

CENTRAL B REVERTIVE PULSE INCOMING REGISTERS

TESTS USING MASTER TEST FRAME

NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing central B revertive pulse incoming register circuits using the master test control circuit SD-25800-01 and the automatic monitor, register and sender test circuit SD-25680-01 in No. 5 crossbar offices.

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 The tests covered are:

- (A) Regular Call
- (B) Special Call
- (C) Long Selection Interval
- (D) Abandoned Call
- (E) STP Relay Operate and Release
- (F) Tell-Tale
- (G) Link Release
- (H) Double Connection
- (I) Loop - Maximum
- (J) High Incoming Group Selection
- (K) Reorder
- (L) Central B Position
- (M) Over-All Time Out - (TM)
- (N) Register Time Out Alarm
- (O) Short Time Out - (LR)
- (P) Verification of Trouble Recorder Leads

1.04 In this section the master test frame automatic monitor, register and sender test circuit will be referred to as the monitor circuit.

1.05 When making a regular call test the monitor circuit connects to the central B incoming register and makes it ap-

pear busy to service calls. The monitor circuit is capable of establishing a preliminary test connection to a register that is engaged in handling a service call, but must wait until the register completes its functions on the call before gaining further access to it through the 0 vertical of horizontal group 0 of the associated incoming link group. When the complete connection is established, the monitor circuit, under control of keys in the master test control circuit, sends the incoming class to the register. The trunk frame indication is obtained by the register from the incoming register link frame.

1.06 At this time the monitor circuit closes the fundamental circuit to the register, starting its revertive pulsing circuit, and counts the revertive pulses as they are transmitted by the register. The monitor circuit also controls the selection advances for incoming brush, incoming group, final brush, final tens, and final units. Upon completion of final units selection the register seizes a marker, and the called number and other information is passed from the register to the marker. The marker also receives an indication that this is a test call, and causes the master test frame connector circuit to connect leads between the marker and the monitor circuit so that the called number and other information can be passed from the marker to the monitor circuit. After a timed registration interval during which the monitor circuit receives the information from the marker, the marker releases from the master test frame connector circuit and restores to normal. The monitor circuit then checks the class of trunk indication and if it is correct, proceeds to make a number check by matching the number sent to the register with that received from the marker.

1.07 If the class indication and called number received by the monitor circuit from the marker is the same as that sent to the register, the monitor circuit will light the OK progress lamp. If the REP key is normal the master test control circuit will hold the register busy until the RL key is operated. If the REP key is operated the master test control circuit will cause a repeat test to be made.

1.08 If the class indication or called number received by the monitor circuit from the marker does not match that

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sent to the register, the monitor circuit THL lamp will be lighted, the trouble recorder will be called in to take a record of the failure, and the register ON relay will be held operated so that an inspection of that circuit can be made.

- 1.09 Progress lamps are provided to indicate the stage of the call in the register being tested. See Part 6.
- 1.10 The master test control circuit is not equipped to test the registers on an automatic progressive basis so the testing is accomplished on all registers on a particular circuit basis.
- 1.11 Local instructions should be followed with reference to recording any register operations caused by performing these tests.
- 1.12 If test (M) or (N) indicates trouble in a timing network, check the timing interval as covered on the circuit requirement table.
- 1.13 A test chart has been provided in this section (see 4.119) which is arranged for use as a particular number test chart applying all tests covered in Part 4.
- 1.14 The pulse speed and pulse cycle per cent break tests of the revertive pulsing feature (GR and STP relays) of the register are covered in Section 218-139-508.

2. APPARATUS

- 2.01 No. 32A test set.
- 2.02 KS-3008 stop watch or equivalent (tests (M) and (N)).
- 2.03 322A (make busy) plug (test (N)).
- 2.04 Master test control circuit J23255 (SD-25800-01).
- 2.05 Automatic monitor, register and sender test circuit J23253 (SD-25680-01).
- 2.06 Operator's telephone set (test (L)).
- 2.07 Timing test set J24753 (test (O)).

3. PREPARATION

All Tests

- 3.01 At the master test frame, on the master test control panel, monitor

panel, and trunk test panel restore to normal any keys that may be operated.

- 3.02 Momentarily operate the RL key on the master test control panel. No lamps should be lighted when the master test control and monitor circuits are normal.
- 3.03 From office records determine the incoming register link group and the position in the group of the register to be tested.
- 3.04 On the master test control panel operate the following key. Do not restore this key until the testing has been completed.

Key Purpose

IR Incoming Register: To select an incoming register class of test.

- 3.05 On the monitor panel and the R & S (register and sender) test panel operate the following keys, when provided. Except where a particular test covered in Part 4 specifies specific combinations of these keys, any combination may be operated. Do not restore these keys unless otherwise specified in a succeeding test.

Monitor Panel

Key Purpose

IG(0-5) Incoming Group (0-5): Operate the key (0-5) that corresponds to the incoming register link group in which the register to be tested appears.

NBL Non By Link: To provide an operate and holding circuit for the supervisory relay of the register.

STT Start Test: To start the monitor circuit under control of the master test control circuit.

R & S Test Panel

Key Purpose

SRS(0-9) Sender or Register Select (0-9): Operate the key unit (0-9) which corresponds to the position of the desired register in its particular incoming register link group.

- 3.06 On the master test control panel, operate the following keys as specified in Part 4 or as desired for miscellaneous features as covered in Part 5.

<u>Key</u>	<u>Purpose</u>	<u>Key</u>	<u>Purpose</u>
A(0-9) through D(0-9)	<u>Called Number</u> : Operate one key unit (0-9) of each key to be operated, to provide for transmitting the desired selection registrations to the register.	IGH	<u>Incoming Group High</u> : To transmit a "high" incoming group selection to the register in order to check the ability of the register to provide the marker with the information needed to complete a call to a second office or the theoretical part of a single office.
IC(AB, OA,OB)	<u>Incoming Class</u> : Operate one key unit (AB, OA or OB) corresponding to the incoming class desired.	LSI	<u>Long Selection Interval</u> : To check, by increasing the interval between selections, for a premature closure of the fundamental circuit by the register.
	<u>Office A or B</u> : Operate the AB key unit to simulate a call to an office code which is to be translated from the incoming group information pulsed into the register.	MIRT	<u>Monitor Incoming Register Test</u> : To connect the test circuit telephone set to the test line for use on central B position tests.
	<u>Office A</u> : Operate the OA key unit to set up office A incoming trunk class.	QTR	<u>Quick Trouble Record</u> : To provide for a trouble record prior to a time out on register calls which have advanced as far as class check before failing.
	<u>Office B</u> : Operate the OB key unit to set up office B incoming trunk class.	RAB	<u>Register Abandon</u> : To simulate an abandoned call.
SPL	<u>Special</u> : To simulate a special trunk indication to the register, causing it to call for a special marker.	RLR	<u>Register Link Release</u> : To provide a test of the link release time out feature of the register.
ST	<u>Start</u> : To start the master test control circuit.	RLT	<u>Revertive Line Relay Test</u> : To provide a check of the revertive pulsing feature of the register on maximum loop conditions.
RL	<u>Release</u> : To cause the master test control circuit and connecting circuits to restore to normal.	RPS	<u>Register Permanent Signal</u> : To provide for the checking of the over-all (TM) timing feature of the register.
3.07	On the monitor panel, operate the following keys, when they are provided, as specified in Part 4 or as desired for miscellaneous features as covered in Part 5.	RRO	<u>Register Reorder</u> : To simulate a reorder indication to the register as given by the B operator.
<u>Key</u>	<u>Purpose</u>	RTT	<u>Revertive Tell-Tale</u> : To cause a tell-tale condition during incoming brush selection.
ACO	<u>Alarm Cut Off</u> : To provide for retiring the minor audible alarm.	STPO	<u>STP Relay Operate</u> : To test the operate and release capability of the stepping relay in the register.
CBT	<u>Central B Test</u> : To test the operation of the register with its associated switchboard sender on normal loop conditions.	TA	<u>Time Alarm</u> : To cancel the monitor timing of test calls.
CBT1	<u>Central B Test - 1</u> : To test the operation of the register with its associated switchboard sender on maximum loop conditions.	3.08	When it is desired to extend the check of the crossbar switch beyond the checks made in Part 4, proceed as outlined in the following paragraphs (a) and (b). An asterisk beside some of the numbers listed in (a) and (b) indicates that those numbers are to be used on a "high" incoming
CBTT	<u>Central B Tone Test</u> : To provide for transmitting to the B operator a tone as an indication for her to key up a pre-assigned number.		
DC	<u>Double Connection</u> : To test the double connection detecting feature of the register.		
DSS	<u>Digits Step-by-Step</u> : To provide for making selection registrations on a step-by-step basis.		

group selection call. If the "high" incoming group selection option is not provided for the particular installation, the numbers having an asterisk in paragraph (a) should be used on a regular call.

(a) The following numbers check the ability of the selecting bars, the unengaged selecting fingers, and the selecting off normal contacts to restore to the normal position and become stabilized before a following selection is registered.

Number	Registration					Number	Registration				
	IB	IG	FB	FT	FU		IB	IG	FB	FT	FU
8302	4	0	3	0	2	8202	4	0	2	0	2
4403	2	0	4	0	3	5020	2	2	0	2	0
6290	3	0	2	9	0	5120	2	2	1	2	0
1080	0	2	0	8	0	0030	0	0	0	3	0
3170	1	2	1	7	0	5212	2	2	2	1	2
3050	1	2	0	5	0	0060*	0	5	0	6	0
1540	0	3	0	4	0	0500*	0	6	0	0	0
8220	4	0	2	2	0	1000*	0	7	0	0	0
8790	4	1	2	9	0	1500*	0	8	0	0	0

(b) The following numbers check the ability of the selecting bars to restore to the normal position before the FU selection is registered when a maximum number of selecting fingers are engaged in one direction.

Number	Registration				
	IB	IG	FB	FT	FU
0002	0	0	0	0	2
2612	1	1	1	1	2
5220	2	2	2	2	0
7830	3	3	3	3	0
8440	4	0	4	4	0
0050*	0	5	0	5	0
0560*	0	6	0	6	0
1070*	0	7	0	7	0
1580*	0	8	0	8	0
0090	0	0	0	9	0

4. METHODS

(A) Regular Call

- 4.01 This test checks the ability of the register to perform its functions in handling a normal incoming call from a switchboard operator.
- 4.02 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.03 On the master test control panel, using the A- to D- keys, set up one of the numbers listed in Table 1.
- 4.04 On the master test control panel operate one of the key units of the IC-

key (OA, OB or AB), which has the associated wiring option provided in the register for receiving the corresponding trunk class.

- 4.05 On the master test control panel momentarily operate the ST key.
- 4.06 Observe that the OK progress lamp lights, indicating that a satisfactory test has been completed.
- 4.07 If a failure occurs the TBL lamp will light and if the REP key has been operated the associated minor audible alarm will sound. Lamps will also be lighted to show the progress the call had made and in some instances show the probable cause of the failure. See Part 6.
- 4.08 On the master test control panel momentarily operate the RL key.
- 4.09 On successive regular call tests change the incoming class key setting until each of the key units (AB, OA, and OB), which has its associated wiring option provided in the register, has been used at least once.
- 4.10 On successive regular call tests set up the called numbers listed in Table 1 to check the crosspoints of the crossbar switch and the operate capability of the associated select magnets. "High" incoming group crosspoints are covered by test (J).

TABLE 1

Number Used	Registration					Number Used	Registration				
	IB	IG	FB	FT	FU		IB	IG	FB	FT	FU
0510	0	1	0	1	0	8445	4	0	4	4	5
5732	2	3	2	3	2	8454	4	0	4	5	4
0001	0	0	0	0	1	0066	0	0	0	6	6
2610	1	1	1	1	0	0077	0	0	0	7	7
5223	2	2	2	2	3	0088	0	0	0	8	8
7832	3	3	3	3	2	0099	0	0	0	9	9

4.11 On the master test control panel restore the A- to D- keys and the incoming class key.

(B) Special Call

- 4.12 This test checks the ability of the register to connect to a special marker when handling a special trunk call.
- 4.13 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.14 On the master test control panel set up any four digits on the A- to D- keys.
- 4.15 On the master test control panel operate the SPL key.

- 4.16 Proceed as outlined in 4.04 to 4.09 inclusive.
- 4.17 On the master test control panel restore the SPL key, the A- to D- keys, and the incoming class key.

(C) Long Selection Interval

- 4.18 This test checks that after each selection registration the register awaits a reclosure of the fundamental circuit before starting the next selection.
- 4.19 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.20 On the master test control panel set up any four digits on the A- to D- keys.
- 4.21 On the monitor panel operate the LSI key.
- 4.22 Proceed as outlined in 4.04 to 4.08 inclusive, and 4.11.
- 4.23 On the monitor panel restore the LSI key.

(D) Abandoned Call

- 4.24 This test checks the ability of the register to release immediately on an abandoned call, even though a marker may be engaged at the time of abandonment.
- 4.25 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.26 On the master test control panel set up any four digits on the A- to D- keys.
- 4.27 On the monitor panel operate the RAB and LSI keys.
- 4.28 Proceed as outlined in 4.04 to 4.08 inclusive, and 4.11.
- 4.29 On the monitor panel restore the RAB and LSI keys.

(E) STP Relay Operate and Release

- 4.30 This test checks the operate and release capability of the register stepping relay.
- 4.31 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.32 On the master test control panel set up 9999 on the A- to D- keys.

- 4.33 On the monitor panel operate the STPO key.

- 4.34 Proceed as outlined in 4.04 to 4.08 inclusive, and 4.11.

- 4.35 On the monitor panel restore the STPO key.

(F) Tell-Tale

- 4.36 This test checks the ability of the register to call for a marker and then ground the RO lead to the marker when a tell-tale condition is encountered.
- 4.37 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.38 On the master test control panel set up any four digits on the A- to D- keys.
- 4.39 On the monitor panel operate the RTT key.
- 4.40 Proceed as outlined in 4.04 to 4.08 inclusive, and 4.11.
- 4.41 On the monitor panel restore the RTT key.

(G) Link Release

- 4.42 This test checks the ability of the LR timer of the register to time out and provide for a release when incoming class information is withheld.

Note

- A. Do not make this test in offices:
1. Where there are no dial pulse incoming registers (no NDT relay in master test frame).
 2. Where the central B registers are arranged to operate only on a single class (central B registers not equipped with a class relay).
- 4.43 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.44 On the monitor panel operate the RLR key.
- 4.45 Proceed as outlined in 4.05 to 4.08 inclusive.

- 4.46 On the monitor panel restore the RLR key.

(H) Double Connection

- 4.47 This test checks the ability of the register to time out and release when it encounters a double connection, or a false ground on the link sleeve.

- 4.48 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.

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- 4.49 On the monitor panel operate the DC key.
- 4.50 Proceed as outlined in 4.04 to 4.08 inclusive.
- 4.51 On the monitor panel restore the DC key.
- 4.52 On the master test control panel restore the incoming class key.

(I) Loop - Maximum

- 4.53 This test checks the ability of the re-vertive pulsing feature of the register to operate satisfactorily on maximum loop conditions.
- 4.54 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.55 On the master test control panel set up 9999 on the A- to D- keys.
- 4.56 On the monitor panel operate the RLT key.
- 4.57 Proceed as outlined in 4.04 to 4.08 inclusive, and 4.11.
- 4.58 On the monitor panel restore the RLT key.

(J) High Incoming Group Selection

- 4.59 This test checks the ability of the register to receive and register from the switchboard sender a "high" incoming group selection, and its ability to provide the marker with the "high" incoming group information. This test is to be made only when the register is equipped to receive an AB trunk class.
- 4.60 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.61 On the master test control panel, using the A- to D- keys set up one of the numbers listed in Table 2.
- 4.62 On the master test control panel, operate the AB key unit in the incoming class key.
- 4.63 On the monitor panel operate the IGH key.
- 4.64 Proceed as outlined in 4.05 to 4.08 inclusive.
- 4.65 On successive tests set up the numbers listed in Table 2, as they provide checks of the "high" incoming group crosspoints of the crossbar switch. Also make at least one of the successive tests with the SPL key, on the master test control panel, operated.

TABLE 2

Number Used	Registration					Number Used	Registration				
	IB	IG	FB	FT	FU		IB	IG	FB	FT	FU
0054	0	5	0	5	4	1.076	0	7	0	7	6
0567	0	6	0	6	7	1.589	0	8	0	8	9

4.66 On the monitor panel, restore the IGH key.

4.67 On the master test control panel restore the A- to D- and incoming class keys and the SPL key, if operated.

(K) Reorder

- 4.68 This test checks the ability of the register to immediately call in a marker and ground the RO lead to the marker when a reorder indication is received.
- 4.69 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.70 On the master test control panel set up any four digits on the A- to D- keys.
- 4.71 On the monitor panel operate the RRO key.
- 4.72 Proceed as outlined in 4.04 to 4.08 inclusive, and 4.11.
- 4.73 On the monitor panel restore the RRO key.

(L) Central B Position

- 4.74 This test checks the ability of the register to function with its associated switchboard sender on normal loop conditions.
- 4.75 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.76 On the master test control panel set up any four digits on the A- to D- keys.
- 4.77 On the master test control panel operate one of the key units of the IC-key (OA,OB,AB), which has its associated wiring option provided in the register for receiving the corresponding trunk class.
- 4.78 On the monitor panel operate the MIRT and CBT keys.

4.79 At the master test frame, insert the plug of an operator's telephone set into the TA and TB jacks.

- 4.80 On the master test control panel momentarily operate the ST key.
- 4.81 Using the operator's telephone set listen for order tone, an indication that a connection to the B operator has been established. After hearing the order tone use the operator's telephone set to pass to the B operator the number set up on the A- to D- keys.
- 4.82 After the OK progress lamp lights, momentarily operate the RL key.
- 4.83 On a successive test, on the monitor panel restore the CBT key and operate the CBT1 key to check the ability of the register to operate with its associated switchboard sender on maximum loop conditions.
- 4.84 Proceed as outlined in 4.79 to 4.82 inclusive.
- 4.85 On the monitor panel restore the CBT1 and the MIRT keys.
- 4.86 On the master test control panel restore the A- to D- keys and the incoming class key.
- 4.87 At the master test frame, remove the plug of the operator's telephone set from the TA and TB jacks.

(M) Over-All Time Out - (TM)

- 4.88 This test checks the ability of the register to time out and release if held in an off normal position for approximately 20 to 32 seconds.
- 4.89 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.90 On the master test control panel set up any digits on the A- and B- keys.
- 4.91 On the master test control panel operate one of the key units of the IC- key (OA,OB,AB), which has its associated wiring option provided in the register for receiving the corresponding trunk class.
- 4.92 On the monitor panel operate the RPS key.
- 4.93 On the master test control panel momentarily operate the ST key.
- 4.94 Using the KS-3008 stop watch start timing when the D progress lamp lights and check that in 20 to 32 seconds the OK progress lamp lights.
- 4.95 On the master test control panel momentarily operate the RL key.
- 4.96 On the master test control panel restore the A- to B- keys and the incoming class key.
- 4.97 On the monitor panel restore the RPS key.
- (N) Register Time Out Alarm
- 4.98 This test checks the ability of the register to light its associated TO lamp on a time out. It also checks that the register operates the register and sender time out alarm if held off normal for approximately 10 to 15 seconds after a time out occurs.
- 4.99 Except for additional key operations or changes in key settings specified in this test, operate the keys as specified in 3.04 and 3.05.
- 4.100 On the master test control panel operate one of the key units of the IC- key (OA,OB,AB), which has its associated wiring option provided in the register for receiving the corresponding trunk class.
- 4.101 On the master test control panel set up any digit on the A- key.
- 4.102 On the monitor panel operate the TA and DSS keys.
- 4.103 In the monitor circuit insulate 1-2-3T contacts of the highest numbered IRP- relay in the chain for the group being tested.
- 4.104 At the master test frame jack bay insert a No.322A plug into the IRMB (incoming register make busy) jack associated with the register to be tested.
- 4.105 On the master test control panel momentarily operate the ST key.
- 4.106 Using the KS-3008 stop watch start timing when the D progress lamp lights and check that in 20 to 32 seconds the TO (time out) lamp associated with the register lights.
- 4.107 When the TO lamp lights remove the plug from the IRMB jack and observe that in 10 to 15 seconds the major audible alarm sounds and the R-S-TOA lamp lights.
- 4.108 At the master test frame jack bay insert a 322A plug into the IRMB jack associated with the register and observe that the time out alarm is retired, its associated R-S-TOA lamp is extinguished and that the TO lamp remains lighted.
- 4.109 On the master test control panel operate the RL key.
- 4.110 Remove the plug from the IRMB jack.

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- 4.111 On the monitor panel restore the TA and DSS keys.
- 4.112 On the master test control panel restore the A- and incoming class key.
- 4.113 In the monitor circuit remove the insulator from the contacts of the IRP- relay.

(O) Short Time Out - (LR)

- 4.114 Measure the short time out (Lh) timing interval using the circuit requirement table and the timing test set (J24753).

(P) Verification of Trouble Recorder Leads

- 4.115 This test checks the ability of the register to send the proper identifying information to the trouble recorder when trouble is encountered on a monitored call.
- 4.116 Set up a regular test call. Proceed as in 4.02 to 4.08.
- 4.117 During the progress of the test when the D lamp lights, change the setting of the key in row A. A number check failure will occur with a resulting trouble record. Observe the FR-, CN- and RG- perforations on the trouble record card and check that they agree with the number of the marker connector frame, connector on the frame and position in the connector of the register being checked.
- 4.118 On the master test control panel restore the A- to D- and incoming class keys.

Test Chart

- 4.119 The test chart, covered on the attachment to this section, is intended for use as a particular number test chart covering tests (A) to (P). The test chart covers the keys to be operated for each test as well as the lamps used to indicate the proper functioning of the tests. The numbers used for tests (B), (C) and (J) are recommended because of the checks they provide of the crossbar switch but are optional and can be replaced as desired. Space has been provided to complete the chart by inserting the key units of the IC key which have associated wiring options provided in the register for receiving the corresponding trunk class.

5. MISCELLANEOUS FEATURES

Repeat Tests

- 5.01 If it is desired to make successive repeat tests on a register, operate the REP key on the master test control panel. Restore the REP key when the desired number of tests have been completed.

Note: The REP key is ineffective on test (N).

- 5.02 If repeat tests are desired while performing the central B position test (L), operate the REP key on the master test control panel and the CBTT key on the monitor panel. The CBTT key operated will, at the proper time, cause an indicating tone to be transmitted to the B operator as a signal for her to key up the number that has been pre-set on the master test control panel. With this arrangement it is not necessary to verbally pass the number to the B operator, so previous to the operation of the ST key, inform her of the number set up on the A- to D- keys, so that each time upon receiving the tone signal she will key up the required number.

Remote Control

- 5.03 The test circuit may be advanced for repeat tests on a particular register while observing that register, by inserting the plug of a No. 32A test set into the RC (remote control) jack at the frame upon which the register to be tested is located.
- 5.04 The white key of the 32A test set performs the same functions as the master test control circuit ST key and the red key of the 32A test set performs the same functions as the master test control circuit RL key.

Selection Registrations on a Step-by-Step Basis

- 5.05 If it is desired to control selection registrations on a step-by-step basis, operate the DSS key on the monitor panel. Selections are advanced through the subsequent operations of the master test control panel ST key or the white key of a 32A test set that is plugged into a remote control jack.

Quick Trouble Record

- 5.06 Trouble records can be obtained prior to a time out, on register calls which have advanced to class check or beyond by operating the QTR key on the monitor panel.

Alarms

- 5.07 If a cross detecting relay in the monitor circuit operates, a minor audible alarm is sounded, otherwise the minor audible alarm is sounded only when trouble is encountered by the register while the REP key on the master test control panel is operated.
- 5.08 If it is desired to retire the minor audible alarm, operate the ACO key on the monitor panel.

6. INTERPRETATION OF LAMP SIGNALS

- 6.01 The lamps associated with the tests covered in this section are divided

into 3 groups, those on the master test control panel, the monitor panel, and the master test frame jack bay.

6.02 The lamp on the master test control panel is as follows:

<u>Lamp</u>	<u>Indication</u>
IR	<u>Incoming Register</u> : Indicates that an incoming register is being tested.

6.03 Lamps on the monitor panel are as follows:

<u>Lamp</u>	<u>Indication</u>
CCK	<u>Class Check</u> : Indicates that the monitor circuit is checking the class information received from the register.
CKS	<u>Check Start</u> : Indicates that the monitor circuit is checking the called number received from the register.
CO	<u>Cut Off</u> : Indicates that the monitor circuit is making a check of the "CO" lead through the cross-point of the link switch to the register.
D	<u>Disconnect</u> : Indicates that the monitor circuit is awaiting a check of the "D" lead to the register through the crosspoint of the link switch, and also a false operate test of the TCl relay in the register.
FLB	<u>Final Brush</u> : Indicates that the monitor circuit is set for final brush selection.
FLT	<u>Final Tens</u> : Indicates that the monitor circuit is set for final tens selection.
FLU	<u>Final Units</u> : Indicates that the monitor circuit is set for final units selection.
IB	<u>Incoming Brush</u> : Indicates that the monitor circuit is set for incoming brush selection.
IG	<u>Incoming Group</u> : Indicates that the monitor circuit is set for incoming group selection.
LK	<u>Lock Lead Check</u> : Indicates that the monitor circuit is testing for resistance battery on the "LK" lead from the register through the cross-point of the link switch.
LO	<u>Lockout Lead Check</u> : Indicates that the monitor circuit is testing for direct ground on the "LO" lead from the register to the link circuit.

<u>Lamp</u>	<u>Indication</u>
MST	<u>Marker Start</u> : Indicates that the register has called for a marker.
OH	<u>Operate Hold</u> : Indicates that the monitor circuit is testing for a ground on the "OH" lead from the register through the off-normal contacts of the associated select magnet.
OK	<u>Okay</u> : Indicates that the test has been satisfactorily completed.
RB	<u>Register Busy</u> : Indicates that the monitor circuit is testing for 226 ohm battery on the "RB" lead from the register.
RLK	<u>Release Check</u> : Indicates that the monitor circuit is testing the link release feature of the register.
RO	<u>Reorder</u> : Indicates that the register has grounded the "RO" lead to the marker.
RRAB	<u>Revertive Register Abandon</u> : Indicates that the register has failed on the abandon call test.
RTT	<u>Revertive Tell-Tale</u> : Indicates that the register has failed on the tell-tale test.
TBL	<u>Trouble</u> : Indicates that the register failed to perform satisfactorily during the particular test set up on the master test control panel and the monitor panel.
X	<u>Cross</u> : Indicates that the M (monitor) relay in two or more registers has operated. Also lights to indicate a cross on any of the "DIS", "RBT", and "RLT" leads to the marker.

6.04 Lamps on the master test frame jack bay are as follows:

<u>Lamp</u>	<u>Indication</u>
R-S-TOA	<u>Register and Sender Time Out Alarm</u> : Indicates that the