ALLOCATING NEW SIMULATED FACILITIES GROUP/CHANGING SIZE MANUAL TRANSLATION MODIFICATION PROCEDURES NO. 2/2B ELECTRONIC SWITCHING SYSTEM

CONTENTS PAGE

1. GENERAL 1
PURPOSE 2
2. REQUIREMENTS 2
A. Limitations 2
B. Program Store Requirements . . . 2
C. Call Store Requirements 5
3. PROCEDURE FOR ALLOCATING SIMULATED FACILITIES GROUP 5
4. TRANSLATOR CONTENTS 8
5. REPRODUCIBLE FORM 8

Figures

1. Simulated Facilities Group Translator—EF-1, 2B-EF-1 Generic Programs . . . 9
2. Simulated Facilities Group Translator—EF-2, 2B-EF-2 Generic Programs . . . 10
3. Example of a Completed SIM-1 Form for EF-1 Generic 11
4. Example of a Completed SIM-1 Form for EF-2 Generic 12
5. Translator Locations for SFG Data . . . 13
6. Reproducible Copy of SIM-1 Form . . . 15

CONTENTS PAGE

Tables

A. Simulated Facilities Availability . . . 3
B. Simulated Facilities Capabilities . . . 4
C. SIMGRP Address Table 6
D. Adjustments 7

1. GENERAL

1.01 This section provides the procedures to make the following translation changes:

- Add a new Simulated Facilities Group (SFG)
- Allocate program store for a new SFG Data Table
- Allocate call store status block
- Allocate call store holding registers.

The manual translation modification procedures in this section apply to the No. 2 Electronic Switching System (ESS) equipped with the EF-1 or 2B-EF-1 generic program and the No. 2B ESS equipped with the 2B-EF-1 or 2B-EF-2 generic program.

1.02 This section is reissued to incorporate validation comments. Since this reissue is a general revision, no revision arrows have been used to denote significant changes.

1.03 The procedures in this section are designed to provide all information necessary to complete the forms required to add a new SFG. This information will be implemented later using change in pro-

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gram store (CHIPS) procedures and recent change messages.

When to Use the Procedure

1.04 ***The use of a manual translation change procedure is not intended to be a part of the day-to-day routine or course of action. A manual translation change procedure should only be used when there is no practical alternative and normal scheduling of an ODA update procedure is not feasible. The ODA update procedure can be performed with a greater accuracy due to the inherent error check in the office data administration (ODA) routine. The manual translation modification procedure contains a much greater probability of error due to hand manipulation and recording of the address numbers and memory contents.***

1.05 The ability to add and subtract in octal is essential to the successful utilization of the procedures in this section. The size and address of each block of program store will be read out of the No. 2 ESS program store or the 2B main store in response to a teletypewriter (TTY) input message. The standard CHIPS procedure required to change the program store cards or 2B main store requires an octal input. All address calculation and indexing is done by octal addition and subtraction. The user must also be able to calculate parity by adding the binary bits that are the contents of the new translator words to be written. See Section 232-127-101 for methods of performing binary and octal calculations. In addition, Section 232-127-101 shows how parity is calculated and also contains decimal to octal and octal to binary conversion tables.

1.06 Parity will not be calculated in this section for words where the parity bit is the most significant bit. In these cases, parity will be calculated when the procedures in Section 232-127-303 or Section 232-327-303 are performed.

1.07 A reproducible form is provided to be used when allocating a simulated facilities group.

PURPOSE

1.08 Simulated Facilities Groups (sometimes called Simulated Trunk Groups) provide a software method of limiting the number of simultaneous calls (or activations) for a given customer service when there are no physical facilities unique to that customer service.

1.09 The different service features which utilize simulated facilities are summarized in Table A.

1.10 The simulated facility capabilities which may be incorporated with the different features are outlined in Table B.

2. REQUIREMENTS

A. Limitations

2.01 An ESS office equipped with the EF-1 or 2B-EF-1 generic program is limited to 127 SFGs. An ESS office with the EF-2 or 2B-EF-2 generic program is limited to 1023 SFGs. SFG number 0 is not allowed.

2.02 The maximum threshold (the number of simultaneous calls allowed) per SFG is 255 with EF-1 and 2B-EF-1 generics and 8191 with EF-2 and 2B-EF-2 generics.

2.03 The maximum number of SFGs that can actually be used during a single call is one with the EF-1 and 2B-EF-1 generics. A maximum of 16 SFGs can be used with the EF-2 and 2B-EF-2 generics.

2.04 A maximum of eight alternate SFGs may be linked together with the EF-2 and 2B-EF-2 generic programs. The EF-1 and 2B-EF-1 generic programs have no limit.

B. Program Store Requirements

2.05 For EF-1 and 2B-EF-1 generics, each SFG Data Table requires 64 words of program store. Each Data Table contains 16 SFGs 4 words long. (See Fig. 1.)

2.06 There are eight words in the SIMGRP Master Table Index entry for the EF-1 and 2B-EF-1 generics.

2.07 For EF-2 and 2B-EF-2 generics, each SFG Data Table requires 128 words of program store. Each Data Table contains 16 SFGs 8 words long. The SIMGRP Master Table Index entry is 64 words long. (See Fig. 2.)

TABLE A

SIMULATED FACILITIES AVAILABILITY

FEATURE THAT MAY INCORPORATE SIMULATED FACILITIES	AVAILABILITY		CUSTOMER		SFG REQUIRED FOR FEATURE OPERATION		APPLICABLE NOTES
	EF-1	EF-2	CENTREX	NONCENTREX	EF-1	EF-2	
Direct Inward Dialing (DID)	X	X	X		NO	NO	
Direct Outward Dialing (DOD)	X	X	X		NO	NO	
2-Way Facility	NA*	X	X			YES	
800 SERVICE	NA	X	X	X		YES	1
Outward Wide Area Telecommunications Service (OUTWATS)	X	X	X		YES	YES	
Call Forwarding	NA	X	X			NO	3
Intracentrex Group (INTERCOM)	NA	X	X			NO	2
Features Using 3-Port Conference Circuit (Call Waiting, Add-On, Call Transfer, Camp-on, and Call Hold)	NA	X	X			NO	4

Note 1: Feature available in EF-1 to centrex customers using dedicated hardware.

Note 2: Threshold in the simulated facilities data specifies the number of station-to-station, station-to-attendant, and attendant-to-station calls that may be in progress at the same time.

Note 3: Threshold in the simulated facilities data specifies the number of stations that may have call forwarding active at the same time.

Note 4: Threshold in the simulated facilities data specifies the number of 3-port conference circuits that may be used by members of this centrex group at one time.

*Not Available.

TABLE B

SIMULATED FACILITIES CAPABILITIES
(SEE NOTE)

FEATURE	TRAFFIC VOLUME CONTROL (THRESHOLD)	AMA			TRAFFIC			APPLICABLE ROUTING FEATURES			SFG NUMBER OBTAINED FROM:	OVERFLOW TREATMENT	
		ACCESS PER CALL	STATISTICAL RECORDS	BILLING NUMBER	PEG, USAGE, OVERFLOW	RECORDED USAGE INTERVAL OFFICE OPTION (SECONDS)	HOLDING REGISTERS	ACOF	ALTERNATE SFG	3-DIGIT SCREENING CLASS		EF-1	EF-2
DID	X				X	100 or 10			X		CTX GRP DATA	Reorder Tone	Busy Tone
DOD	X	X		X	X	100 or 10		X	X		DIT, MERI	Reorder Tone	Reorder Tone, CTX OVFL
2-WAY	X	DOD		DOD	X	100 or 10		DOD	X		CTX GRP DATA, DIT	NA	DID - Busy Tone DOD - Reorder Tone, CTX OVFL
800 SERVICE	X	X	X	R	X	100 or 10	X				4-DIGIT TRANS-LATOR	NA	Reorder Tone
OUTWATS	X	X		X	X	100 or 10		X	X	X	DIT, MERI	Reorder Tone	Reorder Tone, CTX OVFL
CALL FORWARD	X				X	100 or 10					CTX GRP DATA	NA	Reorder Tone
INTERCOM	X		X		X	100 or 10	X		X		CTX GRP DATA	NA	Reorder Tone, CTX OVFL
3-PORT CONFERENCE	X		X		X	100 or 10	X		X		CTX GRP DATA	NA	Call Waiting – Busy Tone for Others, Reorder Tone CTX OVFL for All

Note: The following is an explanation of abbreviations used in this table.

CTX GRP – Centrex Group
CTX OVFL – Centrex Group Total Overflow Counter is pegged. DID – Direct inward dialed calls.
DIT – Centrex digit interpreter table.
DOD – On direct outward dialed calls only.
MERI – Route index associated with most economical routing feature.
NA – Not Available.
R – Required.
X – Possible.

C. Call Store Requirements

2.08 For EF-1 and 2B-EF-1 generics, a call store status block four words long is required for each SFG.

2.09 For EF-2 and 2B-EF-2 generics, a call store status block five words long and in some cases call store holding registers eight words long are required for each SFG.

3. PROCEDURE FOR ALLOCATING SIMULATED FACILITIES GROUP

3.01 The procedure for allocating a Simulated Facilities Group (SFG) is as follows:

(1) Provide a complete description of the SFG to be added by completing ESS input forms 2101, 2109, 2202-5, 2210-1, and 2303. Refer to Translation Guide TG-2H for instructions for filling out these forms.

(2) Record the SFG number to be added in item 1 on the SIM-1 form (Fig. 3 for EF-1 and 2B-EF-1; Fig. 4 for EF-2 and 2B-EF-2).

(3) Use item 1 to obtain the decimal value of N from Table C. Enter this value in item 2.

(4) Subtract item 2 from item 1 and enter the result in item 3.

(5) Use item 1 to obtain the SIMGRP address to be read. Enter this address in item 4a.

(6) Perform a program store read at the SIMGRP address found in item 4a. Record the contents read in item 4b. To perform the program store read, use the following messages.

For No. 2 ESS Offices

At the maintenance TTY, type in—

UB PS:RP: aaaaaa 0 1!

aaaaaa = item 4a.

System Response:

UR PS RP aaaaaa bbbbbbbb

aaaaaa = item 4a
bbbbbbbb = octal contents.

For No. 2B ESS Offices

At maintenance TTY, type in—

DMP: PS aaaaaa!

aaaaaa = octal address of SIMGRP word.

System Response:

DMP PS aaaaaa
dd dd dd dd dd dd dd dd

aaaaaa = item 4a
dd = octal contents word plus next seven words.

(7) If the contents of the SIMGRP word at the address in item 4a are all zeros, a new SFG Data Table must be allocated. For EF-1 and 2B-EF-1 generics, use Section 232-127-302 to allocate a 64-word block of program store. For EF-2 and 2B-EF-2 generics, allocate the new table using the following message:

A RC:PST:0128 00!

System Response:

AR RC PST 0128 00
ADR aaaaaa bbbbbb

aaaaaa = octal starting address of 128-word Data Table

bbbbbb = octal stopping address of 128-word Data Table.

Record the octal starting address of the new Data Table in item 4C and item 5. This address will be entered in the SIMGRP word at the address in item 4a.

(8) If the contents read at the address in item 4a were not zeros, record the six (seven for 2B-EF-1 and 2B-EF-2 generics) least significant octal digits in item 5.

(9) Use item 3 to find its adjusted value from Table D. Enter this value in item 6.

(10) Add item 5 to item 6 and record the octal sum in item 7a. This is the octal address of the

TABLE C

SIMGRP ADDRESS TABLE

RANGE	EF-1 GENERIC ADDRESS	2B-EF-1 GENERIC ADDRESS	N	RANGE	EF-1 GENERIC ADDRESS	2B-EF-1 GENERIC ADDRESS	N
00 to 15	341411	641411	00	64 to 79	341415	641415	64
16 to 31	341412	641412	16	80 to 95	341416	641416	80
32 to 47	341413	641413	32	96 to 111	341417	641417	96
48 to 63	341414	641414	48	112 to 127	341420	641420	112

RANGE	EF-2 GENERIC ADDRESS	2B-EF-2 GENERIC ADDRESS	N	RANGE	EF-2 GENERIC ADDRESS	2B-EF-2 GENERIC ADDRESS	N
00 to 15	442676	742676	00	512 to 527	442736	742736	512
16 to 31	442677	742677	16	528 to 543	442737	742737	528
32 to 47	442700	742700	32	544 to 559	442740	742740	544
48 to 63	442701	742701	48	560 to 575	442741	742741	560
64 to 79	442702	742702	64	576 to 591	442742	742742	576
80 to 95	442703	742703	80	592 to 607	442743	742743	592
96 to 111	442704	742704	96	608 to 623	442744	742744	608
112 to 127	442705	742705	112	624 to 639	442745	742745	624
128 to 143	442706	742706	128	640 to 655	442746	742746	640
144 to 159	442707	742707	144	656 to 671	442747	742747	656
160 to 175	442710	742710	160	672 to 687	442750	742750	672
176 to 191	442711	742711	176	688 to 703	442751	742751	688
192 to 207	442712	742712	192	704 to 719	442752	742752	704
208 to 223	442713	742713	208	720 to 735	442753	742753	720
224 to 239	442714	742714	224	736 to 751	442754	742754	736
240 to 255	442715	742715	240	752 to 767	442755	742755	752
256 to 271	442716	742716	256	768 to 783	442756	742756	768
272 to 287	442717	742717	272	784 to 799	442757	742757	784
288 to 303	442720	742720	288	800 to 815	442760	742760	800
304 to 319	442721	742721	304	816 to 831	442761	742761	816
320 to 335	442722	742722	320	832 to 847	442762	742762	832
336 to 351	442723	742723	336	848 to 863	442763	742763	848
352 to 367	442724	742724	352	864 to 879	442764	742764	864
368 to 383	442725	742725	368	880 to 895	442765	742765	880
384 to 399	442726	742726	384	896 to 911	442766	742766	896
400 to 415	442727	742727	400	912 to 927	442767	742767	912
416 to 431	442730	742730	416	928 to 943	442770	742770	928
432 to 447	442731	742731	432	944 to 959	442771	742771	944
448 to 463	442732	742732	448	960 to 975	442772	742772	960
464 to 479	442733	742733	464	976 to 991	442773	742773	976
480 to 495	442734	742734	480	992 to 1007	442774	742774	992
496 to 511	442735	742735	496	1008 to 1023	442775	742775	1008

word in the new SFG that will contain the call store status block starting address in bits 0-15.

Note: Simulated Facilities Group 000 ***is not valid.*** Therefore, for EF-2 and 2B-EF-2 generics, the first eight words of the SFG Data Table pointed to from SIMGRP word 0 in the MTI must be all zeros. There will be no call store allocated for SFG 000.

(11) Perform a 1-word program store read at the address in item 7a. Record the contents in item 7b.

TABLE D

ADJUSTMENTS

VALUE	EF-1 AND 2B-EF-1 GENERIC	EF-2 AND 2B-EF-2 GENERIC
0	1	1
1	5	11
2	11	21
3	15	31
4	21	41
5	25	51
6	31	61
7	35	71
8	41	81
9	45	91
10	51	101
11	55	111
12	61	121
13	65	131
14	71	141
15	75	151

For No. 2 ESS Offices

Type in—

UB PS:RP: aaaaaa 0 1!

aaaaaa = octal address in item 7a.

System Response:

UR PS RP aaaaaa bbbbbbbb

aaaaaa = item 7a
bbbbbbbb = octal contents.

For No. 2B ESS Offices

Type in—

DMP:PS aaaaaa!

aaaaaa = octal address in item 7a.

System Response:

DMP PS aaaaaa
dd dd dd dd dd dd dd dd

aaaaaa = item 7a
dd = octal contents.

(12) For EF-1 and 2B-EF-1 generics, allocate a 4-word call store block using the procedures in Section 232-127-301. For EF-2 and 2B-EF-2 generics, allocate a 5-word call store status block using the following message:

A RC:CST: 0005 00!

System Response:

AR RC CST 0005 00
ADR aaaaaa bbbbbb

aaaaaa = octal starting address of call store status block
bbbbbb = octal stopping address of call store sta-

Record the octal starting address of the call store status block in item 7c of the SIM-1 form. This address will be entered into bits 0-15 of the SFG word at the address in item 7a.

(13) For EF-1 and 2B-EF-1 generics, proceed to Step 16. For EF-2 and 2B-EF-2 generics, add

octal 6 to item 7a and record the sum in item 7d. This is the octal address of the SFG word that contains the starting address of the call store holding register block. These holding registers are required if both automatic message accounting (AMA) statistical records and traffic counts are desired on the same SFG. If no holding register is needed, zeros are to be entered in place of the holding register address and no call store will be allocated in Step 15.

(14) Perform a 1-word program store read at the address in item 7d. Record the contents in item 7e.

For No. 2 ESS Offices

Type in—

UB PS:RP: aaaaaa 0 1!

aaaaaa = octal address in item 7d.

For No. 2B ESS Offices

Type in—

DMP:PS aaaaaa!

aaaaaa = octal address in item 7d.

(15) Allocate an 8-word call store holding register block using the following message:

A RC:CST: 0008 00!

System Response:

AR RC CST 0008 00
ADR aaaaaa bbbbbb

aaaaaa = octal address of call store holding register block
bbbbbb = octal stopping address of call holding register block.

Record the starting address of the call store holding registers in item 7f. This address will be entered into bits 0-15 of the SFG word at the address in item 7D.

(16) Implement the changes on the SIM-1 form by following the procedures in Section 232-127-303 for No. 2 ESS or Section 232-327-303 for No. 2B ESS.

(17) Proceed to Part 4 of this section in order to complete SFG translations.

4. TRANSLATOR CONTENTS

4.01 The SFG number is contained in the translator of the feature that the SFG is associated with (see Tables A and B for list of features). Figure 5 shows the locations of the SFG data in various translators.

4.02 Data in the SFG and in the other translators is recent changeable but requires a recent change update for the data to become operative.

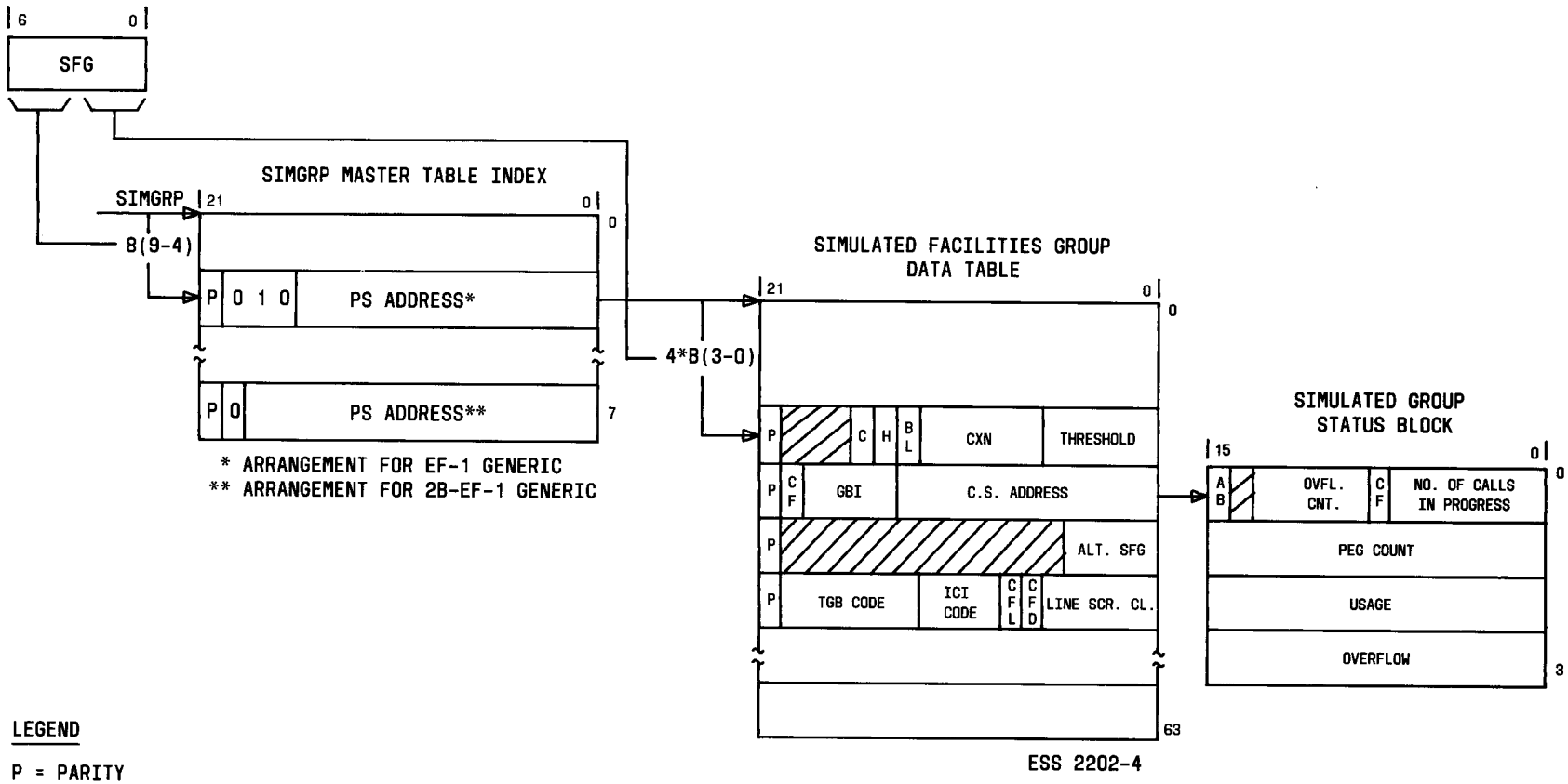
4.03 In order to complete the procedures for adding a new SFG, the translator data block must be filled in via recent change messages. The SFG number must be entered into the associate translators via recent change messages also.

4.04 For directions on using recent change messages, refer to the appropriate section as follows:

- Section 232-118-103 for EF-1 and 2B-EF-1 generics
- Section 232-118-104 for EF-2 and 2B-EF-2 generics
- Section 232-004-301 for recent change update procedure for No. 2 ESS
- Section 232-304-301 for recent change update procedure for No. 2B ESS.

5. REPRODUCIBLE FORM

5.01 A reproducible form is provided in Fig. 6 for allocating an SFG.



LEGEND

P = PARITY
C = TRAFFIC SCHEDULE
H = TRAFFIC SCHEDULE
BL = TRK. GROUP BUSY LAMP
CF = ACOF
GBI = GROUP BILLING INDEX
CS = CALL STORE
TGB = TRUNK GROUP BUSY
CFL = ACOF LAMP
AB = ALL CKTS. BUSY
CFD = CALL FORWARD ATTENDANT
ICI = ICI LAMP CODE

Fig. 1—Simulated Facilities Group Translator—EF-1, 2B-EF-1 Generic Programs

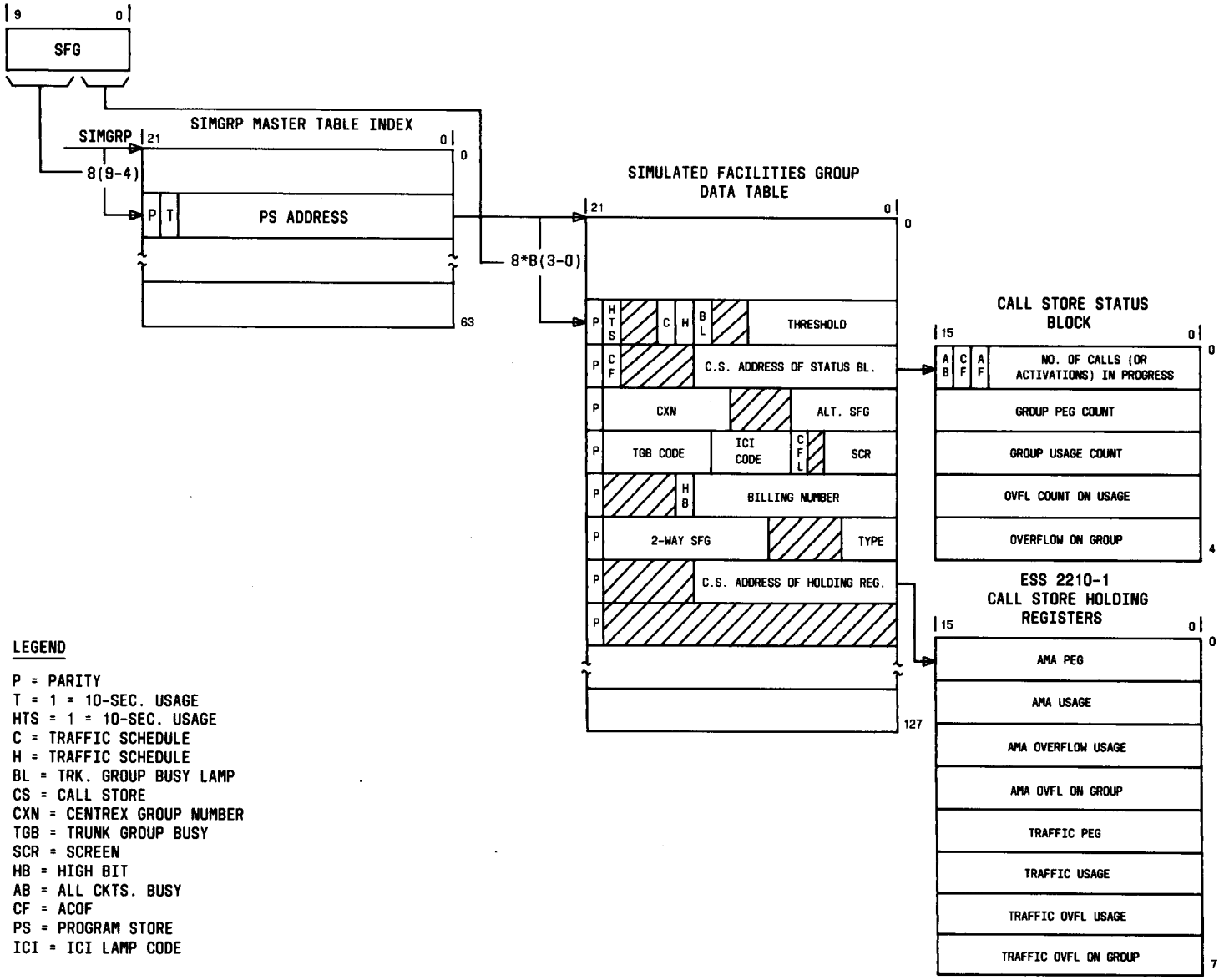


Fig. 2—Simulated Facilities Group Translator—EF-2, 2B-EF-2 Generic Programs

OFFICE _____ SIMULATED FACILITIES GROUP SIM-1 FORM
DATE _____ WORKSHEET

Chips Address Range (- - - - - - - -) (- - - - - - - -)
START STOP

Note: Enter data from right to left starting with the least significant digit.

1. SFG NUMBER TO BE ADDED = _125 (10)
2. DECIMAL N = _112
3. Item 1 - Item 2 = 13

ADDRESS	INITIAL CONTENTS	NEW CONTENTS
_341420	00000000	_641412
A	B	C

5. SFG DATA TABLE ADDRESS = _641412 octal
6. ADJUSTED ITEM 3 = _65
7.

ADDRESS	INITIAL CONTENTS	NEW CONTENTS
_641477	00000000	_110210
A	B	C
_ _ _ _ _ _ _	_ _ _ _ _ _ _ _	_ _ _ _ _ _ _
D	E	F

Fig. 3—Example of a Completed SIM-1 Form for EF-1 Generic

OFFICE _____
DATE _____

SIMULATED FACILITIES GROUP
WORKSHEET

SIM-1 FORM

Chips Address Range (_ _ _ _ _ _ _) (_ _ _ _ _ _ _)
START STOP

Note: Enter data from right to left starting with the least significant digit.

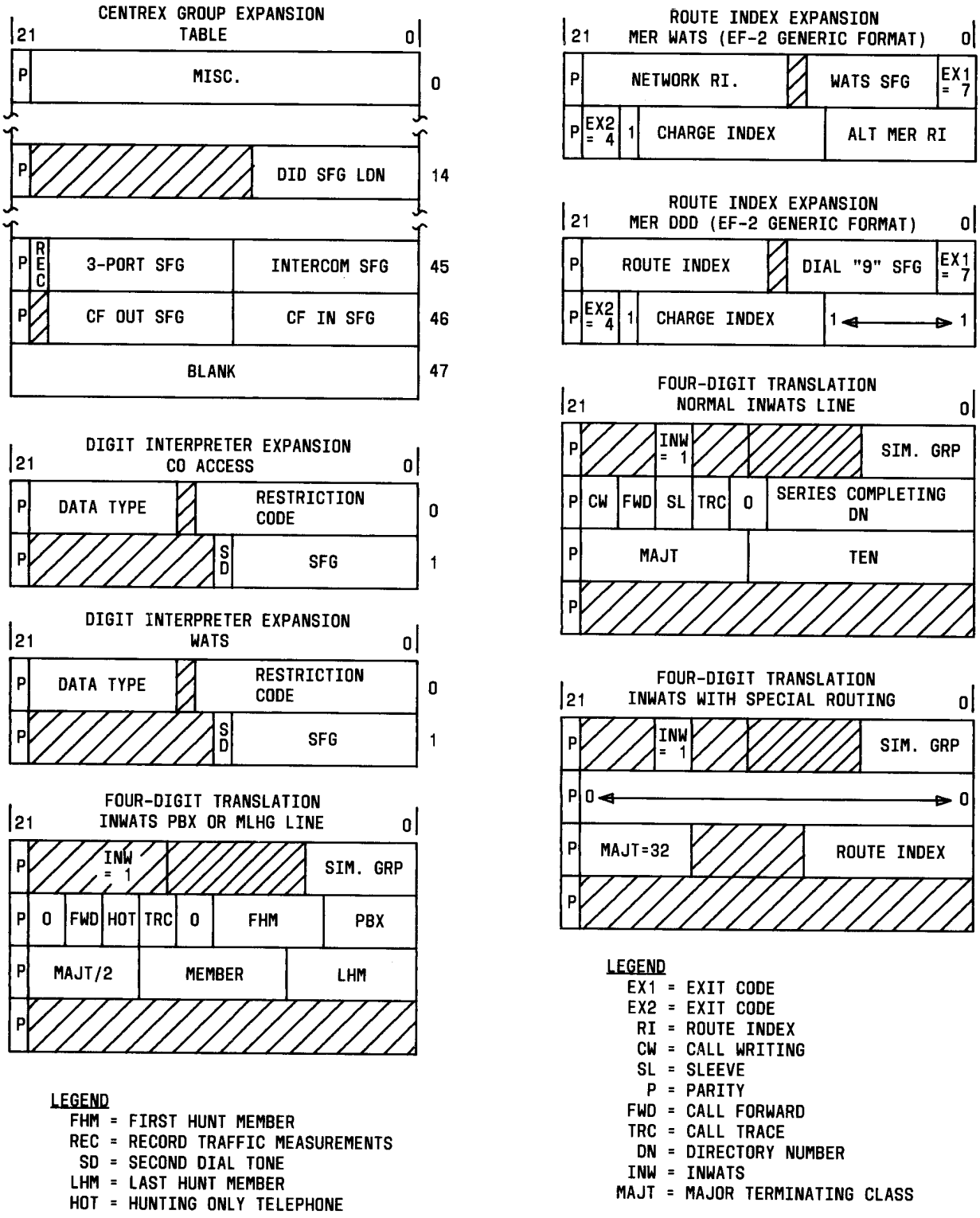
1. SFG NUMBER TO BE ADDED = 1009 (10)
2. DECIMAL N = 1008
3. Item 1 - Item 2 = 1

ADDRESS	INITIAL CONTENTS	NEW CONTENTS
442775	00000000	431712
A	B	C

5. SFG DATA TABLE ADDRESS = 431712 octal
6. ADJUSTED ITEM 3 = 11
7.

ADDRESS	INITIAL CONTENTS	NEW CONTENTS
431723	00000000	141310
A	B	C
431731	00000000	134121
D	E	F

Fig. 4—Example of a Completed SIM-1 Form for EF-2 Generic

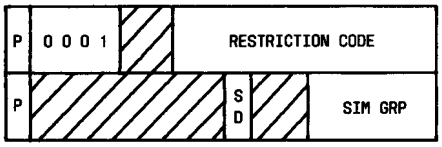


LEGEND
FHM = FIRST HUNT MEMBER
REC = RECORD TRAFFIC MEASUREMENTS
SD = SECOND DIAL TONE
LHM = LAST HUNT MEMBER
HOT = HUNTING ONLY TELEPHONE

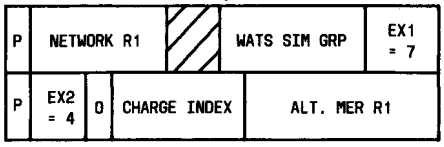
LEGEND
EX1 = EXIT CODE
EX2 = EXIT CODE
RI = ROUTE INDEX
CW = CALL WRITING
SL = SLEEVE
P = PARITY
FWD = CALL FORWARD
TRC = CALL TRACE
DN = DIRECTORY NUMBER
INW = INWATS
MAJT = MAJOR TERMINATING CLASS

Fig. 5—Translator Locations for SFG Data (Sheet 1 of 2)

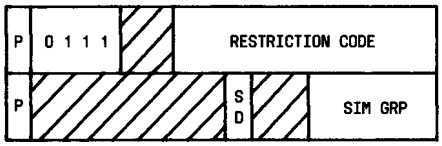
DIGIT INTERPRETER EXPANSION
CO ACCESS



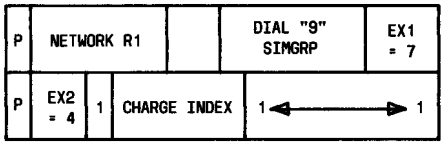
ROUTE INDEX EXPANSION
MER WATS (EF-1 GENERIC FORMAT)



DIGIT INTERPRETER EXPANSION
WATS



ROUTE INDEX EXPANSION
MER DDD (EF-1 GENERIC FORMAT)



LEGEND

P = PARITY
SD = SECOND DIAL TONE
EX1 = EXIT CODE
EX2 = EXIT CODE

Fig. 5—Translator Locations for SFG Data (Sheet 2 of 2)

OFFICE _____ SIMULATED FACILITIES GROUP SIM-1 FORM
DATE _____ WORKSHEET

Chips Address Range (_ _ _ _ _ _ _) (_ _ _ _ _ _ _)
START STOP

Note: Enter data from right to left starting with the least significant digit.

1. SFG NUMBER TO BE ADDED = _ _ _ _ (10)
2. DECIMAL N = _ _ _ _
3. Item 1 - Item 2 = _ _

ADDRESS	INITIAL CONTENTS	NEW CONTENTS
_ _ _ _ _ _ _	_ _ _ _ _ _ _	_ _ _ _ _ _ _
A	B	C

5. SFG DATA TABLE ADDRESS = _ _ _ _ _ _ _ octal
6. ADJUSTED ITEM 3 = _ _ _
7.

ADDRESS	INITIAL CONTENTS	NEW CONTENTS
_ _ _ _ _ _ _	_ _ _ _ _ _ _ _	_ _ _ _ _ _ _
A	B	C
_ _ _ _ _ _ _	_ _ _ _ _ _ _ _	_ _ _ _ _ _ _
D	E	F

Fig. 6—Reproducible Copy of SIM-1 Form