DISTRICT JUNCTOR TEST CIRCUIT TEST

CONTENTS

1. GENERAL OPERATION OF TEST CIRCUIT

1.1 This section describes the methods to be used for testing SD-25158-01 district junctor test.

1.2 When the ST (start) key is operated the test circuit automatically selects and tests each equipped district junctor circuit for features as determined by the operated test class keys. At the completion of test on all district junctors, the EC (end of cycle) lamp lights. When the EC lamp lights at the completion of testing all district junctor circuits, restore all operated keys to normal and operate the RN (return to normal) key. When the test circuit has restored to normal the N (normal) lamp lights. The RN key should then be restored.

1.3 To stop the test circuit at the end of the test in progress, ST key should be restored to normal during the test. When testing is to be resumed, reoperate the ST key. The test circuit will start testing on the district junctor tested last.

2. LIGHTED LAMPS

(a) (GROUP) 0-19, (SELECT) 0-9 and (HOLD) 0-9 lamps light indicating the district junctor circuit to which the test circuit is connected.

(b) Lamps light to indicate the type of district which is being tested as follows:

Lamp	Type of District
FR	Flat Rate
O	Overtime
Z	Zone
ZO	Zone and Overtime
TO	Two-Party Overtime
TZ	Two-Party Zone
TZO	Two-Party Zone and Overtime
TMR	Two-Party Message Rate
IMR	Individual Message Rate
COT	Coin Overtime
CN	Coin
FZ	Flat Rate Zone
TFZ	Two-Party Flat Rate Zone
AMA	Automatic Message Accounting

(c) Progress lamps light to indicate the class of test which is being made as follows:

Lamp	Class of Test
LC	Local Charge
FC	Free Call
OPR	Operator
DSC	Early Disconnect
CDR	Condenser Test
AR	Automatic Release
Z	Zone Call
TPC	Tip Party Charge

(d) DIAL lamp lights while the test circuit dials the code for setting up the test connections.

(e) S lamp lights while the operate test is applied to the S relay of the district.

(f) BB lamp lights while the operate and release tests are applied to the CS relay of the district. A busy back condition is simulated at this time.

(g) 1CHG lamp lights while the first charge conditions are being applied.

(h) 2CHG lamp lights while a check is made of the second charge condition on overtime district junctors.

(i) DCH lamp lights to indicate that a district charge is being applied on coin district junctors.

(j) DN-LT lamp lights while the district circuit is being returned to normal after the tests on the circuit are completed.

(k) BG lamp lights while a test is applied to check that the T and R condensers are not short circuited. This test is applied on the condenser test.

(l) C lamp lights while tests are applied to check the T and R leads of the district for crosses and continuity on operator calls and while a test is applied for opens on the T and R condensers on the condenser test.

(m) AR lamp (SUPV REL Group of lamps) lights on the automatic release test following the busy back test when the district CS relay is released and S relay held operated, to indicate that the test circuit is timing the release interval of the district junctor timed release circuit.

(n) (COIN-L) 0-39 lamps light to agree in number with the coin supervisory circuit which is being used.

(o) CNT and CNR lamps light indicating coin collect or return current of the proper potential and polarity has been applied on tip and ring leads.

3. SELECTING A PARTICULAR DISTRICT JUNCTOR CIRCUIT

3.1 Determine the proper setting of the G, S and H selectors to cause the test circuit to connect to the desired district junctor circuit.

3.2 With the ST key normal, operate and release the G-PCS key a sufficient number of times, or operate and hold the G-PCR key, until the proper G lamp lights. In the same manner, manipulate the S-PCS or S-PCR key until the proper S lamp lights, and the H-PCS or H-PCR key until the proper H lamp lights.

NOTE: When a G, S or H-PCR key is operated the associated selector switch is stepped under control of the PC interrupter.

3.3 If only one district junctor circuit is to be tested, operate the REP (repeat) key to prevent the test circuit from advancing to the next district junctor circuit.

3.4 Operate the desired test class key or keys. Then operate the ST key. The test circuit then proceeds to test the district junctor circuits as described in 4.1 except that a particular district junctor circuit has already been selected.

3.5 If there are vacant levels on district connector switches, direct the test frame to the last equipped district immediately preceding the vacant levels. Observe that when the test of this district is completed that the test frame automatically passes over the vacant level and steps to the next equipped circuit.

4. AUTOMATIC PASSING OF BUSY DISTRICT JUNCTOR

4.1 The APB key is operated to automatically pass by busy districts. With the APB key normal, when a busy district junctor circuit is encountered the test stops and the BD (busy district) lamp lights until the district becomes idle or until the CA (control advance) key or APB key is operated momentarily. The operation of either of these keys advances the test circuit to the next district junctor circuit.

5. REPEAT TESTS

5.1 The REP key should be operated before the completion of the test on a district junctor circuit if it is desired to make successive repeat tests on that circuit. Restore the key to normal when the desired number of repeat test have been completed, as indicated by the reading of the RST (repeat single test) register.

6. CONTROL ADVANCE

6.1 When a trouble condition is encountered, the control advance feature permits advancing the test circuit to the next district junctor circuit, or for repeat tests on the district junctor circuit under test.

6.2 With the REP key normal, the momentary operation of the CA key advances the test circuit to the next district junctor circuit.

6.3 With the REP key operated, the momentary operation of the CA key advances the test circuit for a repeat test on the same district junctor circuit.

7. REMOTE CONTROL ADVANCE

7.1 This feature permits advancing the test circuit from the district junctor frame if the test circuit encounters a trouble condition in a district junctor and permits advancing the test circuit from the transverter trouble indicator frame if the test circuit encounters a trouble condition while testing district identification leads on AMA districts.

7.2 When option WL is provided, the remote control advance feature is also effective at coin supervisory link frames and zone registration timing interrupter frames.

7.3 Operate the REP key in addition to the other keys required for a test or series of tests.

7.4 Insert the plug of a 32A test set into the RC jack on the sender link frame when testing district junctors and in the RC jack on the transverter trouble indicator frame when testing AMA district identification leads.

7.5 If the test circuit stops during the test, depress either key of the test set momentarily. The operation of the key simulates the operation and release of the CA key at the test frame as described in 4.073.

NOTE: A No. 298A plug may be used, if desired, instead of the No. 32A test set to advance the test circuit, by inserting the plug momentarily in the remote control jack.

8. RETURN TO NORMAL OF TEST CIRCUIT

8.1 The RN key may be operated when it is desired to restore the test circuit to normal. If a test of a district junctor circuit is in progress, the test is completed and the test circuit is then restored. When the N lamp lights, restore the RN key to normal.

9. BUSY DISTRICT JUNCTORS

9.1 Busy District: If the district under test is busy or there is a plug in its MB jack the test circuit will stop when the test for idle district junctor is made, the BD lamp will light and after approximately 4-1/2 minutes the TA lamp lights and the alarm sounds.

10. FAILURE INDICATIONS

10.1 The following table indicates failures when testing with the automatic test circuit and gives lamp indications in addition to the TA lamp.

TESTS APPLIED TO DISTRICT JUNCTOR CIRCUITS

Test Applied	Test Class Keys Operated									
	LC	FC	OPR	DSC	CDR	AR	AR FAR	Z	TPC	LC T
Battery on BT lead of idle district	X	X	X	X	X	X	X	X	X	X
Removal of battery from BT lead during dialing and conversation	X	X	X	X	X	X	X	X	X	X
Ground on S lead to line link during conversation	X	X	X	X	X	X	X	X	X	X
Operation of S1 relay by sender link	X	X	X	X	X	X	X	X	X	X
Continuity of TRL lead	X	X	X	X	X	X	X	X	X	X
Crosses on test line T and R leads, and FT and FR leads to sender link	X	X	X	X	X	X	X	X	X	X
Continuity of FT and FR leads to sender link	X	X	X	X	X	X	X	X	X	X
Operate S relay	X	X	-	-	-	X	X	X	X	X
Ability of S1 to hold over momentary opens	X	X	-	-	-	X	X	X	X	X
Continuous ground on M1 and M2 leads except during charging	X	X	-	-	-	X	X	X	X	X
Reverse polarity soak CS relay	X	X	-	-	-	X	X	X	X	X
Operate CS relay	X	X	-	-	-	X	X	X	X	X
Release CS relay	X	X	-	-	-	X	X	X	X	X
CH interrupter intervals	X	X	-	-	-	X	X	X	X	X
Duration of registration current (non-coin)	X	-	-	-	-	-	-	X	X	X
Magnitude of registration current (non-coin)	X	-	-	-	-	-	-	X	X	X
Failure to apply registration current (non-coin)	X	-	-	-	-	-	-	X	X	X
Overcharge (non-coin)	X	X	-	-	-	-	-	-	X	X
Timing of initial talking period (non-coin)	-	-	-	-	-	-	-	-	-	X
Holding circuit of timing device (non-coin)	-	-	-	-	-	-	-	-	-	X
Overtime charge (non-coin)	-	-	-	-	-	-	-	-	-	X
Timing of initial 4-1/2 minutes talking (coin)	-	-	-	-	-	-	-	-	-	X
Duration of coin collect at 4-1/2 min. (coin)	-	-	-	-	-	-	-	-	-	X
Potential of coin collect at 4-1/2 min. (coin)	-	-	-	-	-	-	-	-	-	X
Polarity of coin collect at 4-1/2 min. (coin)	-	-	-	-	-	-	-	-	-	X
Line test at 5 min. (coin)	-	-	-	-	-	-	-	-	-	X
Release S relay	X	X	X	-	X	-	X	X	X	X
Coin collect after disconnect	X	-	-	-	-	X	-	-	-	X

TESTS APPLIED TO DISTRICT JUNCTOR CIRCUITS (Cont'd)

Test Applied	Test Class Keys Operated									
	LC	FC	OPR	DSC	CDR	AR	AR FAR	Z	TPC	LC T.
Coin return after disconnect	-	X	-	X	-	-	-	-	-	X
Disconnect between 4-1/2 min. and end of initial talking period (coin)	-	-	-	-	-	-	-	-	-	X
Disconnect after end of initial talking period (coin)	-	-	-	-	-	-	-	-	-	X
Crosses on tip and ring	-	-	X	-	-	-	-	-	-	-
Continuity of tip and ring	-	-	X	-	-	-	-	-	-	-
Cut-thru on operator's answer (coin)	-	-	X	-	-	-	-	-	-	-
District junctor held to trunk S lead	-	-	X	-	-	-	-	-	-	-
No charge on free calls	-	X	-	-	-	-	-	-	-	-
Disconnect before TG test	-	-	-	X	-	-	-	-	-	-
Cross on T or R condenser	-	-	-	-	X	-	-	-	-	-
Open T or R condenser	-	-	-	-	X	-	-	-	-	-
Automatic release on called subscriber's disconnection	-	-	-	-	-	X	-	-	-	-
False automatic release	-	-	-	-	-	-	X	-	-	-
Functioning with zone registration control circuit (zone)	-	-	-	-	-	-	-	X	-	-
Tip party registration (2-party)	-	-	-	-	-	-	-	-	X	-
No second charge when called subscriber disconnects during initial period (non-coin overtime)	-	-	-	-	-	-	-	-	-	X
Return of district junctor circuit to normal	X	X	X	X	X	X	X	X	X	X
Set up connection for transmission tests	-	-	-	-	-	-	-	-	-	-

FAILURE INDICATIONS

Lamps Lighted	Test	District Class	Failure Indicated
MCH	LC,FC,Z,TPC,LC-T	All	(1) Failure of Ground on M1 Lead.
	LC,FC,Z,LC-T	All	(2) Failure of CS relay on release.
	LC,FC,Z,LC-T	All	(3) Premature Charge.
GM	LC,FC,Z,TPC,LC-T	All 2 Pty.	(1) Failure of Ground on M2 Lead.
	TPC	All 2 Pty.	(2) Failure of CS relay on release.
	TPC	All 2 Pty.	(3) Premature Charge.
S	LC,FC,Z,TPC,LC-T	All	(1) Failure of S relay to operate. (2) Failure of S1 relay to hold over opens.
Dial	All	All	Battery on BT lead.
NCH,1CHG	LC,Z,TPC,LC-T	Non-coin	No initial message registration.
NCH,2CHG	LC-T	Non-coin overtime	No message registration for 2nd period.

FAILURE INDICATIONS (Cont'd)

Lamps Lighted	Test	District Class	Failure Indicated
NCH,1CHG	LC-T	Coin overtime	No coin collect at 4-1/2 minutes.
OCH,1CHG	FC	Non-coin	False message registration.
OCH,1CHG	LC,TPC,LC-T	Non-coin	Overcharge on initial registration.
OCH,1CHG	LC-T	Coin	Premature coin collection during conversation.
OCH,2CHG	LC-T(Sub.Disc.) (Key Normal)	Non-coin over-time	Overcharge on second period registration.
OCH,2CHG	LC-T(Sub.Disc.Key) (Operated)	Non-coin over-time	Failure of timer to release when called sub. disconnects during initial period.
RS	LC,FC,Z,TPC,LC-T,DPR	All	S or S1 relay release failure.
TMR	LC,FC,Z,TPC,LC-T	All	Too short application of message registration, coin collect or coin return current.
DCH	FC,FC,DSC,LC-T	Coin	Failure to apply coin collect or coin return current or disconnection.
DCH	DSC	Non-coin	Failure of district junctor to restore to normal on early disconnect.
DN LT	LC,FC,OPR,CDR,Z,TPC,LC-T	Non-coin	Failure of district junctor to restore to normal.
DN LT	LC,FC,OPR,DSC,CDR,LC-T	Coin	Failure of district junctor to restore to normal.
TR	OPR	All	(1) Cross or open on tip or ring, on cut-thru condition.
	OPR	Coin	(2) Failure to cut thru on reverse battery.
	OPR	Coin	(3) Failure to hold to trunk S Lead.
BG	CDR	All	Cross on condenser in talking path.
C	CDR	All	Condenser open.
TFC	LC,TPC,LC-T	All	TC relay release failure.
TST Sel. Position			
2	All	All	Trouble release from sender link.
4	All	All	(1) Cross on test line T or R, or FT or FR lead to sender.
	All except DSC	All	(2) Open test line T or R, or FT or FR lead to sender, or TRL lead.
	All except DSC	All	(3) Failure to ground originating S lead.
8	LC,FC,Z,TPC,LC-T	All	False battery on BT lead.
13	LC,FC,Z,TPC,LCT	All	S or S1 relay release failure.
14	OPR	All	False battery on BT lead.
5-14	OPR	Non-coin	Failure to hold to trunk S lead on cut-thru condition.
18	LC,TPC,LC-T	All	TC relay release failure.
19	OPR	Coin	Failure of coin return.

→ Arrowed lines indicate new or changed information.

R. E. RAHMES

Engineer of Installation

Reason for Reissue:
Add reference to WL option in Paragraph 7.

Replaces Section 121 dated 10-19-50.