

STATION MESSAGE REGISTER PULSE CIRCUIT SD-66915-01  
AND  
STATION MESSAGE REGISTER SURCHARGE CIRCUIT SD-66922-01  
OPERATION TESTS  
701B, 711B, 701PK, 711PK, 740E PBX

1. GENERAL

1.01 The tests covered are:

**A. Station Message Register Pulse Circuit:**

This test checks that the station message register pulse circuit, associated central office trunk circuit, and other associated circuits will function properly from pulse patterns from the central office received over a third wire associated with the central office trunk and send +48 volt pulses over the PBX switch chain sleeve lead for scoring a station message register.

**B. Station Message Register Surcharge Circuit:** This test provides a method for checking the operation of the station message register surcharge circuit independently of the station message register pulse circuit.

**C. Particular Station Line:** This test checks that a register associated with a particular station line will function properly from a pulse pattern received from the central office and additional pulse from a surcharge circuit, when provided.

**D. Power Failure Alarm — Power Supplied by KS-15620 List 12 Rectifier:** This test checks the operation of the +48 volt power supply when a KS-15620 List 12 rectifier is used as the power source.

**E. Power Failure Alarm — Power Supplied by 610D (J86807) Power Plant:** This test checks the operation of the +48 volt power supply failure alarm circuit when a 610D power plant is used as the power source.

**F. Registration Failure Alarm:** This test checks the operation of the registration failure alarm circuit.

1.02 Test A is to be performed at a selector or selector-connector having direct access to trunk and associated pulse circuit under test.

1.03 *In Test A to establish call on trunk from switch multiple:*

- (1) Connect handset to test jack.
- (2) Operate handset switch to TALK.
- (3) Dial switch to level of desired trunk.

1.04 *In Test A when a particular trunk is desired and is passed over,* release switch and redial terminal desired.

1.05 *In Test A when a particular trunk is desired and is not reached,* the following procedures should be used.

- (a) Remove switch cover.
- (b) *From selector,* advance wipers by momentarily operating off-normal lever.
- (c) *From selector-connector, single-digit operation:*
  - (1) Short sleeve and ground springs of test jack.
  - (2) Block operated F relay.
  - (3) Operate handset switch to MON.
  - (4) Manually rotate switch shaft to desired terminal.

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(5) If desired trunk is idle, operate handset key to TALK, remove short from sleeve and ground leads of switch test jack, and remove blocking tool from F relay.

*Note:* Idle condition will be indicated by released H relay, or by monitoring if H relay is locked operated.

(c) *From 2-digit rotary hunting selector*, dial required two digits to reach correct trunk.

**1.06** Before performing tests of the message register pulse circuit, determine pulse patterns to be received from the central office and equipment options provided at the PBX. When a surcharge circuit is provided, determine number of counts added to each call (0-6) for the particular PBX installation.

**1.07** Tests A and C require test calls to a number which will return charge (reverse battery) supervision.

**1.08** In Tests A and C the message registers which will score at the PBX are shown in Table A. For each trunk register operation an associated register *will score* at the central office.

**1.09** Local instructions should be followed for recording and reporting any register operations caused by performing these tests.

**1.10** *Test C* is primarily intended for use when it is necessary to check the operation of a particular station line in connection with a complaint.

**1.11** If PBX alarm is extended to the central office, request the central office to observe the PBX alarm operation during alarm tests.

**1.12** Refer to Section 026-708-701 for general requirements and adjusting procedures for 204-type selectors.

**2. APPARATUS**

**Test A**

**2.01** 1011G handset (dial hand test set) or equivalent, equipped with a 2W39A cord assembly consisting of a W2CL cord with one 471A jack and one 240A plug modified as follows for use in observing message register operating pulses. (See Fig. 1.)

**TABLE A**

**MESSAGE UNIT PULSE PATTERNS**

TYPE OF PULSE	REGISTER SCORES (Note 2)				
	SERVICE OPTION	ANSWER	DISCONNECT	STATION	TRUNK (IF PROVIDED)
Single	X, V	X		Once	Once
Multiple	X, V	X		Note 1	Note 1
Single Post	Y, X, V, W		X	Once	Once
Single Long	Z-V	X		Once	Once
Surcharge	Strap at TS on pulse circuit		X	0-6	

**Note 1:** Message registers will score number of counts corresponding to number of message units required for call.

**Note 2:** When all operation tests have been completed, message register readings at PBX and central office should be recorded.

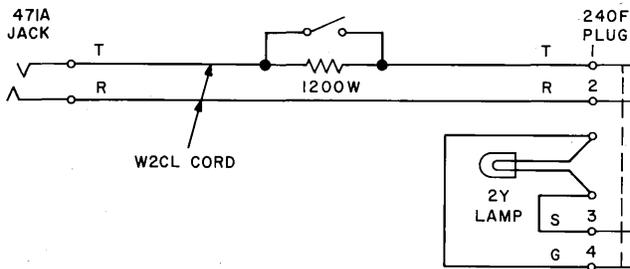


Fig. 1 — Test Cord For Test A

- (1) Remove 240A plug and replace with 240F plug. Connect tip of W2CL cord to terminal 1 of 240F plug and ring lead to terminal 2.
- (2) Connect one contact of lamp socket on 240F plug to terminal 3 on 240F plug and the other lamp socket contact to terminal 4 on 240F plug.
- (3) Insert a 2Y lamp in lamp socket on 240F plug.

**Note:** The 2Y lamp is not supplied with the 240F plug but must be ordered separately.

**Test B**

**2.02** Test receiver, 716C receiver (or equivalent) connected to a W2AB cord equipped with two 316A tools (2W21A cord); one KS-6278 connecting clip; and one 411B (test pick) tool (for use in checking the presence or absence of ground).

**Test C**

**2.03** 1011G handset (dial hand test set) or equivalent, equipped with a 2W37A cord assembly consisting of a W2DB cord with one 471A jack and two KS-6780 connecting clips (for use when test calls are made from the tip and ring appearance of a station line).

**Tests D, F**

**2.04** Blocking and insulating tools as required. Use tools and apply as covered in Section 069-020-801.

**3. METHOD**

STEP	ACTION	VERIFICATION
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**A. Station Message Register Pulse Circuit**

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|---|---|--|
| 1 | At idle selector or selector-connector having access to central office trunk and pulse circuit when switch is idle —<br>Connect 240F plug on modified W2CL cord to TEST jack of selector or selector-connector. |  |
| 2 | Operate handset switch to TALK and test cord switch to ON.  |  |
| 3 | Dial required digit or digits for level or trunk under test.<br>Refer to 1.04 and 1.05 for procedures to select a particular trunk under test.  | Selector or selector-connector steps to level dialed and rotates to position of first idle or selected trunk and stops.<br>Central office dial tone received, if applicable. |

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
<b>Single, Multiple, or Single Long Pulse</b>		
4	Dial digits of test number (refer to 1.07), and observe lamp on 240F test plug to count number of pulses received from central office as indicated by number of flashes of lamp on test cord.	Central office dial tone removed, if applicable. Approximately 2 to 5 seconds after test station answers — Test lamp on 240F test plug flashes on-off number of times specified in Table A for pulse pattern received from central office.
5	Disconnect test call.	Selector or selector-connector releases.

**Single Post Call Pulse**

6	Dial digits of test number (refer to 1.07) and observe lamp on 240F test plug to count number of pulses received from central office as indicated by number of flashes of lamp on test cord.	Central office dial tone removed. When test station answers — Conversation satisfactory.
7	Disconnect test call.	Shortly after disconnect — Test lamp on 240F test plug flashes on-off number of times specified in Table A for pulse pattern received from central office. Selector or selector-connector releases.

**B. Station Message Register Surcharge Circuit**

1	At message register surcharge circuit under test — Observe that MS relay is nonoperated.	
2	Check for presence of ground on terminal 36 of surcharge circuit terminal strip.  <i>Note:</i> Absence of ground on terminal 36 and MS relay nonoperated indicates idle circuit.	Ground absent on terminal 36.
3	Manually operate MS relay.	At pulse circuit to which surcharge circuit under test is connected — Count number of operations of SX relay. Count should correspond to surcharge units specified for particular PBX installation.

**C. Particular Station Line**

1	At station line registers — Record reading of register to be tested.	
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STEP	ACTION	VERIFICATION
<b>Single, Multiple or Single Long Pulse</b>		
2	At PBX station or tip and ring appearance of station line under test — Originate test call (refer to 1.07).	Shortly after test call is reached — Station message register associated with station line under test scores number of times specified in Table A for pulse pattern received from central office to which test call is originated.
3	Disconnect test call.	If surcharge is required — Shortly after disconnect, station message register scores required number of surcharge counts (0-6, see Table A).

**Single Post Call Pulse**

4	At station line registers — Record reading of register to be tested.	When test station answers — Conversation satisfactory.
5	Disconnect test call.	Shortly after disconnect — Station message register scores number of times specified in Table A for pulse pattern received from central office to which test call is originated. If surcharge is required — Shortly after the message charge is scored, the station message register will score the required number of surcharge counts (0-6, see Table A).

**D. Power Failure Alarm — Power Supplied by KS-15620 List 12 Rectifier**

1	At message register pulse circuit — Block nonoperated NV relay.	At PBX alarm panel — PWR lamp lights. Audible alarm sounds. COM aisle lamp lights. At PBX switchboard, if provided — Audible alarm sounds. COM lamp lights. If PBX alarm extends to central office — Verify with the central office that a class A PBX alarm operates.
2	Remove blocking tool from NV relay.  <i>Note:</i> Performing this test does not interrupt voltage supply to load.	At PBX alarm panel — PWR lamp extinguishes. Audible alarm silences. COM aisle lamp extinguishes. At PBX switchboard, if provided — Audible alarm sounds. COM lamp extinguishes. If PBX alarm extends to central office — At central office — Class A PBX alarm retires.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
<b>E. Power Failure Alarm — Power Supplied by 610D (J86807) Power Plant</b>		
1	At one 610D power plant — Remove F1 fuse.	At power plant — NV lamp lights. At PBX alarm panel — PWR lamp lights. Audible alarm sounds. COM aisle lamp lights. At PBX switchboard, if provided — Audible alarm sounds. COM lamp lights. If PBX alarm extends to central office — At central office — Class A PBX alarm operates.
2	Replace fuse removed in Step 1.	At power plant — NV lamp extinguishes. At PBX alarm panel — PWR lamp extinguishes. Audible alarm silences. COM aisle lamp extinguishes. At PBX switchboard, if provided — Audible alarm sounds. COM lamp extinguishes. If PBX alarm extends to central office — At central office — Class A PBX alarm retires.
3	At other 610D power plant — Repeat Steps 1 and 2.  <i>Note:</i> Performing Steps 1 through 3 does not interrupt the voltage supply to the load.	

**F. Registration Failure Alarm**

1	Temporarily disable message register sur- charge circuit under test by blocking non- operated SX relay in associated message register pulse circuit.	
2	At message register surcharge circuit under test — Block nonoperated MS relay.	
3	Block operated DS relay.	After a delay of 15 to 25 seconds (701B, 701PK, 711B, or 711PK) or 2 or 4 minutes (740E), appropriate RA, RM lamps light. At PBX alarm panel — RM lamp lights. Audible alarm sounds. RM aisle pilot lamp lights. At PBX switchboard if provided — RM lamp lights. Audible alarm sounds. If alarm extends to central office — At central office — Class A PBX alarm operates.

STEP	ACTION	VERIFICATION
4	At message register surcharge circuit — Remove blocking tool from DS relay.	RA, RM lamps extinguish. At PBX alarm panel — RM lamp extinguishes. Audible alarm silences. RM aisle pilot lamp extinguishes. If alarm extends to central office — At central office — Class A PBX alarm retires.
5	At message register surcharge circuit — Remove blocking tool from MS relay.	
6	At message register pulse circuit — Remove blocking tool from SX relay.	Message register surcharge circuit returned to service.