

ORIGINATING TROUBLE INDICATOR FRAME EQUIPMENT DESIGN REQUIREMENTS NO. 1 CROSSBAR SYSTEM

1. GENERAL

SCOPE

1.01 This specification, together with the supplementary information listed herein, covers the equipment design requirements for the framework, equipment, and circuits to be used in the engineering, manufacture, and installation of the originating trouble indicator frame in No. 1 crossbar offices.

1.02 This specification is reissued to reflect changes made on SD-25018-01 Issue 61B. Provision is made for operation with the automatic trouble analysis feature. J28752A, Lists 34 and 35 are added. Previous addenda are included in this issue.

CAPACITY

1.03 The originating trouble indicator frame accommodates the equipment required to function with two originating marker groups. Each group consists of a maximum of eight originating markers and 30 originating marker connectors.

DESCRIPTION

1.04 The originating trouble indicator frame is a combined maintenance and test frame. It is used in a crossbar dial office to help locate troubles of the originating markers and check the operation by:

- (a) Taking a record of the information set up in an originating marker when it fails to complete its functions in the allowed time.
- (b) Setting up a test call in an originating marker, allowing it to perform its functions, and then taking a record of the resulting translations and progress of the test call.

1.05 In addition, originating marker, originating marker connector, district and office frames busy indicating lamps, connector sender position

lamps, ANI indicating, originating marker announcement control lamps, and intersender timing control jack and lamp are located on the originating trouble indicator frame. Make-busy jacks on the frame make originating markers busy to all originating marker connectors, originating markers busy to particular originating marker connectors, the trouble indicator frame busy to originating markers. These jacks also take senders associated with the same originating marker connector out of service.

1.06 The originating trouble indicator frame is a single-sided steel structure 11 feet 6 inches high and 2 feet 8-1/8 inches wide. The frame accommodates one double-row fuse panel, having a capacity of 50 fuses, and 11 terminal strips at the top. The 11 terminal strips are the type in general use in the Crossbar System. The local cable is terminated on the rear of the strips with a relay type of skinner dress. The skimmers of the switchboard cables are drawn through fanning strips fastened across the top of the terminal strips and terminated on the front. The 11 terminal strips are arranged in three rows, four in each of the two upper rows, and three in the bottom row.

1.07 Seventeen 30-1/2 inch channel-type mounting plates are beneath the terminal strips under a relay casing on the front of the frame. Sixteen trouble record registers and an electric clock are below the relay casing. A sheet metal key and lamp panel assembly arranged for three 8-1/2 inch panels is mounted under the clock and trouble record registers. The key and lamp panel assembly is 2 feet 6 inches high. It accommodates the various keys, jacks, indicating lamps, and designation strips required for two originating marker groups, each group consisting of a maximum of eight originating markers.

1.08 A ticket receptacle that supports a writing shelf is mounted under the key and lamp panel. Thirteen more 30-1/2 inch channel-type mounting plates are located under a relay casing on the front of the frame below the writing shelf.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

1.09 Connections between the originating trouble indicator frame and other associated frames are made by switchboard cables terminated on the 11 terminal strips at the top of the frame.

2. SUPPLEMENTARY INFORMATION

816-000-000—No. 1 Crossbar System Index
Floor Plan Data—Section 9.3, Sheet 5

3. DRAWINGS

WECO J drawings should be ordered by referring to the prefix and base number and requesting the current dash (-) number.

Keysheet

SD-25000-01—Crossbar System No. 1

Framework

ED-25025-59—Assembly of Fuse Panel
ED-25025-68—Assembly of Fuse Panels—Index
ED-25247-50—Frame Assembly
ED-25260-01—Steel Panels
ED-25506-70—Pigeon Holes and Writing Shelf
ED-90002-10—Flush Panels
ED-90382-10—Key Adapters
ED-90978-57—Assembly of Relay Casings
ED-90978-64—Assembly of Relay Casings—Index
ED-91722-70—Jack, Key, and Lamp Panel Assembly

Equipment

J28752A-()—Originating Trouble Indicator Frame
J28752B-()—Dynamic Overload Route Transfer Control Unit

Circuits

SD-25018-01—Originating Trouble Indicator Circuit
SD-25063-01—Originating Trouble Indicator Miscellaneous Circuit

Wiring and Cabling

ED-25178-10—Originating Trouble Indicator Frame Switchboard Cabling Details
ED-25219-10—Originating Trouble Indicator Frame Local Cable
ED-25346-14—Method of Running Power
ED-25346-15—Feeders

4. EQUIPMENT

J28752A—AT&TCo Std—Originating Trouble Indicator Frame

List 1—Framework, assembly, wiring, and common equipment for one originating trouble indicator frame arranged for two groups of originating markers.

	WIRE	EQUIP	NOTES
Framework, ED-25247-50, G1	0	1	
Jack, Key, and Lamp Panel Assembly, ED-91722-70, G4	0	1	
Pigeonholes and Writing Shelf, ED-25506-70	0	1	
Originating Trouble Indicator Ckt, SD-25018-01: Control Relay, Fig. 1	1	1	R,AN, AP, AX, AY
Second Group Relay, Fig. 3	1	0	B
District Link Frame Number Relay, Fig. 4	20	0	C
Pair of Office Link Frames, Fig. 5	10	0	D
Trunk Level Relays, Fig. 6: Numbered 0 to 9	10	10	
Numbered 10 to 14	5	0	E
Channel Relays, Fig 7	20	20	
Originating Marker Connector Frame Number Relay, Fig. 8	10	0	F
Sender Number Relay, Fig. 9	10	0	O
Trunk Group Progress Relays, Fig. 11	1	1	
Originating Marker Group Lamps, Fig. 12	1	0	B S,V, AL AN R,T, U,W, AC
Zone Charge Test Keys Fig. 14	1	0	

	WIRE	EQUIP	NOTES		WIRE	EQUIP	NOTES
Test Call Transmitting Keys, Fig. 15	1	1	AR, AV	Originating Trouble Indicator Miscellaneous Ckt, SD-25063-01:			
Code, District Frame and Class-of-Service Relays, Fig. 16	1	1	T, U, W, AC	Frame Line Between Frames, Fig. 3	0	1	
Charge and Transfer Relays, Fig. 17	1	1	AR	Spare Jack, Fig. 6	1	1	
Grounded Transferring Leads Relays, Fig. 18	1	1	S, V, AN	Originating Marker Time Alarm, Fig. 8	1	1	
Trouble Relays, Fig. 19, Less XV Apparatus	1	1	X	Originating Marker Trouble Relays Register, Fig. 9	16	0	A
Progress Relays, Fig. 20			S, AD, AN, AP, AQ	Originating Marker Connector Time Alarm, Fig. 10	1	1	
Less XV Apparatus	1	1		Connector Sender Position Lamp, Fig. 11	2	0	N
Originating Marker Connector, Fig. 21	3	0	G	Connector Lamp, Fig. 12	60	0	K
Pattern Relays, Fig. 22	10	0	H	Originating Marker Connector Make-Busy Jack, Fig. 13	480	0	L, Q
Trunk Subgroup Relays, Fig. 23	12	0	I	Originating Marker Make-Busy Jack, Fig. 14	16	0	A, Q
District Link and Connector, Fig. 24:				Sender Group Make-Busy Jack, Fig. 15	60	0	M, Q
Numbered 0 to 9	10	10		Test Battery Jack, Fig. 16	1	1	
Numbered 10 to 19	10	0	J	Frame Test Battery, Fig. 17	1	1	
Originating Marker Special Release Relays, Fig. 25	1	1	AN	Originating Marker Lamps, Fig. 18	16	0	Z
Trunk Subgroup Relays, Fig. 26	1	0	P	District Frame Lamps, Fig. 19	40	0	AA
Zone Register Relays, Fig. 27	10	0	Y	Office Frame Lamps, Fig. 20	40	0	AB
District Junctor Ckt, Fig. 28	10	10		Originating Marker Route Transfer Lamp, Fig. 21	16	0	AE
DK or DK1 False Ground Test, Fig. 29	1	1		Originating Trouble Indicator Fuse Alarm, Fig. 22	1	1	
Preference Chain Control Relay, Fig. 30	16	0	A	Route Transfer Lamp Fig. 25	10	0	AF, AI
OGT Selection Relay, Fig. 31	10	10		Terminating Sender Load Control Key, Fig. 26	8	0	AG, AI
Trouble Relay for Marker Time-Out, Fig. 33	1	1	AN	Terminating Sender Load Control Alarm, Fig. 28	1	0	AH, AI
AMA Check, Fig. 34	1	0		Sequence Timing and Control Ckt, Fig. 30	2	0	AK
Test for Group Start and Group End, Fig. 35	1	0	AO	Originating Marker Alarm Relays, Fig. 31	1	1	
Bridged Marker Route Relay Comparison Test of Cross Connectors:				All-Markers-Busy Alarm Lamp, Fig. 32	2	0	AK
Fig. 36	16	0					
Fig. 37	1	0					
Fig. 38	1	0					
Prefix-Digit "1" Relay, Lamp, and Key, Fig. 41	1	0					

	WIRE	EQUIP	NOTES
All Markers-Busy Lamp, Fig. 33	2	0	AK
Originating Marker Trouble Alarm, Fig. 34	1	1	
Sequence Circuit Alarm, Fig. 40	2	0	AK
Route Transfer Control Jack, Fig. 42	0	0	AM
Originating Marker Announcement Control Ckt, Fig. 43	2	0	
Intersender Timing Con- trol Ckt, Fig. 44	2	0	
Announcement Machine Relay, Fig. 45	1	0	
Overflow Routing Code Key, Fig. 46	1	0	
Permanent Signal Key, Fig. 47	1	1	
Dial-Tone-First Key, Fig. 48	1	0	
Dynamic Overload Keys SD-25063-01, Fig. 46	1	0	
Dynamic Overload Lamps and Switches, SD-25063-01, Fig. 47	2	0	

List 2—Wiring and equipment per SD-25018-01, Fig. 18, option XW only, required in addition to list 1 to provide a test of the "high five" incoming group preroute relay feature in the originating marker.

List 3—Wiring only per SD-25018-01, Fig. 18, options XX, XY, and XZ only, required in addition to list 1 to provide lamp indications when the trouble indicator operates with originating markers that are arranged for direct distance dialing and MF outpulsing on other than 10-digit outpulsed calls.

List 4—Equipment per SD-25018-01, Fig. 18, option XX only, required in addition to list 3 where the difference between the digits dialed and the digits outpulsed by the auxiliary sender is three.

List 5—Equipment per SD-25018-01, Fig. 18, option XY only, required in addition to list 3 when seven or eight digits are dialed and seven or eight digits are outpulsed.

List 6—Equipment per SD-25018-01, Fig. 18, option XZ only, required in addition to list 3 where the difference between the digits dialed and digits outpulsed by the auxiliary sender is two.

List 7—Equipment per SD-25018-01, Fig. 36 required for each originating marker in addition to list 1 in connection with the bridged marker, route relay comparison test of cross-connections.

List 8—Equipment per SD-25018-01, Fig. 37 and 38, WC wiring in Fig. 1 and 30, required in addition to lists 1 and 8 to equip the lamp required and provide satisfactory contact release conditions for the bridged marker, route relay comparison test of cross-connections.

List 9—Equipment per SD-25063-01, Fig. 43 required for each group of originating markers in addition to list 1 to equip the originating marker announcement control circuit.

List 10—Equipment per SD-25063-01, Fig. 44 required for each group of originating markers in addition to list 1 to equip the intersender timing control jack and lamp circuit.

List 11—Equipment per SD-25063-01, Fig. 45 required in addition to list 1 when the announcement machine release feature is required.

List 12—Wiring and equipment required in addition to list 1, less Fig. A, to add the ground cross test feature in the lamp relay locking ground supply circuit and to wire for 6-digit translation (recycle) for the access code feature.

	WIRE	EQUIP	NOTES
Originating Trouble Indi- cator Ckt, SD-25018-01: Com- pressed Code Keys and Relays, Fig. 39	1	0	
3DCT Number Ckt, Fig. 40	4	0	
Lamp Relay Locking Ground Supply Ckt, Fig. B	1	1	

List 13—Equipment per SD-25018-01, Fig. 39 required in addition to lists 1 and 12 to provide compressed code keys and relays where the associated markers are arranged for 6-digit translation (recycle) or for the access code feature. (See Notes AS and AT.)

List 14—Equipment per SD-25018-01, Fig. 15 option WL only, required in addition to list 1 where the associated markers are arranged for 20 classes of service or 6-digit transla-

- tion (recycle) or for identifying calling lines causing 2-out-of-5 sender failure. (See Note AR.)
- List 15**—Equipment per SD-25018-01, Fig. 40 required in addition to lists 1 and 12 for each of the maximum number of 3-digit common translators serving any foreign area reached through associated markers.
- List 16**—Equipment per SD-25063-01, Fig. 44 required in addition to list 10 to provide multiple appearance of the IT lamp at a DSA switchboard in the same building.
- List 17**—Equipment per SD-25018, Fig. 41 with option VK required in addition to list 1 and 13 to permit screening codes with prefix digit "1" when 6-digit translation (recycle) and access code features or when prefix codes "01" and "10" features are provided. (See Note AU.)
- List 18**—Wiring and equipment per SD-25018-01, Fig. 18, option WO only, required in addition to list 1 to provide a lamp indication when the trouble indicator operates with originating markers that are arranged to ground ODN lead as a signal to outpulse the calling number.
- List 19**—Wiring and equipment per SD-25018-01, Fig. 15 and 19, WQ apparatus and WR apparatus and wiring only, required in addition to list 1 to provide for testing the outgoing trunk overflow traffic registers from the originating trouble indicator. (See Note AV.)
- List 20**—Wiring and equipment per SD-25018-01, Fig. 19, option WS only, required in addition to list 1 when the associated originating markers are arranged for testing extra leads for presence of either battery or ground at the time the originating trouble indicator is connected. (See Note AW.)
- List 21**—Wiring and equipment per SD-25018-01, Fig. 18, option WT only, required in addition to list 1 to provide lamp indications when the trouble indicator operates with originating markers, which are arranged to signal the subscriber sender on the AID lead, that automatic identification of outward dialing for PBX stations served by the No. 1 ESS group control equipment is required.
- List 25**—Wiring and equipment per SD-25018-01, Fig. 28A, required in addition to list 1 when any of the associated district junctor frame groups are arranged for a maximum of district junctors greater than 100. (See Note BB.)
- List 26**—Equipment required in addition to list 1 when the originating markers are arranged to work with Subscriber Sender, SD-27810-01 to test the overflow route for the trouble reroute condition per SD-25018-01, Fig. 46.
- List 27**—Equipment per SD-25018-01, Fig. 48, required in addition to list 1 when the associated originating markers are arranged for the coin service improvements (dial-tone-first) feature.
- List 28**—Apparatus required in addition to list 1 when the dynamic overload control feature is required per SD-25018-01, option VB and SD-25063-01, Fig. 46 and 47.
- List 29**—Apparatus required in addition to list 28 when the dynamic overload control feature is required for the second marker group served by this frame per SD-25018-01, option VB and SD-25063-01, Fig. 47.
- List 30**—Wiring and equipment for SD-25063-01 option ZJ required in addition to list 1 when office is to operate with the TASC system.
- List 31**—Equipment per SD-25018-01, Fig. 41 with option VK required in addition to list 14 when the associated originating marker circuits are arranged for identifying calling lines causing 2-out-of-5 sender failure.
- List 32**—Wiring and equipment per SD-25018-01, option YH required in addition to list 1 when the associated markers are arranged to charge for directory assistance calls.
- List 33**—Wiring and equipment per SD-25018-01, option VM required in addition to lists 1 and 32 when the associated markers are arranged to charge for directory assistance calls in offices equipped with local AMA which are arranged to charge using a unique message billing index (MBI 16).
- List 34**—Wiring and equipment per SD-25018-01, Fig. 51 required in addition to list 1 when the automatic trouble analysis feature is provided.
- List 35**—Wiring and equipment per SD-25018-01, Fig. 52 required in addition to list 12 when the automatic trouble analysis feature is provided.

Notes

- A. Equipment per SD-25018-01, Fig. 30, less DR lamp, SD-25063-01, Fig. 9, and SD-25063-01, Fig.

14 shall be provided in list 1 for each originating trouble indicator frame that is to function. One DR lamp per SD-25018-01, Fig. 30 shall be provided in list 1 for each originating marker in one group and used in common by the like-numbered originating marker in the other group.

B. Equipment per SD-25018-01, Fig. 3 and SD-25018-01, Fig. 12 shall be provided in list 1 when the originating trouble indicator frame is to connect to a second group of originating markers.

C. One district link frame number circuit per SD-25018-01, Fig. 4 shall be equipped in list 1 for each correspondingly numbered district link frame for which the office junctor distribution is arranged. When the trouble indicator serves two marker groups, this equipment shall be furnished as required by the office junctor distribution arranged for the greater number of district link frames.

D. One pair of office link frame circuits per SD-25018-01, Fig. 5 shall be equipped in list 1 for each pair of office link frames for which the office junctor distribution is arranged. When the trouble indicator serves two marker groups, this equipment shall be furnished as required by the office junctor distribution arranged for the greater number of office link frames.

E. Five trunk-level relays per SD-25018-01, Fig. 6 (numbered 10 through 14) shall be provided in list 1 when the originating markers serve office extension frames.

F. One originating marker connector frame number circuit per SD-25018-01, Fig. 8 shall be equipped in list 1 for each correspondingly numbered originating marker connector frame in the originating marker group that has the greater number of originating marker connector frames.

G. One originating marker connector number circuit per SD-25018-01, Fig. 21 shall be equipped in list 1 for each originating marker connector on the originating marker connector frame that is equipped with the greatest number of connectors.

H. Pattern relay circuits per SD-25018-01, Fig. 22 shall be equipped in list 1 to agree with the office junctor distribution as follows.

NO. OF FRAMES FOR WHICH JUNCTOR DISTRIBUTION IS ARRANGED	NO. OF PATTERN RELAY CIRCUITS
2, 4, or 10	0
6 or 20	2
8	8
12 to 18	10

frame serving two groups of originating markers, that group which requires the greater number of pattern relay circuits shall be used.

I. Trunk subgroup relays G, 0, and 1 per SD-25018-01, Fig. 23 shall be equipped in list 1 when there are trunk groups divided into two or more subgroups. Trunk subgroup relays G and 0 through 11 per SD-25018-01, Fig. 23 shall be equipped in list 1 when there are permanent signal or overflow trunk groups divided into three or more subgroups, or other trunk groups divided into four or more subgroups.

J. The district link and connector JC relay selection circuits JC11 through JC19 shall be equipped in list 1 to agree with the office junctor distribution as follows.

NO. OF FRAMES FOR WHICH JUNCTOR DISTRIBUTION IS ARRANGED	JC RELAY CIRCUITS
12	JC10 & JC11
14	JC10 to JC13
16	JC10 to JC15
18	JC10 to JC17
20	JC10 to JC19

K. One connector lamp circuit per SD-25063-01, Fig. 12 shall be equipped in list 1 in the corresponding originating marker group for each originating marker connector.

L. One originating marker connector make-busy jack circuit per SD-25063-01, Fig. 13 shall be provided in list 1 in the corresponding originating marker group for each originating marker per originating marker connector.

M. One sender group make-busy jack circuit per SD-25063-01, Fig. 15 shall be equipped in list 1 per group of subscriber or keypulsing senders served by same originating marker connector.

- N. One connector sender position circuit per SD-25063-01, Fig. 11 shall be provided in list 1 for each originating marker group.
- O. One sender number relay circuit per SD-25018-01, Fig. 9 shall be equipped in list 1 for each sender connected to the originating marker connector that has the greatest number of senders connected.
- P. Trunk subgroup relays per SD-25018-01, Fig. 26 shall be provided in list 1 when trunk groups subdivided into exactly two subgroups are specified.
- Q. One ground lead shall be run from the fuse panel for the GB jacks in an originating marker group. One ground lead shall be run from the fuse panel for each pair of jack mountings having CB or CB and DB jacks of a marker group.
- R. The NM relay of SD-25018-01, Fig. 15 and the NM lamp of SD-25018-01, Fig. 1 shall be equipped in list 1 only when the associated originating markers are arranged to serve keypulsing A switchboard senders.
- S. The ZA1 through ZJ1 relays and lamps of SD-25018-01, Fig. 17 shall be equipped one for each zone-charge condition in the associated originating markers. When none of these relays and lamps are required, the Z and ZS relays and lamps and the ZOF T apparatus (A&M Only) and ZCT keys of Fig. 14, the ZCK, ZK, ZO, and ZL relays and lamps of Fig. 17, and the XZ and XZS relays and lamps of Fig. 19 shall be omitted.
- T. The B0 lamp and the B1, B2, B4, and B5 relays and lamps of Fig. 16 and the B key of Fig. 15 shall be furnished only when the associated originating markers are arranged to serve 3-digit senders.
- U. The F10 relay and lamp of Fig. 16 and the F10 key of Fig. 15 shall be furnished only when there are more than ten district link frames in an originating marker group.
- V. The TP2 relay and lamp of Fig. 14, the TP relay and lamp of Fig. 16, the TP1, RP1, and TPK relays and lamps of Fig. 17, and the TP key of Fig. 15 shall be furnished only when 2-party message-rate service is specified.
- W. The V apparatus in Fig. 15 and V and YV apparatus in Fig. 16 shall be equipped where the associated markers are arranged for either or both extended service (prefix 11) and 6-digit translation (recycle).
- X. The W apparatus in Fig. 18 shall be furnished only when 2-stage PCI class is provided.
- Y. When the zone registration circuits serving a zone registration common control circuit are graded, equip 10-zone registration relay circuit per SD-25018-01, Fig. 27. When nongraded, equip 1-zone registration relay circuit per SD-25018-01, Fig. 27 for each zone registration circuit connected in the zone registration common control circuit, served by the greatest number of zone registration circuits.
- Z. One originating marker lamp circuit per SD-25063-01, Fig. 18 shall be equipped in list 1 in the corresponding originating marker group for each originating marker frame.
- AA. One district frame lamp circuit per SD-25063-01, Fig. 19 shall be equipped in list 1 in the corresponding marker group for each regular district frame.
- AB. One office frame lamp circuit per SD-25063-01, Fig. 20 shall be equipped in list 1 in the corresponding marker group for each office frame.
- AC. The X apparatus in Fig. 15 and X and YX apparatus in Fig. 16 shall be equipped where the associated markers are arranged for 20 classes of service.
- AD. The F wiring and apparatus (AT&TCo Special) shall be provided in list 1 only where the associated originating markers are arranged to reroute special code OFF-9300. When required, F wiring shall be added to the regular local cable.
- AE. One route transfer lamp per SD-25063-01, Fig. 21 shall be provided in list 1 for each originating marker when the route transfer feature for rerouting long distance calls is provided in the originating markers.

- AF. One route transfer alarm lamp per SD-25063-01, Fig. 25 shall be provided in list 1 for each route transfer relay in the marker used for terminating sender load control or associated with route transfer control circuit.
- AG. One terminating sender load control key per SD-25063-01, Fig. 26 shall be provided in list 1 for each originating marker in marker group 0 when the office is arranged for terminating sender load control.
- AH. One terminating sender load control alarm per SD-25063-01, Fig. 28 shall be provided in list 1 when the office is arranged for terminating sender load control.
- AI. When the terminating sender load control feature is specified, the necessary leads shall be added to the regular local cable. It is not expected that the terminating sender load control feature will be required on jobs where the originating trouble indicator frame serves two groups of originating markers. For this reason, the terminating sender load control keys and the CB jacks for marker group 100 in the upper right panel of the key and lamp panel are shown as optional equipment arrangements.
- AJ. The OB5 relay and lamp per SD-25018-01, Fig. 18, Y apparatus, shall be equipped in list 1 for use with the "over five" office brush feature of the marker.
- AK. One sequence timing and control circuit per SD-25063-01, Fig. 30; one all-markers-busy alarm lamp per Fig. 32; one all-markers-busy lamp per Fig. 33; and one sequence circuit alarm per Fig. 40 shall be provided in list 1 for each originating marker group.
- AL. The S apparatus shall be provided in list 1 when the associated markers are equipped with MRK relays. The application of T apparatus, when these relays are unequipped, is rated A&M Only.
- AM. When the route transfer control jacks are specified, they shall be located in the upper right panel of the key and lamp panel as shown on ED-25047-01, Fig. 20. The wiring furnished in the local cable for the CB jacks for marker group 100 shall be used for the route transfer control jacks.
- AN. Figure 34, and options XT and XA through XJ as required for corresponding leads from the markers, shall be provided in list 1 for AMA operation. Also, options XR, YP, and WQ shall be provided for split 2-party service with AMA operation. Figure 14, and options YJ, YM, Y, ZA through ZJ, and S or T as required for corresponding leads from the marker, shall be provided in list 1 for message register or message charging operation. Also options P, YP, and WQ shall be provided for 2-party message register service.
- AO. Figure 35 shall be provided in list 1 when it is desired to add a feature for checking group-start and group-end of trunk groups under all conditions.
- AP. The XV apparatus shall be provided in list 1 to test for marker diversion of restricted PBX traffic feature.
- AQ. Provide the following options per SD-25018-01, Fig. 20 as required.
1. Provide option WD for use with the announcement feature.
 2. Provide option WE for use with the direct distance feature.
 3. Provide option WF for use with ANI.
- AR. The WL apparatus in Fig. 15, covered by list 14, was furnished as part of X apparatus prior to Issue 43D of SD-25018-01. It is required for 6-digit translation in addition to the original purpose covered by Note AC.
- AS. Connect option WM (wiring only) markers are arranged for registration of compressed codes on a subscriber sender recycle basis and access codes are not provided.
- AT. Connect option WN (wiring only), Fig. 39, when the associated originating markers are arranged for registration of access codes and compressed codes or access codes alone.

- AU. Provide Fig. 39, with WN option and Fig. 41, when the associated originating markers are arranged for registration of access codes, 6-digit translation (recycle), and screening for codes with prefix-digit "1" or when the associated originating marker circuits are arranged for operation with prefix codes "1" and "10."
- AV. The WQ apparatus (TP-TOV key) replaces WP apparatus (TP key), which was part of P and XR options prior to Issue 47 of SD-25018-01.
- AW. List 20 consists of the EXBG relay, lamp, key, and associated wiring. The EXBG key provides means for connecting either battery or ground to the winding of the EXBG relay depending on the condition being tested.
- BB. A maximum of 120 district junctors per regular district frame group is possible with the addition of auxiliary district junctor frames. List 25 adds equipment for indicating district link primary switches No. 10 and 11 and is required when either marker group 0 or 100 is equipped with auxiliary district junctor frames.
- BC. Furnish Fig. 41 and option WL in Fig. 15 when the associated originating marker circuits are arranged for identifying calling lines causing 2-out-of-5 sender failure.

J28752B—AT&TCo Std—Dynamic Overload Route Transfer Control Unit

- List 1**—Assembly, wiring, and equipment for one dynamic overload route transfer control unit arranged for one originating marker group and 20 route transfer control signals and equipped for five route transfer control signals per SD-25063-01, Fig. 48 and 50 and five Fig. 49.
- List 2**—Apparatus required in addition to list 1 for each additional route transfer control signal required per SD-25063-01, Fig. 49. (Relays should be equipped in consecutive order.)
- List 3**—Apparatus required in addition to list 1 when the eleventh route transfer control signal is required per SD-25063-01, Fig. 50.

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Notes

- A. The unit local cable contains universal wiring.
- B. The preferred location for this equipment is on the same miscellaneous relay rack with the route transfer unit associated with the originating marker.
- C. J23058BP and J23058BR units are required in each building for this feature. If these units are to be mounted with the crossbar No. 1 equipment, they should be mounted on the same miscellaneous relay rack with the J28752B unit.

5. GENERAL NOTES AND INDEXES

- 5.01** The preferable location for the originating trouble indicator frame is in the maintenance center.
- 5.02** An unnumbered jack mounting shall be provided as a receptacle for spare make-busy plugs. This jack mounting shall be located as shown on the frame equipment drawing.
- 5.03** Make-busy plugs should be furnished by the telephone company as required.
- 5.04** Jacks and lamp sockets shall be provided in strips of 20 as required. Unused lamp positions shall not be equipped with lamps or lamp caps.

Wiring and Cabling

- 5.05** The 24-gauge, type C wire shall be used for all local cable wiring except in the case of battery and ground leads which shall be 22-gauge, type C wire.
- 5.06** Wiring shall be provided in the local cable for the maximum equipment in two originating marker groups. Equipment shall be provided on the frame only as required to meet particular job conditions.
- 5.07** Separate cables shall be run from the originating trouble indicator frame to each associated originating marker group.