DISTRICT JUNCTOR TEST 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 district junctor test frame in No. 1 crossbar offices.

1.02 This specification is reissued:

(a) To provide the equipment design requirements for a Special Message Charging System per SD-25158-01, Issues 59D and 60D.

(b) To provide the equipment design requirements for testing coin supervisory circuits modified for coin service improvements—dial-tone-first operation per SD-25158-01, Issues 56D and 58AC.

(c) To provide the equipment design requirements for bypassing the BT5 test during customer disconnect tests of AMA districts when the RMB key is operated per SD-25158-01, Issue 55AC.

(d) To incorporate Addendum Issue 1 and miscellaneous changes to update specification.

CAPACITY

1.03 The district junctor test frame is arranged to test a maximum of 2400 district junctors in one originating marker group, of which 500 may be coin districts.

DESCRIPTION

1.04 The district junctor test frame is a single-bay framework, 11 feet 6 inches high and 2 feet 8-1/8 inches wide, and contains a fuse panel, miscellaneous terminal strips, multicontact relays for connecting to junctor groups, operating apparatus comprising 206-type selectors, relays, registers, timers, etc, key and lamp panels, writing shelf, and a ticket receptacle. The relays and other plate-mounted apparatus are enclosed by casings on the front side.

1.05 The group connecting relays cut a number of common leads through to a 100-point crossbar switch located on the subscriber or auxiliary subscriber sender link frame adjacent to the district or auxiliary district junctor frame containing the group of 100 junctors. The 100 points of the switch are closed in rotation as the routine testing progresses, or any particular one may be selected for test by the control equipment.

1.06 The frame contains the following circuits with the indicated test functions.

(a) ***Connector Control Circuit:*** This circuit starts the test frame, selects junctors in rotation or, if necessary, particular junctors, makes repeat tests on any junctor if desired, advances the circuit upon completion of a test, passes or waits for a busy junctor, times out and indicates trouble, and performs certain other functions.

(b) ***Dial Pulsing Circuit:*** This circuit is used to generate dial pulses to prime the sender with a code when testing the junctor. Any combination of numerals for the 2 or 3 digits required for priming for four different classes of calls (free, charge, operator, and zone) may be set up by means of cross connections. In testing AMA districts, the senders require the use of the charge class which necessitates dialing four numerical digits in addition to the test code digits. The dialing circuit, includes provision for sending these numerical digits.

(c) ***Supervisory Relay Test Circuit:*** This circuit tests the supervisory relays in the district junctor for correct operation under extreme

conditions, the transmission capacitors for breakdown or opens, correct operation on a "cut-through" (operators class) call, and release on called party disconnect. Included in this portion of the frame is a revertive pulsing circuit used to satisfy numerical digit selection in connection with the testing of AMA junctors.

(d) ***Charge Testing Circuit:*** This circuit tests tip or ring charge in a 2-party district, length of charging pulse, length of overtime interval, and checks for overcharging. It also checks polarity, potential, and duration of coin current, and various troubles such as stuck coin, and no coin. In the case of AMA districts, various tests are made including a check of the engagement of the call identify indexer for recording of subscriber answer and disconnect entries on charge calls. A feature is provided for detecting false potentials on the M1 and M2 leads of message rate district junctors.

(e) ***Class Circuit:*** This circuit tests the junctor under various class conditions and is used in conjunction with the charge test circuit. The following tests are selected manually by key: local charge, zone charge, capacitor test see (c), junctor disconnect, free call, operator call, tip party charge, and automatic release.

2. SUPPLEMENTARY INFORMATION

816-000-000—No. 1 Crossbar System Index
030-111-501—Measurement of Timing Intervals Using S1A Timer
J23051—816-024-150—Miscellaneous Frame Equipment Floor Plan Data—Section 9.3, Sheet 1

3. DRAWINGS

WE J drawings listed 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-25020-01—Miscellaneous Mounting Details and Cable Brackets
ED-25022-01—Multicontact Relay Mountings
ED-25025-59—Fuse Panels—Assembly
ED-25108-10—Test Frames—Miscellaneous Wood Details
ED-25108-11—Test Frames—Miscellaneous Metal Details
ED-25260-10—Steel Panels
ED-25506-70—Pigeon Holes and Writing Shelf
ED-90002-10—Flush Panels
ED-90382-10—Key Mountings
ED-90978-57—Assembly of Relay Casings
ED-91710-70—Frame Assembly
ED-91722-70—Assembly of Key and Lamp Panel

Equipment

J27553A-( )—Equipment of Test Frame

Wiring and Cabling

ED-25250-01—Local Cable
ED-25251-10—Switchboard Cable Schematic and Details
ED-25346-14) Method of Running Power
-15) Feeders

4. EQUIPMENT

J27553A—AT&TCo Std—District Junctor Test Frame

Equipment—J27553A-( )

List 1—Framework, assembly, wiring, and common equipment for a district junctor test frame.

	WIRE	EQUIP	NOTES
Framework, ED-91710-70, G1		1	
Key & Lamp Panel Assembly, ED-91722-70, G3		1	
Rel Casing, ED-90978-57:			
G3014 (Front Only)		1	
G3011 (Front Only)		1	
Pigeon Holes & Writing Shelf, ED-25506-70, G1		1	
Misc Frame Ckt, SD-25173-01:			
Fig. 2, 5, 6, 7, 9 10, 12, & 13	1	1	J
Fig. 11	4	0	
Dist Jctr Test Ckt, SD-25158-01:			
Conn Cont Ckt:			
Fig. 2	20	0	B,C, D,J
Fig. 3	1	1	
Dial Pulsing Ckt:			
Fig. 4 & 5	1	1	E
Fig. J	1	0	
Supv Rel Tst Ckt, Fig. 5	1	0	
Chg Tst Ckt:			
Fig. 6, O, and Q	1	1	
Fig. 7 & 10	1	0	G
Fig. 11	5	0	F,G
Fig. 19	8	0	G
Fig. 20	5	0	G
Fig. G & H	1	0	
Fig. 24	1	0	G,H
Fig. 23	1	1	H
Class Ckt, Fig. 13 and U	1	1	D

List 2—Wiring only per SD-25158-01, Fig. 16, 17, 21, K, and all options, required in addition to list 1 when district junctors arranged for AMA operation are to be tested. (See Note K.)

List 3—Equipment per SD-25158-01, Fig. 16, 17, 21, K, and all options, required in addition to list 1 when district junctors arranged for AMA operation are to be tested. (See Note K.)

List 4—A&M Only—Wiring and equipment per SD-25158-01, Fig. 14, N, P, and R required in addition to list 1 when frame is limited to testing an overtime charge period of 5 minutes. (See Note L.)

List 6—Wiring per SD-25158-01, Fig. 25, WF option, and Fig. 19, required in addition to list 1 to arrange the test frame to indicate the coin supervisory circuit, associated with the coin districts, when they are in two marker groups and are assigned to two coin supervisory link frames.

List 7—Equipment per SD-25158-01, Fig. 25, WF wiring connected, required in addition to list 6 to equip the test frame to indicate the coin supervisory circuit, associated with the coin districts, when they are in two markers and assigned to one coin supervisory link frame. (Maximum two list 7 for one list 6.)

List 8—Wiring and equipment per SD-25158-01, Fig. Y required in addition to list 1 when district junctors per SD-25620-01 are used as flat-rate districts in offices arranged for future AMA.

List 9—Wiring and equipment per SD-25158-01, WP option, required in addition to list 1 when operation with recorder circuit per SD-21978-01 is to be provided.

List 10—Wiring and equipment per SD-25158-01, WR and WT option and Fig. AC is always required in addition to list 1 and T option, and provides for repeat testing of a district junctor without the hazard of seizure by a service call in the interval between repeat tests and makes remote control effective should the test circuit block before the sender makes TG test. (See lists 14 and 15.)

List 11—Wiring and equipment per SD-25158-01, Fig. 2, WU option required in addition to list 1 for each auxiliary district junctor frame provided, up to a maximum of four. (See Notes C and D.)

List 12—Wiring, equipment, and supplementary local cable for the first and second list 11 per SD-25158-01, Fig. AE, required in addition to the first list 11 only. (See Notes M and N.)

List 13—Supplementary local cable for the third and fourth list 11, required in addition to the third list 11 only.

List 14—Wiring and equipment per SD-25158-01, Fig. AA, required in addition to lists 1 and 10 for NON-AMA offices.

List 15—Wiring and equipment per SD-25158-01, Fig. AF, and WW option, required in addition to lists 1, 3, and 10 for AMA offices.

List 16—Wiring and equipment per SD-25158-01, Fig. AH, and WY and WZ options,

required in addition to list 1 when testing coin district junctors, and when coin supervisory circuits provide dial-tone-first operation which is arranged for overtime coin collection. (See Note G.)

List 17—Wiring and equipment per SD-25158-01, Fig. AI, and VA and WY options, required in addition to list 1 when testing coin district junctors, and when coin supervisory circuits provide dial-tone-first operation which is not arranged for overtime coin collection. (See Note G.)

List 18—AT&TCo Special—Wiring and equipment per SD-25158-01, Fig. AL and VB option, required when testing an office which is equipped with a Special Message Charging System.

Notes

A. Furnish all optional wiring and connect as required for the job.

B. The district junctor connector switch per SD-25158-01, Fig. 1, is mounted on the subscriber sender link frame and is furnished as part of that equipment.

C. The bottom multicontact relay mounting shall be supplied when more than ten G relays are equipped or when auxiliary district junctor GAO relay is equipped. (See 5.06.) When less than ten relays are equipped on either mounting, the multiple strapping for unequipped relay positions shall be supported as shown in the wiring and cabling specifications.

D. Furnish one Fig. 2 for each group of 100 junctors and cross-connect class punchings 0 to 4 (punching 0 represents bottom unit of 20 junctors, punching 1 the next unit, etc and punching 4 the top unit) to the strapped set of punchings representing the class of the 20 junctors in the unit and the type of supervisory relay used. If any unit is not equipped in a junctor frame, cross-connect the corresponding punching to the strapped class punching VL.

E. The A, B, and C punchings of each of the four class relays (free call, charge call, operator call, or zone call) shall be cross-connected to punchings 0 to 9 to obtain the desired three digits for sender priming on each class.

F. One GA and one GB relay shall be furnished for each coin supervisory link frame.

G. Furnish Fig. 7, 11, 19, 20, and 24 when the test circuit is used for testing coin district junctors and coin control circuits. Where the coin supervisory signals are located at the sender make-busy frame and no overtime coin service is provided, the regular frame line between the district junctor test frame and the sender make-busy frame shall be used in making tests of coin control circuits and Fig. 22 may be omitted. However, when overtime coin service is provided, talking line per Fig. 22 shall be provided and the T and R leads from the CO key connected to the regular or central A switchboard. Figure 10 is used when Fig. 7 is omitted and the wiring of the CR relay and SUB DISC key, which is included in both figures, is universal.

H. The handset and TR key per Fig. 23 of the schematic are furnished in all cases and are used for monitoring on busy districts encountered during testing to verify whether the busy condition is due to subscriber usage, connection to permanent signal trunk, etc. The handset also is used with the talking line per Fig. 24 of the schematic when the latter is furnished as outlined in the preceding note.

I. When Fig. AD is provided, terminals 41 and 42 of arc 2 of the G selector shall be connected to ground; all even terminals shall be strapped to 42 and all odd terminals to 41. When Fig. AE is provided, terminals 18 and 19 if arc 2 of the GA selector shall be connected to ground; all even terminals shall be strapped to 18 and all odd terminals to 19. In each case the straps shall be cut to fit job conditions indicated on the circuit drawing.

J. One Fig. 11 per SD-25173-01 shall be provided for each routine test frame whose TA lamp is multipled to the district junctor test frame.

K. Wiring for AMA per list 2 shall be provided as a part of the local cable per list 1 on all new district junctor test frames, ie, new frames shall be arranged and wired for testing district junctor equipped for message register operation or AMA operation. Equipment per list 3 shall be furnished when specified.

L. The wiring on list 1 of J27553A provides for testing overtime charge periods of 2, 3, or 4 as well as 5 minutes as covered by Fig. O, Q, and S. When it is desired that the frame conform to the earlier standard which provided for a single overtime period of 5 minutes, list 4 shall be furnished and the unused wiring in list 1 for Fig. O, Q, and S left unconnected.

M. The following equipment is required with list 12 to furnish additional frame terminations and to relocate two terminal strips to provide space for the required cut-in relays.

(a) One BB6A terminal strip.

(b) One set of mounting bars per ED-25020-01, Fig. 16

N. Group lamp 19 shall be provided at this time if it is not already provided.

O. Wiring per SD-25158-01, Fig. AG and WX option, required in addition to list 1 when testing coin district junctors, and when coin supervisory circuits are not arranged for dial-tone-first operation. (See Note G.)

P. Wiring per SD-25158-01, Fig. AM required in addition to list 1 for testing offices not equipped with a Special Message Charging System.

5. GENERAL NOTES

Equipment

5.01 An S1A timer and associated cord equipment are required for calibrating the capacitor timing features of the charge test circuit. This equipment is covered in Section 030-111-501 and shall be furnished only when specified by the telephone company.

5.02 One J86724B, 12-volt power supply unit must be provided for each district junctor test frame for use with the supervisory relay test circuit per SD-25158-01, Fig. 5. The unit shall be mounted on the miscellaneous frame as covered by J23051.

5.03 A No. 32A test set is required for remote control of the test circuit from the district junctor frame. This equipment is not part of this specification and is furnished only when ordered by the telephone company.

5.04 The false potential detecting feature covered by Fig. 6 and X requires that a lead be extended to the ground bar on the message register rack; in offices not having message registers, this ground is obtained at the fuse panel on the district junctor test frame. In the first case, No. 14 gauge wire per KS-5482-01 shall be used and terminated at a convenient point on the ground bar near the top of the message register rack, using terminal punching P-405355 and spare drillings in the ground bar. In the second case, where the office does not have message registers, the ground punching on the MISC terminal strip shall be connected with No. 20 gauge type BH wire to the ground bar on the frame fuse panel.

5.05 No. 24 gauge type BU wire shall be used for all local cable wiring, except battery and ground leads which shall be No. 22 gauge type BU. No. 22 gauge type BH wire shall be used for the magnet, brush, and interrupter terminals of the 206- and 209-type selectors.

5.06 The multiple wiring of the C relays shall be connected to the local cable at the terminal strip of the top mounting. When the lower mounting is equipped, the multiple shall be extended in local cable on the apparatus side, as shown on the local cable drawing.

5.07 In modifying earlier frames for a 4-minute instead of a 5-minute timing interval, the 51B drive is converted to a 51D drive as outlined in Section 030-140-811. This assumes a 4-minute interval is required for both coin and noncoin districts. When the 4-minute interval is limited to coin or noncoin districts, the existing drive is continued for 5-minute timing and a 51D drive is added for 4-minute timing. In this case the 51D drive is located either beneath the bottom casing on the district junctor test frame or above the top casing on controller trouble indicator frame as directed by the telephone company.

List of A&M Only and Mfr Disc. Equipment

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J27553A,L4	A&M Only	7	—
L5	Mfr Disc.	9	J27553A,L8

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

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