OUTGOING TRUNK TEST FRAME
EQUIPMENT DESIGN REQUIREMENTS
NO. 1 AND CROSSBAR TANDEM SYSTEMS

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 outgoing trunk test frame.

1.02 This specification is reissued:

(a) To provide equipment information for changing OGTT frame 7A bell to 7F bell and 4C buzzer to 7F buzzer per SD-96370-01, Issue 11D and SD-96410-01, Issue 15D.

(b) To rerate list 60 to Mfr Disc.

(c) To provide AIS testing capability for more than two terminating marker groups from one outgoing trunk test frame per SD-25177-01, Issue 70B.

(d) To provide test make busy and select jacks for testing outgoing intercept trunks routed to No. 5 crossbar ACD facilities per SD-25177-01, Issue 70B.

(e) To incorporate Addendum 1 of Issue 17.

CAPACITY

1.03 The capacity of the outgoing trunk test frame is as follows:

Test Bay

Trunk and Line Test Circuit	1
Continuity and Reversal Test Circuit	1
Test Trunk Circuit—LTD	5
Telephone Circuit	1
Trunk or Tie Line Key and Lamp Circuits	13
Repeat Single Test Circuit	1
Tone Key Circuit	1
Test Trunk Jack and Lamp Circuit	1
Automatic Intercept Lines	10
MF sender arranged for AIS with LLP	3
MF sender arranged for AIS without LLP	4
Jack Bay (Two Jack Panels)	
Test and Make-Busy Jacks	
100 OGT Per Office Frame	1000
120 OGT Per Office Frame	1200
140 OGT Per Office Frame	1400
160 OGT Per Office Frame	1600
180 OGT Per Office Frame	1800
200 OGT Per Office Frame	2000
300 OGT Per Office and Extension Frame (Two Jack Bays)	3000

DESCRIPTION

1.04 The outgoing trunk test frame is used for testing all of the trunks outgoing from the office link secondary switches. Voltmeter tests can be made or, if necessary, test calls can be made to lines terminating in the same or distant offices. These calls may be through full mechanical equipment or a call indicator trunk position, the necessary originating sender functions being performed by the test circuit.

1.05 In addition to the testing of the trunks outgoing from the office in which the test frame is located, provision is made for the testing of the incoming trunk from panel, tandem, toll, manual, and crossbar office. Connection to these circuits is made over patching jacks located on the incoming trunk frames.

1.06 The outgoing trunk test frame is arranged for operation with return test lines and remote-control belt lines in any one of several crossbar units and is also arranged to test subscriber lines in one or more different crossbar units.

1.07 A subscriber line test circuit is available for the routine testing of subscriber lines. This feature is similar to the tea-wagon subscriber line test provided in panel-type offices. Voltmeter and insulation breakdown test may be made as desired.

1.08 Connection to the subscriber line to be tested is established through a test incoming and the call is completed to the desired line the same as any incoming call.

1.09 The outgoing trunk test frame consists of two or three bulb-angle-type frameworks, a test bay 11 feet 6 inches high and 2 feet 8-1/8 inches long, and one or two jack bays each 11 feet 6 inches high and 2 feet 4 inches long. When two of the latter are required, they are located in positions flanking the test bay.

1.10 The preferred location for the outgoing trunk test frame is in the maintenance center.

2. SUPPLEMENTARY INFORMATION

816-000-000—No. 1 Crossbar System Index
817-000-000—Tandem Crossbar System Index
Floor Plan Data—Section 9.3, Sheet 7
Section 9.9, Sheet 2

3. DRAWINGS

WE J drawings listed should be ordered by referring to the prefix and base number and requesting the highest suffix dash (—) number.

Keysheets

SD-25000-01—No. 1 Crossbar System
SD-25435-01—Tandem Crossbar System

Framework

ED-25025-68—Fuse Panel Assembly
ED-25028-51—Relay Rack Unit Assembly
ED-25108-10, -11—Miscellaneous Details for Test Frames
ED-25146-50—Magnetic Shield
ED-25506-70—Pigeon Holes and Wiring Shelf Assembly
ED-90002-10—Flush Panels
ED-90382-10—Key Adapters
ED-90978-57—Relay Casing Assembly
ED-91722-70—Jack, Key, Lamp Panel Assembly—Two and Three 8-1/2-inch Panels
ED-92744-01—Bulb-angle Frame Assembly

Equipment

ED-25409-12—Jack Bay Equipment
J28550C-( )—Test Bay Equipment
J28550E-( )—Terminating Sender Test Selection Unit Equipment

Wiring and Cabling

ED-20761-01—Cabling Schematic for Test and Make-busy Jacks—Trunks Common to Panel and Crossbar Offices
ED-25030-01—Local Cable—Test Selection Unit
ED-25236-10—Cabling Schematic for Test and Make-busy Jacks
ED-25244-10—Local Cable—Test Bay
ED-25409-50—Frame Ground Leads—Test and Jack Bays
ED-25346-14, -15—Method or Running Power Feeders
ED-25410-10—Arrangement of Connections, Office Link, OGT Test, ITC Frame, and MDF
ED-25624-10—General Switchboard Cabling Practices and Miscellaneous Installer Wiring and Switchboard Cabling Details

4. EQUIPMENT

ED-25409-12—Outgoing Trunk Test Frame—Jack Bay

Group 1—Framework, assembly, and common equipment per Fig. 2 for one OGT test frame jack bay. One 2-foot 7-inch jack panel assembly and one 3-foot 6-inch jack panel assembly. (See Note A.)

Group 2—Patching cord equipment for one OGT test frame. (See Note B.)

Group 3—Patching cord equipment required in addition to group 2 for one OGT test frame when the connector and control circuit is equipped with the test line transfer feature. (See Note B.)

Group 4—Jack field equipment per one Fig. C for the test and make-busy jack circuits associated with the first pair of office link frames arranged for 100 OGT per frame. (See Note C.)

Group 5—Jack field equipment per one Fig. C for the test and make-busy jack circuits

associated with each additional pair of office link or office extension frames arranged for 100 OGT per frame. (See Note C.)

Group 6—Jack field equipment for one each of Fig. C and D for the test and make-busy jack circuits associated with the first pair of office link frames arranged for 120 OGT per frame. (See Note C.)

Group 7—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with each additional pair of office link frames arranged for 120 OGT per frame. (See Note C.)

Group 8—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with the first pair of office link frames arranged for 140 OGT per frame. (See Note C.)

Group 9—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with each additional pair of office link frames arranged for 140 OGT per frame. (See Note C.)

Group 10—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with the first pair of office link frames arranged for 160 OGT per frame. (See Note C.)

Group 11—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with each additional pair of office link frames arranged for 160 OGT per frame. (See Note C.)

Group 12—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with the first pair of office link frames arranged for 180 OGT per frame. (See Note C.)

Group 13—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with each additional pair of office link frames arranged for 180 OGT per frame. (See Note C.)

Group 14—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with the first pair of office link frames arranged for 200 OGT per frame. (See Note C.)

Group 15—Jack field equipment per one each of Fig. C and D for the test and make-busy jack circuits associated with each additional pair of office link frames arranged for 200 OGT per frame. (See Note C.)

Group 16—Jack field equipment per two Fig. C and one Fig. D for the test and make-busy jack circuits associated with the first pair of office link and associated extension frames arranged for 300 OGT per office link and extension frame. (See Note C.)

Group 17—Jack field equipment per two Fig. C and one Fig. D for the test and make-busy jack circuits associated with each additional pair of office link and associated extension frames arranged for 300 OGT per office link and extension frame. (See Note C.)

Group 18—Number plate equipment per Fig. A1 and A2 for one OGT test frame jack bay when office extension frames are not provided.

Group 19—Number plate equipment per Fig. B1 and B2 for one OGT test frame jack bay when office extension frames are provided.

Group 20—Number plate equipment per Fig. P1 and P2 for second of two OGT test frame jack bays when office link and associated extension frames, arranged for 300 OGT per office link and extension frame, are provided.

Group 21—Adapters, assembly, and common equipment per Fig. 2 and S for five LTD test trunks for one or more OGT test frames.

Group 22—Relay, etc, equipment per Fig. S required in addition to group 21 for one LTD test trunk.

Group 23—Adapters, assembly, and common equipment per Fig. 2, T, and U for a positive test battery supply for one or more OGT test frames, No. 3 local test cabinets, or SMB frame, when supply is not obtainable from the LTD battery.

Group 24—Battery and fuse equipment per Fig. T and U required in addition to group 23 for a negative test battery supply, and a +116 volt tap, when supply is not obtainable from the LTD battery and when the office coin control supply is not regulated between 116 and 120 volts.

Group 25—Mounting plate per Fig. V required in addition to groups 23 and 24 for the test battery supplies when extended to

one or more No. 3 local test cabinets.

Group 26—Resistance lamp equipment per Fig. U required in addition to group 23 or 25 for the positive test battery supply for one OGT test frame.

Group 27—Resistance lamp equipment per Fig. U required in addition to group 23 for the positive test battery supply for one SMB frame (offices without an "A" switchboard).

Group 28—Resistance lamp equipment per Fig. V required in addition to group 25 for the positive test battery supply for one No. 3 local test cabinet.

Group 29—Resistance lamp equipment per Fig. V required in addition to groups 24 and 25 for the negative test battery supply and +116 volt tap for one No. 3 local test cabinet.

Group 30—Resistance lamp equipment per Fig. U required in addition to groups 23 and 24 for the negative test battery supply and +116 volt tap for one OGT test frame.

Group 31—Resistance lamp equipment per Fig. U required in addition to groups 24 and 25 for the negative test battery supply and +116 volt tap for one sender make-busy frame.

Group 32—A&M Only—Jack equipment per Fig. W required when outgoing dial pulse repeaters are to be tested (tandem offices only). (See Note D.)

Group 33—Jack equipment per Fig. M for S lead test jacks (specify one group 33 per 20 circuits, SD-96376-01, Fig. 5).

Group 34—A&M Only—Jack panel assembly and equipment per ED-91720-01, Group 10, and ED-25409-01, Fig. Q for mounting S lead and miscellaneous TO and MB jacks below the regular T and MB jacks on existing bays. (See Note E.)

Group 36—Equipment required to provide later code D relay to agree with SD-96367-01, Issue 3D. This supplements group 22.

Group 38—Equipment per SD-25451-01, Fig. 8 for one OGT test line to the MDF and one OGT test line to the "A" switchboard.

Group 39—Equipment per SD-25451-01, Fig. 10 for one OGT test line to the "A" switchboard.

Group 41—Check equipment required in addition to group 43 for transmission testing per SD-25451-01, Fig. 11.

Group 42—Equipment required in addition to group 43 when the 23B or 23C transmission measuring set is not provided and measurements are made with the Transmission and Noise Measuring Circuit—SD-95900-01, per SD-96540-01, Fig 8 with S option and Fig. 9 with U option. (See Notes B and F.)

Group 43—Equipment required in addition to group 1 for one test termination circuit with loop around testing per SD-96540-01, Fig. 1 through 4 (jacks and keys only). (See Notes B, F, and G.)

Group 44—Equipment required in addition to group 43 when a means of controlling the remote office test line is required per SD-96540-01, Fig. 12, M option. (See Notes F and H.)

Group 45—Equipment required in addition to group 43 when the 23B or 23C transmission measuring set is not provided and transmission measuring equipment does not have a 900-ohm impedance termination per SD-96540-01, Fig. 5 (jacks only). (See Note G.)

Group 46—Equipment required in addition to group 43 when a 1000-cycle supply is required per SD-96540-01, Fig. 7.

Group 47—Equipment required in addition to group 43, to arrange for a 900-ohm termination jack circuit and a 23C transmission measuring set per SD-96540-01, Fig. 14 and 21. (See Notes I and J.)

Group 48—Equipment required in addition to group 43 to arrange for a 900-ohm termination jack circuit and a variable frequency oscillator, per SD-96540-01, Fig. 17 and 22. (See Note K.)

Group 49—Equipment required when office is arranged for automatic intercept service with line link pulsing per SD-25177-01, Fig. 36A and three SD-25177-01, Fig. 38 (less SS lamps) and arranged for ten SD-25177-01, Fig. 37. (See Note L.)

Group 50—Equipment per SD-25177-01, Fig. 37 required in addition to group 49 for each automatic intercept service line (a maximum of ten).

Group 51—Equipment per SD-25177-01, Fig. 38 (SS lamps only) required in addition to group 49 for each MF sender (a maximum of three).

Group 52—Equipment per SD-25177-01, Fig. 39 required when E and M supervision line circuits or E and M trunk circuits are provided.

Group 52A—Equipment required in addition to group 52 when group 49 or 54 is not required (provides jack mounting for E and M jacks only).

Group 53—Equipment required once per two automatic intercept service frames to arrange for two SD-25177-01, Fig. 40A and to equip for eight SD-25177-01, Fig. 42 (less SS lamps). (See Note M.) (Max 2 group 53.)

Group 54—Equipment required in addition to group 53, per each AIS frame (max 4) to equip one SD-25177-01, Fig. 40A, and arrange for ten SD-25177-01, Fig. 41.

Group 55—Equipment per SD-25177-01, Fig. 41, required in addition to group 54, for each AIS line circuit (max 40).

Group 56—Equipment per SD-25177-01, Fig. 42 (SS lamp only) required in addition to group 53 for each AISMF sender (max 16).

Group 57—Equipment required in addition to group 52 when 2B signaling test set is used per SD-56134-02, Fig. 4. (See Note N.)

Group 58—Provides equipment to mount four group 59.

Group 59—Equipment per SD-25177-01, Fig. 44 to provide for testing one 911 emergency service trunk. (See Group 58.)

Group 60—Equipment required in addition to group 1 for each four intercept trunks to ACD to be tested. (See Group 61.)

Group 61—Apparatus required in addition to group 60 to test one intercept trunk to ACD per SD-25177-01, Fig. 45.

Notes

A. Group 1 shall include apparatus for the maximum number of each of the following equipments:

1. SD-25177-01, Fig. 14 and 15
2. SD-96370-01, Fig. 2
3. SD-96367-01, Fig. 3

B. The patching cord equipment required for the outgoing trunk test frame consists of the following:

GR NO.	NO. REQD	CODE	EQUIPPED WITH	CIRCUIT
2	1	3P12A	—	SD-25177-01
2	1	3P12B	—	SD-25177-01
2	1	3P12C	—	SD-25177-01
2	1	3P12A	—	SD-96370-01
2	2	3P12D	—	SD-96367-01
2	1	52A	Head Telephone Set	SD-25107-01 SD-25177-01
3	1	3P6F	—	SD-25177-01
43	2	3P3B	—	SD-96540-01
43	2	3P12F	—	SD-96540-01
43	1	R2CF	716D Receiver 310 Plug	SD-96540-01
42	1	3P7B		SD-96540-01

C. Groups 4, 6, 8, 10, 12, 14, and 16 shall include jack space equipment and designation strips only, while groups 5, 7, 9, 11, 13, 15, and 17 shall include designation strips only and specify the omission of jack spaces. Apparatus for the test and make-busy jacks, test-out and make-busy jacks, and S lead test jacks per SD-96376-01, Fig. 1, 2, 3, and 16, respectively, shall be provided separately as miscellaneous equipment.

D. Group 32 shall include jack equipment per SD-25451-01, Fig. 5, and specify the omission of P-423823 block.

E. Group 34 is furnished when it is desired to modify existing jack bays having two jack panels 2 feet 7 inches high, so as to provide additional capacity for mounting the miscellaneous test-out and make-busy and the S lead jacks outside the regular T and MB jack field.

F. Jack mounting and designation strips per groups 42 through 48 shall be mounted adjacently in spare jack space as specified by the telephone company.

G. When group 43 is required test termination units, J98501S and J98501W must be provided. These units contain the apparatus per SD-96540-01, Fig. 1, 3, and 5 not provided in groups 43 and 45. These units are to be relay rack mounted as close as possible to the outgoing trunk test frame jack bay.

H. When group 44 is required a remote office test unit J98501T must be provided. This unit contains the apparatus per SD-96540-01, Fig. 11. This unit is to be relay rack mounted as close as possible to the test termination units J98501S, J98501W, and the outgoing trunk test frame jack bay.

I. Equipment required per SD-96540-01, Fig. 21 is J94023C, List 1.

J. If the bracket mounted transmission measuring set, J94023C, is not desired, and if there is unused space on the frame jack panel, then the J94023B transmission measuring set may be used as specified by the telephone company.

K. Equipment required per SD-96540-01, Fig. 22 is KS-19260, List 1 designed for jack panel mounting. If mounting space is not available in the jack panel, a KS-19260, List 2 or List 3 mounting plate must be furnished for a relay rack arrangement. Actual location will depend upon job conditions as specified by the telephone company. The 2-ohm limit as specified by J20151 must be maintained between the jacks and the oscillator.

L. Provide two 3P12B patch cords for SD-25177-01, Fig. 36A, one 322A make-busy plug for each Fig. 37 and 38.

M. Provide 3P12B patch cord for SD-25177-01, Fig. 40A and one 322A make-busy plug for each Fig. 41 and 42.

N. Group 57 provides test battery access jacks for the 2B signaling test set. When required, the battery supply filters per SD-56134-01, Fig. 2 (J68602CU, 23 Inch Relay Rack Mounted Unit) must also be provided for this feature.

O. When testing intercept trunks and test call indication to No. 5 crossbar ACD is required use a portable auxiliary test set per J94742A. (See Groups 60 and 61.)

J28550C—AT&TCo Std—Outgoing Trunk Test Frame—Test Bay

Equipment—J28550C-( )

Local Cable—ED-25244-10

List 1—Framework, assembly, wiring, and common equipment for one outgoing trunk test frame—test bay.

	WIRE	EQUIP	NOTES
Framework, ED-25077-50, G9:		1	
Jack, Key, and Lamp Panel, ED-91722-70, G4:		1	
Rel Casing, ED-90978-57, G3021, Front Only		1	
Writing Shelf, ED-25506-70, G1		1	
Trk and Line Test Ckt, SD-25177-01:			
Conn and Cont Ckt, Fig. 1, Less V App	1	1	B
Fig. 8 or 31	1	0	C
Fig. 9	6	0	C,D
Fig. 18 & 20	1	1	
Fig. I	1	0	
Voltmeter Test Ckt, Fig. 2 & K, Less Y App	1	1	E
Supv Ring and Rec Comp Trk Test Ckt, Fig. B & Q, UF, & UG wiring Less K App	1	1	F
Fig. D & E	1	0	
Fig. G	1	0	
Fig. H, UD, & UE wiring	1	0	
Revertive Puls and Steering Ckt, Fig. 4 & 4B	1	1	
Call Ind. Puls Ckt, Fig. 5	1	1	G
Fig. 12	1	0	
Fig. 13	1	0	
Sub Line Test Ckt, Fig. 6	1	0	H
Fig. 10 Less UK option	6	0	R
Fig. 29	1	1	I
Repeat Single Test Ckt, Fig. 32	1	0	
Tone Key Ckt, Fig. 33	1	0	
Tone Detection Ckt, Fig. 35	1	1	V

	WIRE	EQUIP	NOTES
Test Ckt — Continuity and Reversals, SD-96370-01:			
Fig. 1 & J, Q & S Options	1	0	J
Fig. 3	1	1	J
Fig. 4	1	0	
Test Trk Ckt — LTD, SD-96367-01: Fig. 2	5	5	K
Tel Ckt, SD-25107-01:			
Fig. 1	1	1	
Fig. C	1	0	
Fig. F	1	1	
Fig. G	1	1	
Fig. H	1	0	
Key and Lamp Ckt, Fig. 2, With Holding Feature	13	0	L,M
Key and Lamp Ckt, Fig. 3, Without Holding Feature	26	0	L,M
Key Ckt, Fig. 4,Code Ringing Lines	13	0	L,M,N
Hand Tel Set, Fig. 5	1	0	O
Aux Sig Ckt, SD-96410-01:			
Buz Key Ckt, Fig. 14	1	0	P
Bell Ckt, Fig. 5, ZE App	1	0	P
Buz Ckt, Fig. 5, ZD App	1	0	P
Misc Ckt, SD-25451-01:			
Fig. 1	1	1	
Fig. 2, 3, & 4	1	0	Q
Test Trk Jk and LP Ckt, Fig. 7	1	0	

List 2—Equipment per SD-25177-01, Fig. 8, less W apparatus, required in addition to list 1 to equip the connector and control circuit with the transfer feature for testing incoming trunks. (See Note C.)

List 4—Equipment per SD-25177-01, Fig. 9, less N apparatus, required in addition to list 2 to complete the connector and control transfer feature with one office belt line selector circuit for each two office units, having common terminating equipment, served by the same OGT test frame. (See Notes C and D.)

List 5—Equipment per SD-25177-01, Fig. 9, less N apparatus, required in addition to list 2 to complete the connector and control transfer feature with one office belt line selector circuit for each office, not having common terminating equipment, served by the same OGT test frame. (See Notes C and D.)

List 10—Equipment per SD-25177-01, Fig. 12 required in addition to list 1 to equip the call indicator pulsing circuits for testing tandem call indicator or sender tandem trunks (2-digit pulsing) or to equip the multifrequency pulse control circuit to prime multifrequency pulsing terminating senders.

List 11—Equipment per SD-25177-01, Fig. 13 required in addition to list 10 to equip the call indicator pulsing circuit for testing tandem call indicator or sender tandem trunks (3-digit pulsing) or to equip the multifrequency pulse control circuit to prime multifrequency pulsing terminating senders.

List 12—Equipment per SD-25177-01, Fig. 6, less X and Y apparatus, required in addition to list 1 to equip the subscriber line test circuit. (See Notes H, Z, and list 71.)

List 13—A&M Only—Equipment per SD-25177-01, Fig. 6, X apparatus only, required in addition to list 12 to complete the subscriber test circuit with a visual signal arranged to indicate only a cut-through condition of the tip and ring leads.

List 14—Equipment per SD-25177-01, Fig. 6, Y apparatus only, required in addition to list 12 to complete the subscriber line test circuit with visual signals arranged to indicate a cut-through condition of the tip and ring leads and the type of F cross connection provided on subscriber lines.

List 15—Equipment per SD-25177-01, Fig. 10, less U jack, required in addition to list 12 to equip the subscriber line test circuit with one incoming test trunk cut-in circuit for each incoming test trunk when more than one is served by the same OGT test frame.

List 17—Equipment per SD-96370-01, Fig. 1, options J, Q, and S is required in addition to list 1 to complete the test circuit for one or two OGTT frames. (See Note J.)

List 20—Equipment per SD-25107-01, Fig. 2 required in addition to list 1 to equip a key and lamp circuit for one (one circuit per key, position 0-12) trunk, tie line, or local station line requiring the holding feature. (See Notes L and M.)

List 21—Equipment per SD-25107-01, Fig. 3 required in addition to list 1 to equip a key and lamp circuit for two (two circuits per key position 0/1-24/25) tie lines, local station lines, or other trunks not requiring the holding feature. (See Notes L and M.)

List 22—Equipment per SD-25107-01, Fig. 3 required in addition to list 1 to equip a key and lamp circuit for one (one circuit of pair per key, position 0-12) tie line, local station line, or other trunks not requiring the holding feature. (See Notes L and M.)

List 23—Equipment per SD-25107-01, Fig. 4, less X apparatus, required in addition to list 1 to equip a key circuit for one (two circuits per key, position 0/1-24/25) incoming or outgoing code ringing line. (See Notes L, M, and N.)

List 24—Equipment per SD-25107-01, Fig. 4, X apparatus only, required in addition to list 23 to equip a key circuit with a subscriber set, having one each 41A and 41B gongs, for the first incoming line. (See Note N.)

List 25—Equipment per SD-25107-01, Fig. 4, X apparatus only, required in addition to list 23 to equip a key circuit with a subscriber set, having two 41A gongs, with two 101 gong attachments, for the second incoming line.

List 26—Equipment per SD-25107-01, Fig. 4, X apparatus only, required in addition to list 23 to equip a key circuit with a subscriber set, having two 40C gongs, for the third incoming line.

List 27—Equipment per SD-25107-01, Fig. 4, X apparatus only, required in addition to list 23 to equip a key circuit with a subscriber set, having two 40D gongs, for the fourth incoming line.

List 28—Equipment per SD-25107-01, Fig. 5 required in addition to list 1 to equip the telephone circuit with a hand telephone set. (See Note O.)

List 31—Equipment per SD-25451-01, Fig. 2, 3, and 4 required in addition to list 1 to equip the miscellaneous circuit test battery terminals and battery and spare jacks. (See Note Q.)

List 32—Equipment required in addition to list 1 when more than one office unit is served by the same OGT test frame.

List 33—Equipment per SD-25177-01, Fig. 2, Y apparatus only, required in addition to list 1 to equip the voltmeter test circuit for testing subscriber lines having the tube-type subscriber sets.

List 34—Equipment per SD-25177-01, Fig. 1, V apparatus only, required in addition to list 1 to equip the connector and control circuit for testing the registration feature of tandem crossbar trunks from panel offices arranged for remote-control zone registration.

List 35—A&M Only—Equipment per SD-25177-01, Fig. B, K apparatus only, required in addition to list 1 to complete supervisory ringing and recording completing trunk test circuit in offices not arranged for seizure of the coin supervisory circuit on all classes of calls.

List 36—A&M Only—Equipment per SD-25177-01, Fig. G required in addition to list 1 to complete the supervisory ringing and recording completing trunk test circuit for testing recording completing trunks arranged to work only with 1200-ohm subscriber loops on coin lines or 2000-ohm loops on noncoin lines.

List 37—Equipment per SD-25177-01, Fig. H required in addition to list 1 to complete the supervisory ringing and recording completing trunk test circuit for testing recording completing trunks arranged to work with either 1200- or 1500-ohm subscriber loops on coin or noncoin lines.

List 40—Equipment per SD-25177-01, Fig. S and SD-25107-01, Fig. D required in addition to list 44 to equip the connector and control and telephone circuit for dial pulsing for testing trunks from tandem crossbar to step-by-step offices by means of a dial, or for use in No. 1 crossbar offices for referred troubles on dial incoming trunks when no incoming trunk test wagon is provided.

List 41—Equipment per SD-96410-01, Fig. 14 and 5, ZE apparatus only, required in addition to list 1 to equip the talking circuits with an auxiliary signal circuit employing a bell. (See Note P.)

List 42—Equipment per SD-96410-01, Fig. 14 and 5, ZD apparatus only, required in addition to list 1 to equip the talking circuits with an auxiliary signal circuit employing a buzzer. (See Note P.)

List 44—Supplementary local cable including wiring per SD-25177-01, Fig. S and SD-25107-01, Fig. D required in addition to lists 1 and 40 in tandem crossbar offices to equip the connector and control and telephone circuits for dial pulsing for testing trunks from crossbar tandem to step-by-step offices by means of a dial, or for use in

No. 1 crossbar offices for referred troubles on dial incoming trunks when no incoming trunk test wagon is provided.

List 46—Wiring and equipment per SD-25177-01, Fig. 17, and 19 ZL option of Fig. 1, 3, 4, and 5 required in addition to list 1 when list 49 is not provided.

List 49—Wiring and equipment per SD-25177-01, Fig. 21, 25, and 28, and ZM option of Fig. 1, 3, 4, and 5, plus wiring for Fig. 22, 23, 24, 26, 27, M, P, and R required in addition to list 1 to provide the multifrequency or automatic dial pulsing feature. (See Notes S, T, and U.)

List 50—Equipment per SD-25177-01, Fig. M, P, and R required in addition to list 49 to provide multifrequency pulsing.

List 51—Equipment per SD-25177-01, Fig. 26 required in addition to list 49 to provide automatic dial pulsing on a loop basis.

List 52—Equipment per SD-25177-01, Fig. 27 required in addition to list 51 to provide automatic dial pulsing on loop, loop resistance, and battery and ground pulse loop bases.

List 53—Equipment per SD-25177-01, Fig. 22, 23, and 24 required in addition to list 49 to equip the automatic dial and multifrequency pulse control circuit for testing tandem trunks (2-digit pulsing) when list 10 is specified. (See Note U.)

List 54—Equipment per SD-25177-01, Fig. 22, 23, and 24 required in addition to list 49 to equip the automatic dial and multifrequency pulse control circuits for testing tandem trunks (3-digit basis) when list 11 is specified. (See Note U.)

List 55—Local cable wiring required in addition to list 2 when arranging frame for testing a combination of both No. 1 crossbar and tandem offices.

List 56—Wiring and equipment per SD-25177-01, Fig. 30 for tandem office belt line selector on frames using list 2.

List 57—Equipment per SD-25177-01, Fig. 3, YP apparatus only, required in addition to list 49 when auxiliary incoming trunks associated with multifrequency incoming trunks are to be tested from manual.

List 58—Wiring and equipment per SD-25177-01, Fig. 3 and 21, YN option only, required in addition to list 1 when list 57 is not required.

List 61—Equipment per SD-96370-01, Fig. 1 required in addition to list 1 to provide a reverse polarity key circuit for testing in offices where trunks having battery on the ring and ground on the tip are included.

List 62—Equipment per SD-25177-01, Fig. 32 required in addition to list 1 to provide a repeat single test circuit for testing final multiple test lines or busyback circuits.

List 63—Equipment per SD-25177-01, Fig. 33 required in addition to list 1 to provide a test tone to the operator to indicate that there should be no coin tone for coin zone dial trunks.

List 64—Equipment per SD-25451-01, Fig. 7 required in addition to list 1 to provide a test trunk jack and lamp circuit.

List 65—Equipment per SD-25177-01, Fig. T, VL wiring, required in addition to list 49 for testing panel multifrequency outgoing trunks.

List 66—Equipment per SD-25177-01, Fig. T, VK apparatus and wiring, required in addition to list 49 for testing panel multifrequency outgoing trunks for false abandonment signals.

List 67—Wiring and equipment required in addition to list 1 when testing of ANI-MF outgoing trunks from No. 1 crossbar to No. 4A or 4M toll or crossbar tandem is required per SD-25177-01, Fig. W and VQ options. (See Notes AA, AB, AC, and AD.)

List 68—Wiring and equipment required in addition to list 67 when testing of ANI-MF outgoing trunks from Panel System to No. 4A or 4M toll or crossbar tandem is required per SD-25177-01, VM and VR options. (See Note AB.)

List 69—Equipment and wiring per SD-25177-01, Fig. 36 and UA wiring required in addition to list 1 when office is arranged for automatic intercept service with line link pulsing. (See Note W.)

List 70—Equipment and wiring per SD-25177-01, Fig. 40, TE option, and UJ wiring required in addition to list 1 when office is arranged for automatic intercept service without line link pulsing (See Note W.)

List 71—Equipment and wiring per SD-25177-01, Fig. 43, and UR and UT wiring required in addition to list 12 when access for subscriber line test is by MF pulsing. (See Note Z.)

List 72—Equipment and wiring per SD-25177-01, Fig. 40B required in addition to list 70

for an AIS frame associated with first or second terminating marker group.

List 73—Equipment per SD-25177-01, UE option required in addition to list 37 when E and M recording completing trunks or trunks with coin service improvements feature are provided (a maximum of one list 73 per frame). (See Note Y.)

List 74—Equipment per SD-25177-01, UG option required in addition to list 73 when trunks with coin service improvements feature are provided. (See Note X.)

List 75—Equipment and wiring per SD-25177-01, Fig. 10, UK option required in addition to list 15 when automatic intercept service per list 69 or 70 is provided (a maximum of six).

List 76—Wiring and equipment required in addition to list 67 when both MF and PCI outgoing trunks are to be tested, per SD-25177-01, UX option. (See Note AC.)

List 77—Equipment and wiring required in addition to list 70 to arrange for testing AIS frames associated with the third or fourth terminating marker group per SD-25177-01, Fig. 46 and TE option (max 2 list 77).

List 78—Equipment and wiring required in addition to the first list 77 to transfer from the first or second terminating marker to the third or fourth terminating marker group per SD-25177-01, Fig. 47.

Notes

A. List 1 shall include wiring for all options except as noted in lists 46, 49, 69, 70, 71, 72, 75, and Note U.

B. The test and make-busy jacks (SD-25177-01, Fig. 14, 15, and 16) shall be provided as a part of the outgoing trunk test frame jack bay as covered on ED-25409-12.

C. The transfer circuit shall be provided in the first frame only of a group of outgoing trunk test frames associated with the same group of incoming trunks.

D. The equipment for the required number of office belt line circuit shall be located in the same outgoing trunk test frame in which the equipment for the transfer circuit is located.

E. Ordinarily, the test battery supply shall be obtained from the battery provided for the local test desk. When this battery is located in a dry battery cabinet, the resistance lamps and fuses shall be located on panels atop the cabinet in a manner as covered on ED-90642-01. When the local test desk battery is located in the rear of the desk, the resistance lamps and fuses shall also be located there, on a battery tray, in accordance with ED-91379-01. In the absence of a local test desk, the test battery equipment shall be located in the outgoing trunk test frame jack bay as covered on ED-25409-12.

F. The supervisory ringing and recording completing trunk test circuit shall be arranged for positive coin collect potential (Y wiring). If the area is arranged for negative coin collect, interchange the leads (X wiring) on the contacts of the N relay.

G. The call indicator pulsing circuit shall be arranged for a heavy position call indicator pulse. If not required, loop the leads designated "a" at the FP relay.

H. List 12, when specified by the telephone company, is usually provided on the basis of one per office unit, regardless of the number of outgoing trunk test frames involved, and installed in the first test frame. When specified, however, a subscriber line test circuit may be provided per test frame.

I. When an outgoing trunk test frame is associated with one incoming test trunk and the extra number key is required, the wiring from the key shall be looped at the position of the U relay and terminated on the OS terminal strip located at the top of the frame.

J. The relay equipment (SD-96370-01, Fig. 1) for the continuity and reversal test shall be provided only in the first of two outgoing trunk test frames, whereas the lamp and jack (Fig. 2 and 3) shall be equipped in each of the two test and associated jack bays, respectively.

K. List 1 includes wiring and equipment only for the LTD test trunk lamps. Associated jacks and relay equipment (SD-96367-01, Fig. 1 and 3) shall be provided as a part of the outgoing trunk test frame jack bay as covered on

ED-25409-12. These test trunks may be multipled through two or more test frames when desired.

L. The trunks, tie lines, local station lines, or code ringing lines to be used with the outgoing trunk test frame key and lamp circuits are the same as those employed in other maintenance desks or frames and thus may be a part of a group of trunks, tie lines, etc, serving such desks or frames. The number, and type of key and lamp circuits required, should be specified by the telephone company.

M. Apparatus for mounting the key and lamp circuits, including the maximum number of lamp sockets and lamp caps, shall be provided with list 1. Key spaces and lamps should be equipped only as required. In cases where one talking circuit requires a whole key (list 20), which reduces the capacity of the frame one circuit per key so employed, the lamp located in the direction toward which the key lever is operated to condition for talking shall be equipped. Universal wiring shall be provided at the key positions so that a connecting trunk, tie line, local station line, or code ringing line may use either the whole or one half of any key depending upon the type of talking circuit involved and whether or not the hold feature is desired. The key and lamp circuits are arranged to be connected externally by means of local cable wiring to the TLK TRKS terminal strip located at the top of the test bay, and thence cabled to the HMDF for cross connection to the relay equipments associated with either a trunk, tie line, local station line, or code ringing line. When any or all of these talking circuits are to be multipled to other outgoing trunk test frames, the keys serving the same circuit shall be located in the same relative positions in all test bays, unless otherwise specified.

N. The subscriber sets (lists 24 to 27) shall be provided only when the code ringing lines are incoming from other desks and located as directed by the telephone company. Wiring shall be performed by the installation force.

O. The hand telephone set shall be provided only when specified by the telephone company.

P. The auxiliary signal circuit shall be equipped as specified by the telephone company. Associated relays, etc, per J93016 shall be equipped in accordance with job requirements and located on the relay rack.

Q. List 32 consists of a jack mounting for the maximum number of each of the following equipments:

1. SD-25177-01, Fig 9, N apparatus only, or SD-25177-01, Fig. 30, YE apparatus only.

2. SD-25177-01, Fig. 10, U jack only.

R. The necessary make-busy (350A) plugs shall be provided as specified by the telephone company.

S. Wiring per list 49 shall be furnished as a part of the local cable in list 1 when this feature is required initially.

T. When automatic dial and/or multifrequency pulsing control is added on existing OGT test frames, the equipment shall be furnished per ED-25077-13, with the front casing and a local cable containing all the multifrequency wiring soldered to the equipment.

U. The numerical keys required for lists 1, 10, 11, 49, 53, and 54, as shown on SD-25177-01, Fig. 4, 5, 12, 13, 21, 23, and shall be furnished one per frame when required.

V. A tone detector unit J93020AH-( ) is required and may be shared with the Test Termination Circuit SD-96540-01 when arranged for ROTL.

W. When automatic intercept service per list 69 or 70 is not required, provide SD-25177-01, UH wiring.

X. When coin service improvements feature per list 74 is not provided then SD-25177-01, UF wiring is required.

Y. When E and M recording completing trunks or coin service improvements feature per list 73 is not provided then SD-25177-01, UD wiring is required.

Z. Provide SD-25177-01, UQ and US wiring in addition to list 12 when list 71 is not required

and access for subscriber line test is by RP pulsing.

AA. Provide Fig. V and VN wiring in addition to list 1 when list 67 is not required.

AB. Provide VN wiring in addition to list 67 when list 68 is not required.

AC. Provide UW wiring in addition to list 67 when list 76 is not required.

AD. Provide VS option in addition to list 67 when one identifier group is required for ANI trunks or provide VT option in addition to list 67 when two or more identifier groups are required for ANI trunks.

Miscellaneous Equipment

4.01 ***SD-96376-01, Fig. 1—Test and Make-busy Jack Circuit:***

(a) ***Crossbar Offices:*** One test and make-busy jack circuit is required for each trunk, regardless of type, outgoing from an office link frame. As covered on ED-25236-10, these jack circuits are connected direct to either the office frame secondary switches to terminal strips at the extension frame positions, when such frames are not required initially, or to the HMDF, depending upon which procedure lends itself of economy in cabling. No provisions are made for cross connections under the latter procedure since the T and MB jack are arranged in the jack bay, or bays, so that the trunks appear in the order in which they are assigned on the office frame secondary switches. Space is reserved in all cases for ten office frames, with or without extension frames, arranged for the maximum capacity of 400 OGT per pair or, through the use of a second jack bay per test frame, for ten office and extension frames arranged for a combined capacity of 300 OGT per office and extension frame or 600 OGT per pair. In the former case, 200 of the OGT are associated with jacks located in the left-hand field and comprise marker test groups TL-0-2-4-6-8, while the remaining 200 are located in the right-hand jack field and comprise marker test groups TL-1-3-5-7-9 where split levels, equipped as required, are concerned, or marker test groups TL-10-11-12-13-14 where extension frames are provided. Except for a change in number plates, indicating the marker test groups in the right-hand field as noted above, no revisions are required in the jack bay in cases where split levels on office link frames are later converted to nonsplit and extension frames added. In the other case mentioned, involving 600 OGT per pair of office and extension frames, which is limited to offices employing a total of ten or less office frames, 400 of the OGT are located in the first two jack bays and arranged in a like manner to that outlined above for similar equipment. The remaining 200 OGT of the 600, comprising marker test groups TL-1-3-5-7-9, are located in the second bay, but unlike the foregoing arrangements maintaining test groups TL-0-2-4-6-8 in the left-hand jack field and either test groups TL-1-3-5-7-9 or TL-10 to 14 in the right, groups of 200 each of these trunks are arranged alternately in the left- and right-hand jack field, starting in the center of the bay for office frames 0-1 and 2-3 thence upward for frames 4-5 and 6-7 and ending in the uppermost left-hand field for frames 8-9. This not only places the jacks where they afford the most convenience to operations but also places them in a position for first use should an office employing such an arrangement grow beyond limitations. Thus, on conversion, only the test group number plates and office frame number stamping in the second jack bay would require change.

(b) ***Combined Panel and Crossbar Offices:*** Regardless of whether the outgoing trunks are to be used separately or in common, either initially or ultimately, a full complement of test and make-busy jack circuits shall be provided for the office link frame multiple in the usual manner as outlined above. In the event job conditions do not lend themselves to cabling of these jacks directly to the office frames or to an MDF, they may be connected via TDF, all standard cabling and cross-connecting arrangements, with respect to both jack connections and multipling of panel and crossbar OGT, being covered on ED-20761-01 and SD-96376-01. Since the panel office or district selector multiple shall be provided with a full complement of jacks, also, it follows that common trunks will have two sets of T and MB jacks; however, this not only provides complete flexibility but constitutes an advantage in that such trunks may be referred to for testing purposes in the terms of tie lines, panel bank, and terminal numbers or crossbar marker test group numbers. Trunks not multipled will of

course have only one set of jacks which shall be located in the associated panel or crossbar portion of the OGT test frame.

4.02 ***SD-96376-01, Fig. 2—Test-out and Make-busy Jack Circuit:*** One test-out and make-busy jack circuit is required in an office for the outgoing end of each of the following trunks:

(a) 2-wire recording completing.

(b) Vacant code intercepting and special service to central "A" switchboards only.

(c) "A" switchboard keypulsing.

(d) Coin zone trunk to sender tandem.

As also covered on ED-25236-10, these jacks are normally cabled direct to the HMDF for cross connection to the trunks listed above. However, in the event of a combined panel and crossbar office, the test-out and make-busy jacks may be cabled to a distributing frame as specified. The miscellaneous TO and MB jacks, and also the S lead jacks referred to in 4.03 and the T test jacks referred to in 4.04, shall be located below the regular T and MB jacks in the space provided for them at that point; or they may be located in spare space normally reserved for the regular T and MB jacks. Excluding the jacks associated with the keypulsing trunks, which are independent of the office link frames, each TO and MB jack circuit shall be numbered and designated to agree with the regular T and MB jack circuit associated with the same miscellaneous trunk.

4.03 ***SD-96376-01, Fig. 3—S Lead Test Jack Circuit:*** One S lead test jack circuit is required in an office for each miscellaneous 4-wire trunk outgoing from an office link frame, not otherwise connected to test-out and make-busy jacks. Following is a list of the trunks involved:

(a) Test-LTD.

(b) Ringer test.

(c) Vacant code intercepting, and special service to local "A" switchboard only.

(d) Permanent signal holding.

(e) Recording completing.

The S jacks shall be located, cabled, and numbered in a manner similar to that specified in 4.02 for the test-out and make-busy jacks.

4.04 ***SD-96376-01, Fig. 6—T Test Jack Circuit:*** One test jack circuit is required for each outgoing trunk circuit to "A" switchboard arranged for multifrequency pulsing. The T jacks shall be located, cabled, and numbered in a manner similar to that specified in 4.02 for the test and make-busy jacks.

5. GENERAL NOTES

EQUIPMENT

5.01 A No. 32A test set is required for use in conjunction with certain functions of the outgoing trunk test frame and also with the terminating sender test selection unit when it is provided. This set shall be provided only when specified by the telephone company.

5.02 The present method of making busy spare or unused trunks in a trunk group is to ground the sleeves of such appearances at the distributing frame where trunks are terminated. This arrangement is shown on ED-25248-01. An optional arrangement is now available in the shape of a short plug, coded as the No. 350A plug, which may be used at the outgoing trunk test frame. In order to make busy or place into service the spare or unused trunk with this arrangement, it is only necessary to insert or remove the plugs from the make-busy jacks at the test and make-busy jack panel.

WIRING

Local Cable—Test Bay

5.03 No. 24 gauge type BU wire shall be used with the following exceptions:

(a) No. 22 gauge type BU wire for battery and ground leads, the latter being strapped together at the MISC terminal strip and thence connected to the ground bar on the top angle as covered on ED-25409-50.

(b) No. 22 gauge type BW wire for the voltmeter test circuit (SD-25177-01, Fig. 2), including extension of the T and R leads through the connector and control circuit (Fig. 1) to the test

T1 and T2 jacks, and for the subscriber line test circuit (Fig. 6).

(c) No. 22 gauge type BH wire for the selectors used in the revertive pulse and steering and call indicator pulsing circuits (SD-25177-01, Fig. 4 and 5).

(d) No. 20 gauge type BH wire for the ringing leads.

Ground Leads—Jack Bay

5.04 The MB and T and MB jacks (SD-96376-01, Fig. 1 and 2) shall have a ground lead per strip of jacks. These leads, plus the ground leads for the LTD test trunk relay equipment and voltmeter test batteries, when required, shall be run and connected to the frame ground leads (two 6-gauge bare wires) as covered on ED-25624-10. The frame ground leads are in accordance with ED-25409-50, Fig. 2, and are arranged to facilitate shop connection of switchboard cable to the jacks provided with the jack bay.

Switchboard Cabling

5.05 The arrangement of the cable connections between the test and make-busy jacks and the office secondary switches is covered on ED-25236-10 and ED-25410-10.

5.06 The switchboard cables for the local test desk test trunks between the LTD TRK terminal strip in the test bay and the LTD jacks in the jack bay shall be formed out on the local cable side of the terminal strip.

5.07 The wiring between the test selection unit and the outgoing trunk test frame trunk and line test circuit is run in switchboard cable to the MISC terminal strip at the top of the bay. On existing jobs where the test selection unit, when furnished, is mounted at the bottom of the test bay on outgoing trunk test frame and the multifrequency pulse control feature is required, this equipment shall be located on the miscellaneous frame on a job basis and wiring to associated equipment on the outgoing trunk test frame shall be run in switchboard cable. The equipment arrangement for this condition is shown on J28550C-( ).

5.08 The cabling of the outgoing trunk test frame jack bay is governed by job requirements concerning the office link frames. In general, where ten or less office link frames are used, switch levels will be split as required and extension frames omitted; where more than ten office link frames are used, switch levels will not be split and extension frames will be required. An exception to the former of these arrangements involves office link frames arranged for a capacity of 600 OGT per pair in which case both split levels and extension frames are employed. However, where either of these arrangements (ten or less frames) are used initially and the more-than-ten arrangement ultimately, a conversion is involved which is facilitated by the recommended cabling plan. Regardless of the number of switch levels split or whether extension frames are used or not, 100 trunks from each office link frame of a pair are arranged in five marker test groups, namely TL0, TL2, TL4, TL6, and TL8. The T and MB jacks associated with these trunks are cabled independently of any others and are located in the left-hand jack field, of the first jack bay in case there are two, where they will remain undisturbed for the life of the equipment. When extension frames are not used, as many of marker test groups TL1, TL3, TL5, TL7, and TL9 as are required are created by the splitting of secondary switch levels and the T and MB jacks of these groups are located in the right-hand jack field, space being reserved for five groups per pair of office frames. On the conversion, these groups are transferred from the office link frames to the extension frames, requiring only changes in designations at the jack bay as mentioned in 4.01. In the case of partial equipment, additional circuits are cabled, as required, the additional jacks being located in the space reversed for the purpose in the right jack field. When extension frames are used in addition to split levels to obtain a capacity of 600 OGT per pair of office link and extension frames, a second jack bay is required. The first of the two jack bays is equipped and cabled just as if split levels were not involved, that is, 100 trunks (TL-0-2-4-6-8) from each office link frame of a pair and 100 (TL-10-11-12-13-14) from each of the associated extension frames are terminated permanently in the left- and right-hand jack fields, respectively. The remaining 100 trunks, which are created by splitting the office frame switch levels and comprise marker test groups TL-1-3-5-7-9, are cabled to the second jack bay where they are associated with T and MB jacks located in both jack fields as more fully outlined in 4.01. On the conversion in this case, the cables for test groups TL-1-3-5-7-9 would be removed and the jacks

recabled, as required, to the new office link and extension frames added in excess of ten. No revisions whatsoever need be made in the marker test groups TL-0-2-4-6-8 and TL10 to TL14 located in the first jack bay.

5.09 The office outgoing trunks originate at the office link, or office link and extension frames, and have three appearances at the MDF, OGT test frame, and ITC frame. Where the connection to the OGT test frame is made at the MDF, the conversion, in either case, involves no changes in these cables at either end.

List of A&M Only and Mfr Disc. Equipment

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
ED-25409-12,			
G32	A&M Only	12	—
G34	A&M Only	10	—
G35	Mfr Disc.	9	ED-26310-01,
G37	Mfr Disc.	12	G1
G40	Mfr Disc.	15	—
GA	Mfr Disc.	12	—
J28550A	Mfr Disc.	4	J28550C
J28550B	Mfr Disc.	3	J28550D
J28550C,L3	Mfr Disc.	9	J28550C,L2
L6			L18
& L7	Mfr Disc.	8	& L19
L8			
& L9	Mfr Disc.	6	L1
L13	A&M Only	6	L14
L16	Mfr Disc.	8	L59
L18			
& L19	Mfr Disc.	9	L1
L29			L42
& L30	Mfr Disc.	6	& L41
L35			
& L36	A&M Only	6	L37
L38			
& L39	Mfr Disc.	8	—
L43	Mfr Disc.	9	—
L45	Mfr Disc.	8	L49
			& L50
L47			L53
& L48	Mfr Disc.	8	& L54
L59	Mfr Disc.	9	L1
L60	Mfr Disc.	17	—
J28550D	Mfr Disc.	7	J28550E
J28550E	Mfr Disc.	11	—

The above equipment has been replaced as indicated. Where A&M Only items appear the issue numbers shown are those in which the rating was first applied.

Bell Telephone Laboratories, Incorporated

Dept 5245