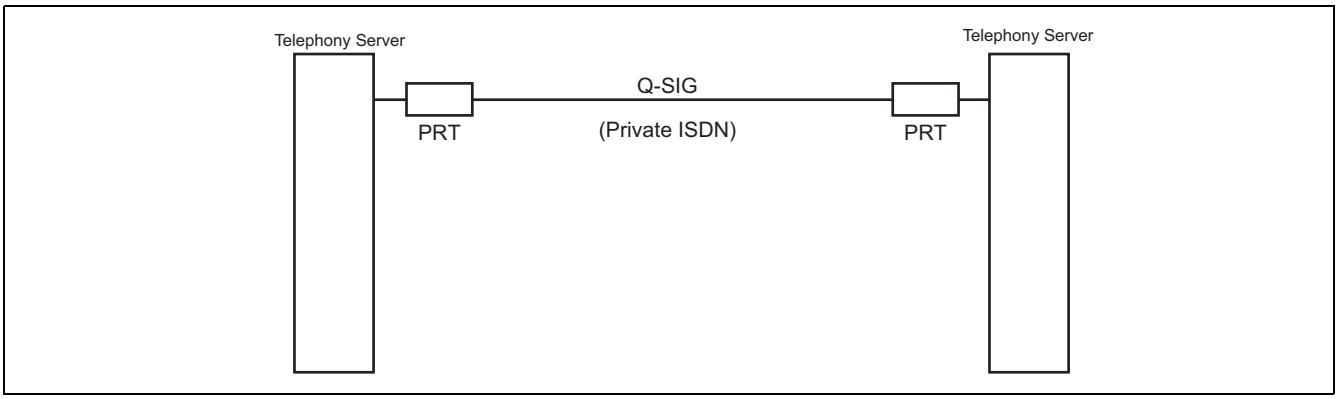
Node B							
ARTI	RT = 20 RT = 26	SRV = 128	TON = 4 TON = 2	NPI = 9			
ANPD	1st = 0 1st = 1 1st = 2 1st = 8	CI = N/H	NND = 1				
ASPA	ACC = 0 ACC = 1 ACC = 2 ACC = 8	CI = “N: Normal” “H: Hooking”	SRV = “LCR: Least Cost Routing” “LCRS: Register Sender LCR”			RT = dummy route	
AFRS	RT = dumnmy route	NPC = 010 NPC = 026 NPC = 088	OPR = 10 OPR = 26 OPR = 88				
AOPR	TDPTN = 0	OPR = 10 OPR = 26 OPR = 88	RA = 0	E = 1	RT = 20 RT = 26 RT = 26	SKIP = 1	PNL = 0
AMSGL	TPPTN = 0	OPR = 10 OPR = 26 OPR = 88	RA = 0	NPI = 9	TON = 4 TON = 2 TON = 1		
ACODL	RT/LGRT = 20 RT/LGRT = 26	Country = other	CountryCode = 87	AreaCode = 25	LocalCode =11	TrunkAccessCode = 0	
AUNE	RT = dummy route	NPC = 11 NPC = 2511 NPC = 872511	SKIP = 2 SKIP = 4 SKIP = 6				
AMND	DC = 11 DC = 2511 DC = 872511	MND = 6 MND = 8 MND =10					
Node C							
ARTI	RT = 26 RT = 28	SRV = 128	TON = 2 TON = 1	NPI = 9			
ANPD	1st = 0 1st = 1 1st = 2 1st = 8	CI = N/H	NND = 1				
ASPA	ACC = 0 ACC = 1 ACC = 2 ACC = 8	CI = “N: Normal” “H: Hooking”	SRV = “LCR: Least Cost Routing” “LCRS: Register Sender LCR”			RT = dummy route	
AFRS	RT = dummy route	NPC = 025 NPC = 088	OPR = 25 OPR = 88				
AOPR	TDPTN = 0	OPR = 25 OPR = 88	RA = 0	E = 1	RT = 26 RT = 28	SKIP = 1	PNL = 0
AMSGL	TPPTN = 0	OPR = 25 OPR = 88	RA = 0	NPI = 9	TON = 2 TON = 1		
ACODL	RT/LGRT = 26 RT/LGRT = 28	Country = other	CountryCode = 87	AreaCode = 26	LocalCode =12	TrunkAccessCode = 0	
AUNE	RT = dummy route	NPC = 12 NPC = 2612 NPC = 872612	SKIP= 2 SKIP= 4 SKIP= 6				
AMND	DC = 12 DC = 2612 DC = 872612	MND = 6 MND = 8 MND = 10					
Node D							
ARTI	RT = 28	SRV = 128	TON = 1	NPI = 9			
ANPD	1st = 0 1st = 1 1st = 2 1st = 8	CI = N/H	NND = 1				

ASPA	ACC = 0 ACC = 1 ACC = 2 ACC = 8	CI = “N: Normal” “H: Hooking”	SRV = “LCR: Least Cost Routing” “LCRS: Register Sender LCR”			RT = dummy route	
AFRS	RT = dummy route	NPC = 087	OPR = 87				
AOPR	TDPTN = 0	OPR = 87	RA = 0	E = 1	RT = 28	SKIP = 1	PNL=0
AMSGL	TPPTN = 0	OPR = 87	RA = 0	NPI = 9	TON = 1		
ACODL	RT/LGRT = 28	Country = other	CountryCode = 88	AreaCode = 28	LocalCode =13	TrunkAccessCode = 0	
AUNE	RT = dummy route	NPC = 13 NPC = 2813 NPC = 882813	SKIP = 2 SKIP = 4 SKIP = 6				
AMND	DC = 13 DC = 2813 DC = 882613	MND =6 MND =8 MND = 10					

[Q-4] Q-SIG CIRCUIT SWITCHED BASIC CALL - ETSI VERSION

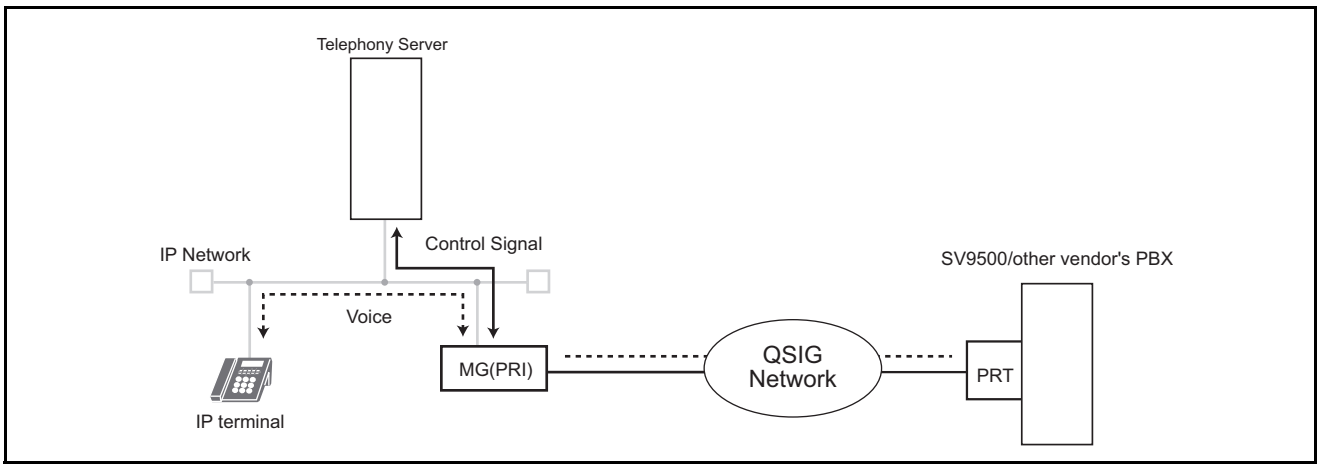
1. GENERAL DESCRIPTION

This feature enables NEC's PBX to connect to NEC's PBX or other manufacturer by using Layer 3 protocol for the signaling for the support of circuit mode bearer services at the Q reference point.
Q-SIG conforms to ETS 300 172.



Note: ETS 300 172=Private Telecommunication Network (PTN);
Inter-exchange signaling protocol
Circuit mode basic service

This feature can be activated via MG(PRI). The Q-SIG features provided to the MG(PRI) will be the same as to the PRT circuit card. The sample configuration of Q-SIG network configured by the MG(PRI) is shown in the figure below.

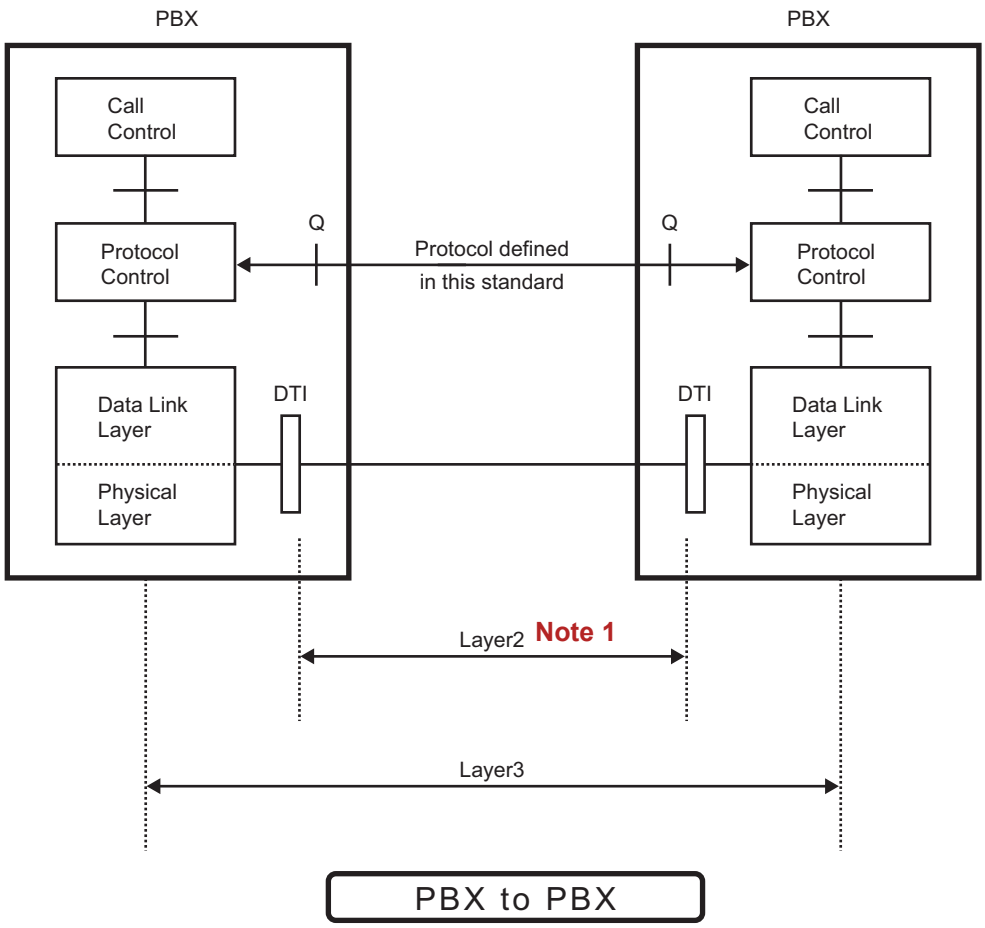


(1) Q reference point

The Q reference point is not expected to be a physical interface but is shown in conceptual terms in the figure below.

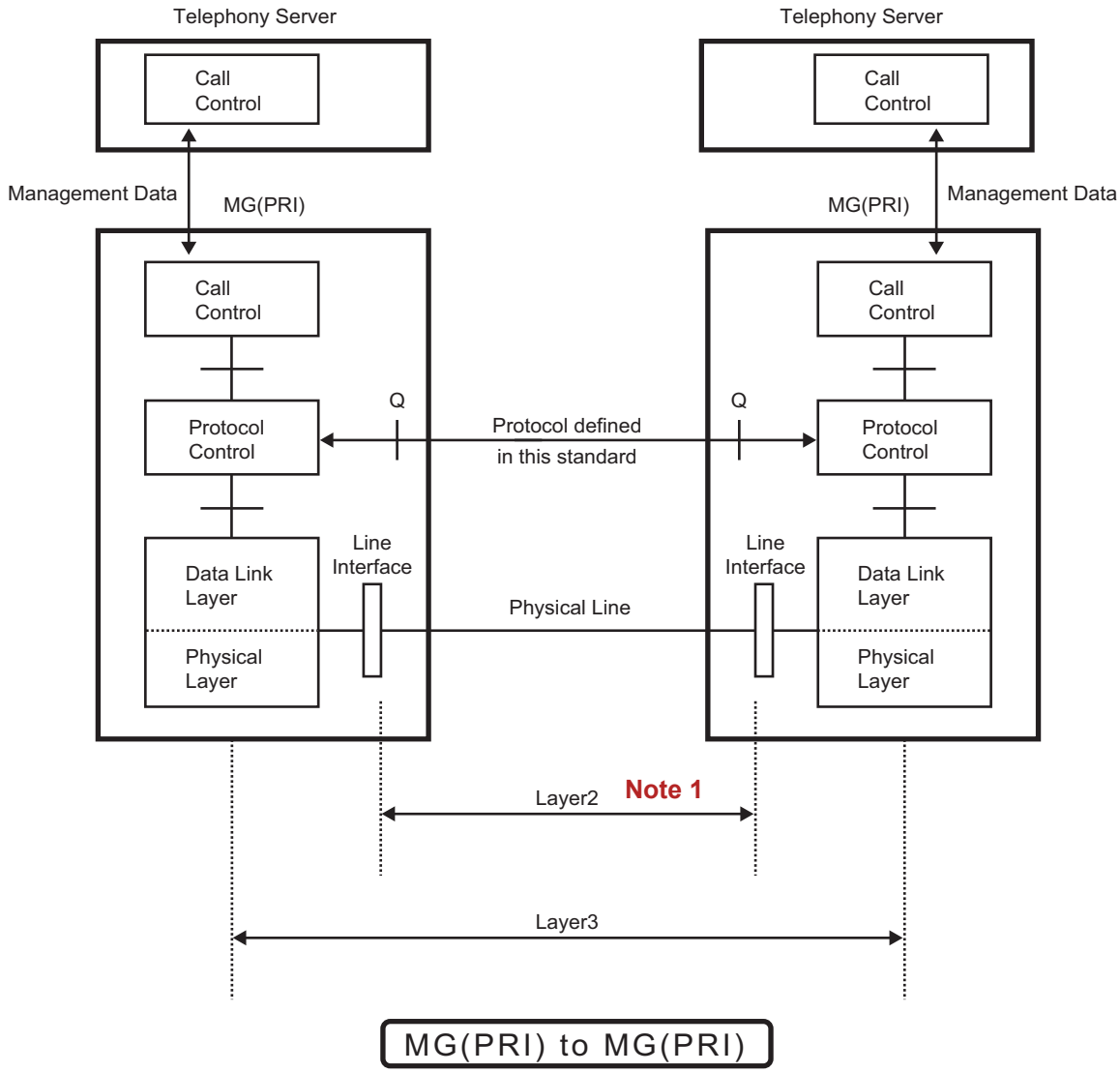
The Q-Sig protocol creates Layer 3 messages for Inter-PTN (PBX) signaling.

Control Plane Protocol Model (PRT/DHC circuit card)



Note 1: Conforming to Q921-a (PBX-PBX Interface)

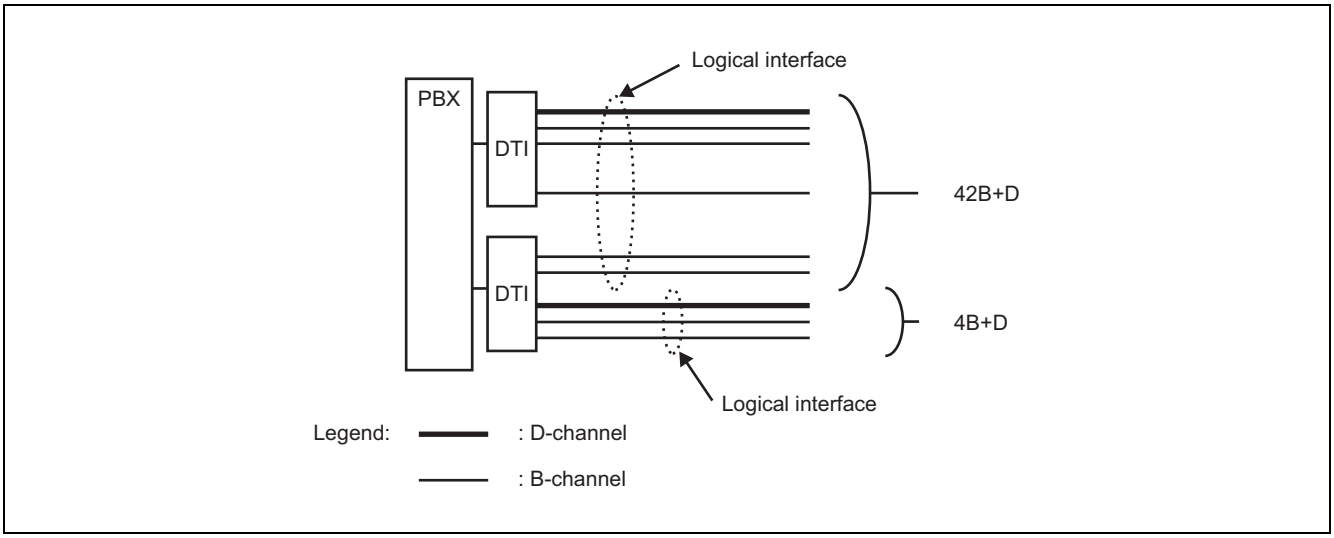
Control Plane Protocol Model (MG(PRI))



Note 1: Conforming to Q921-a (MG(PRI)-MG(PRI) Interface)

(2) Physical Interface

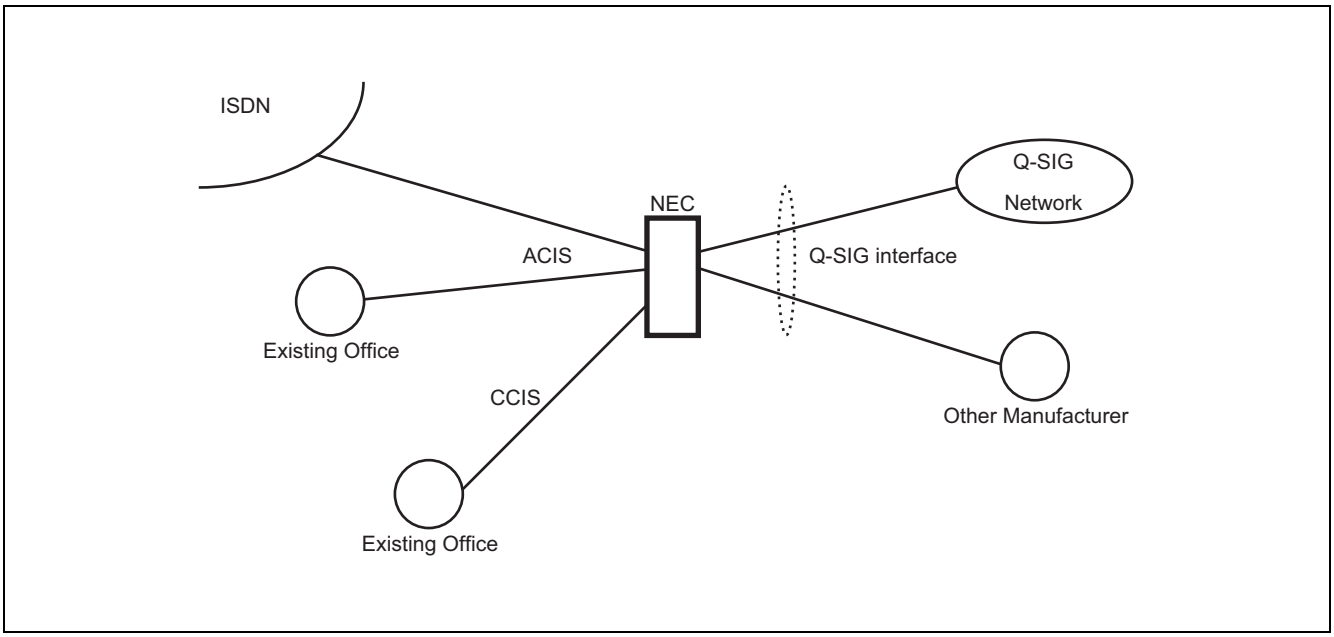
The physical interface is a 1.5Mbps or 2Mbps digital interface.
Max.60 B-channels are to be controlled by a single Data Link channel.



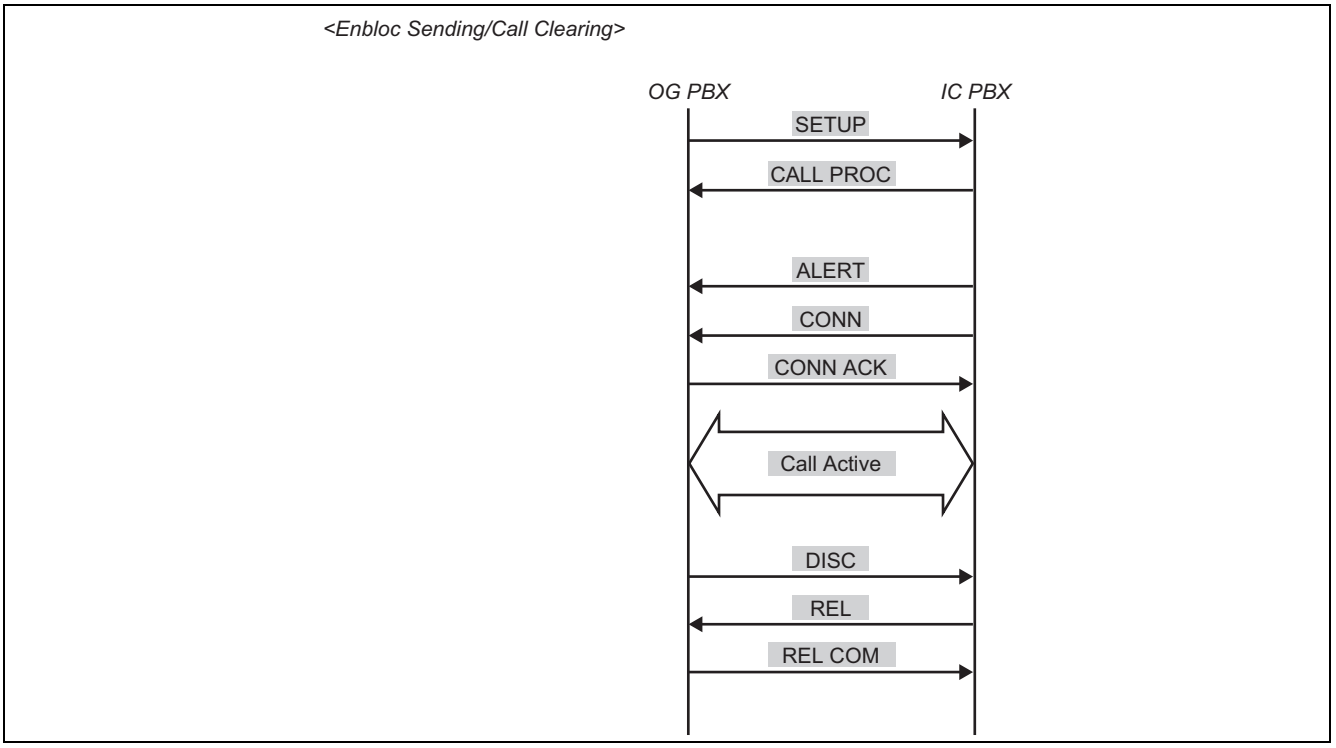
Note: Dch cannot be shared by multiple MG(PRI)s.

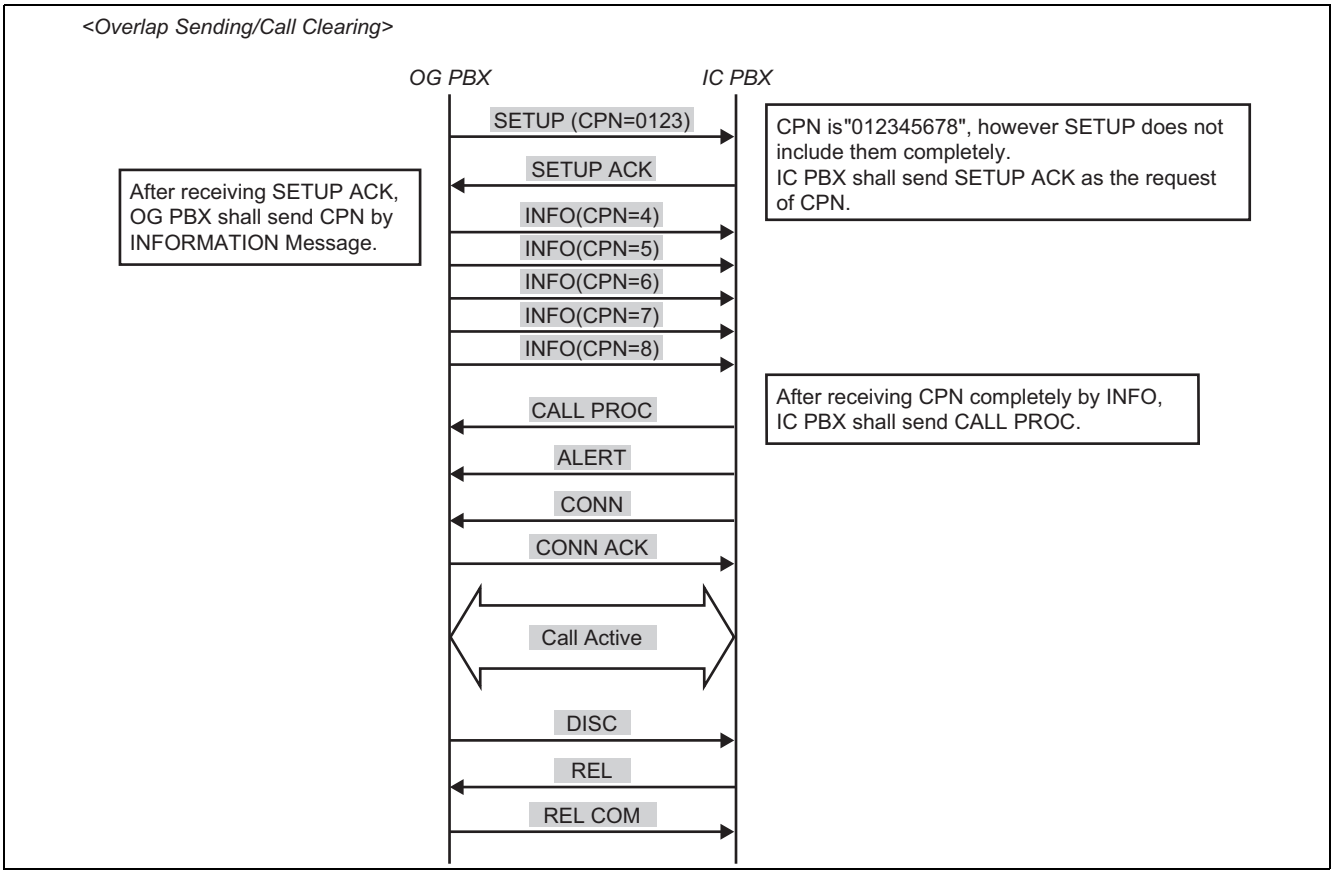
(3) Interworking with Other Network

Q-SIG is available for the following connection and interworking with the other network.



(4) Example of Message Sequences





Note: CPN = Called Party Number

(5) Transparency

TYPE OF CALL	MANDATORY INFORMATION ELEMENTS	NON-MANDATORY INFORMATION ELEMENTS
Q-SIG ⇄ Q-SIG	*Conforming to ETS 300 172*	*Conforming to ETS 300 172*
ISDN ⇄ Q-SIG	*(1) Message Type* *(2) Bearer Capability* *(3) Called Party Number* **Note 2 Note 3** *(4) Cause* *(5) Call state*	*(1) Calling Party Number* *(2) Calling Party Sub-address* *(3) Called Party Sub-address* *(4) Cause* *(5) Progress Indicator* *(6) Low Layer Capability* *(7) High Layer Capability*
CCIS ⇄ Q-SIG **Note 4 Note 5**	*(1) Bearer Capability (Speech, Modem)* *(2) Called Party Number*	*(1) Calling Party Number*
ACIS ⇄ Q–SIG	*(1) Called Party Number (Speech, 3.1k)*	*None*
ISDN term ⇄ Q-SIG	*(1) Message Type* *(2) Bearer Capability* *(3) Called Party Number* *(4) Cause information element* *(5) Call state*	*(1) Calling Party Number* *(2) Calling Party Sub-address* *(3) Called Party Sub-address* *(4) Cause* *(5) Progress Indicator* *(6) Low Layer Capability* *(7) High Layer Capability*

Note 2: When there is no called party number from ISDN, PBX may define the called party number.

Note 3: In the connection from Q-SIG to ISDN, PBX may add or delete digits of the called party number.

Note 4: A digital data communication between CCIS and Q-SIG will be disconnected by High Layer if there is an attribution mismatch.

Note 5: CCIS in this section means CCIS without ISDN transmitting information (ARTD CDN98 (CI)=0).

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(When using PRT/DHC circuit card))

(1) The multi-rate bearer service is available.

Multi-rate bearer service: Desirably multiplied value of 64 (64Kbps × "n"-desired number) is available for the data transmission speed in addition to the current speed such as 384K (64K × 6), 1536K (64K × 24) and 1920K (64K × 30).

The following are the service conditions concerned with the multi-rate bearer service.

(a) Routing data must be assigned per physical interface (PRT/DTI).

(b) Overlap sending (LCRS) is not provided with this feature.

(c) Multi-rate bearer service is provided for the PBXs connecting directly with the Q-sig interface [if the PBXs are connected with a different interface such as the interface defined by Q.931/Q.931-a or CCIS, only H0/H1 service (transfer rate is 384kbps/1.5Mbps) is available].

(2) The User-to-User Signaling (UUS) can be sent via Q-sig interface.
The following are the conditions for the UUS transmission.

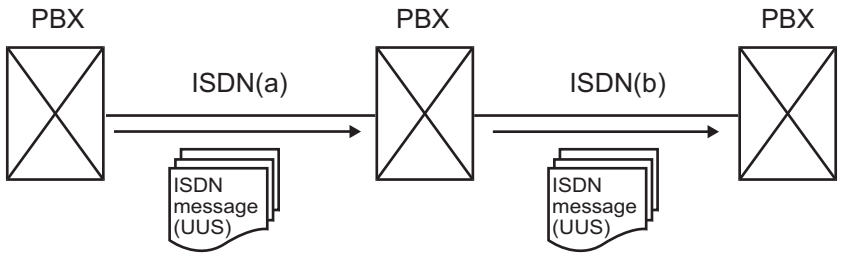
(a) The maximum data capacity for the UUS is 128 bytes and the latter part of excessive data is automatically omitted.

(b) The following messages for call establishment/clearing may include the UUS.
- Setup
- Alerting
- Connect
- Progress
- Disconnect
- Release
- Release Complete

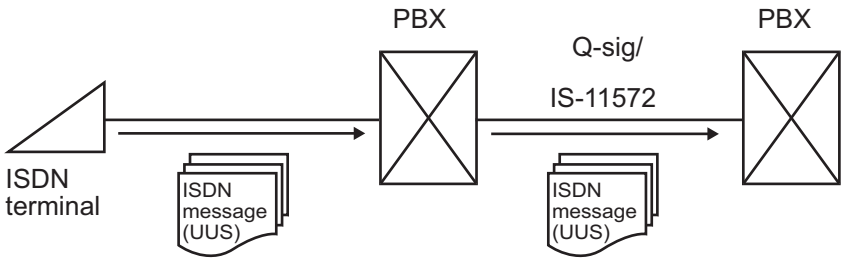
(c) The connection patterns for the UUS transmission are shown in the figure below.

Pattern 1: The ISDN tandem connection

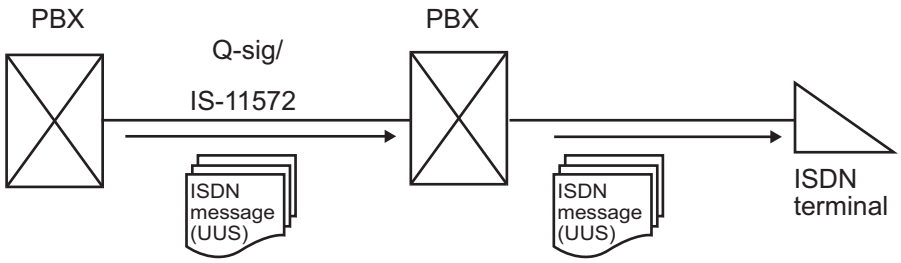
Note: Either ISDN(a) or ISDN(b) is Q-sig/IS-11572 interface.



Pattern 2: The interface used in the terminating office is Q-sig/IS-11572.



Pattern 3: The interface used in the originating office is Q-sig/IS-11572.



(When using MG(PRI))

Conditions for IS-11572 side:

(1) This feature supports the protocol concerning International Recommendation ISO/IEC private network.
(2) This feature is about the control of Layer 3 protocol; Layer 1 and Layer 2 links are estimated as it is already established.
(3) Connection test needs to be performed when using other vendor's system as the counter office.
(4) This feature can control maximum of 23 B channels with 1.5M, and 30 B channels with 2.0M interface.
(5) The information transmission ability provided by this feature is as listed below.

- Speech
- Unrestricted digital information
- 3.1kHz audio

(6) Table below shows the information transmission ability between TIE line and C.O. line.

Case		Transmission Ability		
		Speech	3.1kHz Audio	Unrestricted Digital
TIE Line	Dp Channel → IS-11572	Pass through	Pass through	Pass through
	IS-11572 → Dp Channel	Pass through	Pass through	Pass through
	CCIS No.7 → IS-11572	Pass through	Pass through	Pass through
	IS-11572 → CCIS No.7	Pass through	Pass through	Pass through
	Analog → IS-11572	Not available	Pass through	Not available
	IS-11572 → Analog	Not available	Not available	Not available
C.O. line	ISDN → IS-11572	Pass through	Pass through	Pass through
	IS-11572 → ISDN	Pass through	Pass through	Pass through
	Analog → IS-11572	Not available	Pass through	Not available
	IS-11572 → Analog	Not available	Not available	Not available

(7) Table below shows the information transmission ability between IS-11572 and other signaling methods.

Case		Connectivity	Remarks
Tie Line	Dp Channel → IS-11572	Available	
	IS-11572 → Dp Channel	Available	
	CCIS No.7 → IS-11572	Available	
	IS-11572 → CCIS No.7	Available	
	Analog → IS-11572	Conditionally Available	Convert to 3.1k Audio
	IS-11572 → Analog	Conditionally Available	Convert to 3.1k Audio
C.O. line	ISDN → IS-11572	Available	
	IS-11572 → ISDN	Available	
	Analog → IS-11572	Conditionally Available	Convert to 3.1k Audio
	IS-11572 → Analog	Conditionally Available	Convert to 3.1k Audio

(8) Table below shows the information transmission ability between IS-11572 and the terminals.

Case	Connectivity	Remarks
BRI Terminal → IS-11572	Available	
IS-11572 → BRI Terminal	Available	
PRI Terminal → IS-11572	Available	
IS-11572 → PRI Terminal	Available	
Desktop terminal → IS-11572	Conditionally Available	
IS-11572 → Desktop terminal	Conditionally Available	
Analog Terminal→ IS-11572	Available	
IS-11572 → Analog Terminal	Available	

(9) Dch is fixed to 24ch for 1.5M interface, and 16ch for 2M interface.

(10) (SID TO NETWORK-PRESENT [S-91]) The maximum number of digits for SID (Station Identification Number) to be delivered is 32 digits. (The number of displayable digits on terminal LCD depends on each terminal's specification.)

(11) SID (Station Identification Number) can be delivered to other signaling networks under the following conditions:

- To CCIS. No.7 Network: The first 16 digits can be delivered.
- To ISDN Network: Converted to Subscriber Number, and then notified.

- To ISDN Private Network: Passed through.
- To signaling networks other than those mentioned above: Not available.

(12) SID (Station Identification Number) can be delivered from other signaling networks under the following conditions:

- From CCIS. No.7 Network: The first 16 digits can be delivered.
- From ISDN Network: Passed through.
- From ISDN Private Network: Passed through.
- From signaling networks other than those mentioned above: Not available.

(13) SID TO NETWORK-PRIVACY [S-92] is available for Desktop terminal and Analog terminal.

(14) [Connected Line Identification Presentation (CLIP)] The maximum number of digits for Connected Number to be delivered is 32 digits. (The number of displayable digits on terminal LCD depends on each terminal's specification.)

(15) Connected Number can be delivered to other signaling networks under the following conditions:

- To CCIS. No.7 Network: The first 16 digits can be delivered.
- To ISDN Network: Converted to Subscriber Number, and then notified.
- To ISDN Private Network: Passed through.
- To signaling networks other than those mentioned above: Not available.

(16) Connected Number can be delivered from other signaling networks under the following conditions:

- From CCIS. No.7 Network: The first 16 digits can be delivered.
- From ISDN Network: Passed through.
- From ISDN Private Network: Passed through.
- From signaling networks other than those mentioned above: Not available.

(17) Connected Line Identification Restriction (CLIR) is available for Desktop terminal and Analog terminal.

(18) The following tables show the features supported by this feature. The features other than those mentioned in the tables are not supported.

a.) Features that are based on ISO/IEC IS Additional Service standards:

Station, Voice Feature

Code	Feature Name	Remarks
B-10	Brokerage Hotline - CCIS	
D-75	Distinctive Ringing - CCIS	
D-72	Digital Display - Station - CCIS	
C-52	Calling/Called Number Display - CCIS	

Attendant Console Feature

Code	Feature Name	Remarks
D-73	Digital Display - Trunk - CCIS	
I-5	Inter Position Transfer	Not available over the nodes.
A-60	Attendant-to-Attendant Calling	Not available over the nodes.

ISDN Terminal Feature

Code	Feature Name	Remarks
-	Bearer Service (3.1 KHz Audio)	
S-95	Sub Address - Addressing	

Network Feature

Code	Feature Name	Remarks
T-1	Tandem Switching of TIE Trunks - 2/4-Wire	
T-5	TIE Line Connection With Pad Control	
T-9	Trunk Group Busy Lamp	
L-32/40	LCR - Time of Day Rouging - PRI/PRA	
L-35/39	LCR - Clocked Manual Override - PRI/PRA	
L-33/37	LCR - Attendant Manual Override - PRI/PRA	
-	Closed Numbering	
-	Echo Canceler Control	
-	Voice compression function	Provided with TDM.

b.) Features that are not based on ISO/IEC IS Additional Service standards:

Station, Voice Feature

Code	Feature Name	Remarks
C-45	Call Forwarding-All Calls - CCIS	
C-46	Call Forwarding-Busy Line-CCIS	
C-47	Call Forwarding-Don't Answer-CCIS	
C-103	Calling Party Recognition Service (CF-Don't Answer/All Calls/Busy Line)	Proprietary service
D-74	Direct-In Termination - CCIS	
C-50	Call Transfer - All Calls - CCIS	
D-76D	Do Not Disturb -D - CCIS	

Conditions for MG(PRI) side:

Following are the conditions for MG(PRI). Refer to Peripheral Equipment Description (IP Devices).

4. PROGRAMMING

Refer to Q-SIG TRUNK DATA ASSIGNMENT.

[Q-10] Q-SIG FORWARDING STATION INFORMATION

1. GENERAL DESCRIPTION

This feature allows a forwarding destination node to be notified of the Intermediate Station Information (station number, Call Forwarding Type) on inter-node Call Forwarding - All Calls [C-5]/Busy Line [C-2]/Don't Answer [C-3]/Logout/PS Incoming Incomplete [C-155] calls. The forwarding destination node is notified the information through the Q-sig network, the tandem connection of Q-sig networks, and the tandem connection of CCIS and Q-sig networks.

1.1 Notification Methods

The following describe notification methods of the Intermediate Station Information.

1.1.1 Notification Method for Inter-nodes Call Forwarding through the Q-sig Network

A forwarding destination node is notified the Intermediate Station Information by FACILITY information element "divertingLeginformation2" of a SETUP message.

divertingLegInformation2

```
DivertingLegInformation2 ::= OPERATION
-- Sent from the Rerouteing PINX to the Diverted-to PINX
ARGUMENT SEQUENCE {
diversionCounter        INTEGER (1..15),
diversionReason         DiversionReason,
originalDiversionReason [0] IMPLICIT DiversionReason OPTIONAL,
divertingNr             [1] PresentedNumberUnscreened OPTIONAL,
originalCalledNr        [2] PresentedNumberUnscreened OPTIONAL,
redirectingName         [3] Name OPTIONAL,
originalCalledName      [4] Name OPTIONAL,
extension CHOICE {
                        [5] IMPLICIT Extension ,
                        [6] IMPLICIT SEQUENCE OF Extension } OPTIONAL
}
-- The divertingNr element is mandatory except in the case of interworking.

DiversionReason ::= ENUMERATED { unknown (0), cfu (1), cfb (2), cfnr (3)}
-- The value unknown is only used if received from another network when interworking.
```

Argument	Value
diversionReason	0: Unknown (Not used) 1: Call Forwarding - All Calls 2: Call Forwarding - Busy Line 3: Call Forwarding - Don't Answer
divertingNr	Intermediate Station Number [0-9, *, # ASCII]

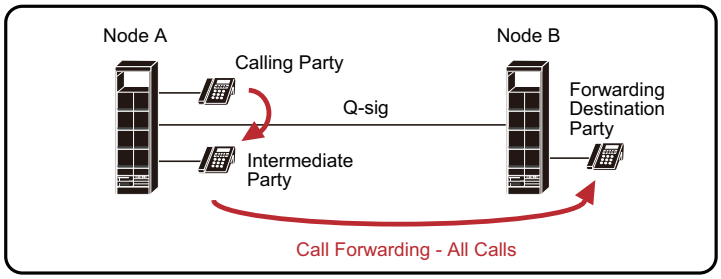
[Examples]

The following describe examples when a forwarding destination is notified "divertingLeginformation2" information as the Intermediate Station Information.

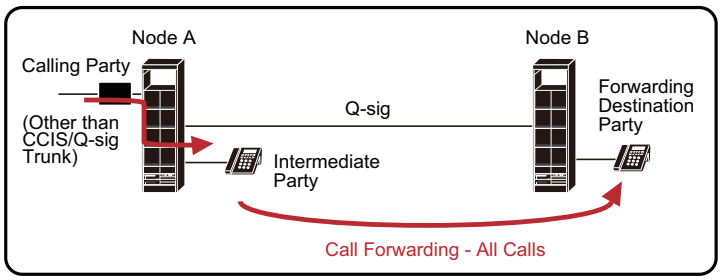
In cases 1 through 4, the following contents of "divertingLeginformation2" will be notified.
(This is a case when Call Forwarding - All Calls is performed.)

Argument	Value
diversionReason	1: Call Forwarding - All Calls
divertingNr	Intermediate Station Number

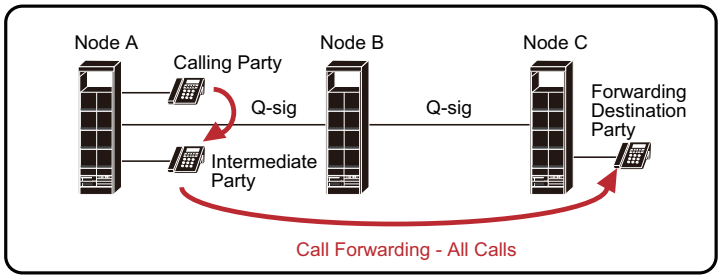
- Case 1: Forwarding a call to a station in Node B through the Q-sig network



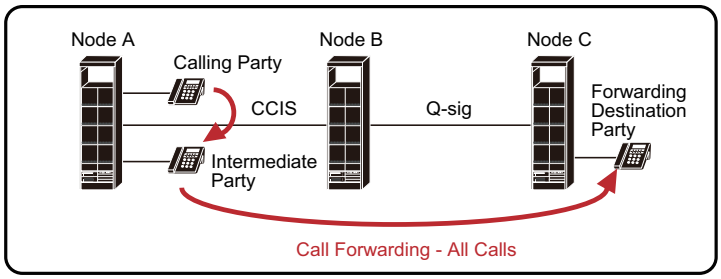
- Case 2: Forwarding a call from a trunk other than CCIS/Q-sig trunk to a station in Node B through the Q-sig network



- Case 3: Forwarding a call to a station in Node C through a tandem connection of the Q-sig networks



- Case 4: Forwarding a call to a station in Node C through a tandem connection of the CCIS and Q-sig networks



1.1.2 Notification Method for Rerouting Function

When Rerouting function is in service, a Calling Party's node is notified the Intermediate Station Information by FACILITY information element "CallRerouteing" of a FACILITY message.

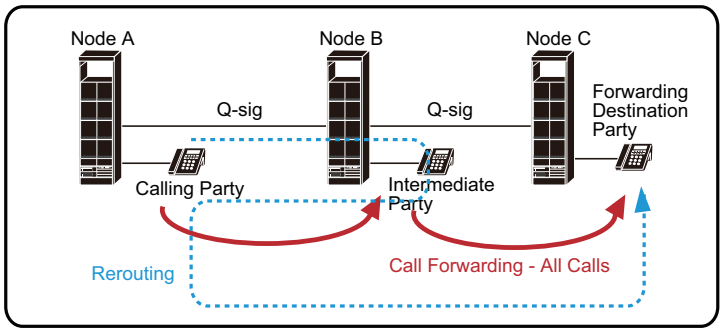
CallRerouteing

```
callRerouteing OPERATION ::={
-- Sent from the Served User PINX to the Rerouteing PINX
ARGUMENT SEQUENCE
{ rerouteingReason        DiversionReason,
originalRerouteingReason [0] IMPLICIT DiversionReason OPTIONAL,
calledAddress            Address,
diversionCounter         INTEGER (1..15),
pSS1InfoElement PSS1InformationElement,
lastRerouteingNr         [1] PresentedNumberUnscreened,
subscriptionOption       [2] IMPLICIT SubscriptionOption,
callingPartySubaddress   [3] PartySubaddress OPTIONAL,
callingNumber            [4] PresentedNumberScreened,
callingName              [5] Name OPTIONAL,
originalCalledNr         [6] PresentedNumberUnscreened OPTIONAL,
redirectingName          [7] Name OPTIONAL,
originalCalledName       [8] Name OPTIONAL,
extension                CHOICE {
single         [9] IMPLICIT Extension{{DiversionExtensionSet}},
multiple       [10] IMPLICIT SEQUENCE OF Extension{{DiversionExtensionSet}} } OPTIONAL
}

DiversionReason ::= ENUMERATED { unknown (0), cfu (1), cfb (2), cfnr (3)}
-- The value unknown is only used if received from another network when interworking.
```

Argument	Value
rerouteingReason	0: Unknown (Not used) 1: Call Forwarding - All Calls 2: Call Forwarding - Busy Line 3: Call Forwarding - Don't Answer
lastRerouteingNr	Intermediate Station Number [0-9, *, # ASCII]

Here is an example for forwarding a call to a station in Node C through a tandem connection of the Q-sig networks.



1.1.3 Notification Method for Multiple Call Forwarding

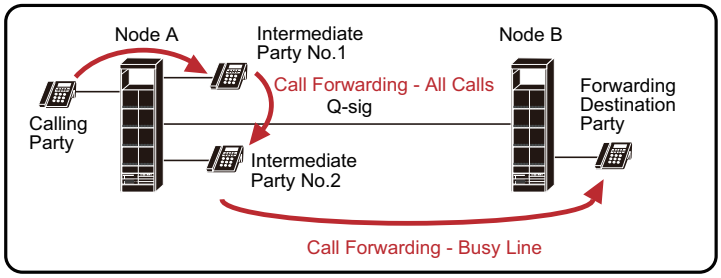
When a call is forwarded by Call Forwarding - All Calls [M-44]/Busy Line [M-24]/Don't Answer [M-25], a forwarding destination node is notified the Intermediate Station Information of a station which performs the first hop of Multiple Call Forwarding.

[Example of Notification Multiple Call Forwarding]

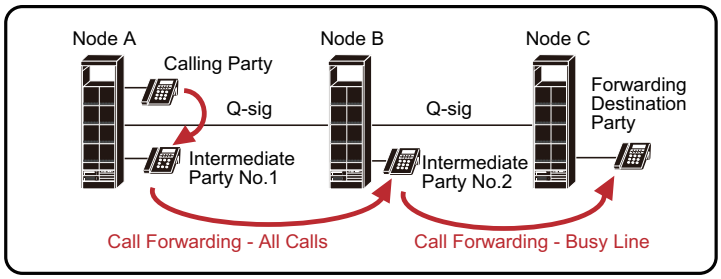
In cases 1 through 3, the following contents of "divertingLeginformation2" will be notified.

Argument	Value
diversionReason	1: Call Forwarding - All Calls
divertingNr	Intermediate Station Number for Intermediate Party No.1

- Case 1: Forwarding a call to a station in Node B through the Q-sig network when the first hop is performed to Intermediate Party No.2 in Node A



- Case 2: Forwarding a call to a station in Node C through a tandem connection of the Q-sig networks when the first hop is performed to Intermediate Party No.2 in Node B (tandem node)



2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

<Important Notices>

(1) The forwarding destination node is notified the Intermediate Station Information by the FACILITY information element of a SETUP message.

(2) One of the following three Call Forwarding Types will be notified as a reason for a Call Forwarding operation.

- Call Forwarding - All Calls
- Call Forwarding - Busy Line
- Call Forwarding - Don't Answer

Note: When a call is forwarded by Call Forwarding - Logout, the forwarding destination node is notified that the Call Forwarding Type is Call Forwarding - All Calls.
When a call is forwarded by Call Forwarding - PS Incoming Incomplete, the forwarding destination node is notified that the Call Forwarding Type is Call Forwarding - Don't Answer.

<Interaction with other features>

(1) The forwarding destination node is notified the information of an intermediate station which performs the first hop of Multiple Call Forwarding - All Calls [M-44]/Busy Line [M-24]/Don't Answer [M-25].

<Hardware/Software>

None

<Interaction with networks>

None

<Conditions for this feature>

(1) The following show each connection status that allows the forwarding destination node to be notified the Intermediate Station Information.

<Inter-node Call Forwarding when a call terminates>

Outgoing/ Incoming Party	Call Forwarding Type	Forwarding Destination	Remarks
Station (including Call Transfer - All Calls [C-11])	Call Forwarding - All Calls Call Forwarding - Busy Line Call Forwarding - Don't Answer Call Forwarding - Logout **Note 1** Call Forwarding - PS Incoming Incomplete **Note 1**	Q-sig Network	
Q-sig trunk			**Note 2**
CCIS trunk			**Note 3**
Trunks other than Q-sig/CCIS trunks			

<Inter-node Call Forwarding through a tandem connection>

Outgoing/ Incoming Party	Call Forwarding Type	Forwarding Destination	Remarks
Q-sig trunk	Call Forwarding - All Calls Call Forwarding - Busy Line Call Forwarding - Don't Answer	Q-sig Network	**Note 2**
CCIS trunk	Call Forwarding - All Calls Call Forwarding - Busy Line Call Forwarding - Don't Answer Call Forwarding - Logout **Note 1** Call Forwarding - PS Incoming Incomplete **Note 1**		**Note 2**

Note 1: When a call is forwarded by Call Forwarding - Logout, the forwarding destination node is notified that the Call Forwarding Type is Call Forwarding - All Calls.
When a call is forwarded by Call Forwarding - PS Incoming Incomplete, the forwarding destination node is notified that the Call Forwarding Type is Call Forwarding - Don't Answer.

Note 2: The intermediate Station Information is taken over if the information is notified from an incoming trunk.

Note 3: Call Forwarding to a Q-sig line will not be available when an incoming call is received via a CCIS line in consequence of multi-hop routing. For details, refer to Call Forwarding - All Calls - CCIS [C-45]/Busy Line - CCIS [C-46]/Don't Answer - CCIS [C-47] in Data Programming Manual - CCIS.

<Other Conditions>

None

4. PROGRAMMING

STEP 1: Assign the Basic Data for Q-sig (Refer to [Q-4] Q-SIG CIRCUIT SWITCHED BASIC CALL - ETSI VERSION).

STEP 2: ASYD - Assign the following System Data to transfer the Intermediate Station information (station number and Call Forwarding Type) of the first Intermediate Party.

System Data 1, Index 78,
bit 0=1 (Calling and Intermediate Station Number Indication is in service.)
bit 1=1 (Kind of Service Class Indication is in service.)

STEP 3: ARTI - Assign the following CDN data to the Bch route and Dch route.
CTCF (CDN52) =1 Call Transfer Supplementary Service/Call Forwarding Supplementary Service is in service.

[R-56] RECALL WITH CONNECTED NUMBER DISPLAY

1. GENERAL DESCRIPTION

This feature is Q-SIG Recall Additional service based on ISO/IEC 15052. The following two features are included.

- Recall On No Reply (RENR)
- Recall On Busy (REB)

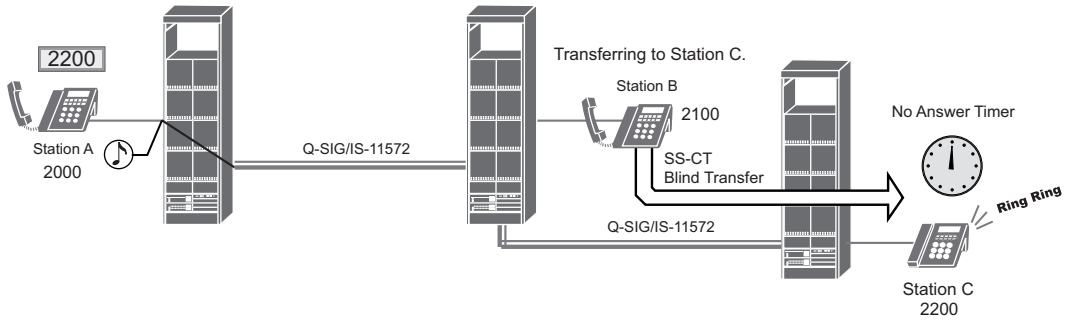
Recall On No Reply (RENR)

When station B transfers the call to station C by "SSCT Blind Transfer," (**Note 1**) station B is recalled if station C does not answer the call for a predetermined time of period. Station number of Station B is notified to station A. Thus this feature allows station A to display the correct number on the LCD.

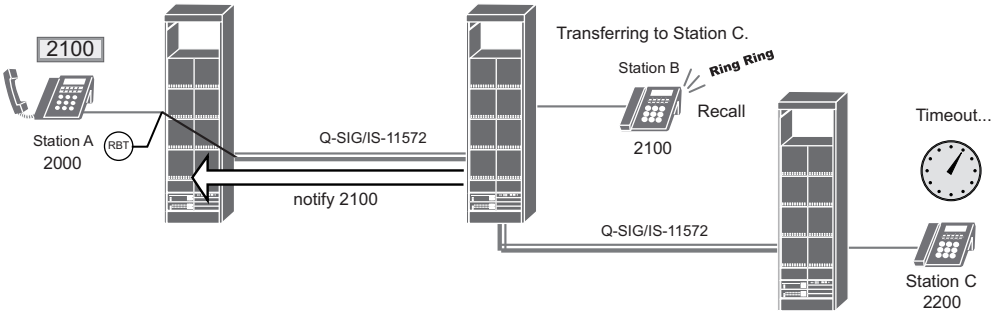
Note 1: Call Transfer Supplementary Service (SS-CT) Blind Transfer.

Recall On No Reply (RENR)

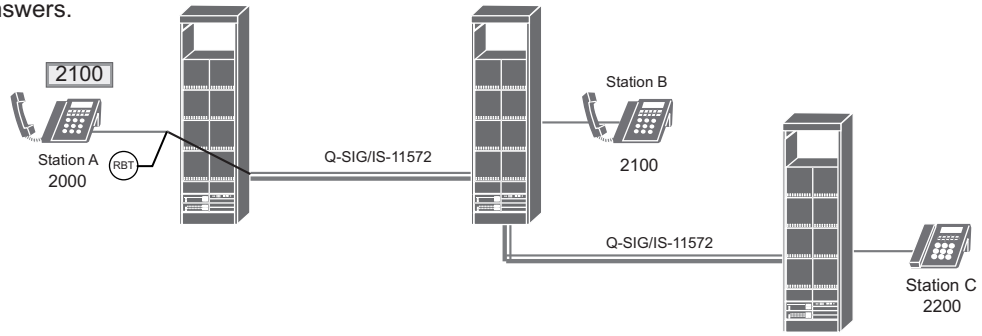
- Station B attempts to transfer the call to Station C by SS-CT Blind Transfer.



- Station C does not answer. When it is recalled, the station number of station B is notified.



- Station B answers.

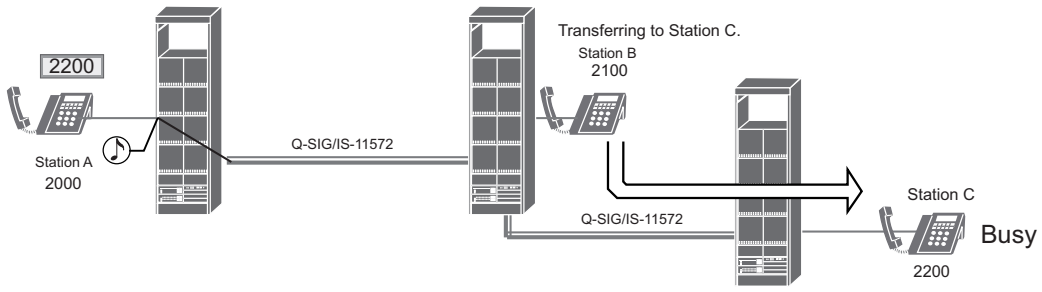


Recall On Busy (REB)

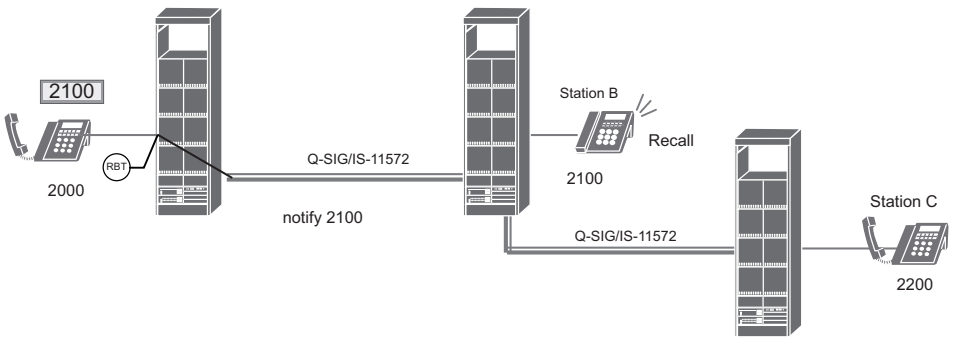
When station B transfers the call to station C, station B receives BT if it is busy. When a predetermined time expires or station replaces the handset station B is recalled. At this time, the station number of the recalled station is notified to station A. Thus this feature allows station A to display the correct number on the LCD.

Recall On Busy (REB)

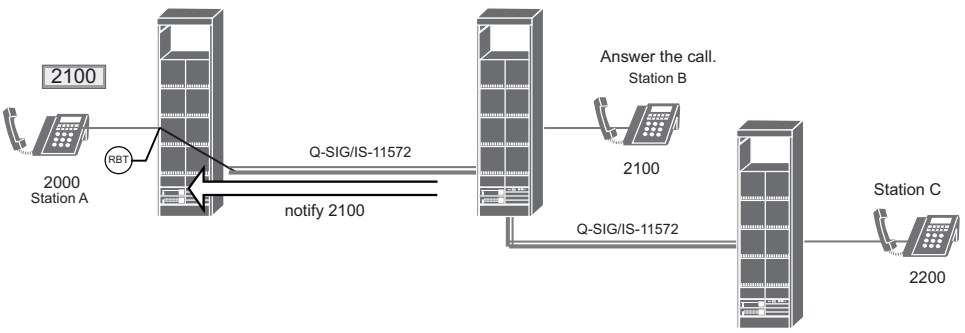
[1] Station B attempts to transfer the call to Station C. Station C is busy.



[2] Station B goes on-hook. Then it is recalled. The station number of Station B is notified. (If Station B receives BT for more than a predetermined time, go to [3].)



[3] Station B answers the call.



2. SERVICE CONDITIONS

(1) Common Conditions for RENR and REB

(a) Recall is notified to Q-SIG/IS-11572 trunk only.

(b) This service is available for Desktop terminal. Attendant console, analog station, PS and ISDN terminal are not included.

(c) The intermediate station is recalled while hearing announcement of the counter PBX if no answer timer expires.

(d) Recall is not available for OGT and ICT when ARTI CDN53 (RERT) = 1.

(2) Recall On Busy

(a) Recall On Busy is activated when the intermediate station is receiving BT.

(b) When the intermediate station is recalled at the timer (about 30 seconds) expiration: Immediately it is placed in conversation. (for Desktop terminal, analog terminal, PS)

(c) When the intermediate user releases the call on receipt of BT, the intermediate station is recalled.

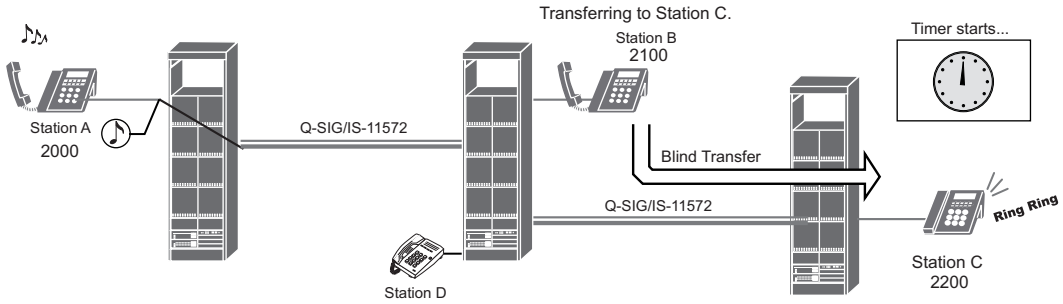
(3) Service Conditions for Recall On No Reply (RENR)

(a) This feature is activated when the intermediate user replaces the handset after receiving RBT and the timer expires. When receiving RBT this feature is not activated.

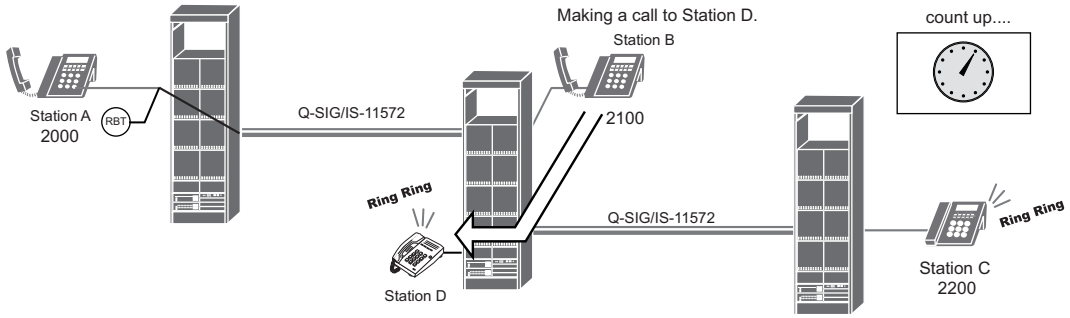
(b) When the intermediate station makes a new call after preforming "Blind Transfer" it is not recalled even if the no answer timer expires. At this time the system resets the timer. If the intermediate station is idle at the new timer expiration, it is recalled. Otherwise, the timer is reset again.

When Intermediate station is busy on timeout

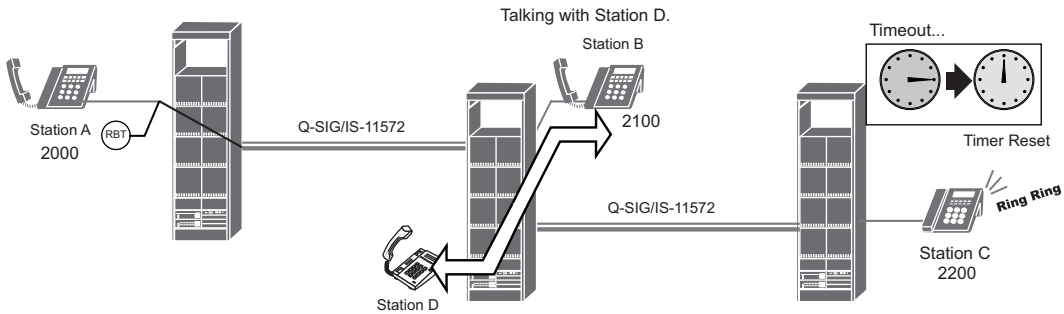
- Station B transfers the call to Station C by Blind Transfer.



- Station C is ringing. Station B makes a new call to Station D.



- No Answer Timer expires. However, Station B is still talking with Station D. In this instance, the system resets the timer.



3. PROGRAMMING

STEP 1: ARTI - Assign 1 to the following CDN for the related route(s).
CDN: 59 RE (Recall Supplementary Service)
0: Out of Service
1: In Service

Note: To change the data for existing route (RT), initialize the circuit card.

[A-90] ADVICE OF CHARGE DISPLAY

1. GENERAL DESCRIPTION

When an outgoing connection is made on the ISDN trunk, this feature provides the call originator with the charge information from the network in $ indication. The information will be displayed on the Desktop terminal for five seconds after the station has been released. Whether the charge information is displayed or not can be specified on a Desktop terminal station basis.

Note: The charge indication will be made based on the “Charge at End of Call-AOC3”.

Note: Indication method

- Indication will be made for max. 8 digits including $ and decimal point (.).
- Value below 1 cent (e.g. 0.1 cent) will be raised to unit.
- For the value of $0.00-$9,999.99

$ XXXY.YY

(x = bland or 0 - 9)
(y = 0 - 9)

- For the value of $10,000.00-$99,999.99

XXXXX.XX

(x = 0 - 9)

- For the value exceeding $100,000.00

99999.99

(Static indication and no flashing)

- 2 digits below decimal will always be indicated with the decimal point.

Note: The charge information will be cleared after one time of indication.

Note: There will be no charge indication when the calling party hangs up before the called party in data connection.

Note: When a call is transferred, the total charge indication will be made to the party where the first charge indication has been provided.

2. OPERATING PROCEDURE

No manual operation is required.

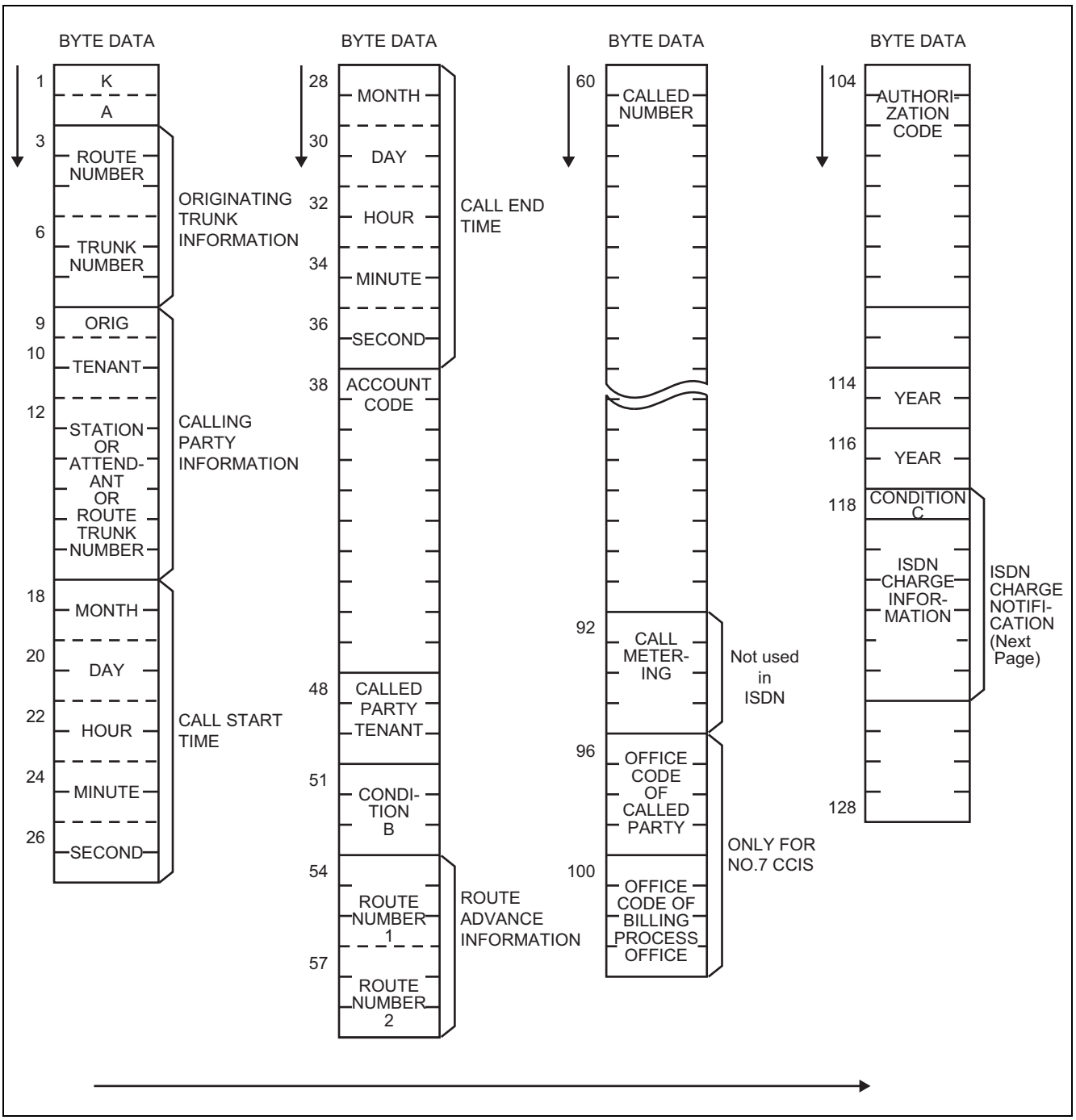
3. PROGRAMMING

ASFC - Assign SFI 149 (Remove Display of AOC on Dterm) to “0” for Desktop terminals requiring Advice of Charge (AOC) display. While assign “1” for Desktop terminals masking the AOC information.

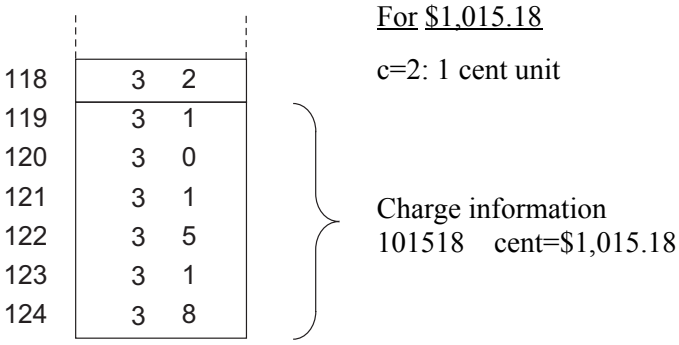
[A-91] ADVICE OF CHARGE SMDR

1. GENERAL DESCRIPTION

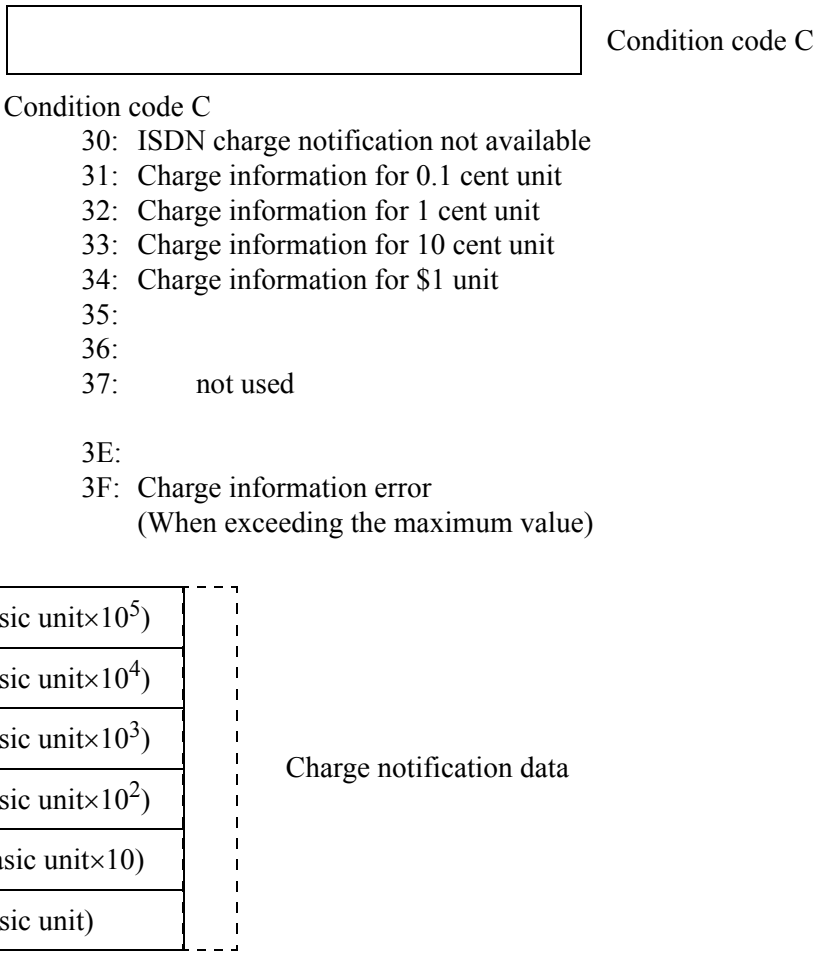
When an outgoing connection is made on the ISDN trunk, the charge information from the network can be informed to SMDR.



(1) <Format Example>



(2) The meaning of output format



Note: Basic unit is the unit specified by Condition code C.

(3) Charge information and corresponding Condition code C are as shown in the following table.

CONDITION CODE C (UNIT)	RANGE OF CHARGE INFORMATION	
	MIN. VALUE	MAX. VALUE
30	No charge	No charge
31 (0.1 cent)	0.1 cent	$999.999
32 (1 cent)	$1,000.000	$9,999.990
33 (10 cent)	$9,999.991	$99,999.909
34 (1 dollar) **Note 1**	$99,999.910	$999,999.099
3F (Error) **Note 1**	More than $999,999.100	

Note 1: The maximum value of charges to be informed from the network is $9,899,999.901, but the maximum value that can be informed to SMDR is $999,999.099.

(4) When the charge is informed as 0 cent, setting in the charge information area will be made in the following format.

118	31	- - - -	Condition Code C
119	20	- - - -	char. (ASCII) Blank
120	20	- - - -	char. (ASCII) Blank
121	20	- - - -	char. (ASCII) Blank
122	20	- - - -	char. (ASCII) Blank
123	30	- - - -	char. (ASCII) 0

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: ASYD - System Data 1, Index 20, Bit 7: Charging to a call transferred by CALL FORWARDING-OUTSIDE
0=Charging is mode to the caller of the transferred call.
1=Charging is made to the station which has set CALL FORWARDING-OUTSIDE service.

Index 32, Bit 1: 1=Record the tenant information
Bit 2: 1=Record the route taken
Bit 5: Is the Route Access Code recorded? 0/1=No/Yes.
Bit 6: Is the number sent or number dialed recorded in SMDR?
0/1=Number to be sent/Number to be dialed.
Bit 7: 1=SMDR is in service

Index 33:
- Data 00 Hex=Split Billing
- When Bit 5=1 (Total Billing for Incoming Calls) and/or Bit 6=1 (Total Billing for outgoing calls), the following data can be assigned.

b4	b3		
0	0	=	Telephone called first
0	1	=	Telephone called last
1	0	=	Next Telephone receiving call from ATT/Station.
1	1	=	Last Telephone receiving call from ATT/Station.

Index 34, Bit 0: 1=Enables RS-232C transmission.
Bit 5: Is the converted number sent? 0/1=No/Yes.

System Data 1, Indexes 288-295: Designation of the attributes of the SMDR.
SMDR output port will be designated. For this designation, the attributes of the terminal which outputs the detail call information should have been designated by the AIOC command.
Also for detecting a fault of the SMDR, set the SMDR fault detect timer.
Index 288 = Charging information port of SMDR A.
Index 289 = SMDR fault detect timer of SMDR A.
Index 290 = Charging information port of SMDR B.
Index 291 = SMDR fault detect timer of SMDR B.
Index 292 = Charging information port of SMDR C.
Index 293 = SMDR fault detect timer of SMDR C.
Index 294 = Charging information port of SMDR D.
Index 295 = SMDR fault detect timer of SMDR D.

System Data 2, Index 3, Bit 0: 1=SMDR registration per tenant is valid.

STEP 2: AIOC - Assign the function and attribute data of the IOC ports.

STEP 3: ARTD - CDN 10. Enable outgoing routes to be included for SMDR registration. CDN 16, Determination on a per-route basis what type of connection will be registered by SMDR. For outgoing routes, assign data "0".

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 4: ASFC - Assign data "1" to SFI14 of a Service Feature Restriction Class whose traffic is to be registered on SMDR (Trunk Basis.)

STEP 5: ARNP - For the routes flagged for SMDR in ARTD, list the ISDN Route Number and the LCR Access Code.

STEP 6: AMND - Assign the number of digits the register is to receive for every dialing code.

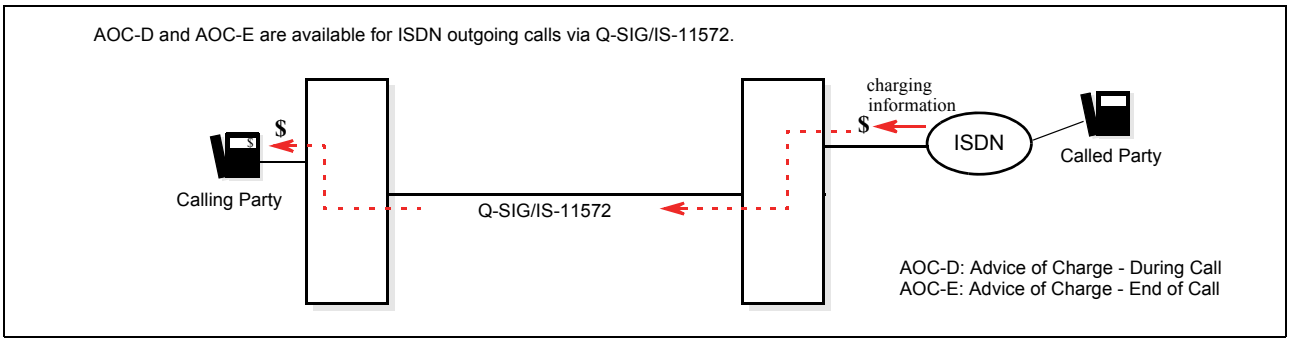
[A-136] ADVICE OF CHARGE (AOC) - RECEIPT AND DISPLAY OF AOC FROM A FOREIGN Q-SIG NETWORK

1. GENERAL DESCRIPTION

Conforming to ISO 15049 and ISO 15050, this feature allows the system to display charging information on the LCD of Desktop terminal when placing an outgoing call via Q-SIG/IS-11572. Advice of Charge - End of Call (AOC-E) and Advice of Charge - During Call (AOC-D) are available.

Whether the charge information is displayed or not can be specified on a station basis.

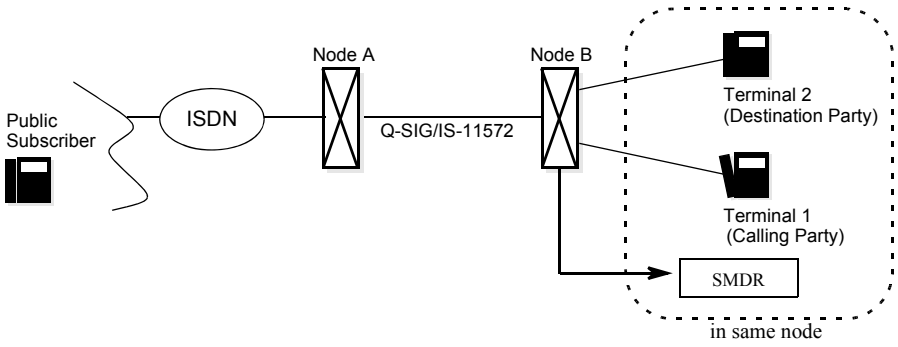
- AOC-E: Enables a user to receive information on the recorded charges for a call at the end of the call.
- AOC-D: Enables a user to receive information on the recorded charges for a call during the active phase of the call.



Note: This feature can display charging information on the LCD of Desktop terminal with change on the LCD regarding Total Billing/Split Billing data assignment at the system, and charging information can be output to the specific field of SMDR at other node. OAI/ACD and HOTEL system are not supported. Refer to 6. PROGRAMMING for the data assignment.

- How billing information is displayed for each connecting pattern is as follows.

Example 1: When calling party and destination party are in the same node.



[1] While calling party (terminal 1) is talking with public subscriber.

When billing information “100” is received from the network.

	Display of terminal 1	Display of terminal 2	SMDR output
Split Billing	100	-	-
Total Billing	100	-	-

[2] Calling party (terminal 1) presses the switch hook to transfer the call to terminal 2.
(Public subscriber hears hold tone.)

When billing information “200” is received from the network.

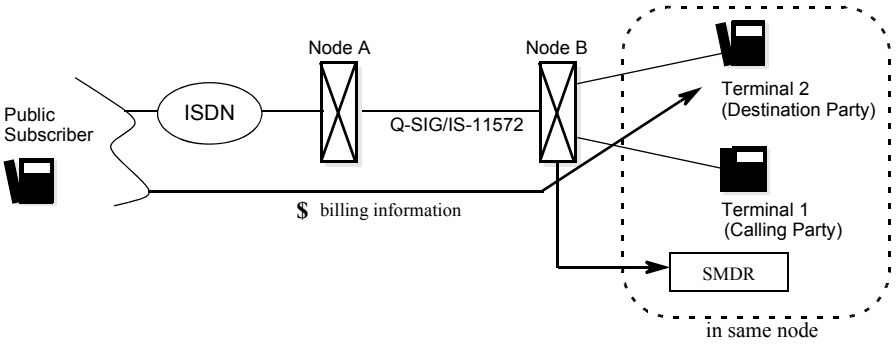
	Display of terminal 1	Display of terminal 2	SMDR output
Split Billing	Not displayed	-	-
Total Billing	Not displayed	-	-

[3] Terminal 1 is released.

When terminal 1 is released from the network.

	Display of terminal 1	Display of terminal 2	SMDR output
Split Billing	200	-	200 (Billing Subject: terminal 1-TRK at Node B)
Total Billing	Not displayed	-	-

[4] Destination party (terminal 2) starts talking with public subscriber.



When billing information “300” is received from the network.

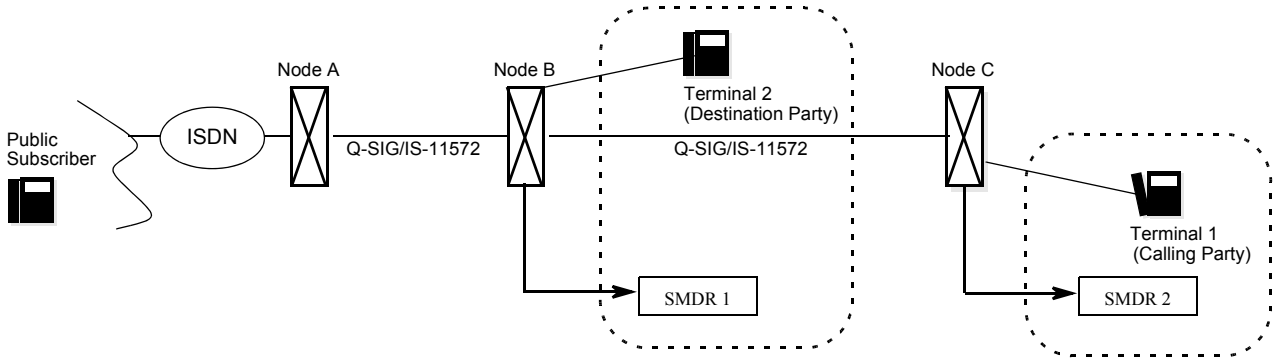
	Display of terminal 1	Display of terminal 2	SMDR output
Split Billing	-	100	-
Total Billing	-	300	-

[5] Terminal 2 is released.

When terminal 2 is released.

	Display of terminal 1	Display of terminal 2	SMDR output
Split Billing	-	-	100 (Billing Subject: terminal 2-TRK at Node B)
Total Billing	-	-	300 (Billing Subject: terminal 2-TRK at Node B)

Example 2: When calling party and destination party are not in the same node.



[1] While calling party (terminal 1) is talking with subscriber.

When billing information “100” is received from the network.

	Display of terminal 1	Display of terminal 2	SMDR 1 output	SMDR 2 output
Split Billing	100	-	-	-
Total Billing	100	-	-	-

[2] Calling party (terminal 1) presses the switch hook to transfer the call to terminal 2. (Public subscriber hears hold tone.)

When billing information “100” is received from the network.

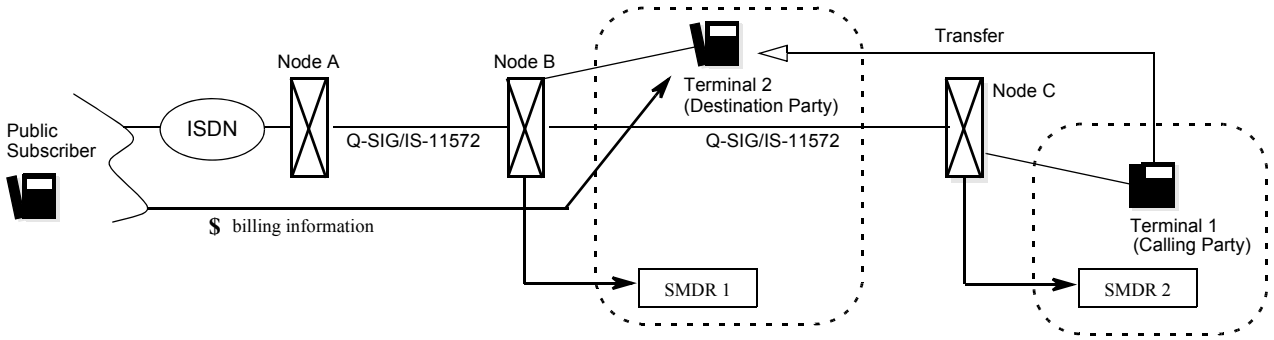
	Display of terminal 1	Display of terminal 2	SMDR 1 output	SMDR 2 output
Split Billing	Not displayed	-	-	-
Total Billing	Not displayed	-	-	-

[3] Terminal 1 is released.

When billing information “100” is received from the network.

	Display of terminal 1	Display of terminal 2	SMDR 1 output	SMDR 2 output
Split Billing	200	-	-	200 (Billing Subject: terminal 1-TRK at Node C)
Total Billing	Not displayed	-	-	-

[4] Destination party (terminal 2) starts talking with public subscriber.



When billing information “100” is received from the network.

	Display of terminal 1	Display of terminal 2	SMDR 1 output	SMDR 2 output
Split Billing	-	100	-	-
Total Billing	-	300	-	-

[5] Terminal 2 is released.

When terminal 2 is released.

	Display of terminal 1	Display of terminal 2	SMDR 1 output	SMDR 2 output
Split Billing	-	100	No SMDR output (Billing Subject: terminal 2-TRK at Node B)	No SMDR output (Billing Subject: TRK 1-TRK 2 at Node C)
Total Billing	-	300	No SMDR output (Billing Subject: terminal 2-TRK at Node B)	No SMDR output (Billing Subject: TRK 1-TRK 2 at Node C)

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) This feature is based on the following recommendations and specifications:

- ISO/IEC 15049 First Edition
- ISO/IEC 15050 Second Edition

(2) Only 64 kbps bearer capability is available for this feature.

(3) The following shows a list of supported terminals. The charging information will be displayed on the LCD when replacing the handset or receiving charging information from the network.

List of Supported Terminals

Supported Terminals	Digital terminal, IP terminal, Softphone, SIP Multi Line terminal, ISDN terminal, Analog terminal, SP Controlled SIP terminal
Unsupported Terminals	PS, Attendant Console, SIP Handler Controlled SIP terminal, terminal without LCD

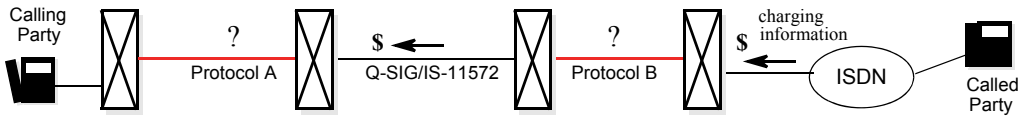
(4) This feature applies to ISDN outgoing calls via Q-SIG or IS-11572 only. ISDN incoming calls via Q-SIG or IS-11572 are not supported.

(5) The following shows the availability of this feature.

EMEA-ISDN (PRI)	Q-SIG	IS-11572	Other Private Network
EMEA-ISDN (BRI)	×	×	Not supported by this feature.
EMEA-ISDN (PRI)	×	×	Not supported by this feature.
Australia	×	×	Not supported by this feature.
UAE	×	×	Not supported by this feature.
Analog Public Network	-	-	Not supported by this feature.
Other Public Network	-	-	Not supported by this feature.

×: Available -: Not Available

(6) The following shows the availability of this feature when other protocols are involved between the nodes.



×: Available -: Not Available

Protocol A \ Protocol B	Q-SIG	IS-11572	FCCS	CCIS	Dp Channel	Other Tie Line
Q-SIG	×	×	×	- Note 1	-	-
IS-11572	×	×	×	- Note 1	-	-
FCCS	×	×	×	- Note 1	-	-
CCIS	- Note 1	- Note 1	- Note 1	- Note 1	-	-
Dp Channel	-	-	-	-	-	-
Other Tie Line	-	-	-	-	-	-

Note 1: Refer to **[C-202] CLI Suppression - CCIS** in Data Programming Manual - CCIS.

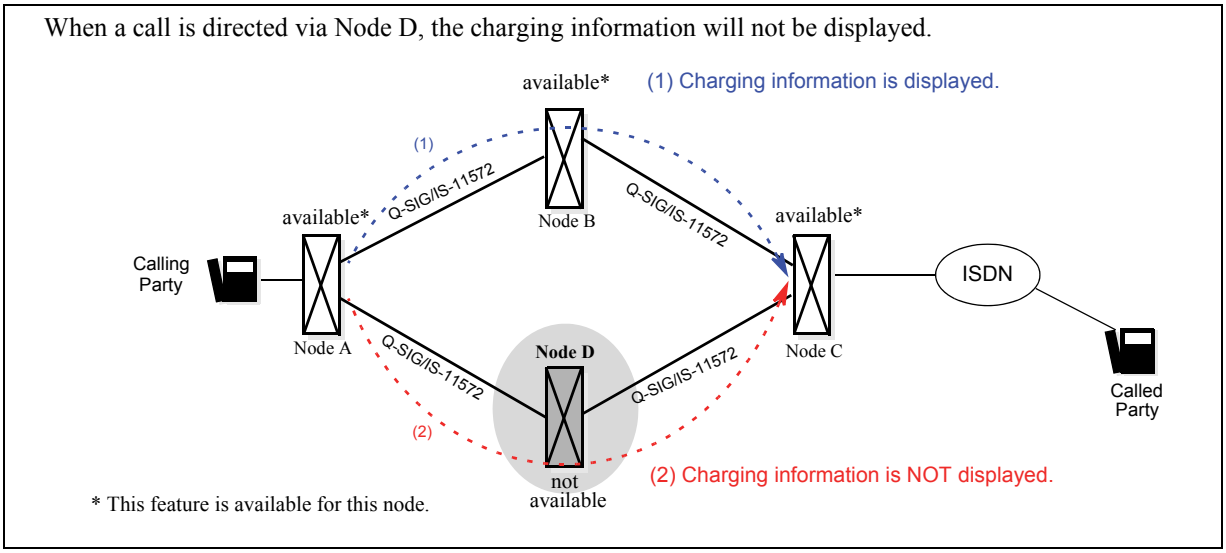
(7) Charging information is advised from network by using Advice of Charge Information Element, Display Information Element, Charge Advice Information Element, and Facility Information Element. The system replaces the information to Facility Information element when advising the information to Q-SIG/IS-11572.

(8) When charging information is advised from the network by multiple information elements, the value to be advised to Q-SIG/IS-11572 is determined by the following priority. In this instance, the lower priority data will be discarded.

Information Element	Operation Value	Priority
Facility	AOCECurrency	High
	AOCEChargingUnit	
	AOCDCurrency	
	AOCDChargingUnit	
CEPT Charge Advice	-	
Display	-	Low

(9) This feature must be available for all nodes of Q-SIG/IS-11572 network. If there is any node where this feature is not available, the charging information can not be displayed when a call is established via the node.

All Nodes must be available for this feature



(10) This service is available for Desktop terminals and ISDN terminals. Attendant Console is not available for this service.

(11) This feature is effective on condition that the call is originated to the ISDN network through ETS 300 172/ IS-11572 line.

(12) This feature supports AOC-E only (not applied to AOC-D nor AOC-S).

AOC-S: Charging information at call set-up time
The billing rate is sent to the caller when originating a call.
Also, when the billing rate is changed during the communication, the new information is sent to the caller.

AOC-E: Charging information at the end of the call
When the call is completed, the charge information is sent to the caller.

AOC-D: Charging information during the call
While the call is in progress, the charge information and the billing rate information are sent to the caller.

(13) This feature supports the total billing information only when the call is completed.

(14) Charge information of more than ten digits can be displayed on the LCD (number of unit digit is not displayed). The charge of unit digit is raised to ten digits and charge of decimal places is omitted.

(15) This feature is activated only when the charge information is sent from the ISDN network. Therefore, the call charge is not displayed when dialing the number for free of charge.

(16) Maximum number of digits to be displayed is as follows. If the charge exceeds the maximum, the LCD displays the maximum value.

Minimum Value and Maximum Digits to be displayed

Minimum	Maximum
0	999999

Note: "?" is displayed when exceeding the maximum.

(17) The charging information is displayed on the LCD of Desktop terminal on condition that it is advised from the network. If it is not advised, the charging information will not be displayed on the LCD.

(18) This feature does not convert the unit of currency. Therefore, do not assign this feature for routes that interconnect multiple nodes where different currency system is used. If assigned, the calling party may not be able to recognize the charge information correctly. For example, 9-cent might be recognized as 9-yen by the calling party.

(19) When CALL FORWARDING - DON'T ANSWER - OUTSIDE or Blind Transfer is used, the charging information may not be displayed depending on the connection pattern. For more details see 4. INTERACTIONS.

(20) This feature does not make any change in SMDR output items and output format. Total billing and Split billing is performed by the existing feature.

(21) SMDR information for Q-SIG/IS-11572 routes will be output. However, the field of Charging Information/Call Metering is set to "No Charge Advised". (The charge information advised from the network is not contained to the SMDR output).

(22) Connection test is required when attempting to connect the products of other vendors.

(23) The availability of this feature when connecting NEAX2000 IPS by Q-SIG depends on the software of the connected NEAX2000 IPS.

(24) The charging information will be displayed as follows:

- During Call: The charging information will be remained on the LCD from the beginning of the call to the end of the call, refreshed when receiving new charging information from the network.
- End of Call: The charging information will be displayed on the LCD for about five seconds.

(25) Currency unit display can be eliminated by programming (For more details, see 6. PROGRAMMING).

(26) The charging information is received from the network on a 0.1-cent basis. However, a Desktop terminal can display charging information on a 1-cent basis only. For this reason, the digit of 0.1-cent will be rounded up as shown below (41.1 cent is rounded up to 42 in case [2]).

The Digit of 0.1-cent will be rounded up

Case	Charge received from network	LCD indication
[1]	41.0 cent	_ _ _ _ _ 0.41
[2]	41.1 cent	_ _ _ _ _ 0.42

(27) Advice of charge - During Call (AOC-D) is available when the call is in a basic two-way connection. In other connection status such as Transferring, Three-way-calling, On-Hold status, AOC-D is not available. If the call returns to a two-way connection after remaining in one of the other connections, the charging information will not be displayed unless the network advises new charging information to the terminal.

(28) ELAPSED TIME DISPLAY -D [E-3D] and this feature are mutually exclusive. When this feature is used, charging information display has precedence over ELAPSED TIME DISPLAY -D [E-3D].

(29) If there is not the call charge of AOC-D when Split billing is set, the terminal that transferred the call displays "0" because the split billing is based on the call charge of AOC-D.
Total charge is displayed to the last terminal when AOC-E is received.

(30) The displayed call charge may be different from the actual call charge because the output is based on the call charge of AOC-D.

(31) If transferring a call to other node, the SMDR is not output on the ground that SMDR for Incoming Call is not performed.

(32) SMDR output is available for LAN interface only.

(33) Regardless of data setting, the SMDR information is output to SMDR in NEXT format when the billing subject releases the call.

(34) Service conditions for SMDR output (Total Billing)
- If a terminal subject to billing transfers a call to other terminal, the latter terminal becomes subject to the billing.

(35) Service conditions for SMDR output (Split Billing)
- If Split Billing is assigned (ASYD/ASYDN, Sys1, Index33, b6=0) in a node accommodating the SMDR equipment, the billing information is not sent to the SMDR equipment. For the programming procedure, refer to 6. PROGRAMMING.

(36) A call charge can be displayed on the LCD of Desktop terminal by using QSIG AOC when CALL FORWARDING SUPPLEMENTARY SERVICE (SS-CF) WITHOUT REROUTING [C-158] and CALL TRANSFER SUPPLEMENTARY SERVICE (SS-CT) WITHOUT REROUTING [C-159] are used. OAI/ACD and HOTEL system are not supported.

Note: As for whether a call charge can be displayed on the LCD of Desktop terminal when executing some business features such as Call Forwarding-Don't Answer-Outside [C-74] or Blind Transfer To Station [B-18], refer to 4. INTERACTIONS.

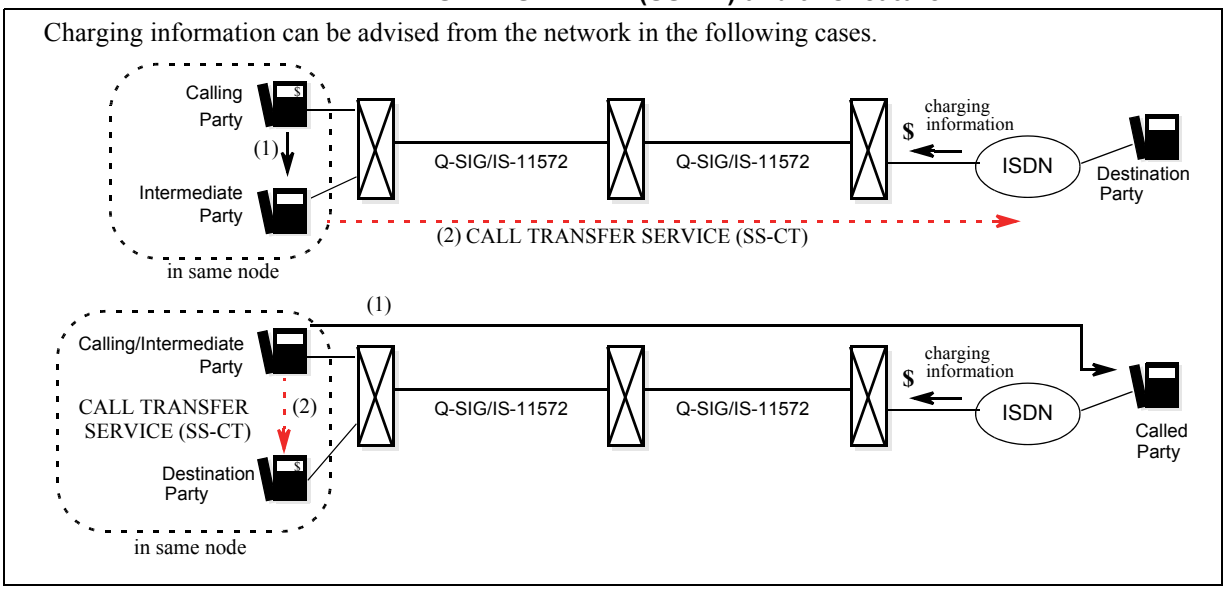
(37) Charge information of more than ten digits can be displayed on the LCD (number of unit digit is not displayed). The charge of unit digit is raised to ten digits and charge of decimal places is omitted.

(38) This feature is activated only when the charge information is sent from the ISDN network. Therefore, the call charge is not displayed when dialing the number for free of charge.

4. INTERACTIONS

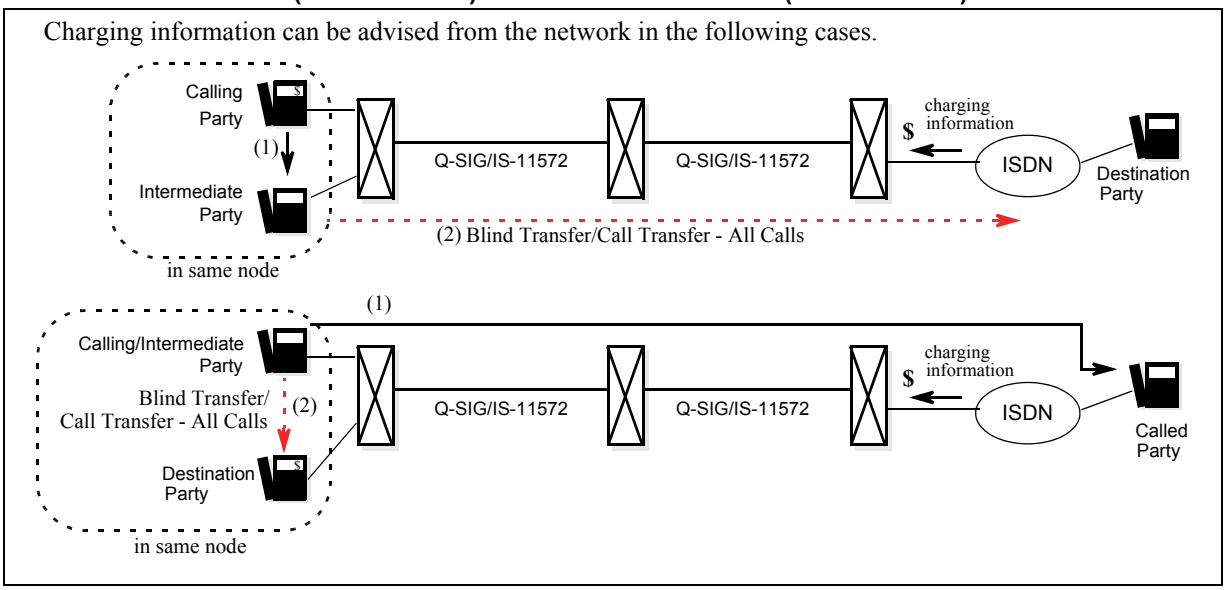
(1) When Tandem Off-hook Queuing is used, this feature is invalid.
(2) When a call is made by Attendant assistance, this feature is invalid.
(3) When Serial Call -D [S127-D] / Serial Call [S-15] is used, this feature is invalid.
(4) When CALL FORWARDING SUPPLEMENTARY SERVICE (SS-CF) WITHOUT REROUTING [C-158] is used, this feature is invalid.
(5) When CALL TRANSFER SERVICE (SS-CT) [C-159] is used, this feature is valid even if the calling party/destination party and intermediate party are accommodated in other node.

CALL TRANSFER SERVICE (SS-CT) and this feature



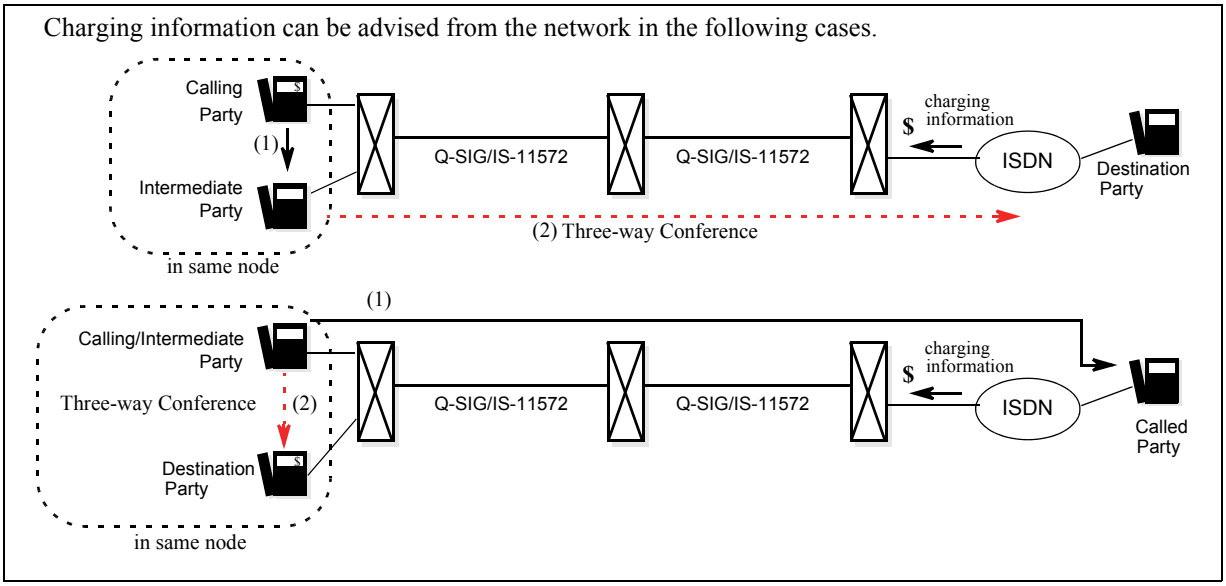
(6) When Blind Transfer (to Trunk Line)/Call Transfer - All Calls (to Trunk Line) is used, this feature is valid on condition that the calling party/destination party and intermediate party are accommodated in the same node.

BLIND TRANSFER (to Trunk Line)/Call Transfer - All Calls (to Trunk Line) and this feature



(7) When Three-way Conference is used when the conference leader releases the call for example, this feature is valid on condition that the calling party/destination party and intermediate party are accommodated in the same node.

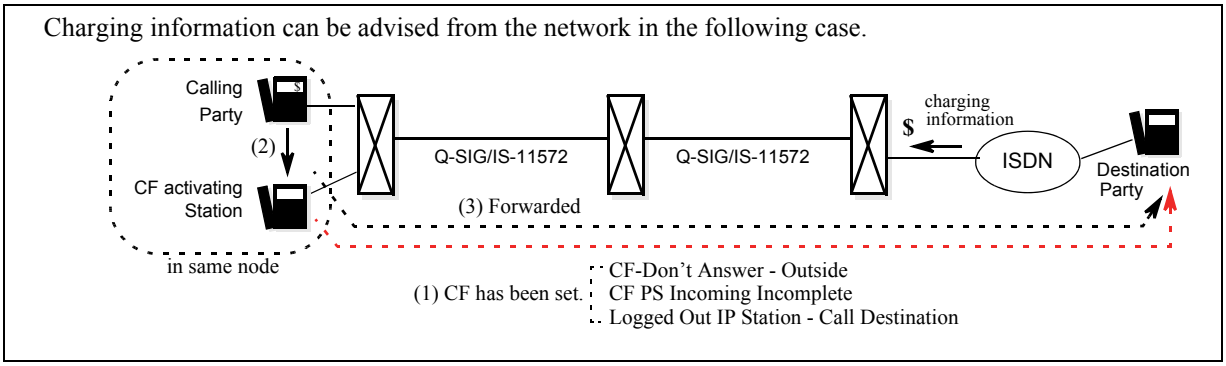
Three - way Conference and this feature



(8) When one of the following Call Forwarding features is used, this feature is valid on condition that the calling party and the Call Forwarding activating Station are accommodated in the same node. **Note 1**

- CALL FORWARDING - DON'T ANSWER - OUTSIDE [C-74]
- CALL FORWARDING PS INCOMING INCOMPLETE
- LOGGED OUT IP STATION - CALL DESTINATION [L-53]

CALL FORWARDING and this feature



Note 1: This feature is valid even if the calling party and the Call Forwarding activating Station are accommodated in other node.

(9) When Call Transfer - All Calls service/Blind Transfer Service is activated with this feature, the call charge is not sent to the Calling Station. However, when Call Transfer - All Calls is activated with this feature, the call charge is sent to the forwarding station.

(10) When Call Forwarding - Busy Line [C-2], Call Forwarding - All Calls [C-5] is activated with this feature, the call charge is sent to the Calling Station.

(11) When Call Forwarding - Don't Answer [C-5] is activated with this feature, the call charge is not sent.

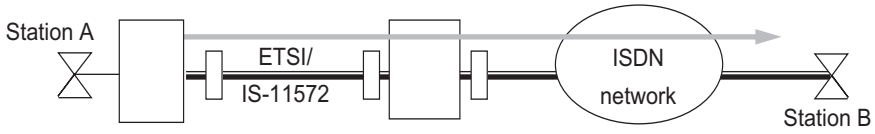
(12) When C.F. - PS Incoming Incomplete is activated with this feature, the call charge is not sent.

(13) When Calling Name Identification Presentation (CNIP)/Connected Name Identification Presentation (CONP) [C-153] is provided with this feature, the call charge is sent.

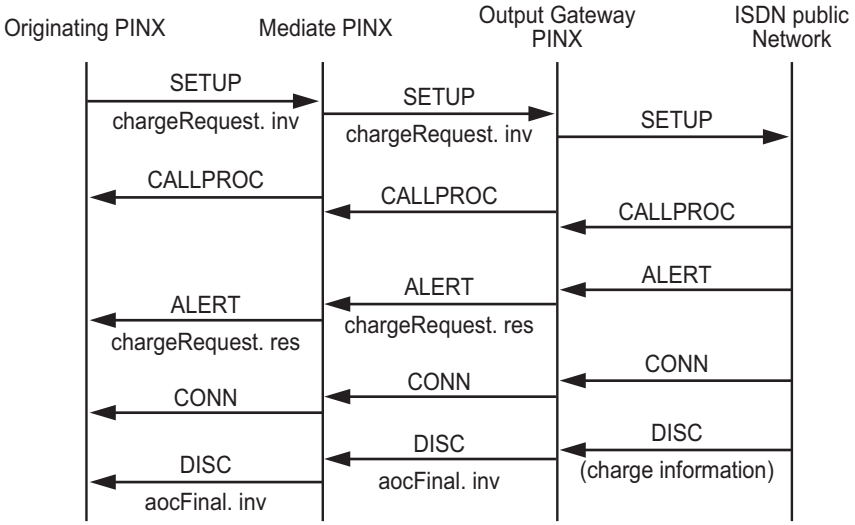
5. Example of Message Sequence

Some examples of message sequence for this service are shown below.

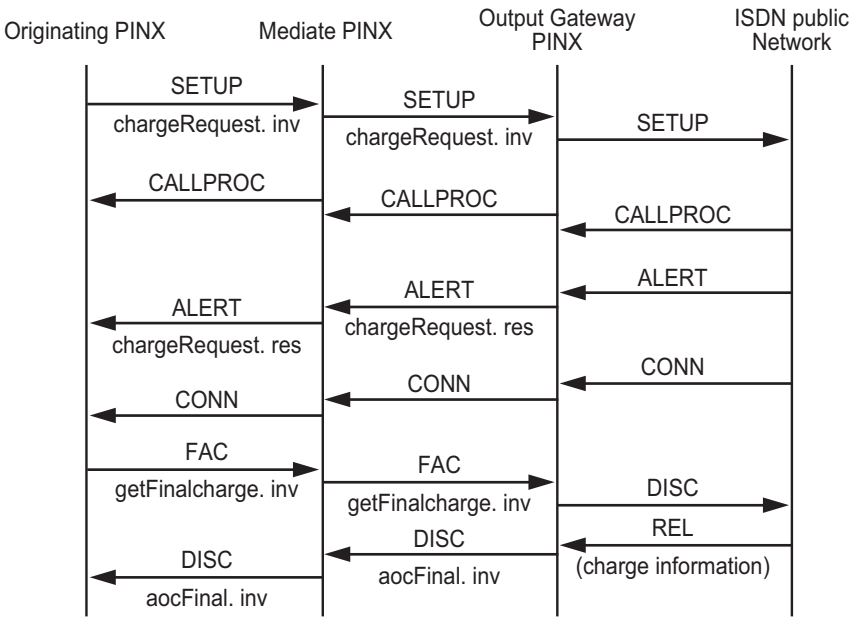
Station A calls to Station B and the two stations are connected.



(1) Message Sequence of charge information sent when the call is disconnected from a called user



(2) Message Sequence of charge information sent when the call is disconnected from a calling user



6. PROGRAMMING

STEP 1: Assign the data for establishing Q-sig/IS-11572 line referring to "Q-SIG (Circuit Switched Basic Call-ETSI Version)" or "IS-11572 (Layer 3 specifications for Inter-PBX signalling protocol)" in this chapter. Also, assign the data for STATION MESSAGE DETAIL RECORDING (SMDR) [S-10] in Data Programming Manual - Business or Station Message Detail Recording System- RS232C-PRI/PRA [S-83/S-110] in Chapter 5 of this manual.

STEP 2: ASYDL/ASYDN -System Data 1,Index 1088, b1

AOC Terminal Indication Format for EMEA: 0/1 = -/EMEA format **Note 1**

Note 1: In case of EMEA, b1 should be 1 (EMEA format), which can eliminate the display of currency unit on the LCD.

STEP 3: ASFC/ASFCN – Assign the Service Feature Restriction Class to be allowed this service to each station.

- SFI 109 (Charge Supplementary Service for ISDN), RES = 1 (In service)
- SFI 149 (Remove Display of AOC on Dterm), RES = 0
- SFI 175 (Advice of Charge Supplementary Service in Q-SIG Network), RES = 1 (In service)

[A call charge can be displayed regarding Total Billing/Split Billing, and charging information can be output to SMDR at other node by assigning the following data.]

STEP 1: ASYD/ASYDN

Sys1, Index32

b1=1 (Record Tenant Data for SMDR/CS Report)
b2=1 (Record Selected Trunk type for SMDR/CS report)
b5=1 (When Recording Called Numbers for SMDR: The ACC Code is included.)
b6=0/1 (When Recording Abbreviated Digit Codes for SMDR: The Digits are Recorded/Digits Dialed are Recorded.)
b7=1 (SMDR/CS report: In service)

Sys1, Index33

b2=0 (Recording for event-based SMDR is in service. (Fixed to 0.))
b3=1, b4=0 (Telephone subject to Total Billing: Telephone that called last. (regardless of calling party kind))
b6=0/1 (Billing for Transferred Outgoing Call: Split/Total Billing)
b7=0 (SMDR service is not used.)

Sys1, Index20

b7=0 (Billing Party for a call transferred by Call Forwarding - Outside Service: The Billing Party is the originator of the transferred call.)

Sys2, Index 3

b0=1 (SMDR service: In service)

STEP 2: ASYDL

Sys1, Index576

b2=1 (SMDR Interface Type: LAN)

Sys1, Index578 - 581

b0=1 (Centralized Billing-FCCS output text format of SMDR A-D: IMX format)
b4=0/1 (SMDR A-D Apparatus with LAN interface is used/not used.)

STEP 3: ASFC/ASFCN

SFI 14=1 (System Message Direct Recording (SMDR) - Trunk Basis: Not restricted)
SFI 149=0 (Remove Display of AOC on Dterm: Restricted)
SFI 175=1 (Advice of Charge Supplementary Service in QSIG Network: Not restricted)

STEP 4: ARTD/ARTDN

CDN 10 (SMDR) =1 (Set to the route for the Bch of Billing Subject)
CDN 16 (SMDR2) =1 (Set SMDR information in detail)
CDN 124 (AOC) =2 (AOC type information)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 5: ARTI/ARTIN

CDN 32 (SRV), b0=0 (Advice of Charge (AOC): Valid)

[A-138] ADVICE OF CHARGE - SMDR PRINTOUT

1. GENERAL DESCRIPTION

The charge information from the network is provided in the predetermined format on the external printer. Exact charge will be calculated based on the received information (Advice of Charge) and then the system prints it out.

2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: Assign the Basic data for ISDN. (Refer to CHAPTER 3.)

STEP 2: ASYD - System Data 1, Index 32,
- b1: Record Tenant Data for SMDR (Assign "1")
- b2: Record Selected Trunk type for SMDR (Assign "1")
- b7: SMDR (Assign "1")

Index 33, b3, 4: Telephone Subject to Total Billing

b4	b3		
0	0	=	Telephone which called first.
0	1	=	Telephone which called last.
1	0	=	First telephone after the call has been handled by ATT
1	1	=	Last telephone after the call has been handled by ATT

- b5: Billing for Transferred Incoming Call (0/1=Split/Total Billing)
- b6: Billing for Transferred Outgoing Call (0/1=Split/Total Billing)

Index 34, b0: SMDR RS-232C Output (0/1=Out/In Service)
Index 36: Port Designation for SMDR-Printout
Index 38: Printer Accommodation Designation
Index 44 b1-b7: Call Charge Rate per count of Metering Pulse
Index 95: Max. Duration for storing of billing data.

ASYD - System Data 2, Index 3, b0: SMDR service on a Tenant basis. (0/1=Out/In Service)

STEP 3: AIOC - Assign appropriate data in the following parameters.
PORT NO.: 0-7
TERMINAL: PRINTER
SPEED: (Assign appropriate data)
PARITY BLT: (Assign appropriate data)
CHARACTER Bit: (Assign appropriate data)

STEP 4: ASFC - Remove restriction. SFI14 (SMDR-Trunk Basis)=1

STEP 5: ARTD - Assign the following Route Class Data.
CDN 10 (SMDR) Detailed Billing Information (Set the parameter to 1 to enable SMDR)
CDN 16 (SMDR2) Detailed Billing Information (Specify the call type for the billing data.)
CDN 65 (INT) Interface Specification (For ISDN)
(Choose "4" or "6" according to the system in use.)
4 = PRI (ITU-T/ETSI)
6 = BRI (ITU-T/ETSI)
Other values = Invalid
CDN 124 (AOC) Type of Advice of Charge
(Choose "0" or "1" according to the system in use.)
0 = Destination office complies with ETSI specification (*AOC3*01#)
1 = Destination office complies with ITU-T specification (*29#)
2, 3 = Not used

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 6: ARTI - Assign the following Trunk Application Data.
CDN 32 (SRV) Additional Service Selection
b0 = Advice of Charge (AOC) (Set the parameter to 0 to enable Advice of Charge.)
CDN 89 (REGION) Selection of ISDN Interface (Set the parameter to 0 to specify no ISDN interfaces.)

[E-33] ETSI ADVICE OF CHARGE: CHARGING INFORMATION AT THE END OF THE CALL (AOC-E)

1. GENERAL DESCRIPTION

This feature allows the Calling Station that originates a call to the ISDN network to display charging information (Call Rate or Call Unit) sent from the ISDN network on its LCD (Only Call Rate can be displayed on the LCD). The charging information is sent from the network at the end of the call. The charging information can also be outputted to SMDR.

The following table shows the specifications of the charging information in each country:

Country	ETSI	ITU-T	CEPT	Request when setting up a call	Remarks
Italy	-	-	a portion of code set 6	None	Charge Advice Information Element
Austria	Special Units	-	-	None	Facility Information Element
The Netherlands	-	Units	-	None	Display Information Element
Greece	Units Currency	Units	code set 6	None	Facility/Display/Charge Advice Information Element
Switzerland	-	currency	-	None	Display Information Element
Sweden	-	-	code set 5	None	Charge Advice Information Element
Spain (Telefonica)	-	-	code set 5	None	Metering Information Element
Denmark	Currency	-	-	None	Facility Information Element
Germany	Units	-	-	None	Facility Information Element
Belgium	Currency	-	-	None	Facility Information Element
Portugal	-	Units	-	None	Display Information Element
Luxembourg	-	Units	-	None	Display Information Element
United Arab Emirates (UAE)	-	Units	-	None	Display Information Element

The following table classifies the specifications of each country by information elements:

	Information Element to be sent from network	Charge Information	Recommendation
ITU-T	Display Information Element	Call Rates or Call Units	*ITU-T Q.931*

	Information Element to be sent from network	Charge Information	Recommendation
ETSI	Facility Information Element	Call Rates or Call Units	*ETS 300 182 August 1993*
CEPT	Charge Advice Information Element and Metering Information Element	Call Units	

Note: When displaying Call Units (Unit), it is necessary to specify the billing amount per Call Unit by ACODL/ACODN command.

2. OPERATING PROCEDURE

No manual operation is required once this feature has been programmed.

3. SERVICE CONDITIONS

(1) This feature is available for both ETSI ISDN Basic Rate Interface (BRI) and ETSI ISDN Primary Rate Interface (PRI).

(2) This feature does not need any procedure to request the AOC-E service when setting up a call (when SETUP signal is sent to ISDN network).

(3) When "DISCONNECT" or "RELEASE" message is received from the ISDN network, the system checks whether charging information is included in the messages or not, regardless of the call status. If the charging information is included in these messages, the system provides notification of the charging information. (Only information element matching the country information corresponding to RT is available. Information element that does not match the country information is abandoned.)

(4) This feature does not support AOC-D service. Charging information sent from the ISDN network during a call is abandoned by the system.

(5) If no charging information is sent from the ISDN network due to the network condition, this feature is not activated.

(6) Desktop terminal LCD displays the charging information sent from the ISDN network when a call is disconnected (Only Call Rate information can be displayed on the LCD). The following terminals cannot display the charging information:

- Analog Telephone
- ISDN terminal
- PS
- SP Controlled SIP terminal
- Terminal without LCD

(7) A terminal's LCD displays characters used for the following feature if AOC-E and one of the following are set. Those features take priority over AOC-E.
   (a) Off-Hook Line
   (b) Off-Hook Line Number Display -D (US)

(8) A terminal's LCD displays the following information if AOC-E and one of the following are set:
   (a) Name Display
   Name Display is displayed in five seconds after calling or when a call is picked up. If characters available for Name Display is specified to 16 digits (ASYD SYS1 INDEX241 Bit1=1), Name Display and AOC-E both will be displayed.
   (b) Calling/Called Number Display
   Calling/Called Number Display is displayed in five seconds after calling or when a call is picked up.

(9) A terminal does not display charging information in the following conditions:
   - ISDN side releases the call during three-way calling.
   - The station is set as a target of Call Back -D via ISDN.

(10) Currency mark is not indicated on the LCD. Maximum number of digits for the charging information display is 7. If the charging information exceeds 7 digits, "99999.99" will be displayed.

(11) Although charging information is sent from the ISDN network in the unit of 0.1 cent (minimum), the terminal displays the received charging information in the unit of 1 cent. In this case, the digit of 0.1 cent is carried over to the digit of 1 cent.

(a) When "¢22.0" is received from the ISDN network:

(LCD display)

_ _ _ _ 0 . 2 2

The digit of 0.1 cent = 0 → discard the digit

(b) When "¢22.3" cent is received from the ISDN network

(LCD display)

_ _ _ _ 0 . 2 3

Delete digit of 0.1 cent
→ Add "1" to the digit of 1 cent

(12) AOC-E information is outputted to SMDR as "ISDN charging notification information".

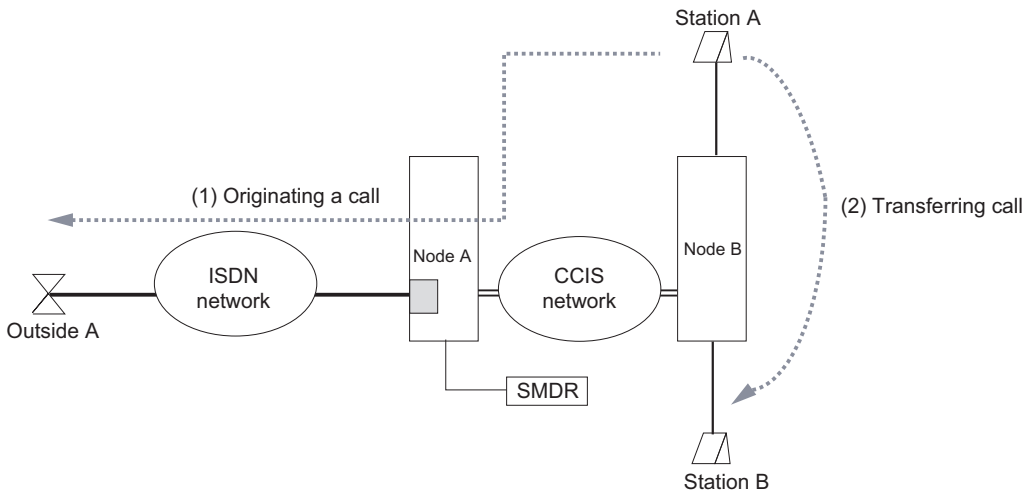
(13) Maximum number of digits for the charging information to be output to SMDR is 6.

(14) Split Billing is not available for a transferred call or Attendant assistance call because the system receives the charge information from the ISDN network at the end of the call. In this case, Total Billing must be used. The terminal to be targeted for Total Billing is determined by the data assignment of the system data [ASYD, SYS1, Index 33, Bits 3 and 4.] **Note 1**

Note 1: The terminal to be targeted for Split Billing will be the terminal that talked last, regardless of this data assignment.

(15) This feature can be activated as usual in the system using Dial Plan to support IP Centrex Functionality [D-166] or FCCS Over Multiple Program Versions.

(16) When the calling party originates a call to ISDN from CCIS (through tandem connection), the following conditions are applied. Tandem connection via CCIS is supported in AOC-E.



- This feature is available in peer-to-peer CCIS only.

- Charging information will be stored and managed at an originating node (***Node A***) in the ISDN side. It is only stored at any node in the CCIS side.
- A terminal originating a call from CCIS will be charged. The charging information will be displayed in the originating terminal (***Station A***) during the calling.
- If calling party transfers a call to another terminal in CCIS [See (2) in the diagram], the last terminal picking up the call will be charged. The charging information will be displayed in a terminal transferred the call (***Station B***) during the calling. The charging information will not be displayed in the terminal completed call transfer (***Station A***).
- In connection via CCIS, ACE information flag (AOC-E charging information) will be included in IAI, ACM, AND, and TRM messages. The SMDR uses ACE information to calculate the amount of the bill when the call is released.

4. FORMAT OF INFORMATION ELEMENT

The following shows the formats of each Information Element:

IAI Message

8	7	6	5	4	3	2	1	octet
		Length Indicator (LI)						
Service Information Octet (SIO)								
Destination Point Code (DPC)								
Originating Point Code (OPC)								
Circuit Identification Code (CIC)								
H1=2				H0=1				
	em	CPC						
n+1								
1				DC0				
3				2				
5				4				
7				6				
--- Omitted ---								
n				DCn-1				
b7	b6	b5	b4	b3	b2	b1	b0	First Indicator Octet
Additional Calling Party Information								
Additional Routing Information								
Calling Line Identity								
Original Address								
Charging Information								
Service Information **Note 1**								Enabled when First Indicator Octet Bit5=1.
Attribute of Originating Terminal								
Second Indicator Octet								

Note 1: A format of Service Information is as follows:

CAL							CALN
n							
SPARE						ACE	CFOCT

ACM Message

8	7	6	5	4	3	2	1	octet
		Length Indicator (LI)						
Service Information Octet (SIO)								
Destination Point Code (DPC)								
Originating Point Code (OPC)								
Circuit Identification Code (CIC)								
H1=1				H0=4				
em*	b6	b5	b4	b3	b2	b1	b0	} First Indicator Octet
NAME [0]								- em: Extended Zone
--- Omitted ---								
RM [68]								
RM [69]								
SPARE							ACE	} Second Indicator Octet

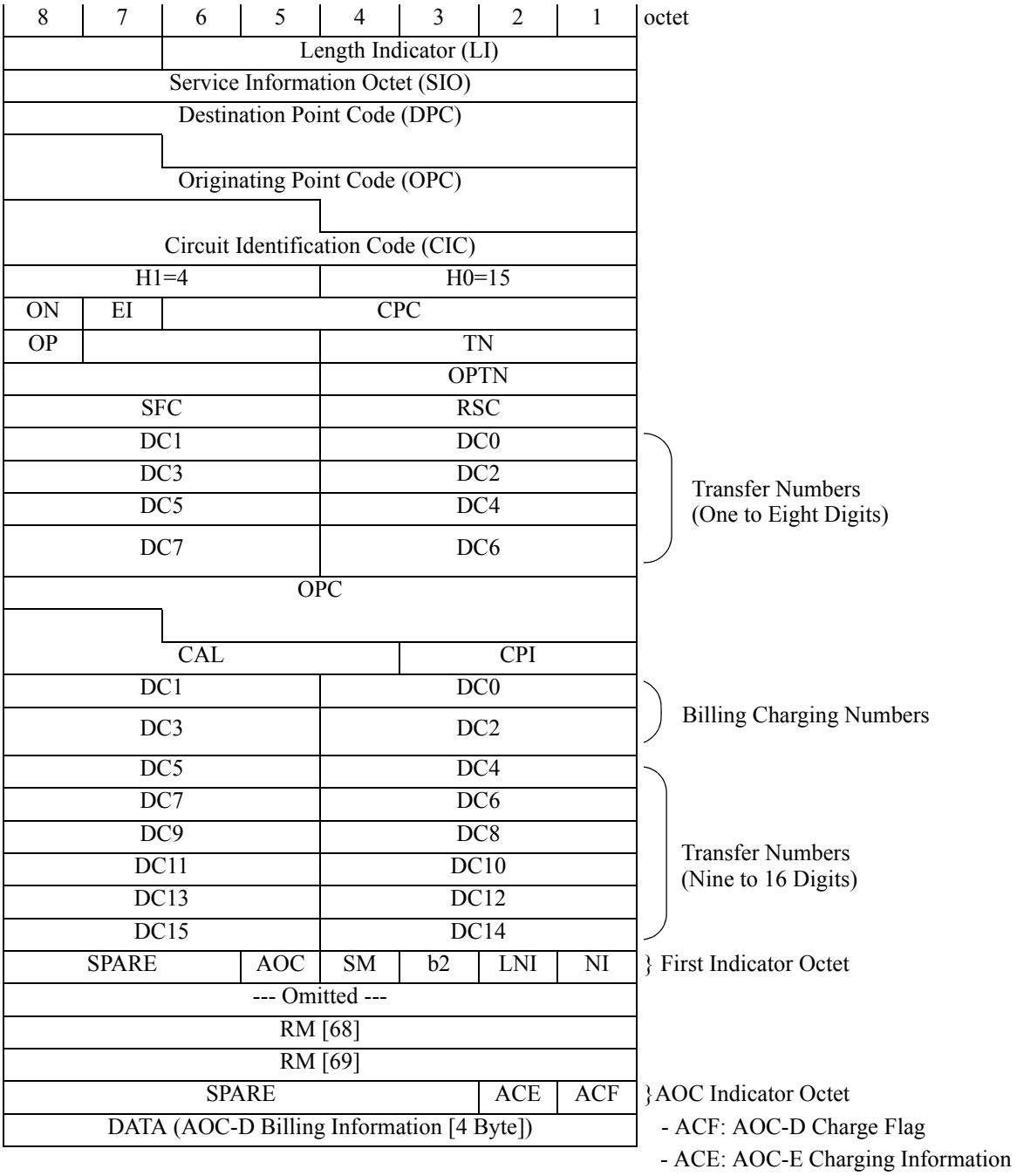
- ACE : AOC-E Charging Information

AND Message

8	7	6	5	4	3	2	1	octet
Length Indicator (LI)								
Service Information Octet (SIO)								
Destination Point Code (DPC)								
Originating Point Code (OPC)								
Circuit Identification Code (CIC)								
H1=2				H0=15				
OP				TN				
OPTN								
SFC				RSC				
1				DC0				
3				2				
5				4				
7				6				
PC								
CAL				CPI				
OP				TN				
OPTN								
SFC				RSC				
1				DC0				
3				2				
5				4				
7				6				
PC								
			b4	b3	b2	b1	b0	} First Indicator Octet
--- Omitted ---								
RM [68]								
RM [69]								
					ACE	SM	ACF	} AOC Indicator Octet
DATA (AOC-D Billing Information [4 Byte])								- ACF: AOC-D Charge Flag

- SM: AOC-D SMDR Change Notification
- ACE: AOC-E Charging Information

TRM Message


8 7 6 5 4 3 2 1 octet
Length Indicator (LI)
Service Information Octet (SIO)
Destination Point Code (DPC)
Originating Point Code (OPC)
Circuit Identification Code (CIC)
H1=4
H0=15
ON
EI
CPC
OP
TN
OPTN
SFC
RSC
DC1
DC0
DC3
DC2
DC5
DC4
DC7
DC6
Transfer Numbers
(One to Eight Digits)
OPC
CAL
CPI
DC1
DC0
DC3
DC2
Billing Charging Numbers
DC5
DC4
DC7
DC6
DC9
DC8
DC11
DC10
DC13
DC12
DC15
DC14
Transfer Numbers
(Nine to 16 Digits)
SPARE
AOC
SM
b2
LNI
NI
} First Indicator Octet
--- Omitted ---
RM [68]
RM [69]
SPARE
ACE
ACF
}AOC Indicator Octet
DATA (AOC-D Billing Information [4 Byte])
- ACF: AOC-D Charge Flag
- ACE: AOC-E Charging Information

Display Information Element

8	7	6	5	4	3	2	1	octet
0	Display(0x28) 0 0 1 0 1 0 0 0 Information Element Identifier							1
Length of Display Contents								2
0	Display Information (IA5 Characters)							3

Facility Information Element

8	7	6	5	4	3	2	1	octet
0	Facility(0x1c) 0 0 0 1 1 1 0 0 Information Element Identifier							1
Length of Facility Contents								2
1 ext	0 0 Spare		Service Discriminator					3
1 class	0	1 form	Component tag					4
0 Length format	Length of Component							5
Component Contents								6

Charge Advice Information Element

8	7	6	5	4	3	2	1	octet
codeset #5 or #6								
0	ChargeAdvice(0x1A) 0 0 0 1 1 0 1 0 Information Element Identifier							1
Length of ChargeAdvice Contents (2-6)								2
ext	Coding		1	0	Type Of Charge			3
ext	Charging Period							4
ext	Charging Period Multiplier							5
UT1								6
UT2								7
UT3								8

5. INFORMATION ELEMENT OF EACH COUNTRY

Greece

a. Display Information Element

(1) Display Information Element sent from the ISDN network is configured as follows:

DISPLAY Information Element = 28H	
Length of Information Element = 7-7 + n	
UT1	UT1-UTn: IA5 strings [0-9, up to 6 digits (0-999999)]
≀	
UTn	
“Space”	
“U”	
“N”	
“I”	
“T”	
“S”	

(2) UT (Call Unit) sent from the ISDN network is 0-999999.

b. Facility Information Element (Currency)

(1) Facility Information Element (Currency) sent from the ISDN network is configured as follows: (Same as Australia)

Facility Information Element=1C		
Length of Information Element (29-32)		
ext=1	Spare	Service discriminator=11H
class=2	form=1	**Invoke Component tag=01H**
*1	invoke comp length (1-2)	
Invoke component		
class=0	form=0	**Operation tag=02H**
*1	Length of Operation Information Element (1)	
Operation=23H(AOCECurrencyInfo)		
AOCECurrencyInfo TAG		
Length of Information Element (14)		
specificCurrency TAG		
Length of Information Element (12)		
recordedCurrency TAG		
Length of Information Element (13-15)		
Currency TAG		
Length of Information Element (3)		
IA5="X"		
IA5="X"		
IA5="X"		
rAmount TAG		
Length of Information Element (3-5)		
CurrencyAmount TAG		
Length of Information Element (1-3)		
Currency(INTEGER 0... 16777215)		
Multiplier TAG		
Length of Information Element (1)		
multiplier		
aOCEBillingId TAG		
Length of Information Element (1)		
aOCEBillingId		

*1 Length format=0

```
Multiplier ::= ENUMERATED {
  oneThousandth (0),
  oneHundredth (1),
  oneTenth (2),
  one (3),
  ten (4),
  hundred (5),
  thousand (6)}
aOCEBillingId ::= ENUMERATED {
  normalCharging (0),
  reverseCharging (1),
  creditCardCharging (2),
  callForwardingUnconditional (3),
  callForwardingBusy (4),
  callForwardingNoReply (5),
  callDeflection (6),
  callTransfer (7)}
```

(2) Currency unit is notified by "currency".
ex: Australian dollars → "AUD"
Danish krones → "KR."

(3) Charging Information = CurrencyAmount × Multipler
(Maximum value of CurrencyAmmount: 16,777,215)

c. Facility Information Element (UNIT)

(1) Facility Information Element (UNIT) sent from the ISDN network is configured as follows:

Facility Information Element=1C			
Length of Information Element (17-49)			
ext=1	Spare		Service discriminator=11H
class=2	form=1	**Invoke Component tag=01H**	
*1	Length of invoke comp Information Element (1-2)		*1 Length format=0
Invoke component			
class=0	form=0	**Operation tag=02H**	
*1	Length of Operation Information Element (1)		*1 Length format=0
Operation=24H(AOCE Charging Unit)			
AOCEChargingUnitInfo TAG			
Length of Information Element (5-36)			aOCEBillingId ::= ENUMERATED {
specificChargingUnits TAG			normalCharging (0),
Length of Information Element (3-34)			reverseCharging (1),
recordedUnitList TAG			creditCardCharging (2),
Length of Information Element (1-32)			callForwardingUnconditional (3),
recordedUnits			callForwardingBusy (4),
aOCEBillingId TAG			callForwardingNoReply (5),
Length of Information Element (1)			callDeflection (6),
aOCEBillingId			callTransfer (7)}

(2) Charging Information = recorded UnitList (UT (Call Unit)) × Amount assigned on ACODL/N command

(3) recorded UnitList (UT (Call Unit)): Maximum value of the ISDN network side is available. (1-FFFFFFh)

d. Charge Advice Information Element

(1) Charge Advice Information Element sent from the ISDN network is configured as follows:

CODESET # 6				
ChargeAdvice Information Element=1AH				
Length of Information Element (2-6)				
ext	Coding	1	0	Type Of Charge
ext	Charging Period			
ext	Charging Period Multiplier			
UT1				
UT2				
UT3				

(2) Charging Period and Charging Period Multiplier are ignored.
Only UTs (Call Unit) of UT1-UT3 are sent to MP.

(3) UT (Call Unit): Maximum value of the ISDN network side is available. (1-FFFFFFh)

Australia

Basically same as Greece [Facility Information Element (units)].
UNIT information: Fixed to 3 bytes (high-order byte is indicated as "0".)

Germany

Same as Greece [Facility Information Element (units)].

Denmark

Same as Greece [Facility Information Element (currency)].

Belgium

Same as Greece [Facility Information Element (currency)].

United Arab Emirates (UAE)

a. Display Information Element

(1) Display information element sent from the ISDN network is as follows:

DISPLAY Information Element = 28H	
Length of Information Element = 3-8	
“Space”	
UT1	UT1-UTn: IA5 strings [0-9, up to 6 digits (0-999999)]
≀	
UTn	
“#”	

(2) UT (Call Unit) sent from the ISDN network is 0~999999.

Switzerland

a. Display Information Element

(1) Display information element sent from the ISDN network is configured as follows:

DISPLAY Information Element = 28H	
Length of Information Element = 8	
“F”	
“R”	
“.”	
“Space”	
CURRENCY1	CURRENCY1-CURRENCY4: IA5 strings [0-9, up to 4 digits (0.00-9.99)]
≀	
CURRENCY4	

(2) Currency (Call Rate) sent from the ISDN network is 0.00-9.99.
Currency (Call Rate) includes decimal point (ASCII "0x2e").
ex: “DISCONNECT” message including the display information of “FR. 0.40” is as follows:
02012a26
0802df00 45080280 901e0282 88280846
522e2030 2e3430

Portugal

a. Display Information Element

(1) Display Information Element sent from the ISDN network is configured as follows:

DISPLAY Information Element = 28H	
Length of Information Element = 12-17	
“I”	
“M”	
“P”	
“U”	
“L”	
“S”	
“O”	
“S”	
“Space”	
“=”	
“Space”	
UT1	UT1-UTn: IA5 strings [0-9, up to 6 digits (0-999999)]
≀	
UTn	

(2) UT (Call Unit) sent from the ISDN network is 0-999999.

The Netherlands

a. Display Information Element

(1) Display Information Element sent from the ISDN network is configured as follows:

DISPLAY Information Element = 28H	
Length of Information Element = 6-11	
"N"	
"4"	
"0"	
"*"	
UT1	UT1-UTn: IA5 strings [0-9, up to 6 digits (0-999999)]
≀	
UTn	
"#"	

(2) UT (Call Unit) sent from the ISDN network is 0-999999.

Luxembourg

Same as Greece (Display Information Element).

Italy

Same as Greece [Charge Advice Information Element (units)].

Spain

a. Charge Advice Information Element

(1) Metering Information Element sent from the ISDN network is configured as follows:

CODESET # 5				
Metering Information Element=1AH				
Length of Information Element (2-6)				
ext	Coding	1	0	Type Of Charge
ext	Charging Period			
ext	Charging Period Multiplier			
UT1				
UT2				
UT3				

(2) Charging Period and Charging Period Multiplier are ignored.
Only UT (Call Unit) information of UT1-UT3 are sent to MP.

(3) UT (Call Unit): Maximum value of the ISDN network side is available. (1-FFFFFFh)

Sweden

a. Charge Advice Information Element

(1) Charge Advice Information Element sent from the ISDN network is configured as follows:

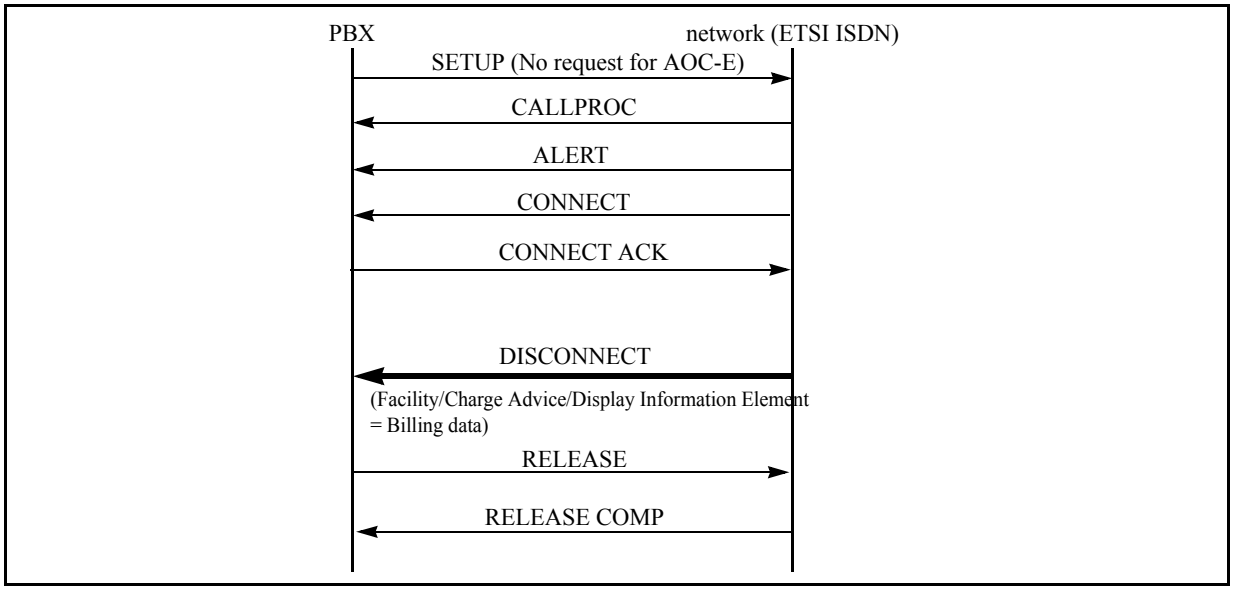
CODESET # 5				
ChargeAdvice Information Element=1AH				
Length of Information Element (2-6)				
ext	Coding	1	0	Type Of Charge
ext	Charging Period			
ext	Charging Period Multiplier			
UT1				
UT2				
UT3				

(2) Charging Period and Charging Period Multiplier are ignored.
Only UT (Call Unit) information of UT1-UT3 are sent to MP.

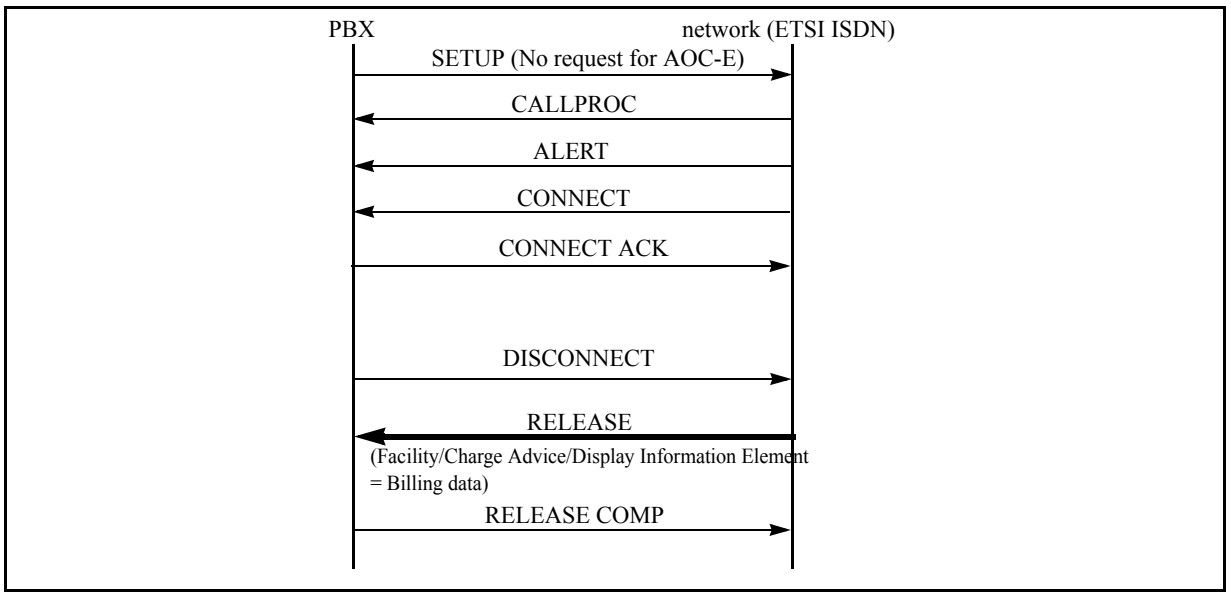
(3) UT (Call Unit): Maximum value of the ISDN network side is available. (1-FFFFFFh)

6. MESSAGE SEQUENCE

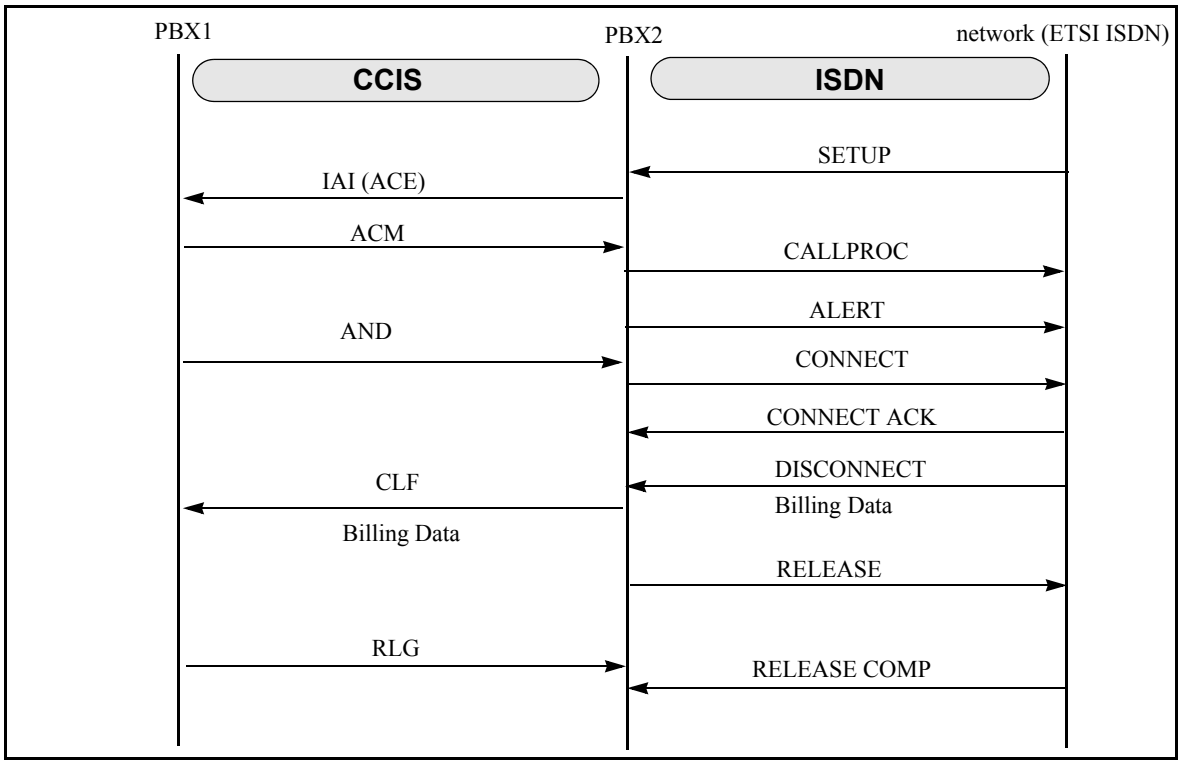
- When the telephone on the network side goes on-hook:



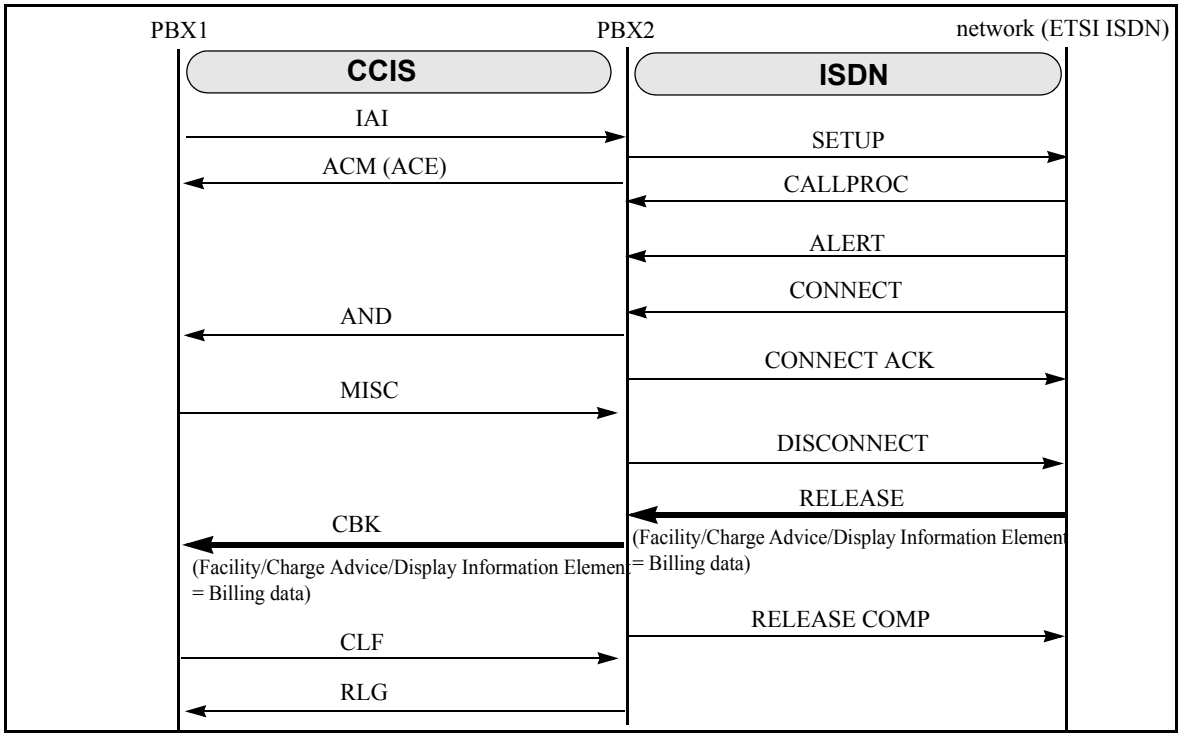
- When the calling party (PBX side) goes on-hook:



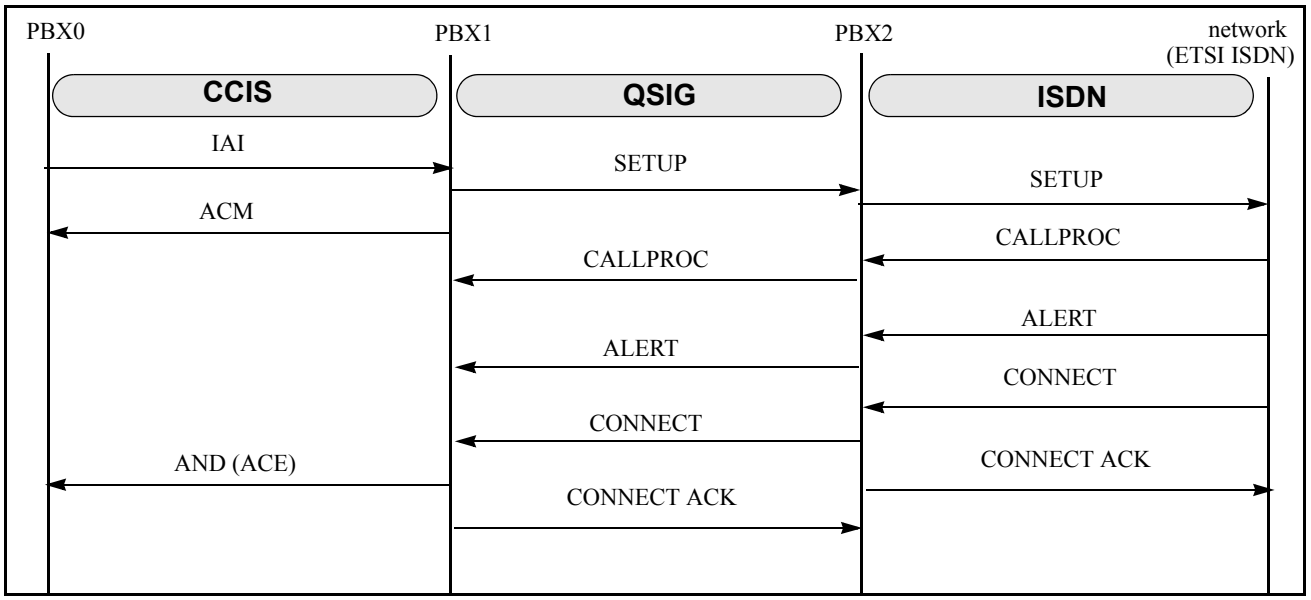
- When the telephone on the network side goes on-hook in tandem connection:



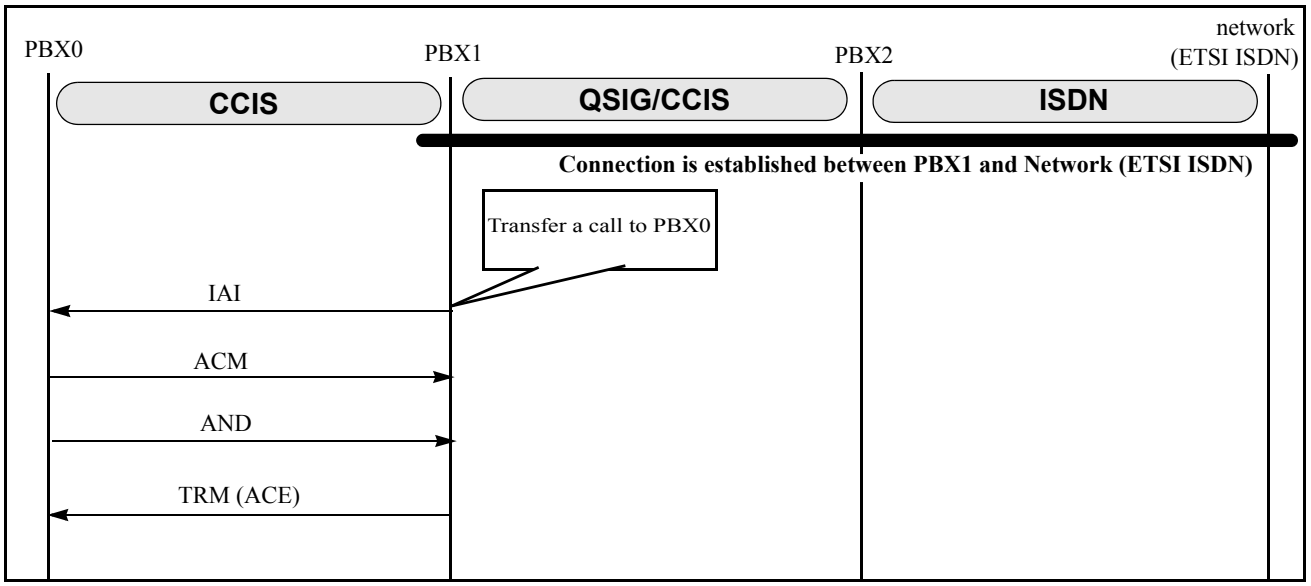
- When the calling party (PBX side) goes on-hook in tandem connection:



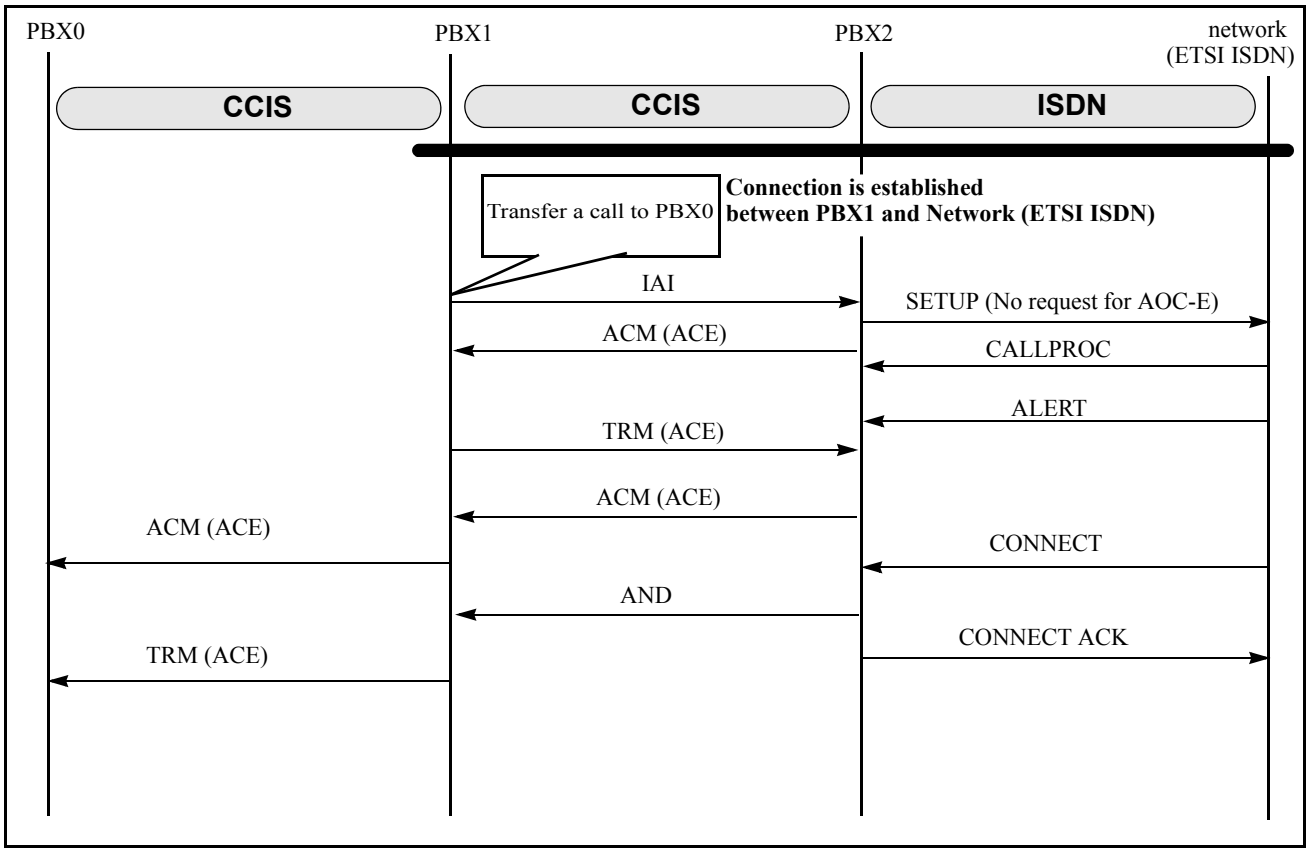
- When the calling party (PBX 0 side) originates a call to Network (ETSI ISDN):



- When the calling party (PBX 1 side) transfer a call to PBX0 by Call Transfer - All Calls:



- When the calling party (PBX 1 side) transfer a call to Network by Blind Transfer to Station:



7. PROGRAMMING

For the data assignment, refer to **[E-36]** ETSI ADVICE OF CHARGE: CHARGING INFORMATION DURING THE CALL (AOC-D).

[E-36] ETSI ADVICE OF CHARGE: CHARGING INFORMATION DURING THE CALL (AOC-D)

1. GENERAL DESCRIPTION

When outgoing call is made to ISDN line, this feature provides the caller with the charging information display during the call and at the end of the call. Received charging information from ISDN is displayed on the LCD of Desktop terminal and can be output to SMDR. Whether the charging information is displayed or not is specified on a station basis.

1.1 AOC-D Basic Function

<Specifications>

This feature is supported based on the following recommendation/specifications:

- AOC supplementary service specified in ETSI ETS 300 182 ISDN
- ITU-T Q.931 AOC based display to receive textual AOC information
- CEPT AOC based display for AOC-E and COLP Rev4 specified in CEPT 130.11.05.01

<Charging Information Received in the Message of ISDN Format>

Charging information (Currency or Units) is received from ISDN network in the signaling message during the call and at the end of the call. See the table below for the specifications and the charging information element received from ISDN in each country.

COUNTRY	MESSAGE TYPE	INFO. ELEMENT	CHARGING INFO. TYPE	OPERATION VALUE	RECOMMENDATION/ SPECIFICATIONS
Greece	FACILITY	facility	Currency	AOCDCurrency	*ETSI ETS 300 182*
			Units	AOCDChargingUnit	
	INFORMATION	ChargeAdvice	Units	codeset 6	*CEPT 130.11.05.01 Rev04*
		display	Units	-	*ITU-T Q.931*
Netherlands	INFORMATION	display	Units	-	*ITU-T Q.931*
Belgium	FACILITY	facility	Currency	AOCDCurrency	*ETSI ETS 300 182*
Spain	INFORMATION	ChargeAdvice	Units	codeset 5	*CEPT 130.11.05.01 Rev04*
Italy	INFORMATION	Charge Advice	Units	codeset 6	*CEPT 130.11.05.01 Rev04*
Switzerland	INFORMATION	display	Currency	-	*ITU-T Q.931*
Austria	FACILITY	facility	Units	AOCDChargingUnit	*ETSI ETS 300 182*
Denmark	FACILITY	facility	Currency	AOCDCurrency	*ETSI ETS 300 182*
Sweden	INFORMATION	ChargeAdvice	Units	codeset 5	*CEPT 130.11.05.01 Rev04*
Germany	FACILITY	facility	Units	AOCDChargingUnit	*ETSI ETS 300 182*
Portugal	INFORMATION	display	Units	-	*ITU-T Q.931*
Luxembourg	INFORMATION	display	Units	-	*ITU-T Q.931*
United Arab Emirates (UAE)	INFORMATION	display	Units	-	*ITU-T Q.931*

1.2 AOC-D with Call Transferring and Call Forwarding

Call charge for ISDN outgoing call can be displayed and output to SMDR when transferring/forwarding the call to other party. Transferred/Forwarded destination can receive the charging information (Currency or Units) from ISDN, too.
Total Billing or Split Billing is selected by the system data. Who is subject to the call charge (call originator or transfer setting station) is assigned in Total Billing for call transferring/forwarding features.

<Specifications>

This feature is supported based on the following recommendation/specifications:

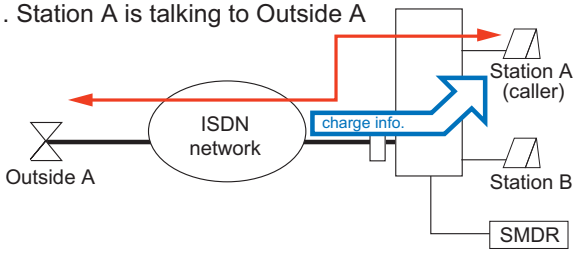
- AOC supplementary service specified in ETSI ETS 300 182 ISDN
- ITS-T Q.931 AOC based display to receive textual AOC information
- CEPT AOC based display for AOC-E and COLP Rev4 specified in CEPT 130.11.05.01
- CEPT AOC based display for AOC-D info on terminal V2.0 specified in CEPT 130.11.05.50
- CEPT AOC based display for AOC-D info in SMDR V1.0 specified in CEPT 130.11.05.51

<Example Connections>

Call charge display on Desktop terminal and output data for SMDR vary depending on the connection pattern and the billing type; Total Billing or Split Billing. See the following examples:

(a) Call Transfer from Station A to Station B

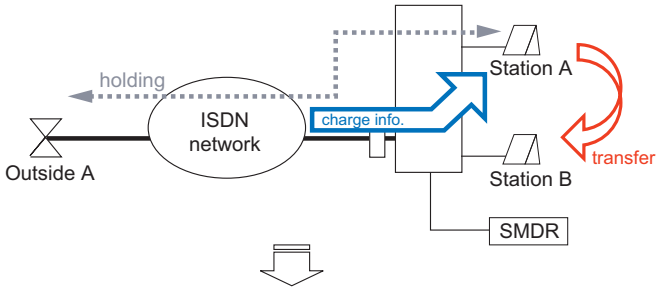
1. Station A is talking to Outside A



Charge information “100” is informed:

	Station A	Station B	SMDR
Split Billing	100	-	-
Total Billing (first caller)	100	-	-
Total Billing (last calling station	100	-	-

2. Station A goes hooking and transfers the call to Station B

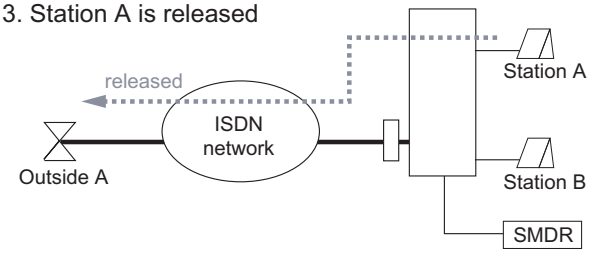


Charge information “200” is informed:

	Station A	Station B	SMDR
Split Billing	Not displayed	-	-
Total Billing (first caller)	Not displayed	-	-
Total Billing (last calling station)	Not displayed	-	-

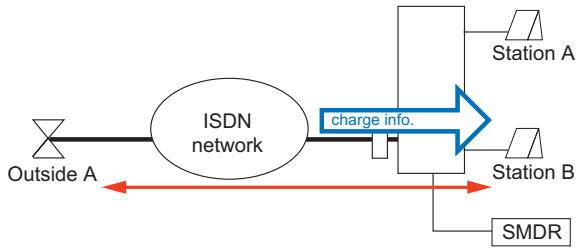
continued on the next page

3. Station A is released



	Station A	Station B	SMDR
Split Billing	200	-	200 (charge to Station A)
Total Billing (first caller)	Not displayed	-	-
Total Billing (last calling station)	Not displayed	-	-

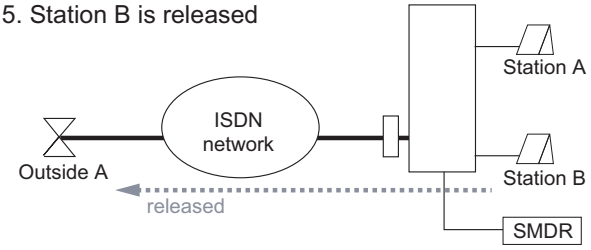
4. Station B and Outside A are talking



Charge information “300” is informed:

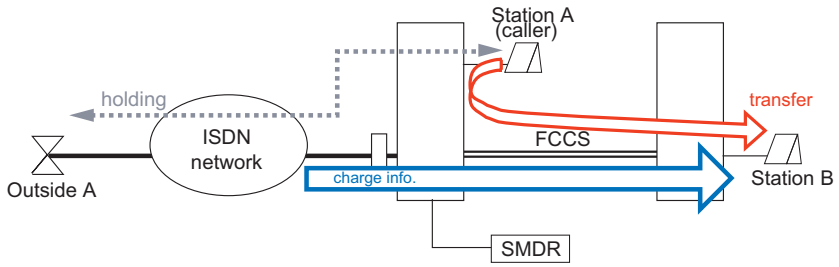
	Station A	Station B	SMDR
Split Billing	-	100	-
Total Billing (first caller)	-	-	-
Total Billing (last calling station)	-	300	-

5. Station B is released



	Station A	Station B	SMDR
Split Billing	-	-	100 (charge to Station B)
Total Billing (first caller)	-	-	300 (charge to Station A)
Total Billing (last calling station)	-	-	300 (charge to Station B)

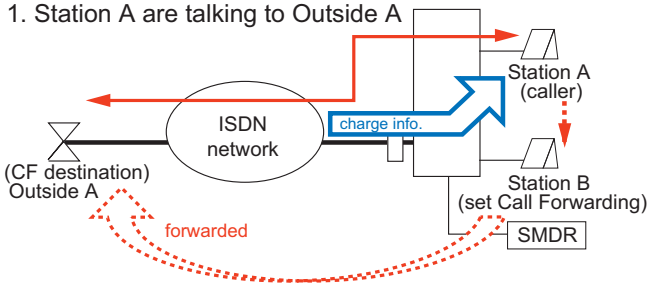
(b) Call Transfer from Station A to Station B (in FCCS network)



Note: Call charge is displayed on the stations and SMDR in the same way as the connection pattern (a).

(c) Call Forwarding from Station B to Outside A

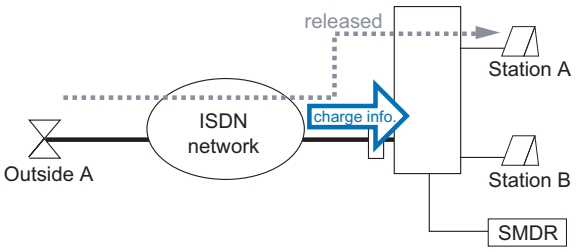
1. Station A are talking to Outside A



Charge information "100" is informed:

	Station A	SMDR
Split Billing/ Total Billing (caller)	100	-
Split Billing/ Total Billing (CF set station)	Not displayed	-

2. DISCONNECT message is received from ISDN network

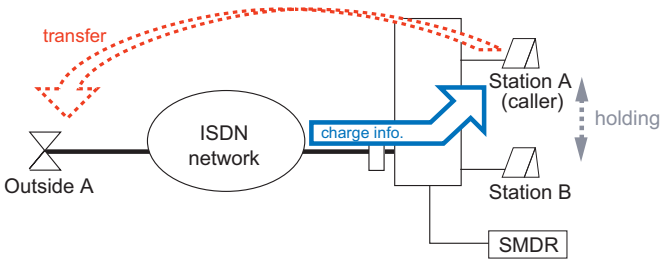


Charge information "100" is informed:

	Station A	SMDR
Split Billing/ Total Billing (caller)	200	200 (charge to Station A)
Split Billing/ Total Billing (CF set station)	Not displayed	200 (charge to Station B)

(d) Call Transfer from Station A to Outside A

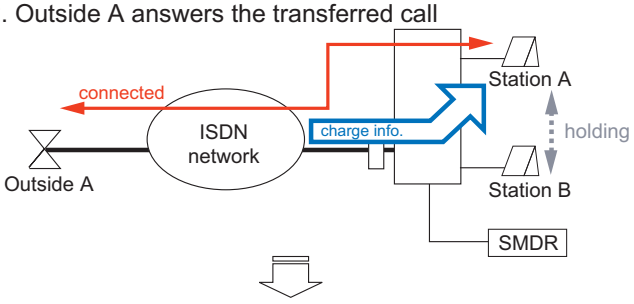
1. Station A transfers to Outside A during the call with Station B



Charge information "100" is informed:

	Station A	Station B	SMDR
Split Billing	Not displayed	-	-
Total Billing (first caller)	Not displayed	-	-
Total Billing (last calling station)	Not displayed	-	-

2. Outside A answers the transferred call

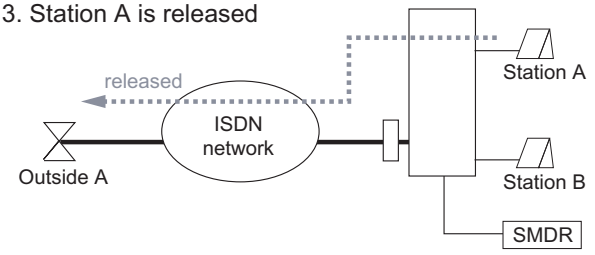


Charge information "200" is informed:

	Station A	Station B	SMDR
Split Billing	Not displayed	-	-
Total Billing (first caller)	Not displayed	-	-
Total Billing (last calling station)	Not displayed	-	-

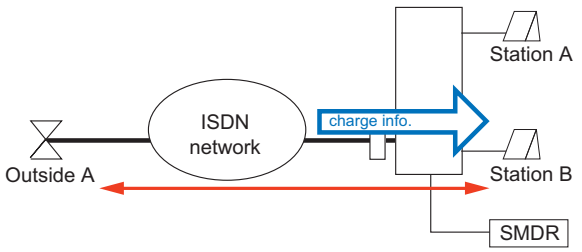
continued on the next page

3. Station A is released



	Station A	Station B	SMDR
Split Billing	200	-	200 (charge to Station A)
Total Billing (first caller)	Not displayed	-	Not output
Total Billing (last calling station)	Not displayed	-	Not output

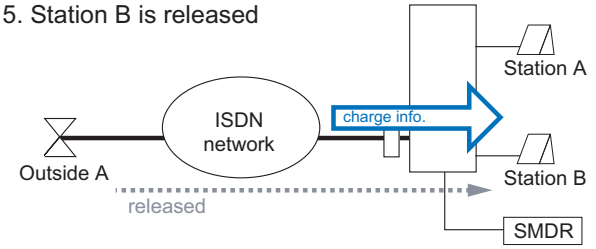
4. Station B and Outside A are talking



Charge information “300” is informed:

	Station A	Station B	SMDR
Split Billing	-	100	-
Total Billing (first caller)	-	-	-
Total Billing (last calling station)	-	300	-

5. Station B is released

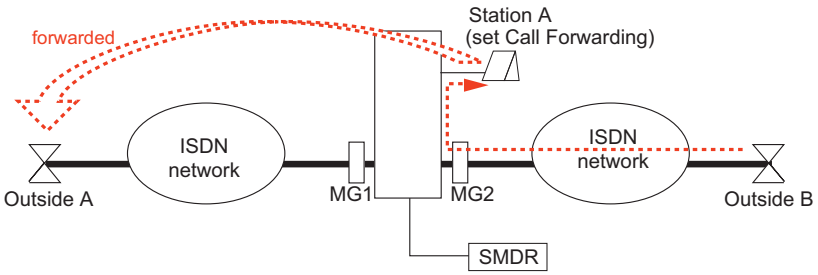


DISCONNECT (including charge information “400”) is informed:

	Station A	Station B	SMDR
Split Billing	-	200	200 (charge to Station B)
Total Billing (first caller)	-	Not displayed	400 (charge to Station A)
Total Billing (last calling station)	-	400	400 (charge to Station B)

(e) Call Forwarding from Station A to Outside A for incoming call from Outside B

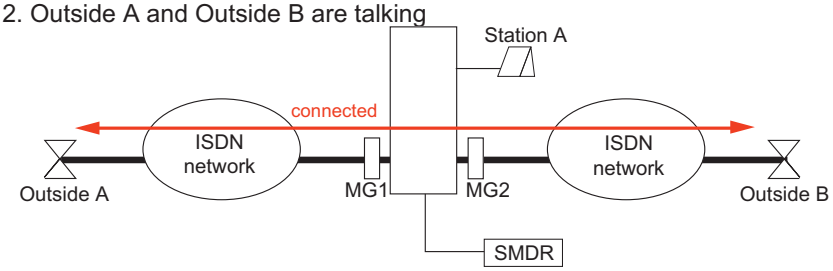
1. Outside B originates a call to Station A, and Call Forward is activated on Station A to Outside A



Charge information “100” is informed:

	SMDR output
Split Billing/Total Billing (caller)	-
Split Billing/Total Billing (CF set station)	-

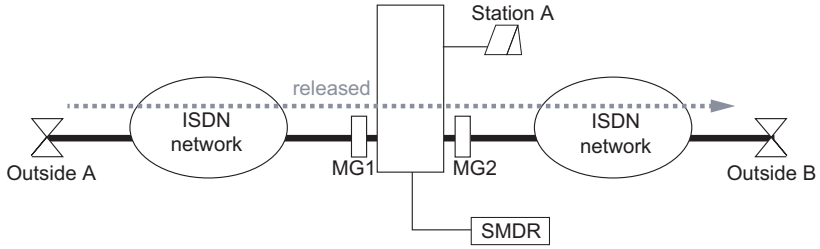
2. Outside A and Outside B are talking



Charge information “200” is informed:

	SMDR output
Split Billing/Total Billing (caller)	-
Split Billing/Total Billing (CF set station)	-

3. DISCONNECT message is received from ISDN (Outside A)

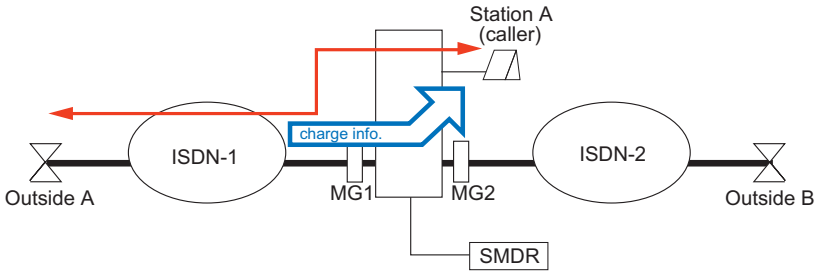


DISCONNECT message (including charge information “100”) is informed:

	SMDR output
Split Billing/Total Billing (caller)	MG1: 200 (charged to Outside B) MG2: 200 (called party is Outside A)
Split Billing/Total Billing (CF set station)	MG1: 200 (charged to Station A) MG2: 200 (called party is Outside A)

(f) Call Transfer from Station A to Outside B during the call with Outside A

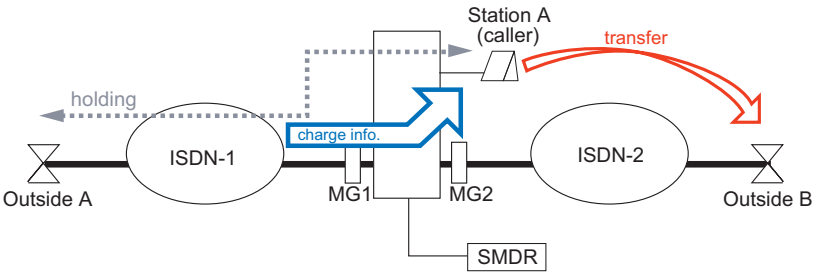
1. Station A is talking to Outside A



Charge information “100” is informed:

	Station A	SMDR
Split Billing	100	Not output
Total Billing (caller)	100	Not output
Total Billing (Call Transfer set station)	100	Not output

2. Station A (caller) goes hooking, and transfers the call to Outside B
(Outside A hears holding tone)



Charge information “200” is informed from ISDN-1.:

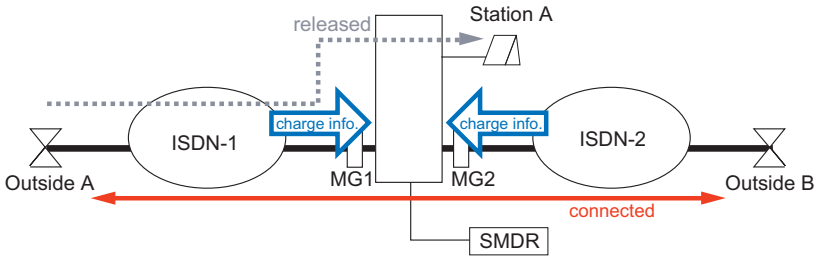
	Station A	SMDR
Split Billing	Not displayed	-
Total Billing (caller)	Not displayed	-
Total Billing (Call Transfer set station)	Not displayed	-

Charge information “100” is informed from ISDN-2.:

	Station A	SMDR
Split Billing	Not displayed	-
Total Billing (caller)	Not displayed	-
Total Billing (Call Transfer set station)	Not displayed	-

continued on the next page

3. Station A is released, and Outside A and Outside B are talking



When Station A is released:

	Station A	SMDR
Split Billing	100	MG1: 200 (charged to Station A) MG2: 100 (charged to Station A)
Total Billing (caller)	Not displayed	-
Total Billing (Call Transfer set station)	Not displayed	-

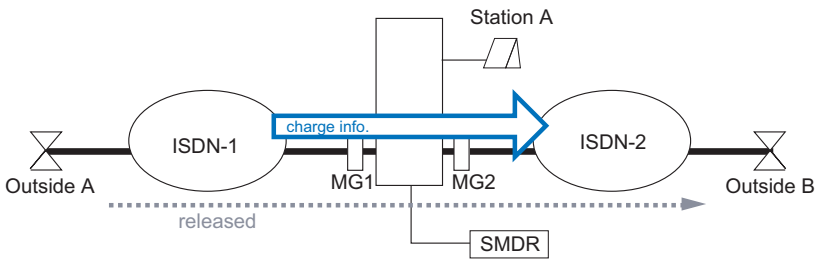
Charge information “300” is informed from ISDN-1 after releasing Station A:

	Station A	SMDR
Split Billing	-	-
Total Billing (caller)	-	-
Total Billing (Call Transfer set station)	-	-

Charge information “200” is informed from ISDN-2 after releasing Station A:

	Station A	SMDR
Split Billing	-	-
Total Billing (caller)	-	-
Total Billing (Call Transfer set station)	-	-

4. Outside B is released.



DISCONNECT message (including charge information “400”) is informed from ISDN-1:

	Station A	SMDR
Split Billing	Not displayed	MG1: 200 (charged to Outside B) MG2: 100 (charged to Outside A)
Total Billing (caller)	Not displayed	MG1: 400 (charged to Station A) MG2: 200 (charged to Station A)
Total Billing (Call Transfer set station)	Not displayed	MG1: 400 (charged to Outside B) MG2: 200 (charged to Outside A)

1.3 AOC-D in CCIS Tandem Connection (QSIG / CCIS / FCCS)

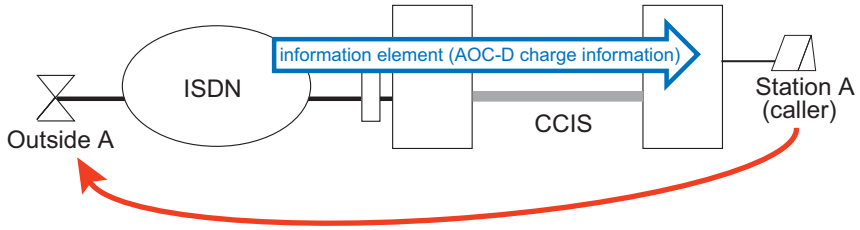
AOC-D is also supported for the ISDN outgoing calls via several networks; call charge is displayed on Desktop terminal when setting up a call and during the call.

<Example Connections>

Here shows major connection patterns supported for the AOC in ISDN calls via CCIS network. Informed call charge is displayed on the applicable Desktop terminals. See the example connections below:

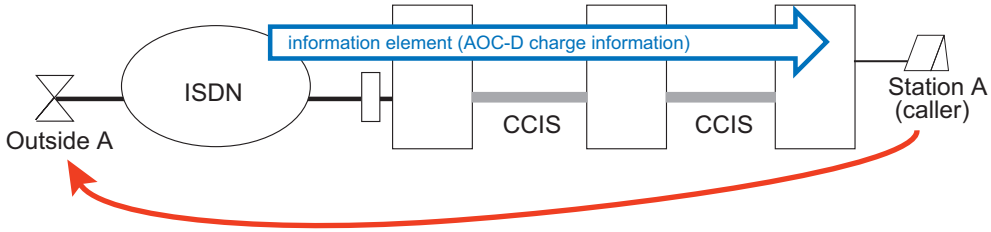
(a) CCIS Tandem Connection

Tandem connection to ISDN interface node from the station in CCIS network.



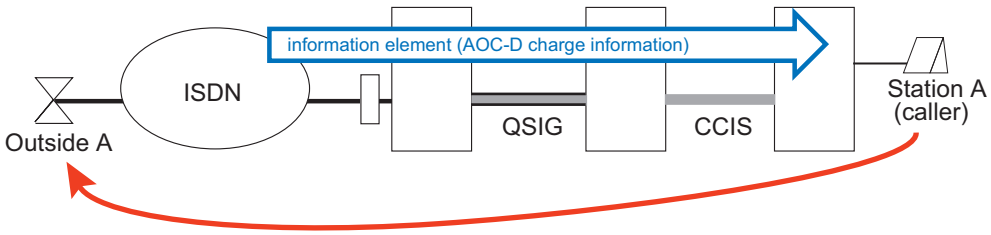
(b) CCIS Tandem Connection (3-node)

Tandem connection to ISDN interface node via other CCIS node.



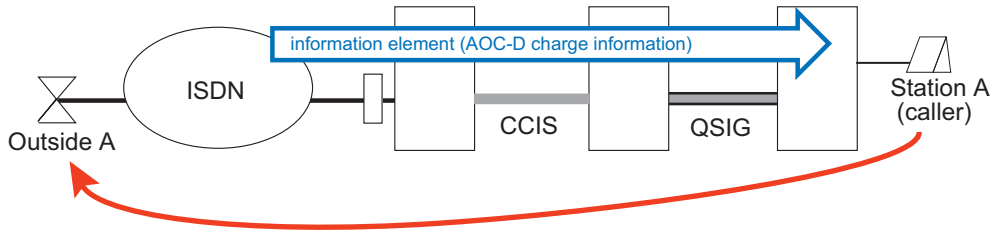
(c) ISDN-CCIS-QSIG Tandem Connection

Connect to ISDN via QSIG network from the station in CCIS network.



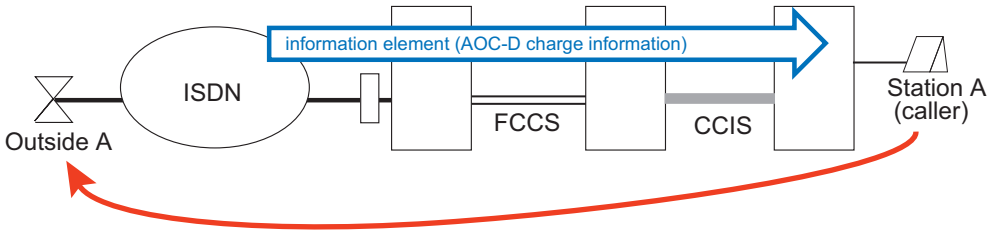
(d) ISDN-QSIG-CCIS Tandem Connection

Connect to ISDN via CCIS network from the station in QSIG network.



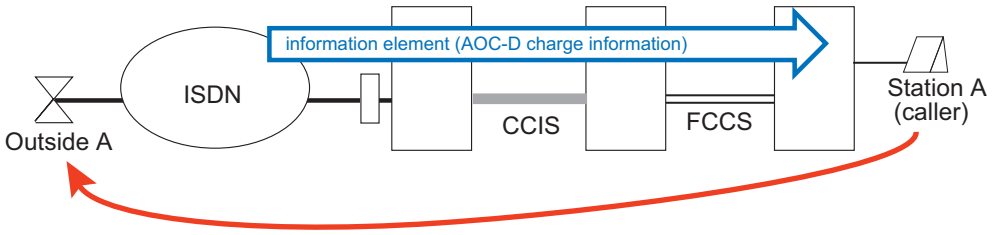
(e) ISDN-FCCS-CCIS Tandem Connection

Connect to ISDN via FCCS network from the station in CCIS network.



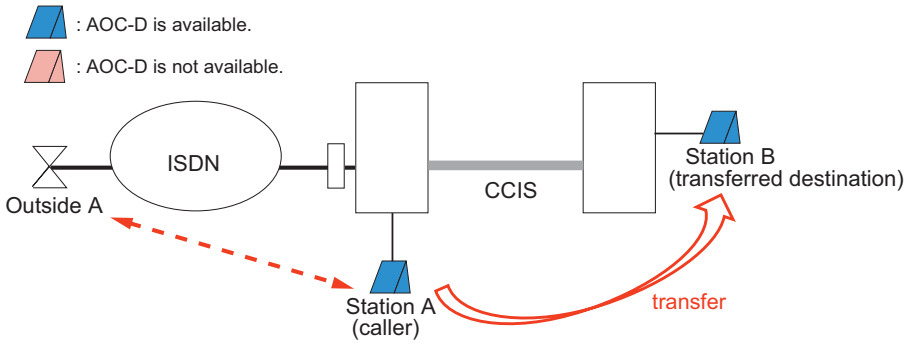
(f) ISDN-CCIS-FCCS Tandem Connection

CCIS tandem connection to ISDN from FCCS connected node.



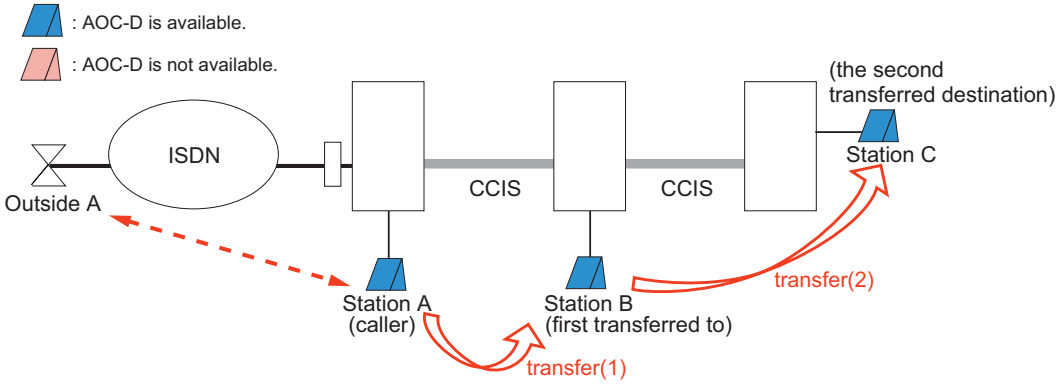
(g) Call Transfer via CCIS

Call Transfer from the station in ISDN interface node to the station in CCIS network.



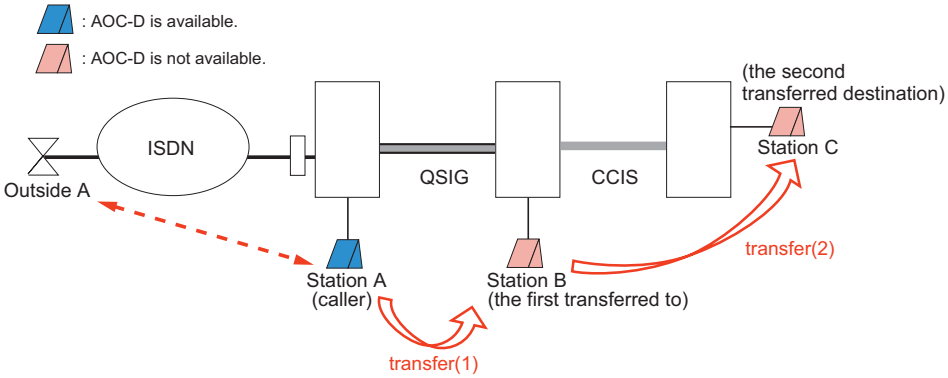
(h) Call Transfer via CCIS (Two transfers)

After the connection in pattern (e), the second Call Transfer to the station in CCIS network.



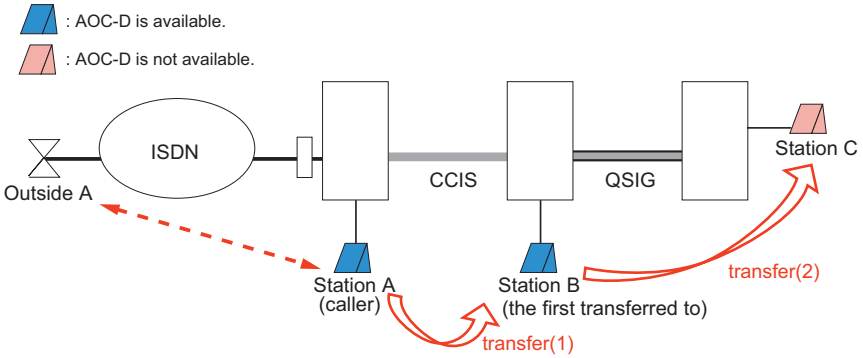
(i) Call Transfer to QSIG - CCIS

Call Transfer from the station in ISDN interface node to the station in QSIG network, and then to the station in CCIS network.



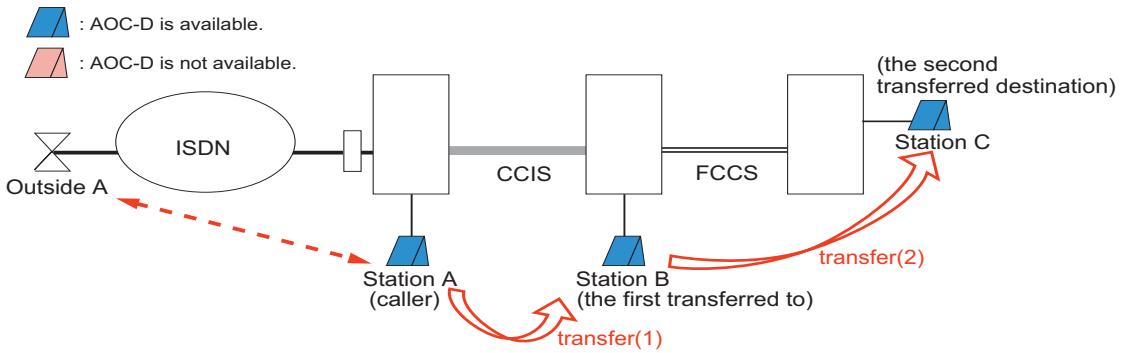
(j) Call Transfer to CCIS - QSIG

Call Transfer from the station in ISDN interface node to the station in CCIS network, and then to the station in QSIG network.



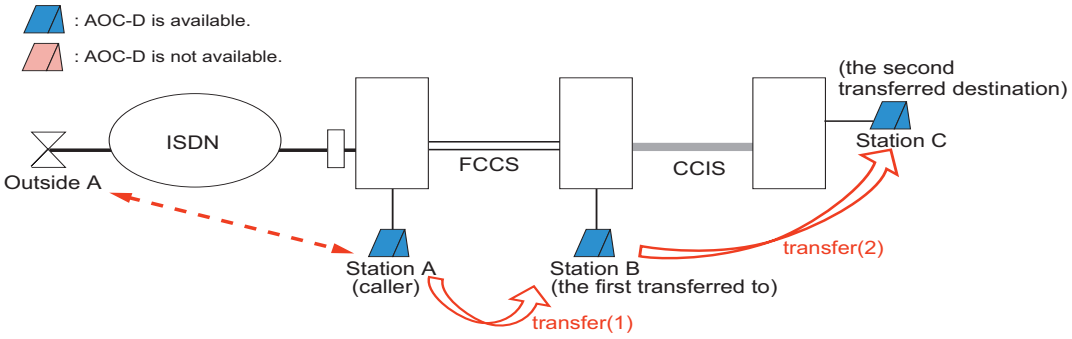
(k) Call Transfer to CCIS - FCCS

Call Transfer from the station in ISDN interface node to the station in FCCS network, and then to the station in CCIS network.



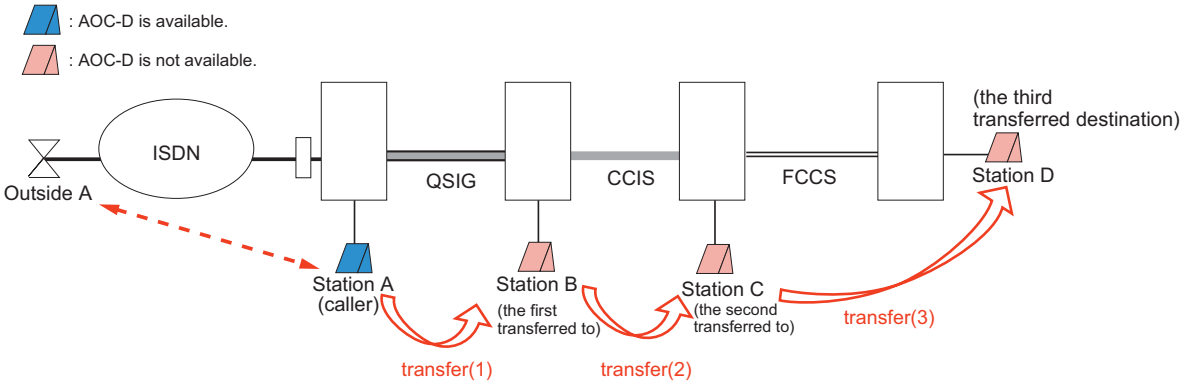
(l) Call Transfer to FCCS - CCIS

Call Transfer from the station in ISDN interface node to the station in the connected FCCS network, and then to the station in CCIS network.



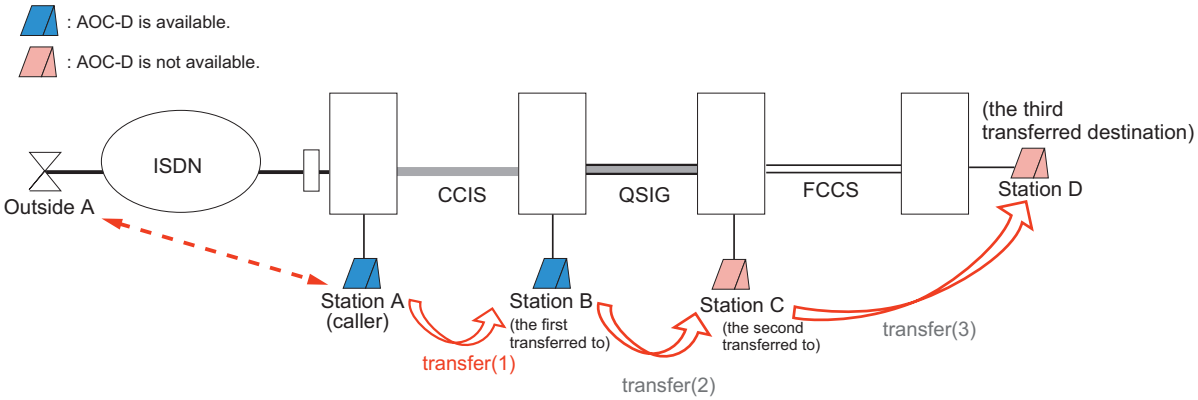
(m) Call Transfer to QSIG - CCIS - FCCS

Call Transfer from the station in ISDN interface node to the station in the connected QSIG network, and then to the station in CCIS network, to the station in FCCS network.



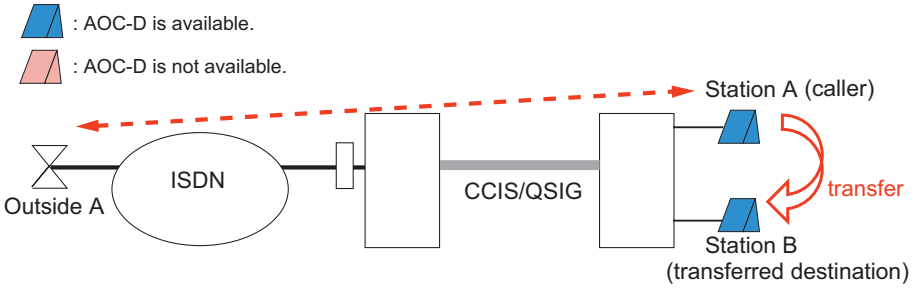
(n) Call Transfer to CCIS - QSIG - FCCS

Call Transfer from the station in ISDN interface node to the station in the connected FCCS network, and then to the station in QSIG network, to the station in FCCS network.



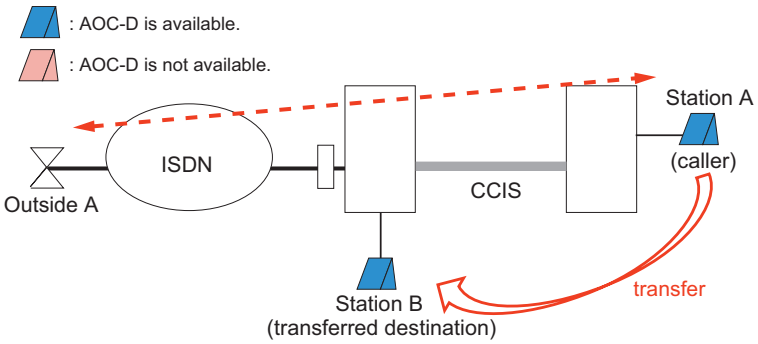
(o) Call Transfer to Station after CCIS/QSIG Tandem Connection

CCIS/QSIG tandem connection to ISDN is transferred to the station in the Self Node.



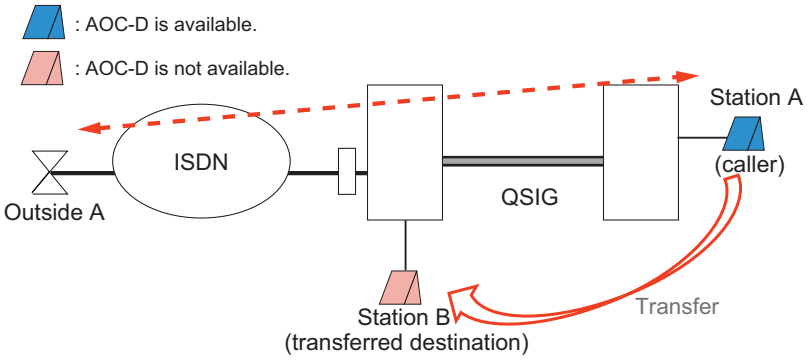
(p) ISDN-CCIS Tandem Connection (Call Transfer to ISDN Interface Node)

Call Transfer to the station in ISDN interface node from the station in CCIS tandem node.



(q) ISDN-QSIG Tandem Connection (Call Transfer to ISDN Interface Node)

Call Transfer to the station in ISDN interface node from the station in QSIG tandem node.

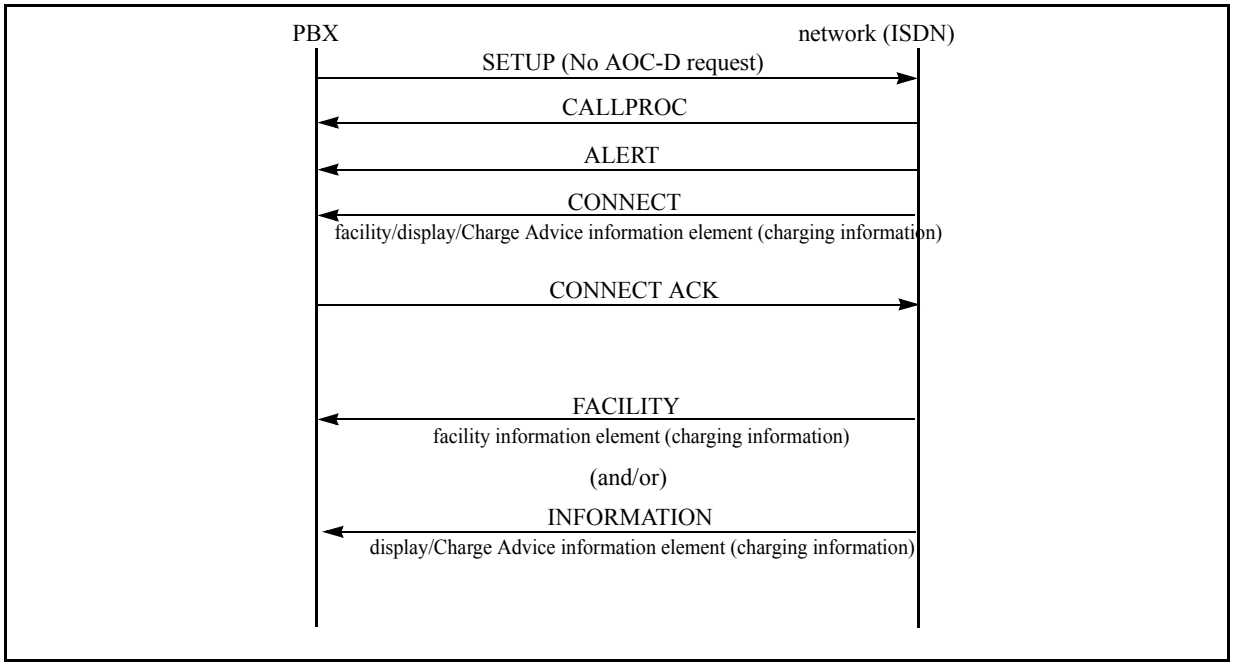


2. SIGNALING MESSAGE SEQUENCE

2.1 AOC-D Signaling Sequence (Basic Connection)

The figure below shows the signaling message sequence of AOC-D processing in normal operation. Even when the flow of the message is different, AOC-D works without problem. (The order of messages has no influence on the process.)

CONNECT message refers to the charging information only when the call is in the state of accepting the message. FACILITY and INFORMATION messages refer to the charging information during the call (calling state: U10).



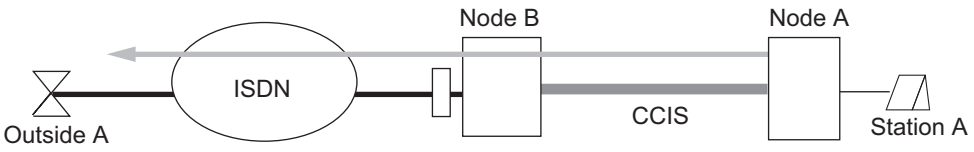
2.2 AOC-D Signaling Sequence in CCIS Tandem Connection

To display ISDN call charge on the stations in CCIS network, the following charging information is required to be informed from ISDN.

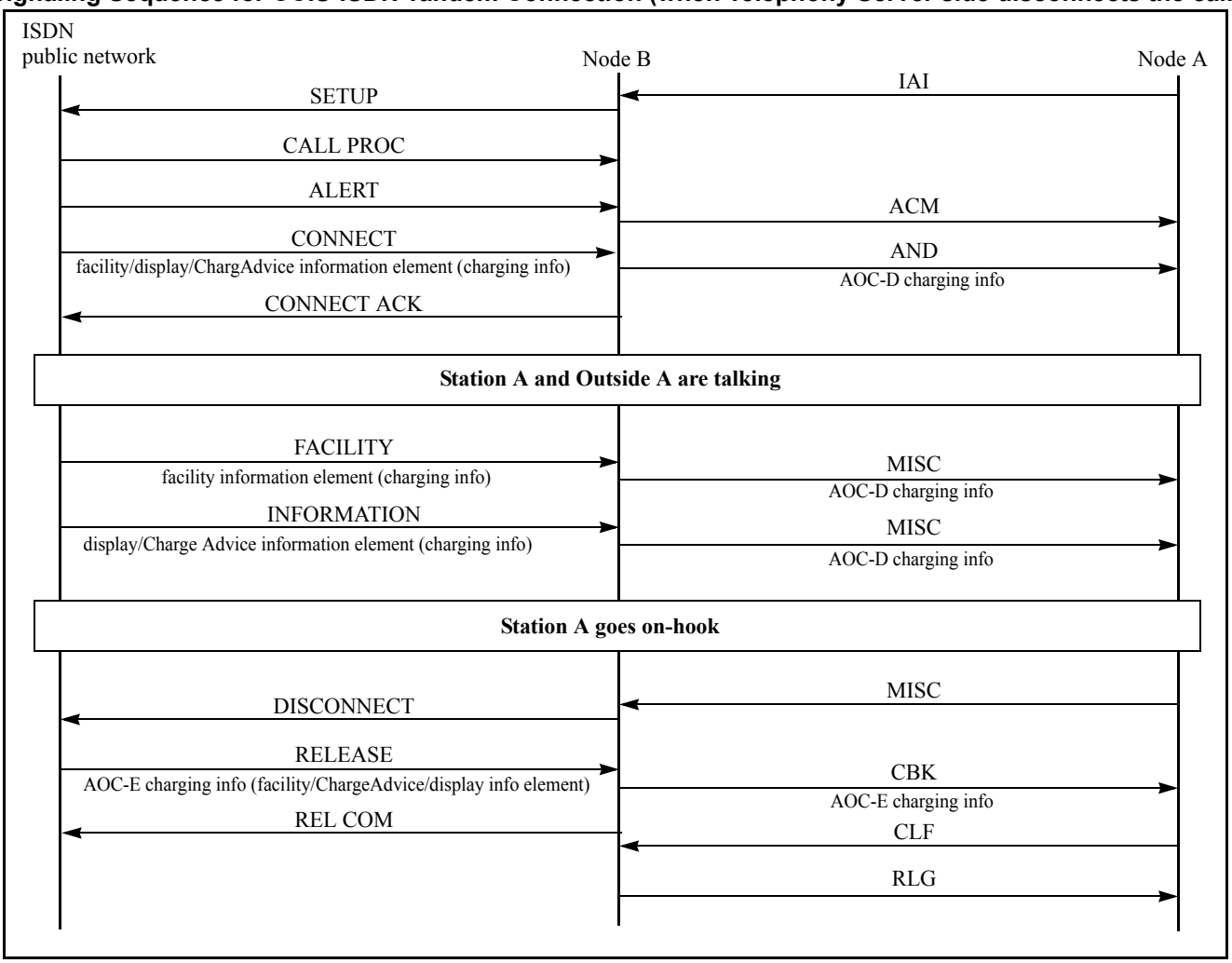
- AOC-D charging information ---- the charging information during the call
- AOC-E charging information ---- the charging information at the end of the call

See the figures below for the signaling sequence in ISDN-CCIS tandem connection.

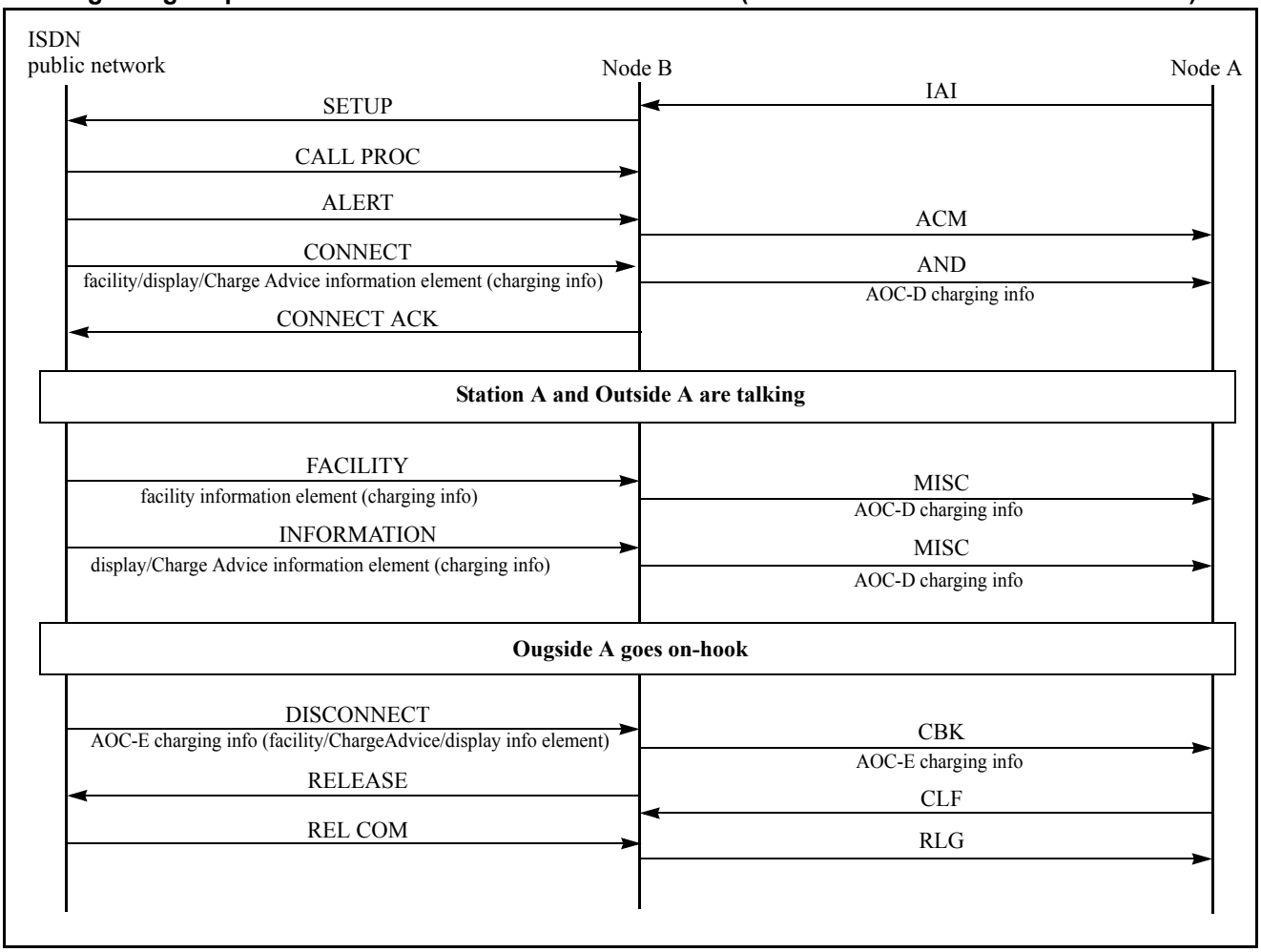
Station A calls to Outside A:



Signaling Sequence for CCIS-ISDN Tandem Connection (when Telephony Server side disconnects the call)

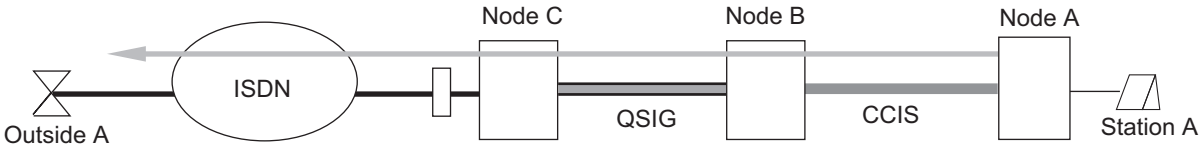


Signaling Sequence for CCIS-ISDN Tandem Connection (when ISDN side disconnects the call)

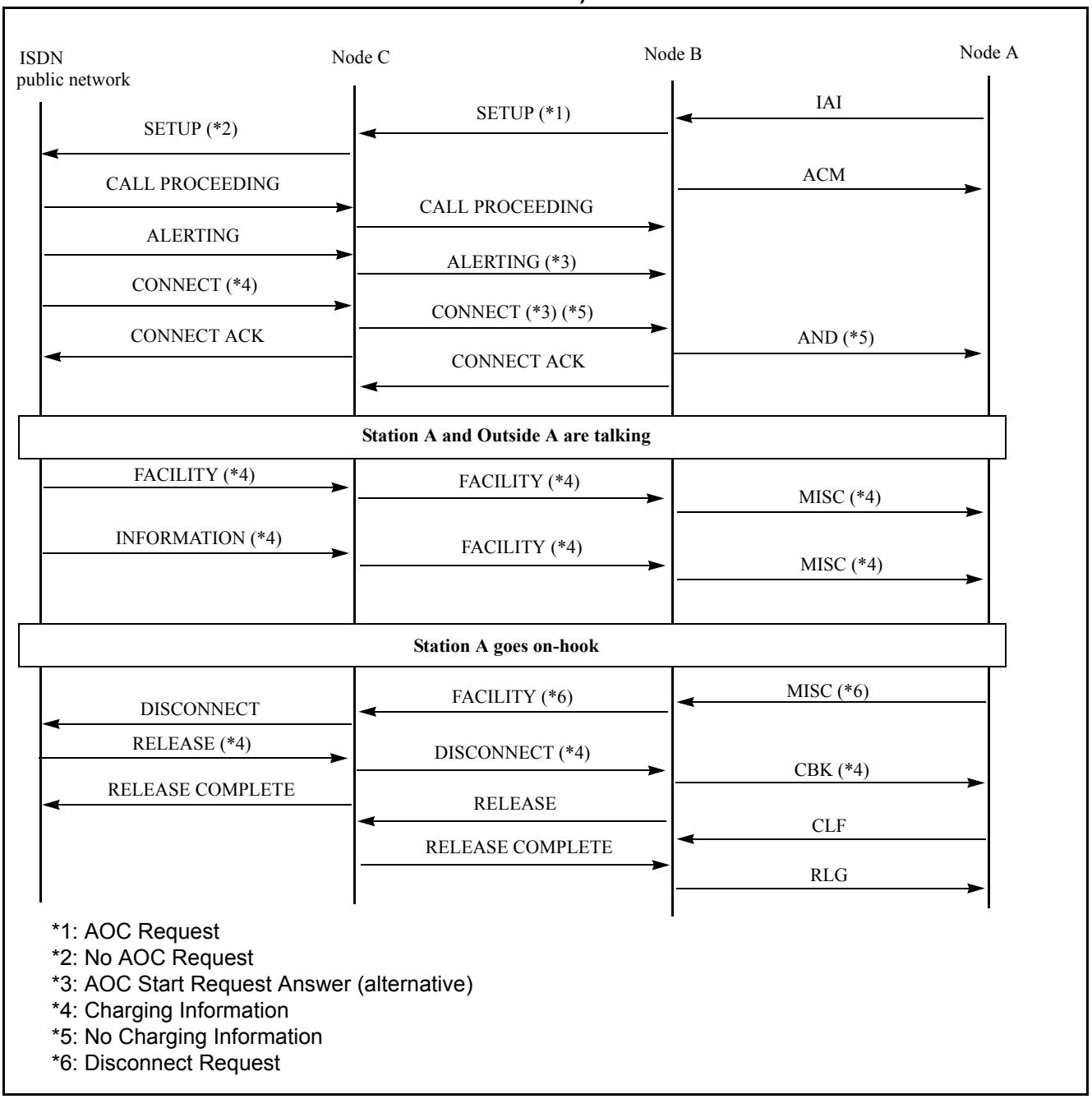


See the figures below for the signaling sequence in CCIS-QSIG-ISDN tandem connection.

Station A calls to Outside A:

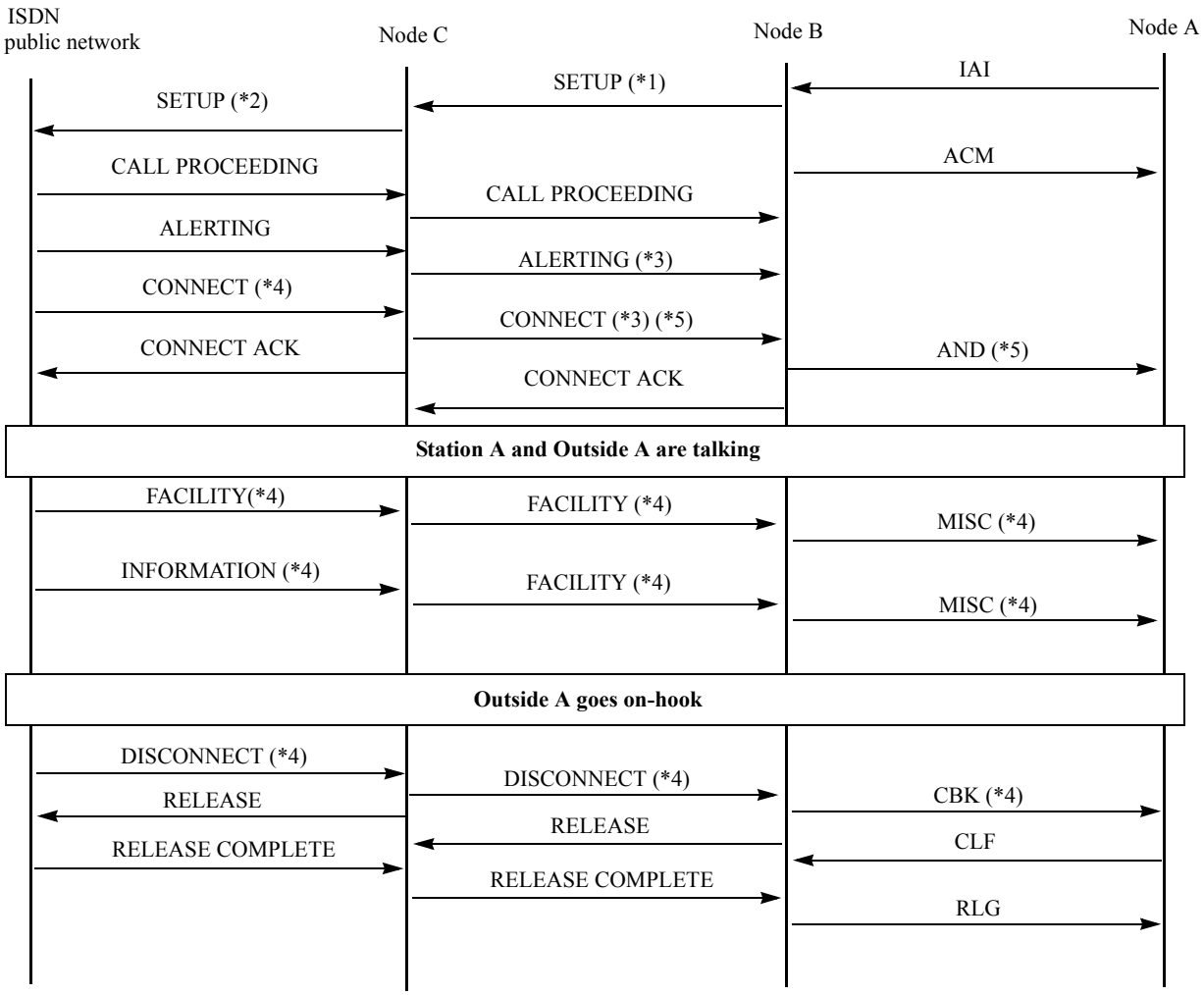


Signaling Sequence for CCIS-QSIG-ISDN Tandem Connection (when Telephony Server side disconnects the call)



*1: AOC Request
*2: No AOC Request
*3: AOC Start Request Answer (alternative)
*4: Charging Information
*5: No Charging Information
*6: Disconnect Request

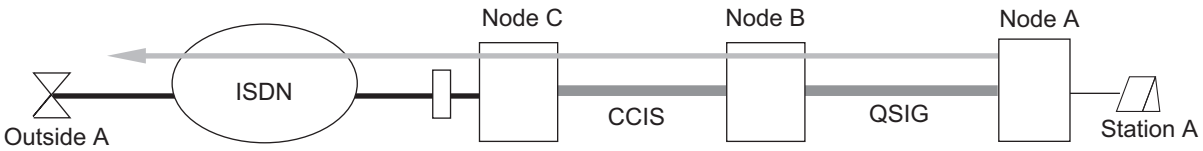
Signaling Sequence for CCIS-QSIG-ISDN Tandem Connection (when ISDN side disconnects the call)



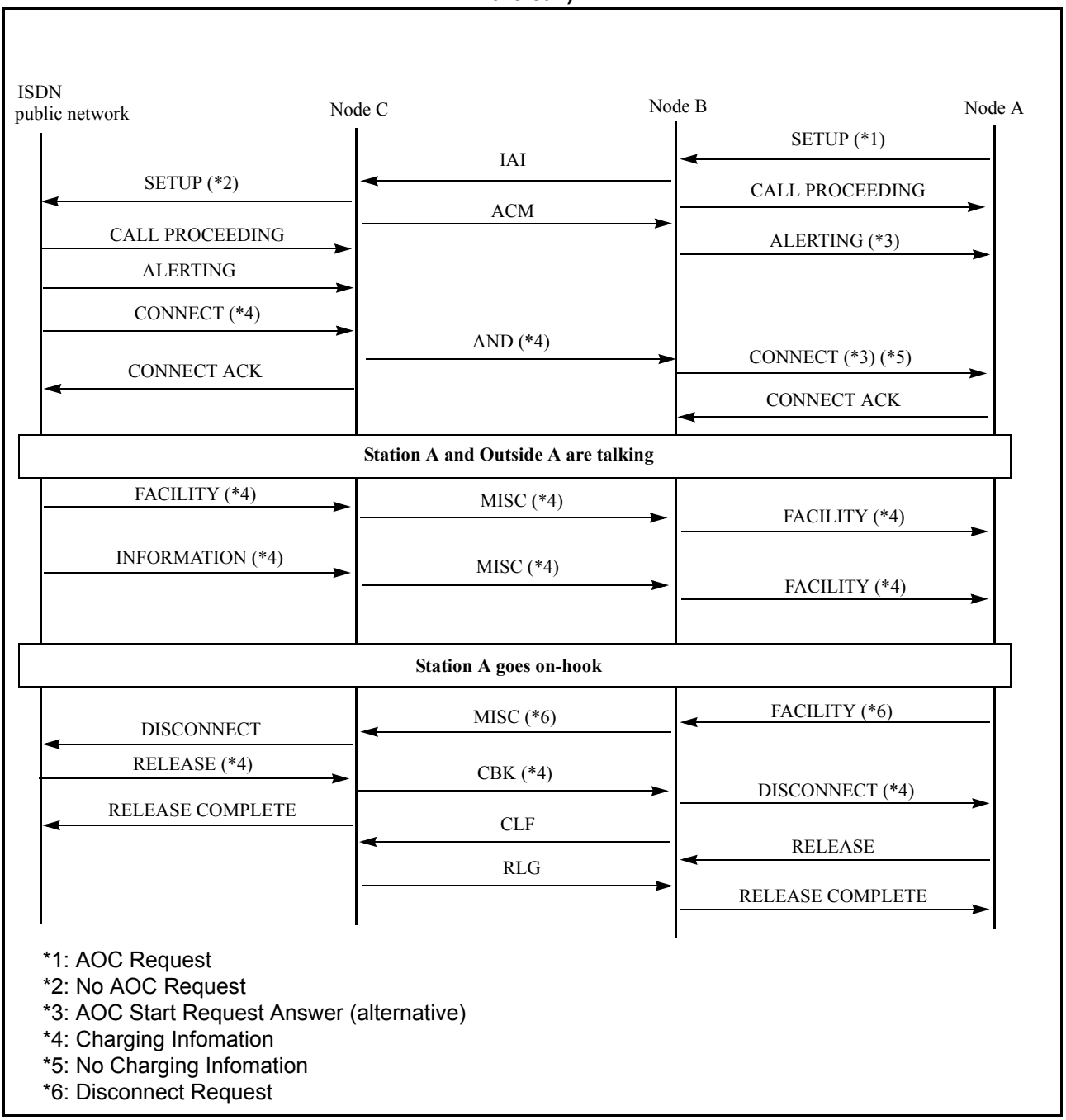
*1: AOC Request
*2: No AOC Request
*3: AOC Start Request Answer (alternative)
*4: Charging Infomation
*5: No Charging Infomation

See the figures below for the signaling sequence in QSIG-CCIS-ISDN tandem connection.

Station A calls to Outside A:

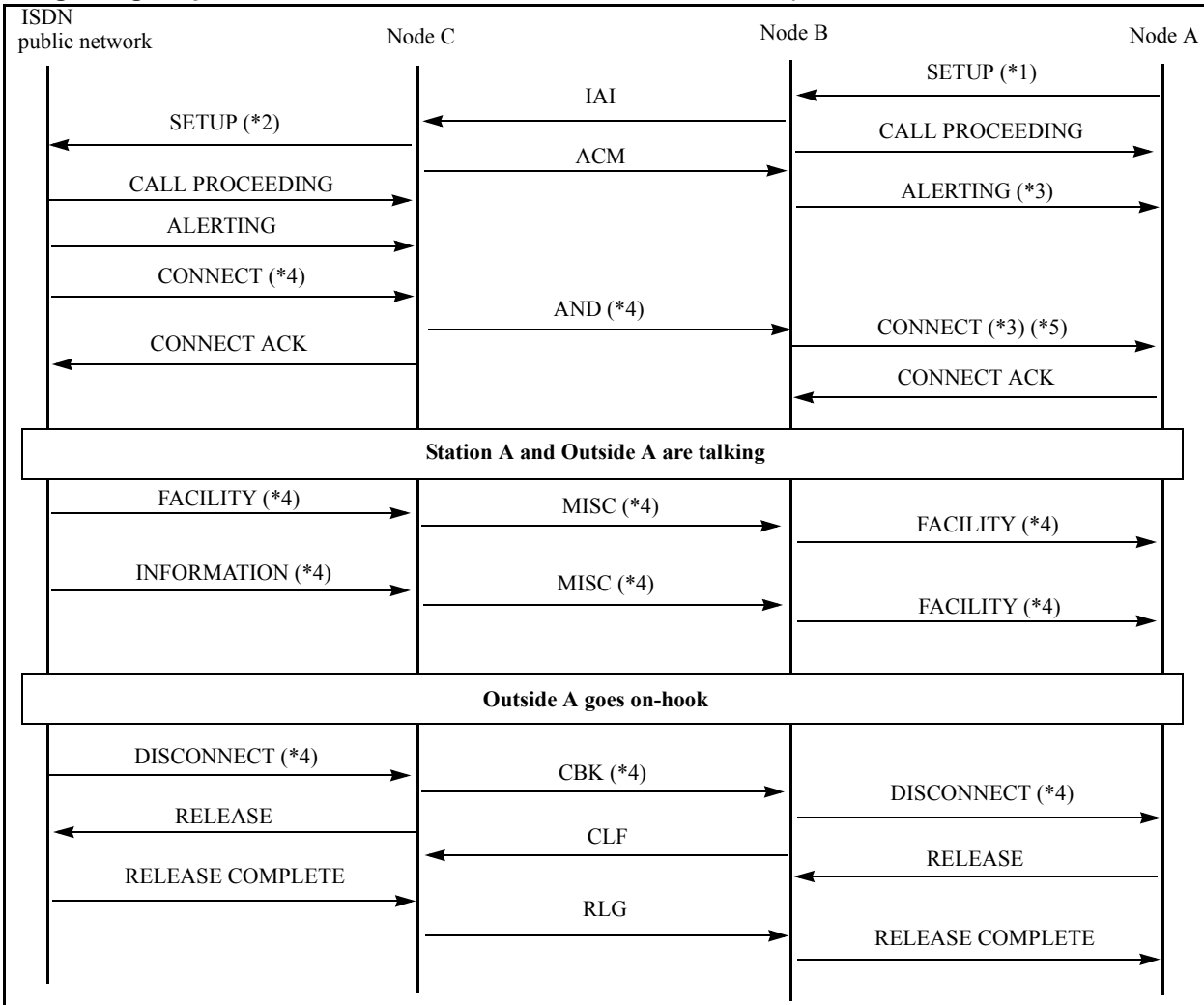


Signaling Sequence for QSIG-CCIS-ISDN Tandem Connection (when Telephony Server side disconnects the call)



*1: AOC Request
*2: No AOC Request
*3: AOC Start Request Answer (alternative)
*4: Charging Infomation
*5: No Charging Infomation
*6: Disconnect Request

Signaling Sequence for QSIG-CCIS-ISDN Tandem Connection (when ISDN side disconnects the call)



*1: AOC Request
*2: No AOC Request
*3: AOC Start Request Answer (alternative)
*4: Charging Infomation
*5: No Charging Infomation

3. MESSAGE FORMAT

3.1 INFORMATION ELEMENT FORMAT

Information element in ISDN signal controlling message includes the charging information. The following shows the format of each Information Element, reference conditions of charging information, and how to calculate the call charge.

3.1.1 Information Element “facility”

In the facility information element, the message informs the call charge depending on the type of charging information; AOCDCurrency or AOCDChargingUnit.

Information Element “facility”

8	7	6	5	4	3	2	1	octet
0	facility (0x1c) 0	0	1	1	1	0	0	1
			Information Element Identifier					
Length of facility contents								2
1 ext	0	0 spare	1	0	0	0	1	3
			Service discriminator					
1	0	1	0	0	0	0	1	4
class		form	Invoke component tag					
0*1*	Length of component							5
0	0	0	0	0	0	1	0	6
class		form	Invoke identifier tag					
0 *1*	Length of invoke identifier							6.1
Invoke identifier								6.2
0	0	0	0	0	0	1	0	6.3
class		form	Operation value tag					
0*1*	Length of operation value							6.4
Operation value								6.5
Operation-specific fields								6.6 etc.

**1: Length format*

See the followings for the format according to the Operation Value a.) “AOCDCurrency” and b.) “AOCDChargingUnits.”

a.) Operation Value “AOCDCurrency” is used for informing the call charge in Currency format:

8	7	6	5	4	3	2	1	octet
0	facility (0x1c)							
	0	0	0	1	1	1	0	0	1
	Information Element Identifier							
~								~
AOCDCurrency								
0	0	1	0	0	0	0	1	6.5
Operation value								
specificCurrency								
0	0	1	1	0	0	0	0	6.6
0	Length of specificCurrency							etc.
recordedCurrency								
1	0	1	0	0	0	0	1	
0	Length of specificCurrency							
specificCurrency								
0	0	1	1	0	0	0	0	
0	Length of recordedCurrency							
rCurrency								
1	0	0	0	0	0	0	1	
0	Length of rCurrency							
Value of rCurrency								
rAmount								
1	0	1	0	0	0	1	0	
0	Length of rAmount							
currencyAmount								
1	0	0	0	0	0	0	1	
0	Length of currencyAmount							
Value of currencyAmount								
multiplier								
1	0	0	0	0	0	1	0	
0	Length of multiplier							
Value of multiplier								
typeOfChargingInfo								
1	0	0	0	0	0	1	0	
0	Length of typeOfChargingInfo							
Value of typeOfChargingInfo								
(aOCDBillingId)								
1	0	0	0	0	0	1	1	
0	Length of aOCDBillingId							
Value of aOCDBillingId								

(1) Greece, Belgium, and Denmark apply this format.

(2) Call charge = currencyAmount × multiplier

(3) currencyAmount: 0~16777215

(4) rCurrency, typeOfChargingInfo, aOCDBillingId are discarded.

b.) Operation Value “AOCDChargingUnit” is used for informing the call charge in Units format:

8	7	6	5	4	3	2	1	octet
facility (0x1c)								
0	0	0	1	1	1	0	0	1
Information Element Identifier								
~								~
AOCDChargingUnit								
0	0	1	0	0	0	1	0	6.5
Operation value								
specificChargingUnits								6.6
0	0	1	1	0	0	0	0	
0	Length of specificChargingUnits							etc.
recordedUnitsList								
1	0	1	0	0	0	0	1	
0	Length of recordedUnitsList							
RecordedUnits								
0	0	1	1	0	0	0	0	
0	Length of RecordedUnits							
recordedNumberOfUnits								
0	0	0	0	0	0	1	0	
0	Length of recordedNumberOfUnits							
Value of recordedNumberOfUnits								
(recordedTypeOfUnits)								
0	0	0	0	0	0	1	0	
0	Length of recordedTypeOfUnits							
Value of recordedTypeOfUnits								
typeOfChargingInfo								
1	0	0	0	0	0	1	0	
0	Length of typeOfChargingInfo							
Value of typeOfChargingInfo								
(aOCDBillingId)								
1	0	0	0	0	0	1	1	
0	Length of aOCDBillingId							
Value of aOCDBillingId								

(1) Greece, Austria, and Germany apply this format.
(2) Call charge = recordedNumberOfUnit × UNIT RATE **Note 1**
(3) Refers to RecordedUnits only in recordedUnitsList.
(4) recordedNumberOfUnits: 0~16777215
(5) recordedTypeOfUnits, typeOfChargingInfo, and aOCDBillingId are discarded.

Note 1: Assign UNIT RATE in the office data by ACODL/ACODN command.

3.1.2 Information Element "ChargeAdvice"

In the information element "ChargeAdvice," codeset 5 or codeset 6 is dealt with depending on the countries. The type of informed charging information is unit only.

Information Element "ChargeAdvice"

8	7	6	5	4	3	2	1	octet
0	Charge Advice (0x1A) 0	0	1	1	0	1	0	1
	Information Element Identifier							
Length of ChargeAdvice Contents								2
0/1 ext	1 Coding Standard	0	0/1 *1*	0 spare	Type Of Charge			3
0/1 ext	Charging Period							3a
1 ext	Charging Period Multiplier							3b
Number of Charging Units								4 etc.

**1: CEPT Standard*

(1) Greece, Spain, Italy, and Sweden apply this format.
(2) Call Charge = Number of Charging Units × UNIT RATE **Note 1**
(3) Coding Standard 10 is accepted as National standard.
(4) Charge on answer or (Sub) Total charge are accepted for Type of Charging.
(5) CEPT Standard, Charging Period, and Charging Period Multiplier are discarded.
(6) Number of Charging Units: 0~16777215

Note 1: Assign UNIT RATE in the office data by ACODL/ACODN command.

3.1.3 Information Element “display”

In the information element “display,” Currency or Units is informed in specific format for each country. The following shows the message format of common area.

Information Element “display” (common area format)

8	7	6	5	4	3	2	1	octet
0	display (0x28) 0 0 1 0 1 0 0 0 Information Element Identifier							1
Length of display contents								2
0	Display Information (IA5 characters)							3 etc.

See the followings for the format of each country.

Note: Meaning of each element in the format of Information Element “display” is:
<SP>: space (0x20)
<UNITS>: call units guided in numeric characters, 0 ~ 999999
<CURRENCY>: call charge guided in numeric characters, 0.00 ~ 9999.99

Note: Assign UNIT RATE in the office data by ACODL/ACODN command.

Greece and Luxemburg

8	7	6	5	4	3	2	1	octet
0	display (0x28) 0 1 0 1 0 0 0 Information Element Identifier							1
Length of display contents								2
‘<UNITS 1>’								3
~								etc.
‘<UNITS n>’								
‘<SP>’								
‘U’								
‘N’								
‘I’								
‘T’								
‘S’								

(1) Call charge = <UNITS> × UNIT RATE
(2) n = 1~6

Netherlands

8	7	6	5	4	3	2	1	octet
	display (0x28)							
0	0	1	0	1	0	0	0	1
	Information Element Identifier							
Length of display contents								2
‘N’								3
‘4’								etc.
‘0’								
‘*’								
‘<UNITS 1>’								
~								
‘<UNITS n>’								
‘#’								

(1) Call charge = <UNITS> × UNIT RATE

(2) n = 1~6

Switzerland

8	7	6	5	4	3	2	1	octet
	display (0x28)							
0	0	1	0	1	0	0	0	1
	Information Element Identifier							
Length of display contents								2
‘F’								3
‘R’								etc.
‘.’								
‘<SP>’								
‘<CURRENCY 1>’								
~								
‘<CURRENCY n>’								
‘.’								
‘<CURRENCY n+1>’								
‘<CURRENCY n+2>’								

(1) Call charge = informed <CURRENCY> as it is

(2) n = 1~4

Portugal

8	7	6	5	4	3	2	1	octet
	display (0x28)							
0	0	1	0	1	0	0	0	1
	Information Element Identifier							
Length of display contents								2
‘I’								3
‘M’								etc.
‘P’								
‘U’								
‘L’								
‘S’								
‘O’								
‘S’								
‘<SP>’								
‘=’								
‘<SP>’								
‘<UNITS 1>’								
~								
‘<UNITS n>’								

(1) Call charge = <UNITS> × UNIT RATE

(2) n = 1~6

United Arab Emirates (UAE)

8	7	6	5	4	3	2	1	octet
	display (0x28)							
0	0	1	0	1	0	0	0	1
	Information Element Identifier							
Length of display contents								2
‘<SP>’								3
‘<UNITS 1>’								etc.
~								
‘<UNITS n>’								
‘#’								

(1) Call charge = <UNITS> × UNIT RATE

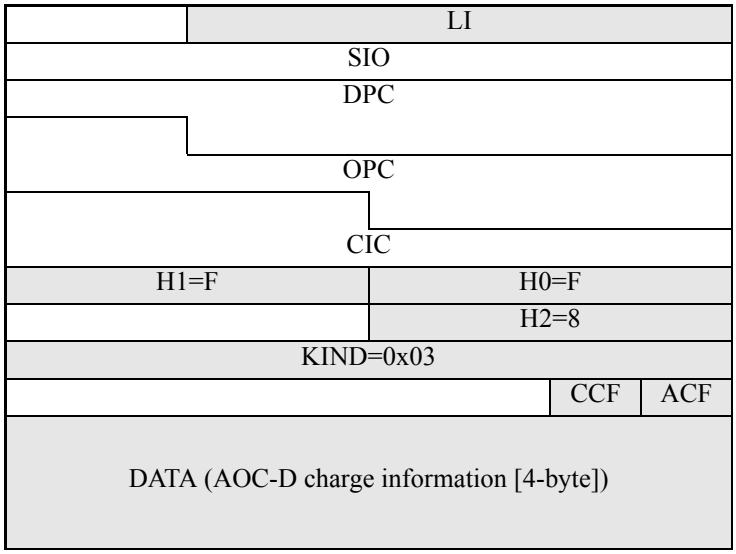
(2) n = 1~6

3.2 Message Format between CCIS Network Connection

The following shows the message format between the nodes in CCIS network.

3.2.1 MISC Message

AOC-D charging information is sent/received in MISC message.



Message: MISC (MISCELLANEOUS Message)

Message Type: **H0=0xF**
H1=0xF
H2=0x8

LI: Length Indicator

5-byte of data is increased for adding AOC-D charge information (4-byte) and AOC-D Charge Flag (ACF).

ACF: AOC-D Charge Flag

bit0=1
Indicates AOC-D charge information is included in DATA.

CCF: CLF Change Flag

bit1=1
Indicates the changing from CLF message to MISC message.

SIO: Service Information Octet
DPC: Destination Point Code
OPC: Originating Point Code
CIC: Circuit Identification Code

3.2.2 AND, CBK, and CLF Signaling Interface

AOC-E charging information is sent/received by adding to CBK and CLF messages when releasing the call.
As CONNECT message received from ISDN includes charging information when ISDN side party answers, the information is sent/received in CCIS network by adding to AND message.

- AND Message

	LI				
SIO					
DPC					
OPC					
CIC					
H1=2				H0=F	
OP				TN	
				OPTN	
SFC				RSC	
DC1				DC0	
DC3				DC2	
DC5				DC4	
DC7				DC6	
PC					
CAL				CPI	
OP				TN	
				OPTN	
SFC				RSC	
DC1				DC0	
DC3				DC2	
DC5				DC4	
DC7				DC6	
PC					
	b4	b3	b2	b1	b0
				SM	ACF
DATA (AOC-D charge information [4-byte])					

Message: AND
Message Type: H0=0xF
H1=0x02

LI: Length Indicator
5-byte of data is increased for adding AOC-D charge information (4-byte) and AOC-D Charge Flag (ACF).

SIO: Service Information Octet
DPC: Destination Point Code
OPC: Originating Point Code
CIC: Circuit Identification Code

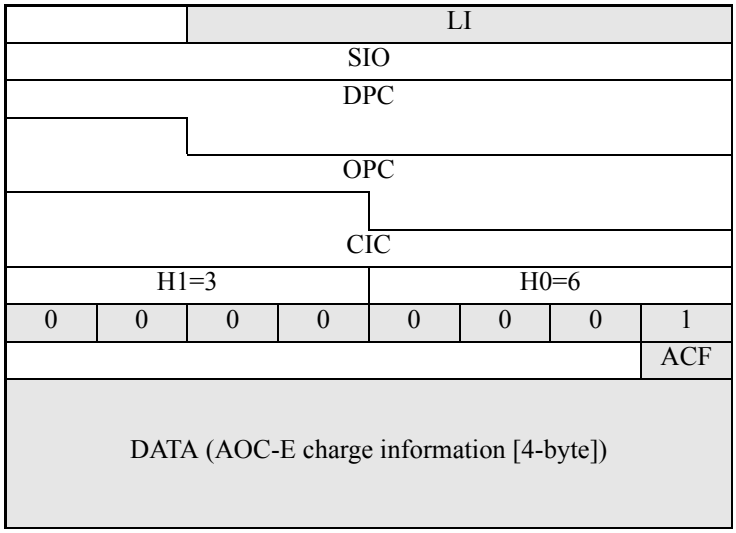
FIO: First Indicator Octet
b0 (OAI): 16-byte extended
b1 (OAI): 3-byte extended
b2 (H/M): 42-byte extended
b3: 0 (No extension)

FIO: First Indicator Octet
b0 (OAI): 16-byte extended
b1 (OAI): 3-byte extended
b2 (H/M): 42-byte extended
b3: 0 (No extension)
b4 (AOCD compliance) = 1
Area for AOC-D charge information (5-byte) is allocated in DATA.

ACF: AOC-D Charge Flag
b0=1
Indicates AOC-D charge information is written in DATA.

SM: AOCD charged target change information
b1=1
Used to inform that the charged target is changed in Blind Transfer.

- CBK Message



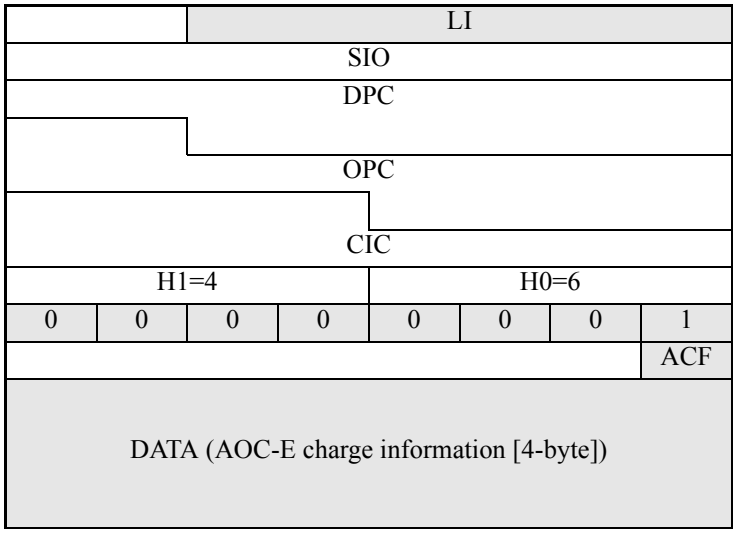
Message: CBK
Message Type: H0=0x06
H1=0x03

LI: Length Indicator
5-byte of data is increased for adding AOC-D charge information (4-byte) and AOC-D Charge Flag (ACF).

ACF: AOC-D Charge Flag
bit0=1
Indicates AOC-D charge information is written in DATA.

SIO: Service Information Octet
DPC: Destination Point Code
OPC: Originating Point Code
CIC: Circuit Identification Code

- CLF Message



Message: CLF
Message Type: H0=0x06
H1=0x04

LI: Length Indicator
5-byte of data is increased for adding AOC-D charge information (4-byte) and AOC-D Charge Flag (ACF).

ACF: AOC-D Charge Flag
bit0=1
Indicates AOC-D charge information is written in DATA.

SIO: Service Information Octet
DPC: Destination Point Code
OPC: Originating Point Code
CIC: Circuit Identification Code

3.2.3 Other Messages

- TRM Message

  Call transferring procedure (changing the calling party) in CCIS network is informed to the destination node by TRM message. Billing information (changing of charged target and charging information) is managed by using this message.

	LI				
SIO					
DPC					
OPC					
CIC					
H1=4		H0=F			
ON	EI	CPC			
OP		TN			
		OPTN			
SFC		RSC			
DC1		DC0			
DC3		DC2			
DC5		DC4			
DC7		DC6			
OPC					
CAL		CPI			
SFC		RSC			
DC1		DC0			
DC3		DC2			
DC9		DC8			
DC11		DC10			
DC13		DC12			
DC15		DC14			
SPARE		SM	b2	LNI	NI

(omitted)

LI: Length Indicator
SIO: Service Information Octet
DPC: Destination Point Code
OPC: Originating Point Code
CIC: Circuit Identification Code
CPC: Calling Party Category
ON: Originate Number
EI: Expanded Information

DC0~DC7: Transferring code 1~8 digits

DC0~DC3:
Node number information to be charged for.

DC8~DC14: Transferring code 9~16 digits

FIO: First Indicator Octet
b0 (OAI): 16-byte extended
b1 (OAI): 3-byte extended
b2 (H/M): 42-byte extended
b3 (SM): SMDR output request bit (adheres to ETSI specification)

4. OPERATING PROCEDURE

No manual operation is required once this feature has been programmed.

5. SERVICE CONDITIONS

5.1 AOC-D Operating Conditions

(1) This feature is available for the following interface:
- ARTD/ARTDN: CDN 65 INT=4 (PRI (ITU-T/ETSI)), 6 (BRI (ITU-T/ETSI))
- ARTI/ARTIN: CDN 89 REGION =1 (ETSI-ISDN)

(2) This feature requires the following firmware to be installed on each MG equipment.
- MG(BRI) ---- SP-3826 BRI MG SIP BSC PROG-A Issue 2A or later version
- MG(PRI) ---- SP-3884 MG PRI PROG-A Issue 5A or later version

(3) AOC-D request is not required in SETUP message to ISDN.

(4) This feature is activated only when charging information is informed from ISDN. Call charge cannot be displayed when charging information is not sent out from ISDN due to the network condition.

(5) When receiving CONNECT, DISCONNECT, and RELEASE message, the system checks whether the message includes charging information, regardless of the call status.
When receiving FACILITY and INFORMATION message, the system checks whether the message includes charging information while the call is in progress (U10).
Only the information element matching the country corresponding to the route data is available. (Information element not matching the country is abandoned.)

(6) When a message includes multiple information elements, the system takes the priority order below:

INFORMATION ELEMENT	OPERATION VALUE	PRIORITY ORDER
facility	AOCECurrency	high
	AOCEChargingUnit	↑
	AOCDCurrency	
	AOCDChargingUnit	
CEPT Charge Advice	-	↓
display	-	low

(7) Informed charging information is dealt with in the total charge of the call.

(8) The currency unit of the calculated call charge depends on the country sending the charging information.

(9) Applied circuit type in CCIS tandem connection are:
- Peer-to-Peer CCIS (CCIS networking via IP) is only supported.

5.2 Terminal Display Conditions

(1) Call charge is displayed on the LCD of the following terminals every time receiving the charging information from ISDN during the call and when disconnecting the call.

- Digital terminal
- IP terminal
- SIP Multiple Line terminal
- Softphone

Note: Analog telephone, SP Controlled SIP terminal, ISDN terminal, PS, ATTCON, and other terminals without LCD are not supported.

(2) The LCD keeps displaying the call charge during the call, and the indication is updated every time receiving a new charging information in the message. When the call is released, the last received charging information is displayed for about five seconds.

(3) Currency mark is not displayed on the LCD.

(4) The call charge information is displayed on the LCD in the following range:

MINIMUM	MAXIMUM
0.01	99999.99

When the call charge exceeds the maximum available to calculate, the maximum value is displayed.

(5) Although charging information is sent from ISDN in the third decimal unit at the minimum, Desktop terminal LCD displays in the second decimal unit. So the third decimal of the received charging information is rounded up to display on the LCD.

(a) When "0.220" is received from the ISDN network:

(LCD display)

_ _ _ _ 0 . 2 2

The third decimal unit = 0 → discard the digit

(b) When "0.225" is received from the ISDN network

(LCD display)

_ _ _ _ 0 . 2 3

Delete the digit of the third decimal unit
→ Add 1 digit up to the second decimal unit

(6) Charging information is displayed to the caller stations in the following event:

- Two-party call connection with ISDN line
- After the completion of releasing a two-party call connection

Not displayed in other connections (during call forwarding, 3-party conference, and in holding state).

(7) Elapsed time and the charging information cannot be displayed on the LCD at the same time. Call charge display has priority over the elapsed time display.

(8) Whether to use ISDN call charge display on Desktop terminal is selected by ASFC/ASFCN command, SFI 149 (0/1=ISDN AOC is in service/out of service).

<Conditions for AOC-D in call transferring>

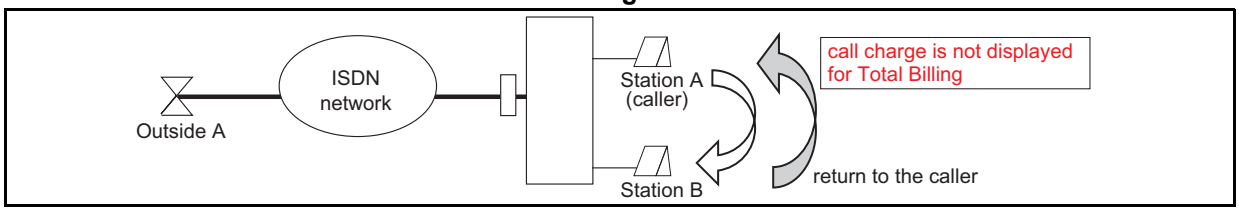
(9) Call charge is displayed on the applicable stations in the following event:

- Two-party call connection with ISDN line
- After the completion of releasing a two-party call connection
- Two-party call connection in Call Transfer - All Calls
- Call charge is not displayed until charging information is received from ISDN after the transferred/ forwarded destination answers or the held call is retrieved.

Call charge is not displayed in other connections (during forwarding/transferring the call, in conference call, and in holding state).

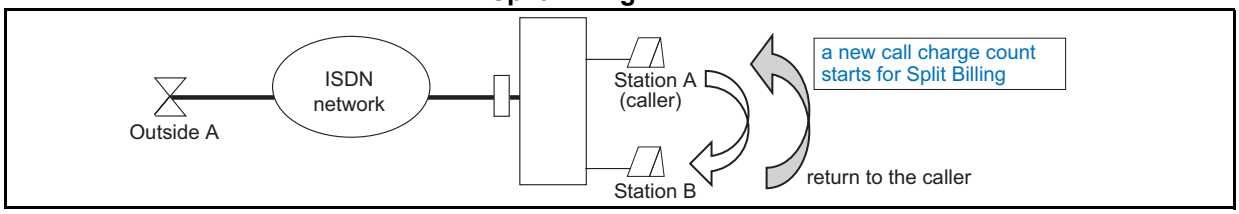
(10) When the call originator is assigned as the target to charge in Total Billing, once the call is transferred, call charge is not displayed when the transferred call terminates to the call originating station again.

Total Billing



In Split Billing, once the call originator transfers the call, a new charging starts when the call is transferred and terminates to the call originating station again.

Split Billing



<Conditions for AOC-D in CCIS tandem connection>

(11) Whether to use ISDN call charge display on Desktop terminal is selected by station class.

- On ISDN interface node, the combination of billing type (Split Billing or Total Billing) and station class determines whether the call charge display is in service or not. In CCIS network, however, the feature is determined only by the Service Feature Restriction Class; SFI 149 (0/1=ISDN AOC is in service/out of service) on ASFC/ASFCN command.
- Station class of forwarded/transferred destination determines whether to display call charge for the calls of Call Forwarding/Call Transferring in CCIS network. Received charging information is displayed as it is.
  **Because the charging information is edited on the billing management node (ISDN interface node), call charge is only displayed on the nodes of CCIS network not editing the charging information.*

<Conditions for AOC-D in QSIG/CCIS to CCIS/QSIG to ISDN tandem connection>

(12) The following tandem connections are available only when all the nodes in the network are either FP30-102 R22 or later SV7000 systems, SV8500 systems or SV9500 systems.
QSIG to CCIS to ISDN
CCIS to QSIG to ISDN

(13) AOC-D information cannot be displayed via QSIG.

5.3 SMDR Output Conditions

(1) Call charge information at the end of every call is output to SMDR in the IMX format for AOC-D target calls.

(2) Call charge is output to SMDR in the following range:

MINIMUM	MAXIMUM
0	999999

When the call charge exceeds the maximum value available to calculate, charging overflow notification is output.

5.4 Charging Information in CCIS Tandem Connection

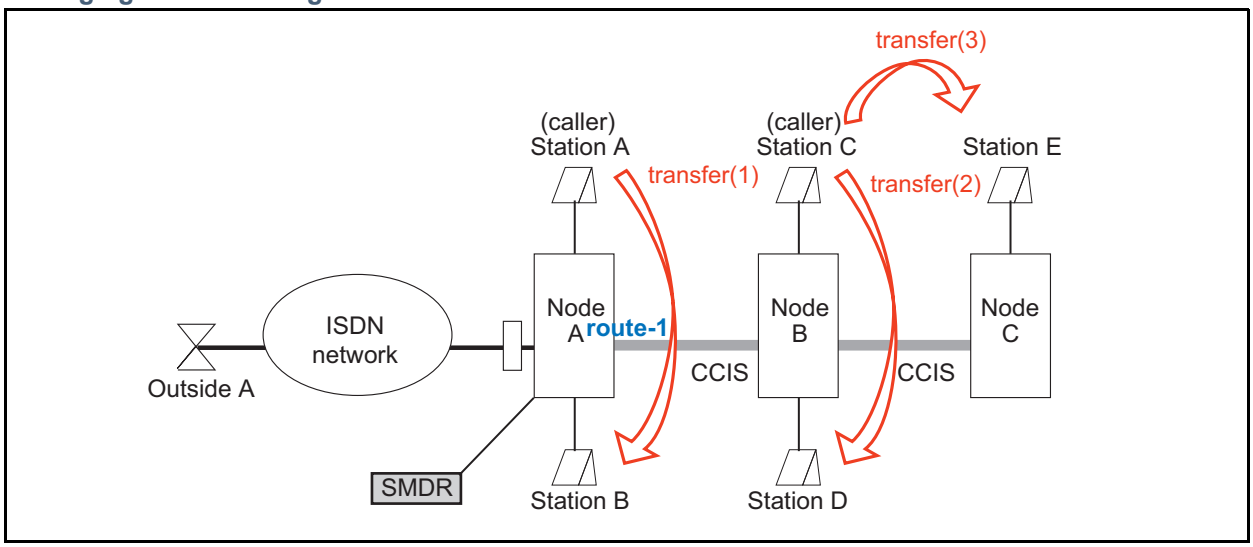
(1) Received information element “facility” or “information” is edited on ISDN interface node for adapting the charging information to CCIS network. The edited data is informed to the nodes in CCIS network.

(2) Whether to transfer charging information to CCIS network is selected by the office data on Point Code (PC) basis. (See the Data Programming for the details.)
**Be sure to assign not to transfer charging information to CCIS when AOC-D feature is not supported on the destination node.*

(3) A call transferred via QSIG will be charged only Total Billing even though it is set to Split Billing. The Total Billing will be output to a node in ISDN.

(4) When a connection is made via QSIG, the terminals are unable to display billing information included in CONNECT message. The terminals are able to display information included in other messages such as FACILITY and INFORMATION.

5.5 Managing the Call Charge in CCIS Tandem Connection



5.5.1 Call Charge Management Conditions

(1) Billing data is not managed on the nodes in CCIS network but on the ISDN interface node (Node A in the figure above).

(2) Output format is IMX format (ASYDL, SYS1, INDEX 578~581, bit0=1).

(3) Charging information is output to "charging information/call metering" field of IMX format (maximum six digits).

(4) Usual billing type, Split Billing or Total Billing, is applied also in CCIS network on system basis (ASYDL SYS1, INDEX 576, bit4=1). The billing type adheres to the setting of the node where SMDR is connected to.

(5) For the ISDN outgoing call via CCIS, call originator's number in CCIS network must be assigned to be the charged target for the call.
ASYD, SYS1, INDEX 174, bit5=1 (Route Number of CCIS interface is specified as the information type of caller ID in the outgoing call via CCIS (calling party's number in ISDN))

(6) Follow the conditions below for the outgoing call to ISDN line via CCIS network, to apply the specifications on ISDN interface node (billing management node).

- In Split Billing, when transferred call (Call Transfer-All Calls, Blind Transfer) is established within the network, charging information is output every time the call is transferred.
- Call originator's number is subject to charge the call.

See Data Programming for the data assignment on ISDN interface node and CCIS network node.

5.5.2 Who Is Charged for Transferred Call in CCIS Tandem Connection

<Charged Target on ISDN interface node (Node A in the figure)>

- Split Billing

When the calling station switches, billing data for both call originators to ISDN line (Station A) and transferred destination (Station B) are output.
From then on, billing data is output every time the call is transferred to other party. (Charging information is output every time "charged target" changes in call transferring.)

- Total Billing

  a.) When the first caller is assigned to be charged for the call:
  The call originator to ISDN line (Station A) is subject to the call charge.
  b.) When the last caller is assigned to be charged for the call:
  The last caller to ISDN line (Station A) is subject to the call charge.

<Charged Target on CCIS network node (Node B and Node C in the figure)>

- Split Billing

  Depending on the system data setting (ASYDL, SYS1, INDEX 576, bit4), the charged target changes.

  a.) bit4=0 (standard setting):
  Even when the calling station switches by transferring, only the first caller to ISDN line via CCIS network (Station C) is subject to the call charge and billing data is output.
  The billing data is output once. The total charge from the beginning to the end of the call is informed in charging information.
  b.) bit4=1:
  For all the calling parties for ISDN line, call originator (Station C) and transferred destination (Station D and Station E), elapsed time and charging information are output every time the calling party switches by transferring.
  From then on, billing data is output every time the call is transferred to other party.

- Total Billing

  When the first caller is assigned to be charged for the call:

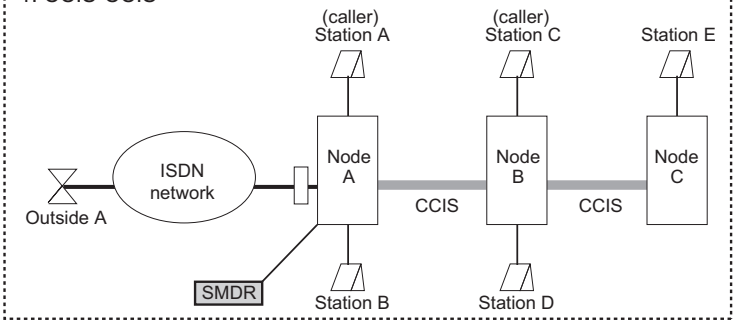
  a.) bit4=0 (standard setting):
  The first caller to ISDN line via CCIS network (Station C) is subject to the call charge.
  b.) bit4=1:
  The same as when bit4=0. Even when the calling station switches by transferring, only the first caller to ISDN line via CCIS network (Station C) is subject to the call charge.

  When the last caller is assigned to be charged for the call:

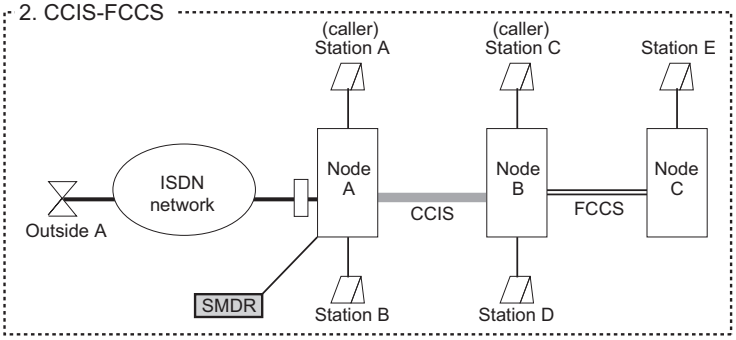
  a.) bit4=0 (standard setting):
  The first caller to ISDN line via CCIS network (Station C) is subject to the call charge.
  b.) bit4=1:
  When the call originator Station C transfers the call to Station D or Station E, the last calling station (Station D or Station E) is subject to the call charge.

<Example Connection Pattern (ISDN Outgoing Call)>

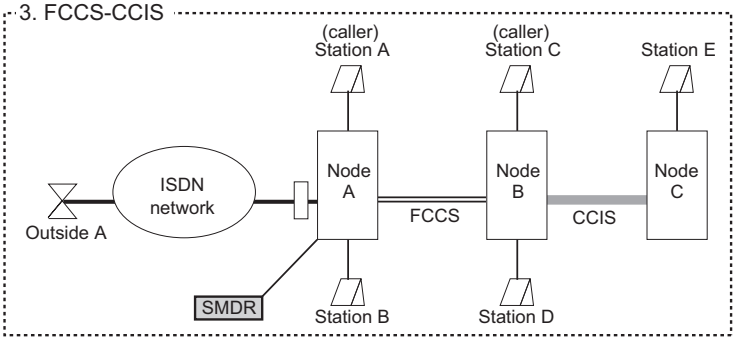
1. CCIS-CCIS



2. CCIS-FCCS



3. FCCS-CCIS



Call charge for each calling station in Split Billing

Caller	Transfer Pattern	Charged Target	Charge Information
Station A	A→B	Station A	Charge for Station A's call
		Station B	Charge for Station B's call
	A→B→A	Station A	Charge for Station A's call
		Station B	Charge for Station B's call
		Station A	Charge for Station A's call
	A→C/D/E	Station A	Charge for Station A's call
		Station C/D/E	Charge for Station C/D/E's call
	A→C→A	Station A	Charge for Station A's call
		Station C	Charge for Station C's call
		Station A	Charge for Station A's call

Caller	Transfer Pattern	Charged Target	Charge Information
Station C	C→D	Station C	Charge for Station C's call
		Station D	Charge for Station D's call
	C→D→C	Station C	Charge for Station C's call
		Station D	Charge for Station D's call
		Station C	Charge for Station C's call
	C→B/E	Station C	Charge for Station C's call
		Station B/E	Charge for Station B/E's call
	C→A→C	Station C	Charge for Station C's call
		Station A	Charge for Station A's call
		Station C	Charge for Station C's call

Call charge for each calling station in Total Billing (the *first* calling station is subject to the total call charge)

Caller	Transfer Pattern	Charged Target	Charge Information
Station A	A→B	Station A	Charge for Station A + Station B's call
	A→B→A	Station A	Charge for Station A + Station B + Station A's call
	A→C/D/E	Station A	Charge for Station A + Station C/D/E's call
	A→C→A	Station A	Charge for Station A + Station C + Station A's call
Station C	C→D	Station C	Charge for Station C + Station D's call
	C→D→C	Station C	Charge for Station C + Station D + Station C's call
	C→B/E	Station C	Charge for Station C + Station B/E's call
	C→A→C	Station C	Charge for Station C + Station A + Station C's call

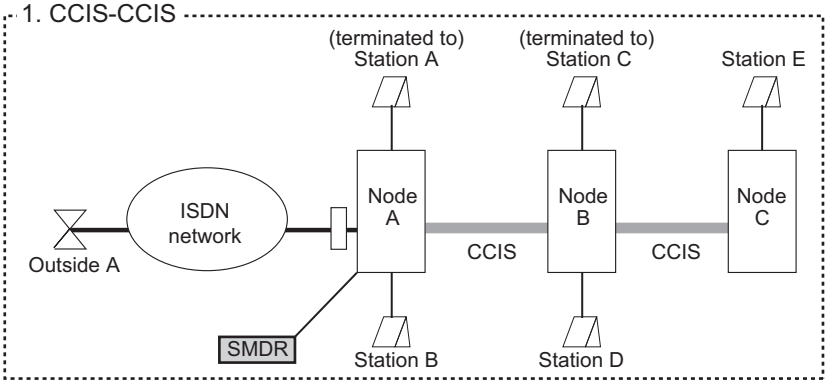
Call charge for each calling station in Total Billing (the *last* calling station is subject to the total call charge)

Caller	Transfer Pattern	Charged Target	Charge Information
Station A	A→B	Station B	Charge for Station A + Station B's call
	A→B→A	Station A	Charge for Station A + Station B + Station A's call
	A→C/D/E	Station C/D/E	Charge for Station A + Station C/D/E's call
	A→C→A	Station A	Charge for Station A + Station C + Station A's call
Station C	C→D	Station D	Charge for Station C + Station D's call
	C→D→C	Station C	Charge for Station C + Station D + Station C's call
	C→B/E	Station B/E	Charge for Station C + Station B/E's call
	C→A→C	Station C	Charge for Station C + Station A + Station C's call

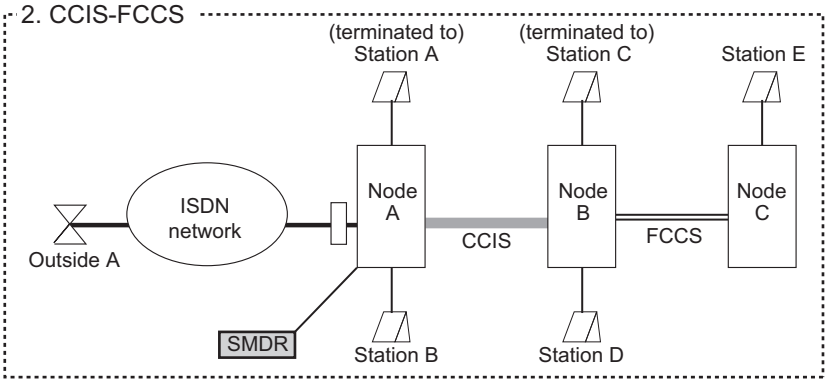
Note: Common to CCIS-CCIS, CCIS-FCCS, and FCCS-CCIS connections.

<Example Connection Pattern (ISDN Incoming Call)>

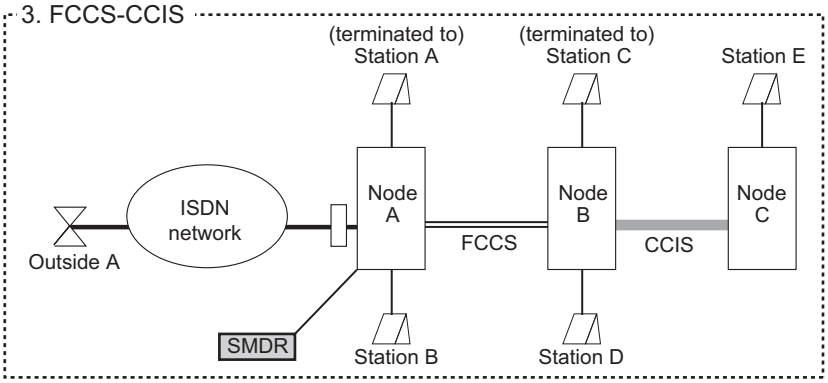
1. CCIS-CCIS



2. CCIS-FCCS



3. FCCS-CCIS



Call charge for each called station in Split Billing:

Called Party	Transfer Pattern	Charged Target	Charge Information from ISDN
Station A	A→B	Station A	Charge for Station A's call
		Station B	Charge for Station B's call
	A→B→A	Station A	Charge for Station A's call
		Station B	Charge for Station B's call
		Station A	Charge for Station A's call
	A→C/D/E	Station A	Charge for Station A's call
		Station C/D/E	Charge for Station C/D/E's call
	A→C→A	Station A	Charge for Station A's call
		Station C	Charge for Station C's call
		Station A	Charge for Station A's call
Station C	C→D	Station C	Charge for Station C's call
		Station D	Charge for Station D's call
	C→D→C	Station C	Charge for Station C's call
		Station D	Charge for Station D's call
		Station C	Charge for Station C's call
	C→B/E	Station C	Charge for Station C's call
		Station B/E	Charge for Station B/E's call
	C→A→C	Station C	Charge for Station C's call
		Station A	Charge for Station A's call
		Station C	Charge for Station C's call

Call charge for the called station in Total Billing (the first called station is subject to the total call charge):

Called Party	Transfer Pattern	Charged Target	Charge Information
Station A	A→B	Station A	Charge for Station A + Station B's call
	A→B→A	Station A	Charge for Station A + Station B + Station A's call
	A→C/D/E	Station A	Charge for Station A + Station C/D/E's call
	A→C→A	Station A	Charge for Station A + Station C + Station A's call
Station C	C→D	Station C	Charge for Station C + Station D's call
	C→D→C	Station C	Charge for Station C + Station D + Station C's call
	C→B/E	Station C	Charge for Station C + Station B/E's call
	C→A→C	Station C	Charge for Station C + Station A + Station C's call

Call charge for the called station in Total Billing (the last called party is subject to the total call charge):

Called Party	Transfer Pattern	Charged Target	Charge Information
Station A	A→B	Station B	Charge for Station A + Station B's call
	A→B→A	Station A	Charge for Station A + Station B + Station A's call
	A→C/D/E	Station C/D/E	Charge for Station A + Station C/D/E's call
	A→C→A	Station A	Charge for Station A + Station C + Station A's call
Station C	C→D	Station D	Charge for Station C + Station D's call
	C→D→C	Station C	Charge for Station C + Station D + Station C's call
	C→B/E	Station B/E	Charge for Station C + Station B/E's call
	C→A→C	Station C	Charge for Station C + Station A + Station C's call

Note: Common to CCIS-CCIS, CCIS-FCCS, and FCCS-CCIS connections.

6. INTERACTIONS

(1) Dial Plan to Support IP Centrex Functionality
- As the country information in AOC-D is administrated on route class basis, AOC-D feature works normally even when Dial Plan to Support IP Centrex Functionality feature is in service on the same system. (AOC-D works independently from UGN setting.)

(2) FCCS over Multiple Program Versions
- AOC-D function (to receive, display, and output charging information) is available for the nodes of FP85-104 S1 or later software version.

Note: The coexistence of the following software version combination are not available.

FP85-104 S1 or later software version andFP50/30-103R24or earlier software version

(3) ETSI Advice of Charge: Charging Information at the End of the Call (AOC-E)
- AOC-D functions in common with AOC-E in the system. Both features turn enabled or disabled interactively depending on the service conditions on node basis.

(4) OAI and ACD feature are not supported. Be sure to assign the Service Feature Restriction Class (SFC) of restricting OAI/ACD features to the stations using AOC-D (ASFC/ASFCN command, SFI 149=1).

<Interactions for AOC-D with Call Transferring and Call Forwarding>

(1) FCCS over Multiple Program Versions
- Both Total Billing and Split Billing are available.

(2) Multiple Line Operation -D
(*ISDN outgoing call from Desktop terminal in multiple-line group)
- Regardless of the station type (My Line or Sub Line), when receiving the charging information from ISDN, whether AOC-D is used or not is selected by Service Feature Restriction Class (SFC) setting on each My Line/Sub Line station.

(3) Call Hold and returning to the original call
- Call charge is not displayed while the call is held even when the charging information is informed from ISDN.
- Call charge can be displayed after returning to the original call and charging information is informed from ISDN.
- When other station picks the held call up and received charging information from ISDN, whether to display call charge is selected by Service Feature Restriction Class (SFC) of the answering station.

(4) Call Waiting
- When Call Waiting is set while the LCD is displaying call charge, Call Waiting feature takes precedence (call charge display turns OFF). Call charge is not updated until releasing Call Waiting feature, even when charging information is received from ISDN.

(5) Call Back
- When Call Back is set while the LCD is displaying call charge, Call Back feature takes precedence (call charge display turns OFF). Call charge is not updated until releasing Call Back feature, even when charging information is received from ISDN.

(6) Executive Right of Way
- When the call is intruded while the LCD is displaying call charge, Executive Right of Way feature takes precedence (call charge display turns OFF).

- During Three-way Calling, call charge is not displayed even when the charging information is informed from ISDN.

(7) Call Park

- When service set station reconnects the parked call and the display for the answered station depends on Service Feature Restriction Class (SFC) setting on each station.

(8) Blind Transfer

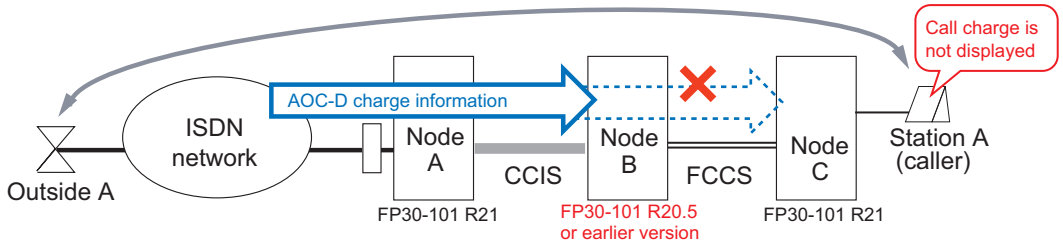
- Call charge display is also available for the call pickup setting station.
- Whether to display call charge is selected depending on the Service Feature Restriction Class of the answering station in Station Hunting (UCD, Circular, and pilot station).

<Interactions for AOC-D in CCIS Tandem Connection>

(1) FCCS over Multiple Program Versions

- When any relaying node uses FP50/30-103 R24 or earlier software version, this feature cannot work.

Note: The coexistence of FP85-104 S1 or later software version and FP50/30-103R24 or earlier software version is not available.



(2) ETSI Advice of Charge: Charging Information at the End of the Call (AOC-E)

- Call charge display at the end of the call using AOC-E works coordinating with AOC-D. AOC-E function cannot work alone.

(3) Multiple Line Operation -D
(*ISDN outgoing call from Desktop terminal in multiple-line group)

- Regardless of the station type (My Line or Sub Line), when receiving the charging information from ISDN, whether AOC-D is used or not is selected by Service Feature Restriction Class (SFC) setting on each My Line/Sub Line station.

(4) Call Hold and returning to the original call

- Call charge is not displayed during holding a call even when the charging information is informed from ISDN.
- Call charge can be displayed after returning to the original call and charging information is informed from ISDN.
- When other station picks the held call up and received charging information from ISDN, whether to display call charge is selected by Service Feature Restriction Class (SFC) of the answering station.

(5) Call Waiting

- When Call Waiting is set while the LCD is displaying call charge, Call Waiting feature takes precedence (call charge display turns OFF). Call charge is not updated until releasing Call Waiting feature, even when charging information is received from ISDN.

(6) Call Back

- When Call Back is set while the LCD is displaying call charge, Call Back feature takes precedence (call charge display turns OFF). Call charge is not updated until releasing Call Back feature, even when charging information is received from ISDN.

(7) Executive Right of Way

- When the call is intruded while the LCD is displaying call charge, Executive Right of Way feature takes precedence (call charge display turns OFF).
- During Three-way Calling, call charge is not displayed even when the charging information is informed from ISDN.

(8) Call Park

- When service set station reconnects the parked call and the display for the answered station depends on Service Feature Restriction Class (SFC) setting on each station.

(9) Blind Transfer

- Call charge display is also available for the call pickup setting station.
- Whether to display call charge is selected depending on the Service Feature Restriction Class of the answering station in Station Hunting (UCD, Circular, and pilot station).

7. PROGRAMMING

7.1 Data Programming for AOC-D

STEP 1: ASYD - Assign the System Data
SYS1
INDEX 32, bit7=1 (SMDR is in service)
INDEX 33, bit2=0 (Recording for event-based SMDR) **Fixed to 0.*
INDEX 78, bit4=0 (Desktop terminal LCD display in English) **Fixed to 0.*

SYS2
INDEX 3, bit0=1 (SMDR registration per tenant)

STEP 2: ASYDL -Assign the System Data for LDM
SYS1
INDEX 576, bit2=1 (SMDR interface type is LANI)
INDEX 578~581, bit0=1 (Output text for SMDR A~D is IMX format)

STEP 3: ASFC/ASFCN - Assign the Service Feature Restriction Class data
SFI 14=1 (SMDR-Trunk Basis is allowed)
SFI 149=0 (Remove Display of AOC on Dterm is restricted)
SFI 175=1 (Advice of Charge Supplementary Service in Q-SIG network is allowed)

STEP 4: ARTD/ARTDN -Assign the Route Class data
CDN 10: SMDR = 1 (SMDR is in service)
CDN 16: SMDR2 = 4 (Metering pulse receiving from destination office is used)
CDN 65: INT = 4 (PRI (ITU-T/ETSI)) or 6 BRI (ITU-T/ETSI))
CDN 124: AOC = 0 (Destination office complies with ETSI specification)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card or MG.

STEP 5: ARTI/ARTIN -Assign the Trunk Application data
CDN 32: SRV, b0=0 (Advice of Charge is in service)
CDN 89: REGION = 1 (ETSI ISDN interface is in service)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card or MG.

STEP 6: ACODL/ACODN -Assign the Country data
RT/LGRT: Route number/Logical Route number of ISDN outgoing call
COUNTRY
- Name: Select a target country
- Code: Automatically displayed
AOC Flg: Place a checkmark in the checkbox.
- UNIT RATE (Integer): Charge per Call Unit (Integer) [0-99]
- UNIT RATE (Decimal): Charge per Call Unit (Decimal fraction) [0-99]

7.2 Data Programming for AOC-D with Call Transfer and Call Forwarding

STEP 1: ASYD -Assign the System Data
SYS1
INDEX 20
bit7=0/1 (Call originator/C.F. set station is subject to charge in Call Forwarding-Outside)
INDEX 32, bit7=1 (SMDR is in service)
INDEX 33
bit2=0 (Recording for event-based SMDR) **Fixed to 0.*
bit3=0/1 (The first/last calling party is subject to charge in Total Billing)
bit5=0/1 (Billing for transferred incoming call is Split Billing/Total Billing)
bit6=0/1 (Billing for transferred outgoing call is Split Billing/Total Billing)
INDEX 78, bit4=0 (Desktop terminal LCD display in English) **Fixed to 0.*

SYS2
INDEX 3, bit0=1 (SMDR registration per tenant)

STEP 2: ASYDL -Assign the System Data for LDM
SYS1
INDEX 576, bit2=1 (SMDR interface type is LANI)
INDEX 578~581, bit0=1 (Output text for SMDR A~D is IMX format)
INDEX 589, bit0=1 (MA-ID is added to SMDR text)

STEP 3: ASYDN -Assign the System Data for NDM
SYS1
INDEX 20
bit7=0/1 (Call originator/C.F. set station is subject to charge in Call Forwarding-Outside)
INDEX 33
bit3=0/1 (The first/last calling party is subject to charge in Total Billing)
bit5=0/1 (Billing for transferred incoming call is Split Billing/Total Billing)
bit6=0/1 (Billing for transferred outgoing call is Split Billing/Total Billing)

STEP 4: ASFC/ASFCN - Assign the Service Feature Restriction Class data
SFI 14=1 (SMDR-Trunk Basis is allowed)
SFI 149=0 (Remove Display of AOC on Dterm is restricted)
SFI 175=1 (Advice of Charge Supplementary Service in Q-SIG network is allowed)

STEP 5: ARTD/ARTDN -Assign the Route Class data
CDN 10: SMDR = 1 (SMDR is in service)
CDN 16: SMDR2 = 4 (Metering pulse receiving from destination office is used)
CDN 65: INT = 4 (ITU (PRI (ITU-T/ETSI)) or 6 (BRI (ITU-T/ETSI))
CDN 124: AOC = 0 (Destination office complies with ETSI specification)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card or MG.

STEP 6: ARTI/ARTIN -Assign Trunk Application data
CDN 32: SRV, b0=0 (Advice of Charge is in service)
CDN 89: REGION = 1 (ETSI ISDN interface is in service)

STEP 7: ACODL/ACODN -Assign the Country data
RT/LGRT: Route number/Logical Route number of ISDN outgoing call
COUNTRY
- Name: Select a target country
- Code: Automatically displayed
AOC Flg: Place a checkmark in the checkbox.
- UNIT RATE (Integer): Charge per Call Unit (Integer) [0-99]
- UNIT RATE (Decimal): Charge per Call Unit (Decimal fraction) [0-99]

7.3 Data Programming for AOC-D in CCIS Tandem Connection

Note: Move on to the following data assignment on condition that the data setting for CCIS network and SMDR is completed.

<Required for ISDN interface node (billing management node) only>

STEP 1: ASYDL- Assign the System Data for LDM
SYS1
INDEX 576, bit4=1
(Split Billing and Total Billing output to SMDR is applied for transferred calls in CCIS tandem connection)
INDEX 578, bit0=1 (Output text for SMDR A is IMX format)

STEP 2: ASYD/ASYDN -Assign the System Data and System Data for NDM
SYS1
INDEX 33
bit3=0/1 (The first/last calling party is subject to charge in Total Billing)
bit5=0/1 (Billing for transferred incoming call is Split Billing/Total Billing)

bit6=0/1 (Billing for transferred outgoing call is Split Billing/Total Billing)

INDEX 174, bit5=0

(SMDR output method in CCIS/ISDN tandem node.
Information type of calling party in the outgoing call via CCIS (calling party's number in ISDN) is station number) **Note 1**

INDEX 248, bit6=1

(SMDR output information is changed at ISDN interface node for adapting to CCIS.
0=Incoming RT/TK number is output as the caller information
1=Calling number in CCIS and ISDN network is output as the caller information)

INDEX 296, bit0=1 (Output of Calling Number (ANI information) is in service)

Note 1: In CCIS network, the number is limited to six digits including the node number of RT=0 in the ARNP command.

<Required for both ISDN interface node and the nodes in CCIS network>

STEP 3: ASYD- Assign the System Data

SYS1

INDEX 20

bit7=0/1 (Call originator/C.F. set station is subject to charge in Call Forwarding-Outside)

STEP 4: ARTD- Assign the Route Class data

CDN 43: BT=1 (Inter-office busy service for CCIS speech route is in service)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card or MG.

STEP 5: ASFC/ASFCN - Assign the Service Feature Restriction Class data

SFI 149=0 (Remove Display of AOC on Dterm is restricted)

<Required for the nodes in CCIS network only>

STEP 6: ASYD/ASYDN-Assign the System Data/System Data for NDM
SYS1
INDEX 240, bit5=1
(Caller ID sending type for CCIS signaling IAI.
My Line's number is sent out when originating a call on Sub Line station in Multiple-Line group. **Because ISDN interface node manages the My Line station as the charge target.*)

STEP 7: APIPL/APIPN -Assign the IP Address Data for Point Code for LDM/NDM **Note 2**

PC:	Point Code of destination node [1-16367]
CNT:	Count Number [1-8]
IP ADDRESS:	IP address of Point Code (Assign the IP address of IPTRK in destination node.)
MODE:	Select either, Permanent Virtual Connection or Switched Virtual Connection
TIMER:	TCP connection disconnecting timer for Switched Virtual Connection [0-127]
LKRCN:	0/1=No link reconnection (IPS destination)/Link reconnection (Telephony Server destination)
AOC:	0/1=Tandem control data for AOC is not sent out/sent out **Note 3**
LOOK AHEAD:	Look Ahead (Condition Look Ahead Routing - CCIS on the originating node) [0-3] 0: Busy Enable (Restriction disable) 1: Restriction Enable (Busy disable) 2: Busy/Restriction Enable 3: Busy/Restriction Disable

Note 2: Assign this data by APIP2L/APIP2N command when the system configures the CCIS network with both Internal PH and IPTRK circuit card.

Note 3: When the destination node does not support AOC feature, be sure to assign AOC=0.

Note: Take notice of the following conditions in Numbering plan.
The number of outgoing digits must be assigned within eight digits including the Office Code of Self Node. (*The total number of Station Number + Office Code Number, or Telephone Number + Office Code is limited to eight digits, considering the P2P CCIS conditions.)

[I-38] ISDN SUPPLEMENTARY SERVICE SELECTION

1. GENERAL DESCRIPTION

This feature allows to select whether to support required supplementary service or not at each route connected to ISDN.

2. OPERATING PROCEDURE

No manual operation is required.

3. SERVICE CONDITIONS

(1) Supplementary services for this feature are AOC-E and MCID.

4. PROGRAMMING

See [A-90] ADVICE OF CHARGE DISPLAY, [A-91] ADVICE OF CHARGE SMDR or [M-98/100] MALICIOUS CALL TRACE - PRA.

[M-98/100] MALICIOUS CALL TRACE - PRA/MALICIOUS CALL IDENTIFICATION - PRI

1. GENERAL DESCRIPTION

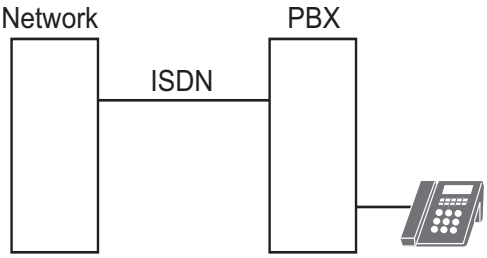
This feature is available for the interface of Australia (ARTD CDN65 INT=2) and ETSI (ARTD CDN65 INT=4) specifications.

This feature allows the Desktop terminal and Attendant to send an MCT message/MCID to the network when a malicious call arrives via an ISDN trunk.
This feature is available to be interworked with the FCCS link.

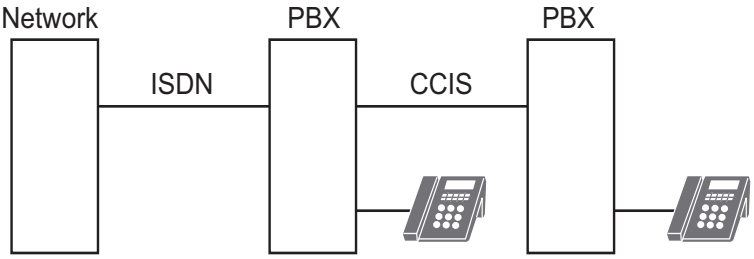
This feature is available on analog telephone stations by hooking/hooking + access code operation.

The service conditions for the case (1) through (3) are the same.

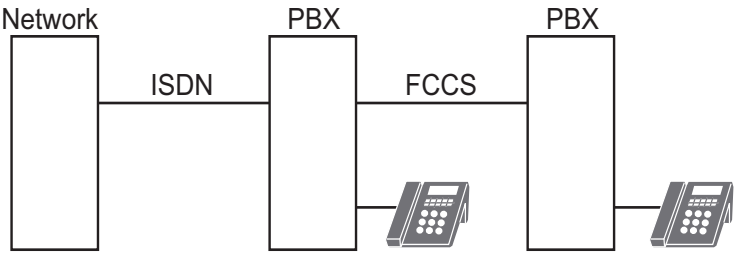
Case (1) MALICIOUS CALL for a call from ISDN network can be activated from Desktop terminal, Attendant Console, and analog telephone.



Case (2) MALICIOUS CALL for a ISDN call terminated through CCIS link can be activated from Desktop terminal, Attendant Console, and analog telephone.



Case (3) MALICIOUS CALL for a ISDN call terminated through FCCS link can be activated from Desktop terminal, Attendant Console, and analog telephone.



2. OPERATING PROCEDURE

To operate from a Desktop terminal:

1. When a malicious call terminates to a Desktop terminal, press the MCT/MCID key. The MCT/MCID message is sent to the network.
   When this service is set, the LCD displays;

[for Australia]



[for U.A.E.]



To operate from an Attendant Console:

1. When a malicious call terminates to an Attendant Console, press the MCT/MCID key. (The MCT/MCID lamp lights.) The message is sent to the network. (The MCT/MCID key is the same as CALL PARK Feature key.)

To operate from an analog telephone (hooking + access code) **Note 1**

1. While a call from ISDN line is in progress, press switch hook on analog telephone station.
2. The caller from ISDN line hears music-on-hold.
3. Dial the access code for Malicious Call Trace.
4. Malicious Call Trace message is sent to the network.
5. Both parties get back to the call when analog station presses switch hook.
6. Analog station places the handset.

To operate from an analog telephone (hooking only):

1. While a call from ISDN line is in progress, press switch hook on analog telephone station. (The call is kept.)
2. Malicious Call Trace message is sent to the network.
3. Analog station places the handset.

Note 1: One of the above operations can be selected on a station basis by using ASFC, SFI=223.

3. SERVICE CONDITIONS

1. Hooking/Hooking + Access Code operation is available for analog telephone only in this feature. Use Feature key on Desktop terminal and Attendant Console.
2. CALL PARK [C-29] service operated via the Attendant Console is not used together with MALICIOUS CALL TRACE.
3. The service conditions when MALICIOUS CALL TRACE is set from the Desktop terminal.
   (a) You can only set up this service from the called Desktop terminal which is on two-party connection.
   (b) Desktop terminal LCD display shown below and the tone (SYS1, INDEX6, b3: see "6. PROGRAMMING" for details) inform the operating station of this service set.

   MCT SET

   * "Elapsed time" and "Connected party's number" will be displayed after the display shown above appears for 15 seconds.

   (c) When user transfers a malicious call after the service has been set to the call, the call trace is taken over but the LCD display and the LED indication for the service will not be provided with the transfer destination.
   (d) MALICIOUS CALL TRACE is not canceled until the last termination (the terminal to be connected with the Malicious call) is released.

4. The service conditions when MALICIOUS CALL TRACE is set from the Attendant Console
   (a) An Attendant Console user can set this service under the conditions below.
   - when the Attendant Console is in the two-party connection.
   - when the Attendant Console holds a station call/trunk call.
   - when the Attendant Console is communicated with a call with SRC and holds a call with the DEST key.
   - when the Attendant Console is communicated with a call with SRC and originates a call with the DEST key.
   - when the Attendant Console holds a call with SRC and communicated with the DEST key.
   - when the Attendant Console holds a call with SRC and originates a call with the DEST key.
   - when the Attendant Console is in the three-party connection.

   (b) The operation from the Attendant Console is not different whether the service has been set or not.
   (c) The LED indication (MCT key lights) informs at the time MALICIOUS CALL TRACE has been set.
   (d) When a user transfers a malicious call after the service has been set to the call, the call trace is taken over but the LCD display and the LED indication for the service will not be provided with the transfer destination.
   (e) MALICIOUS CALL TRACE is not canceled until the last termination (the terminal to be connected with the Malicious call) is released.
   (f) MCT key position of Attendant Console can be decided by the system data (ASYD, SYS1, INDEX6, b4~b6. See "6. PROGRAMMING" for details). Be mindful that MCT key is not effective when pattern 4 is selected there.

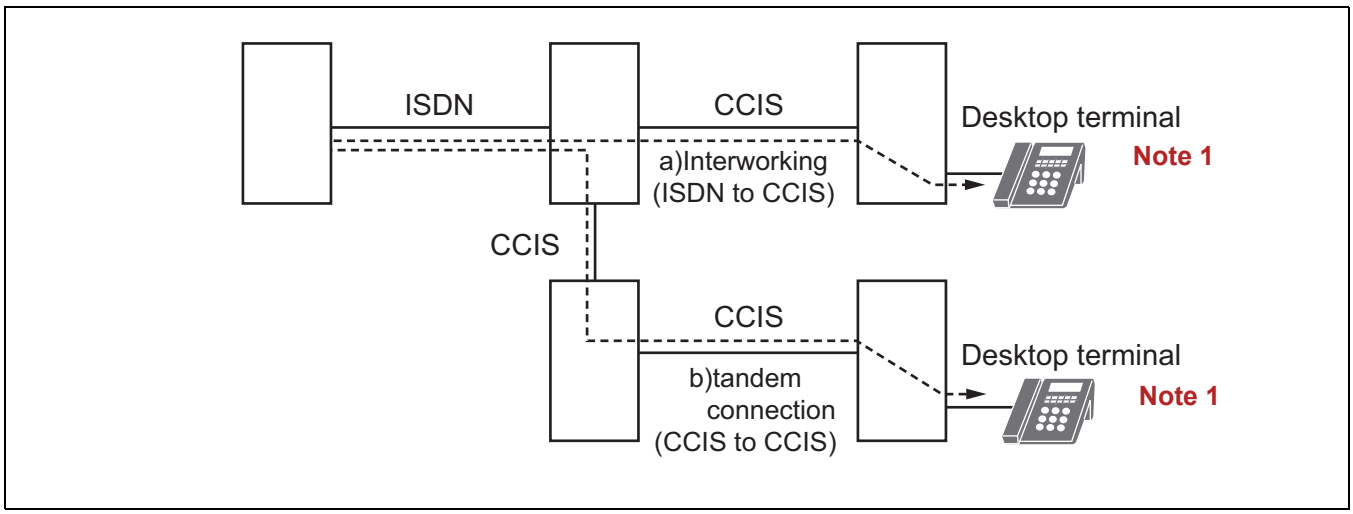
5. The service conditions when MALICIOUS CALL TRACE is set from analog telephone stations:
   (a) This feature is available for the two-party calling from ISDN line.
   (b) When Hooking + Access Code operation is activated in this feature, music-on-hold is sent to the trunk line.

(c) Hooking operation on analog station is treated as MALICIOUS CALL TRACE setting when ISDN or CCIS incoming call terminates to the stations of SFI 223=1 is assigned. Any hooking operation for other features become invalid to ISDN and CCIS incoming calls.
(d) MALICIOUS CALL TRACE is not canceled until the last termination (the terminal to be connected with the Malicious call) is released.

4. INTERACTIONS

Interworking with CCIS

MALICIOUS CALL TRACE is available with CCIS in the following two cases.



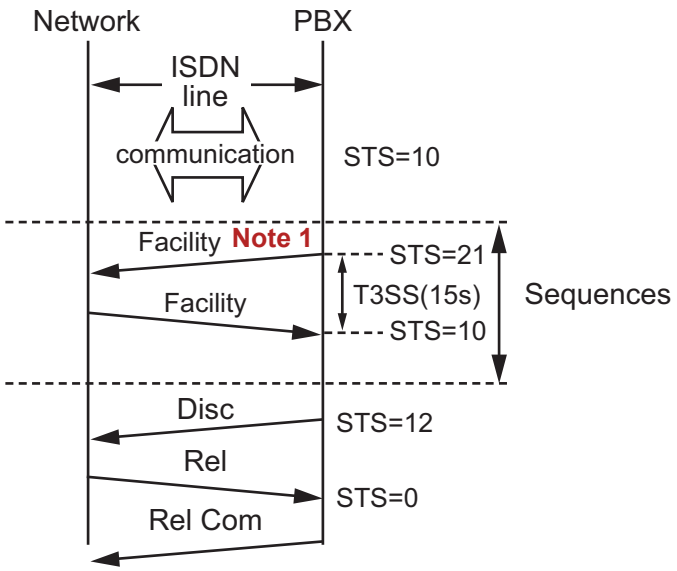
Note 1: The destination terminal is a Desktop terminal, Attendant Console, or analog telephone. The destination terminal's conditions are described in “3. SERVICE CONDITIONS.”

Note: MALICIOUS CALL TRACE (with this feature) is not provided when the current system and the new system exist in a network. However, this service is effective for the call transferred.

Note: This feature cannot be used with NEAX2000 IPS via CCIS. (CCIS of NEAX2000 IPS dose not support MCT (MCID).)

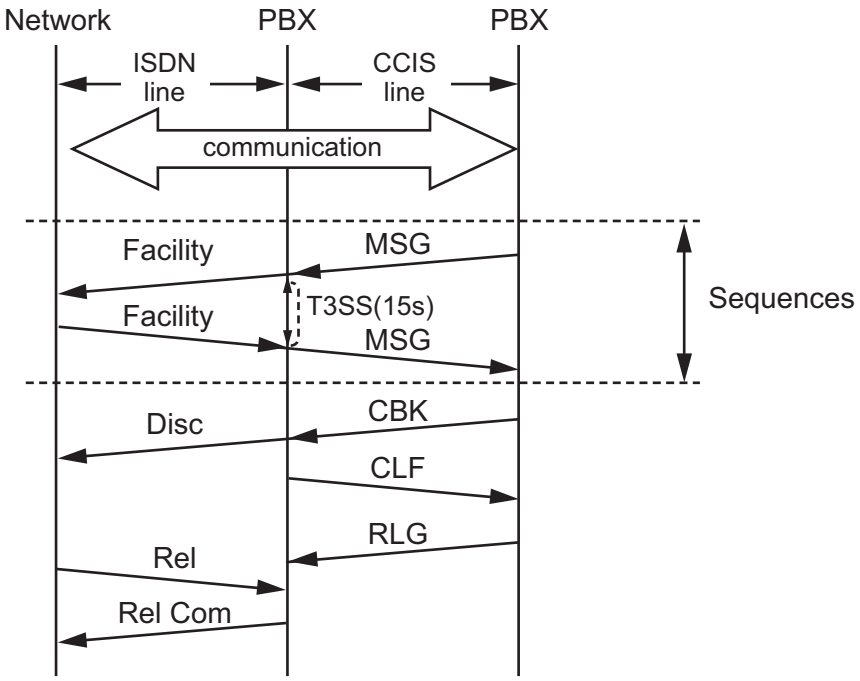
5. THE PROTOCOL CONDITION

(1) Message Sequences: ISDN (Network) - ISDN (PBX)

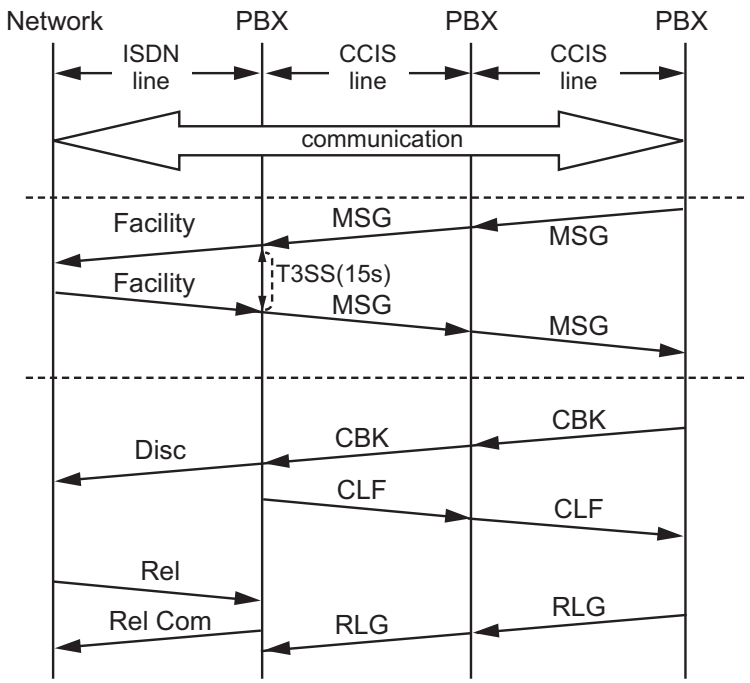


Note 1: The following kinds of specifications are applied in ISDN message for requesting MCT service depending on the interface.
1. When ARTD CDN65 INT=2 (Australia)
   Keypad "*MCT*01#"
2. When ARTD CDN65 INT=4 (ETSI)
   Determined by the setting of ARTI CDN58 MCTFAC
   MCTFAC 0 = Keypad "*39#"
   MCTFAC 1 = Facility message

(2)Message Sequences: ISDN (Network) - ISDN (PBX) - CCIS (PBX)



(3) Message Sequences: ISDN (Network) - ISDN (PBX) - CCIS (PBX) - CCIS (PBX)



6. PROGRAMMING

(For Desktop terminal)

STEP 1: ASYD - System Data 1,	Index 6,	b3=0/1:	NEC Standard Tone/Australian Tone	**Note 1**
	Index 220,	b7:	Timer set for Layer 3-ISDN trunk	
		0:	–	
		1:	Timer is set (Assign "1")	
	Index 248,	b5:	Malicious Call Trace service	
		0:	Out of service	
		1:	In service (Assign "1")	

Note 1: For using in Australia, assign "1" here. By assigned data here, the displayed data is different as shown below.
0/1=MCID/MCT

STEP 2: ARTI - Assign Trunk Application Data
SRV (CDN 27)b1: Malicious Call Trace
0=Valid
SRV (CDN 58)MCTFAC (MCT (MCID) Service Send Message)
(available when ARTD CDN68 INT=4)
0: When using MCT (MCID) service, send Keypad information element
1: When using MCT (MCID) service, send FACILITY message

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card or MG.

STEP 3: AKYD - Assign MCT
FKY=25

STEP 4: ASFC- Enter Service Feature Restriction Data
SFI 120=1 (MCT is in service.)

Note: When you need this service via CCIS No.7 link, assign CDN98 (CI)=1 (ARTD) to the speech route of CCIS No.7 network.

STEP 5: ARTD- CDN98 (CI) ISDN transmitting information.

0=Out of Service

1=16-Digit Caller Number Service, Attribute information Notification Service, and Calling Sub-Address Transfer Service.

2-15=Not used.

(For ATT-CON)

STEP 1: ASYD - System Data 1, Index 6, b3=0/1: NEC Standard/Australian
Index 6, b4-b6: Key arrangement pattern the right side of ATTCON

b6	b5	b4		
0	0	1	=Pattern 2	Note 2, Note 3
0	1	0	=Pattern 3	

Index 220, b7: Timer set for Layer 3-ISDN trunk
0: –
1: Timer is set (Assign "1")
Index 248, b5: Malicious Call Trace service
0: Out of service
1: In service (Assign "1")

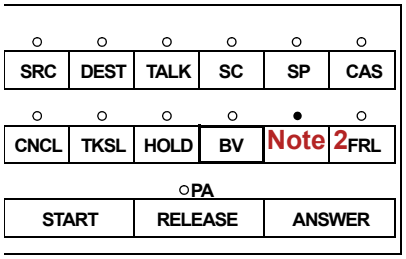
STEP 2: ARTI - Assign Trunk Application Data
SRV (CDN27) b1:Malicious Call Trace
0=Valid
SRV (CDN 58)MCTFAC (MCT (MCID) Service Send Message)
(available when ARTD CDN68 INT=4)
0: When using MCT (MCID) service, send Keypad information element
1: When using MCT (MCID) service, send FACILITY message

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as circuit card, MG, or VS32.

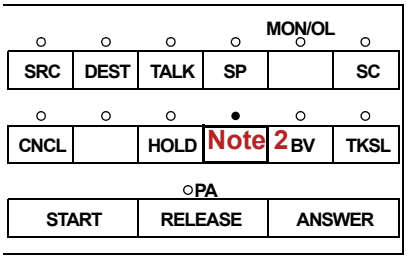
STEP 3: ASFC - Enter Service Feature Restriction Data.
SFI 120=1 (MCT is in service)

Business Attendant Console

Pattern 2



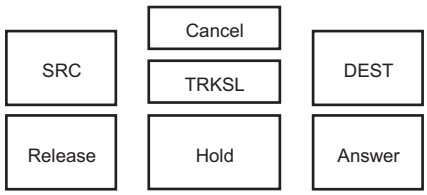
Pattern 3



Business Desk Console

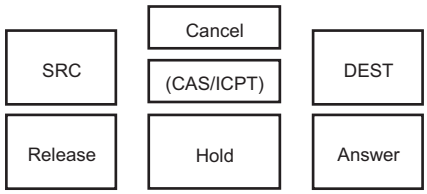
Pattern 2

LDN	TIE	BUSY	ATND	NANS	Recall	TF	(FX)	PAGE	REC
EMG	**Note 3**	TRKSL	BV	SC	SVC	(FRL)	(CAS/ICPT)	Start	Mute



Pattern 3

LDN	TIE	BUSY	ATND	NANS	Recall	TF	(FX)	PAGE	REC
EMG	BV	TRKSL	**Note 2**	SC/RC	SSCA	MON	(ICPT)	Start	Mute



Note 2: This key is used as MCT/MCID Key instead of CALL PARK Feature key.

Note 3: When you need this service via CCIS No.7 link, assign CDN98 (CI)=1 (ARTD) to the speech route of CCIS No.7 network.
ARTD- CDN98 (CI) ISDN transmitting information.
0=Out of Service.
1=16-Digit Caller Number Service, Attribute Information Notification Service, and Calling Sub-Address Transfer Service.
2-15=Not used.

(For Analog Telephone)

STEP 1: ASYD - System Data 1, Index 220, b7: Timer set for Layer 3-ISDN trunk
0: –
1: Timer is set (Assign "1")
Index 248, b5: Malicious Call Trace service
0: Out of service
1: In service (Assign "1")

STEP 2: ANPD/ANPDL/ANPDN -Assign the necessary number of digits and the 1st number of access code for setting Malicious Call Trace.

TN:Tenant Number
1st DC:1st digit of service access code for Malicious Call Trace (0~9, *, #)
Select Hooking Service (H) from the combo box for Connection Indexes.
NND:Necessary number of digits for the access code
BLF:Assign "0 (busy status display is not required)."

STEP 3: <When Hooking + Access Code operation is used>
ASPA/ASPAL/ASPAN -Assign Special Access Code Data.

CI: "H: Hooking"
SRV: "SSCA: Service Code Appendix"
SIDA:151 (Malicious Call Trace; Entry)

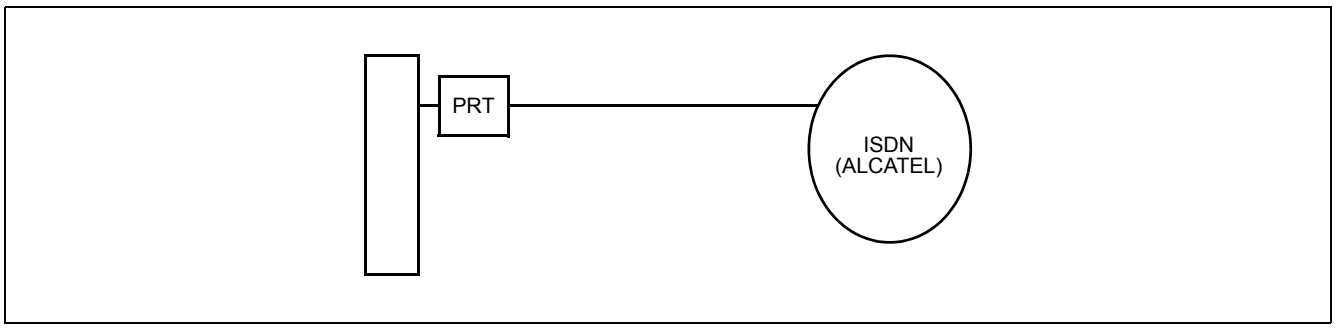
STEP 4: ASFC/ASFCN - Assign Service Feature Restriction Data
<When Hooking + Access Code operation is used>
SFI 120=1 (Malicious Call Trace is in service.)
<When Hooking operation is used>
SFI 120=1 (Malicious Call Trace is in service.)
SFI 223=1 (Malicious Call Trace by hooking on analog telephone is in service)

Note: Use LDM command to assign different access code for each node in FCCS network. Use NDM command to assign the same access code for every node in FCCS network.

[P-70] PRI INTERFACE WITH ETSI/VN4 (for Chile)

1. GENERAL DESCRIPTION

This feature allows PRT to connect to ISDN with ALCATEL in Chile.
The interface conforms to ETSI (1990 ETS 300 102-1) and covers only mandatory information elements of it.



2. OPERATING PROCEDURE

No manual operation is required.

3. PROGRAMMING

STEP 1: Assign the Basic Data for ISDN. (Refer to CHAPTER 3.)

Note: ARTD-CDN65 (INT)=4

STEP 2: ARTD - CMRT (CDN115)=1

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

STEP 3: ARTI - RST=3 (Restart not Send)

Note: To change the data for existing route (RT), initialize or reboot the trunk device such as a circuit card or MG.

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NWD-165802-001

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