

CORD AND POSITION CIRCUIT

OPERATION TESTS

USING PBX CORD CIRCUIT TEST SET SD-66484-01 (J54703A)

608A PBX

1. GENERAL

1.01 This section describes a method of testing the operation of the cord and position circuits in the 608A PBX, using the PBX cord circuit test set SD-66484-01 (J54703A). Miscellaneous tests are included which do not require the use of the cord circuit test set.

1.02 The tests covered are:

A. Position Telephone Circuit: This test checks the attendant telephone jacks for cutouts, position disabling and release, and the TALK key chain circuit.

B. Attendant Dial Circuit (PBX Equipped With Standard Dial): This test checks the attendant dial circuit on the front and back cords.

C. Attendant Dial Circuit (PBX Equipped With Pushbutton Dial): This test checks the attendant dial circuit on the front and back cords.

D. Station-to-Station Condition: This test checks the supervisory features with a low sleeve condition on the front and back cords.

E. Central Office Trunk-to-Station Condition: This test checks the supervisory features with a high sleeve condition on the back cord and a low sleeve condition on the front cord.

F. Station-To-Central Office Trunk Condition: This test checks the supervisory features with a low sleeve condition on the back cord and a high sleeve condition on the front cord.

G. Ringing Feature: This test checks automatic machine ringing on the front cord, tripping, and manual ringing on the front and back cords.

H. Trip of Machine Ringing With Attendant Dial: This test checks that the interrupted machine ringing is tripped when dialing with a low sleeve condition on the front cord.

I. Split Operation: This test checks that the split feature separates the back cord from the front cord.

J. THRU-DIAL Feature: This test checks the removal of talking battery from the cord circuit and through connection from the back to front cord.

K. Central Office Trunk-Holding Bridge: This test checks the continuity of the holding bridge on a back or front cord.

L. Busy-Test Feature: This test checks the busy-test feature on a front or back cord.

M. AC Continuity: This test checks the continuity and balance of the talking path.

N. Transfer Function: This test checks the transfer of the attendant position circuit to an adjoining unattended position.

O. Noninterference Feature: This test checks the ability of a cord circuit not to connect to an established central office connection by overplugging.

1.03 The cord circuit tests and the position circuit tests are combined because of the electrical interlocking of the circuits.

SECTION 538-080-524

1.04 Reference to EXT (extension), TRNS (transfer), FL (flash), SP (spare), TRK (trunk), and T (tone) keys indicates the keys of the test set. Reference to EXT (extension), TRK (trunk), SP (spare), and BAT-G (battery and ground) jacks indicates the jacks of the test set bridged to similar jacks of the jack box by the patching cords. Reference to TST (test) lamp indicates the lamp of the test set.

1.05 Reference to cords, lamps, or keys associated with cords indicates the cord under test unless otherwise stated. Reference to spare cord or lamps and key associated with an idle cord, indicates the cord connected to the SP (spare) jack.

1.06 When delayed-through supervision is not provided, as in a PBX equipped with push-button dial, action and verification steps, spare cord supervisory lamp and TST lamp verifications should be disregarded as indicated.

1.07 When performing tests, BAT key must be operated to ON position. If the key is in the OFF position, all back cord lamps will flash momentarily when key is operated.

1.08 When routine tests are being performed, Tests A, B, C, and N are required once per position. All other tests should be applied to all cord circuits.

1.09 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Part 4 of this section, indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter

within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

All Tests

2.01 Attendant telephone set connected to either pair of PBX telephone jacks.

Tests B Through N

2.02 PBX cord circuit test set J54703A (SD-66484-01).

2.03 Test receiver, 716D receiver, attached to an M2DC cord equipped with two 35 cord tips.

2.04 Testing cord, W3A cord, 12 feet long, equipped with one 310 plug and three KS-6780 connecting clips (3W3A cord).

2.05 Four patching cords, P3E cord, 2 feet long, equipped with two 310 plugs (3P7D cord).

2.06 One patch jack box (to adapt the cord circuit test set for use with the 309 plugs of the 608A PBX) consisting of the following apparatus assembled as shown in Fig. 1:

Two — 30 type jack mountings or equivalent

Five — 238 type jacks

Three — 246 or 248 type jacks

One — KS-13490 L1 resistor, 3300 ohms, 1/2 watt, 5 per cent (or equivalent 3300-ohm resistor of not less than 1/10 watt or with a tolerance not to exceed 20 per cent).

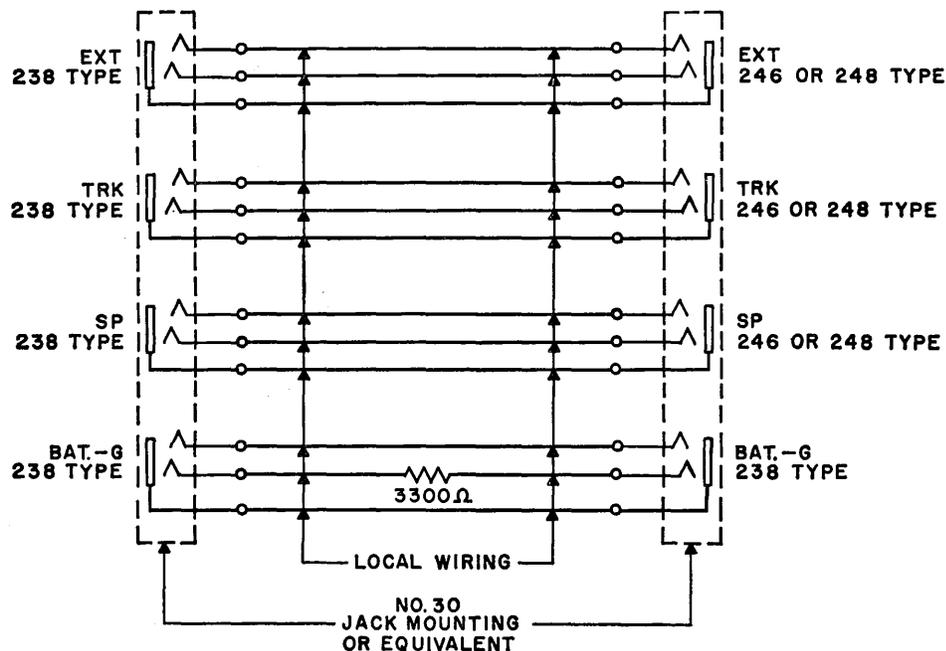


Fig. 1 — Patch Jack Box to Adapt PBX Cord Circuit
Test Box J54703A For Use With 608A PBX

3. PREPARATION

STEP	ACTION	VERIFICATION
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Initial Preparation of PBX Cord Circuit Test Set J54703A, Tests B Through N

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|---|--|-----------------------------------|
| 1 | Connect test receiver to REC binding posts on test set. | |
| 2 | Operate LV-HV key of test set to HV. | |
| 3 | Connect P3E cords between EXT, TRK, SP, BAT-G jacks of jack box to corresponding jacks of test set. | |
| 4 | Insert plug of W3A cord in BAT-G jack of jack box. | |
| 5 | Connect tip, ring, sleeve conductors of W3A cord to ground by clipping cord tips to ground strip in back of PBX. | |
| 6 | Operate TALK key of idle cord. | |
| 7 | Insert plug of front cord into SP jack of jack box. | |
| 8 | Trip machine ringing by operating RING FRONT key. | Front lamp of spare cord lighted. |

Note: The lighting of the front lamp can be disregarded unless noted in the verification of a particular action.

4. METHOD

STEP	ACTION	VERIFICATION
A. Position Telephone Circuit		
1	Operate TALK key.	TALK lamp lights. Sidetone heard.
2	Shake, slightly twist attendant telephone set cord between fingers, move plug in jacks, shake gently.	No clicks or scratchy noise heard.
3	Remove plug of attendant telephone set from jack.	TALK lamp extinguished.
4	Insert plug of attendant telephone set in other pair of telephone jacks.	
5	Operate TALK key of first cord pair.	First TALK lamp lights. Sidetone heard.
6	Repeat Step 2.	Same as Step 2.
7	Operate TALK key of second cord pair.	First TALK lamp extinguished. Second TALK lamp lights.
8	Operate TALK key of each pair of cords in succession until TALK key of last cord pair is operated.	Previously lighted TALK lamps extinguished. Successive TALK lamps light.
9	Operate RLS key.	Last lighted TALK lamp extinguished.
B. Attendant Dial Circuit (PBX Equipped With Standard Dial)		
9	Operate SP, TRK keys.	
10	Operate TALK key.	TALK lamp lights.
11	Insert plug of front cord into TRK jack.	Back lamp lights. TST lamp lights. Front lamp of spare cord extinguished.
12	Blow into transmitter of attendant telephone set.	Sidetone heard.
13	Pull dial to digit (0), and hold off-normal.	TST lamp brightens.
14	Blow into transmitter of attendant telephone set.	No sidetone heard.
15	Let dial return to normal.	TST lamp returns to normal brilliancy after following dial pulses. Front lamp of spare cord flashes with dial pulses.
16	Blow into transmitter of attendant telephone set.	Sidetone heard.

STEP	ACTION	VERIFICATION
17	Remove plug of front cord from TRK jack.	Back lamp extinguished. TST lamp extinguished. Front lamp of spare cord lights.
18	Insert plug of back cord into TRK jack.	Front lamp of spare cord extinguished. TST lamp lights.
19	Blow into transmitter of attendant telephone set.	Sidetone heard.
20	Operate DIAL BACK key.	DIAL BACK lamp lights.
21	Pull dial to digit (0), and hold off-normal.	TST lamp brightens.
22	Blow into transmitter of attendant telephone set.	No sidetone heard.
23	Let dial return to normal.	TST lamp returns to normal brilliancy after flashing with dial pulses. Front lamp of spare cord flashes with dial pulses.
24	Blow into transmitter of attendant telephone set.	Sidetone heard.
25	Operate DIAL BACK key.	DIAL BACK lamp extinguished.
26	Operate RLS key.	TALK lamp extinguished.
27	Disconnect back cord.	TST lamp extinguished. Front lamp of spare cord lights.
28	Release SP, TRK keys.	

C. Attendant Dial Circuit (PBX Equipped With Pushbutton Dial)

9	Operate SP, TRK keys.	
10	Operate TALK key.	TALK lamp lights.
11	Insert plug of front cord into TRK jack.	Back lamp lights. TST lamp lights. Front lamp of spare cord extinguished.
12	Blow into transmitter of attendant telephone set.	Sidetone heard.
13	Operate START key on pushbutton dial.	START lamp lights. TST lamp dims.
14	Blow into transmitter of attendant telephone set.	No sidetone heard.
15	Operate END key on pushbutton dial.	START lamp extinguished. TST lamp returns to normal brilliancy.
16	Blow into transmitter of attendant telephone set.	Sidetone heard.

SECTION 538-080-524

STEP	ACTION	VERIFICATION
17	Remove plug of front cord from TRK jack.	Back lamp extinguished. TST lamp extinguished. Front lamp of spare cord lights.
18	Insert plug of back cord into TRK jack.	TST lamp lights. Front lamp of spare cord extinguished.
19	Blow into transmitter of attendant telephone set.	Sidetone heard.
20	Operate DIAL BACK key.	DIAL BACK lamp lights.
21	Operate START key on pushbutton dial.	START lamp lights. TST lamp dims.
22	Blow into transmitter of attendant telephone set.	No sidetone heard.
23	Operate END key of pushbutton dial.	START lamp extinguished. TST lamp returns to normal brilliancy.
24	Blow into transmitter of attendant telephone set.	Sidetone heard.
25	Operate DIAL BACK key.	DIAL BACK lamp extinguished.
26	Operate RLS key.	TALK lamp extinguished.
27	Disconnect back cord.	TST lamp extinguished. Front lamp of spare cord lights.
28	Release SP, TRK keys.	

D. Station-to-Station Condition

9	Operate TALK key.	TALK lamp lights.
10	Insert plug of back cord into EXT jack.	Back lamp remains extinguished.
11	Insert plug of front cord into TRK jack.	Front lamp flashes at 30 ipm.
12	Operate TRNS, FL keys.	Front lamp extinguished.
13	Release TRNS, FL keys.	Front lamp lights.
14	Operate RLS key.	TALK lamp extinguished. Back lamp lights.
15	Operate FL key.	Back lamp flashes at 120 ipm. Audible signal sounds.
16	Operate TALK key.	TALK lamp lights. Back lamp extinguished. Audible signal silenced.
17	Operate RLS key.	TALK lamp extinguished.
18	Release FL key.	Back lamp lights.
19	Operate TRNS key.	

STEP	ACTION	VERIFICATION
20	Operate FL key.	Front lamp extinguished.
21	Release FL key.	Front lamp lights.
22	Operate FL key.	Front lamp flashes at 120 ipm. Audible signal sounds.
23	Operate TALK key.	TALK lamp lights. Front, back lamps extinguished. Audible signal silenced.
24	Operate RLS key.	TALK lamp extinguished. Back lamp lights.
25	Release FL key.	Front lamp lights.
26	Release TRNS key.	
27	Disconnect cords.	Lamps extinguished.

E. Central Office Trunk-To-Station Condition

9	Operate TRK key.	
10	Operate TALK key.	TALK lamp lights.
11	Insert plug of back cord into TRK jack.	Back lamp remains extinguished.
12	Insert plug of front cord into EXT jack.	Front lamp flashes at 30 ipm.
13	Operate SP, FL keys.	Front lamp extinguished. TST lamp lights. Front lamp on spare cord extinguished.
14	Operate RLS key.	TALK lamp extinguished. TST lamp extinguished.
15	Release FL key.	Front lamp lights. Front lamp of spare cord lights (see 1.06). TST lamp lights momentarily (see 1.06).
16	Operate FL key.	Front lamp flashes at 120 ipm. Audible signal sounds.
17	Operate TALK key.	TALK lamp lights. Front lamp extinguished. Front lamp of spare cord extinguished (see 1.06). TST lamp lights.
18	Operate RLS key.	TALK lamp extinguished. TST lamp extinguished.
19	Release FL key.	Front lamp lights. TST lamp lights momentarily (see 1.06). Front lamp of spare cord lights (see 1.06).
20a	If PBX is equipped with rotary dial (see 1.06) — Operate TALK key of spare cord.	TALK lamp of spare cord lights.

SECTION 538-080-524

STEP	ACTION	VERIFICATION
21a	Operate RING FRONT key.	Back lamp flashes at 120 ipm. Audible signal heard.
22a	Operate TALK key.	TALK lamp lights. Back lamp extinguished. Audible signal silenced. TST lamp lights. Front lamp of spare cord extinguished.
23a	Operate RLS key.	TALK lamp extinguished. Front lamp lights.
24	Release TRK, SP keys.	Front lamp of spare cord lights. TST lamp extinguished.
25	Disconnect cords.	Lamps extinguished.

F. Station-To-Central Office Trunk Condition

9	Operate TRK, SP, FL keys.	
10	Operate TALK key.	TALK lamp lights.
11	Insert plug of back cord in EXT jack.	Lamps remain extinguished.
12	Insert plug of front cord in TRK jack.	Lamps remain extinguished. TST lamp lights. Front lamp of spare cord extinguished.
13	Release FL key.	Back lamp lights.
14	Operate RLS key.	TALK lamp extinguished.
15	Operate FL key.	Back lamp extinguished. TST lamp extinguished (see 1.06).
16	Release FL key.	Back lamp lights. Front lamp of spare cord lights (see 1.06). TST lamp flashes momentarily (see 1.06).
17	Operate FL key.	Back lamp flashes at 120 ipm. Audible signal heard.
18	Operate TALK key.	TALK lamp lights. Back lamp extinguished. Audible signal silenced. TST lamp lights. Front lamp of spare cord extinguished.
19	Release FL key.	Back lamp lights.
20	Operate RLS key.	TALK lamp extinguished.
21a	If PBX is equipped with rotary dial (see 1.06) — Operate TALK key of spare cord.	TALK lamp of spare cord lights.

STEP	ACTION	VERIFICATION
22a	Operate RING FRONT key.	Front lamp flashes at 120 ipm. Audible signal sounds. Front lamp of spare cord lights while ringing. TST lamp brightens while ringing.
23a	Operate TALK key.	TALK lamp lights. TALK lamp of spare cord extinguished. Front lamp extinguished. TST lamp lights. Audible signal silenced.
24	Release SP key.	Front lamp of spare cord lights. TST lamp extinguished.
25	Release TRK key.	
26	Operate RLS key.	TALK lamp extinguished.
27	Disconnect cords.	Lamps extinguished.

G. Ringing Feature

9	Operate TALK key.	TALK lamp lights.
10	Insert plug of back cord in EXT jack.	Lamps remain extinguished.
11	Insert plug of front cord in TRK jack.	Front lamp flashes at 30 ipm. Audible ringing heard in attendant telephone set and test receiver.
12	Operate TRNS key.	Ringing generator heard in test receiver. Audible ringing heard in attendant telephone set.
13	Operate FL key.	Front lamp extinguished.
14	Release FL key.	Front lamp lights.
15	Operate RING FRONT key.	Ringing generator heard in test receiver.
16	Release TRNS key.	
17	Operate RING BACK key.	Ringing generator heard in test receiver.
18	Operate RLS key.	Front lamp extinguished.
19	Disconnect cords.	

H. Trip of Machine Ringing With Attendant Dial

9	Operate TALK key.	TALK lamp lights.
10	Insert plug of front cord into EXT jack.	Front lamp flashes at 30 ipm. Audible ringing heard in attendant telephone set.

SECTION 538-080-524

STEP	ACTION	VERIFICATION
11	Dial or key pulse numeral 2.	Front lamp lights steadily. Audible ringing removed.
12	Disconnect cord.	Front lamp extinguished.
13	Operate RLS key.	TALK lamp extinguished.

I. Split Operation

9	Operate TALK key.	Disregard supervisory lamp signals.
10	Insert plug of back cord in EXT jack.	
11	Insert plug of front cord in TRK jack.	
12	Operate T key.	Tone heard in attendant telephone set.
13	Operate SPLIT key.	SPLIT lamp lights. Tone no longer heard.
14	Operate SPLIT key.	SPLIT lamp extinguished. Tone heard in attendant telephone set.
15	Release T key.	
16	Disconnect cords.	

J. THRU-DIAL Feature

9	Operate TRK, SP, FL keys.	
10	Operate TALK key.	TALK lamp lights.
11	Insert plug of back cord in EXT jack.	Lamps remain extinguished.
12	Insert plug of front cord in TRK jack.	Lamps remain extinguished. TST lamp lights. Front lamp of spare cord extinguished.
13	Operate THRU DIAL key.	TST lamp extinguished. TALK lamp extinguished.
14	Release FL key.	Back lamp lights. Front lamp of spare cord lights.
15	Operate FL key.	Back lamp extinguished. Front lamp of spare cord extinguished.
16	Release TRK, SP, FL keys.	
17	Disconnect cords.	

K. Central Office Trunk-Holding Bridge

9	Operate SP, TRK keys.	
10	Operate TALK key.	TALK lamp lights.
11	Insert plug of back cord in TRK jack.	TST lamp lights (high talking bridge).

STEP	ACTION	VERIFICATION
12	Operate RLS key.	TST lamp remains lighted with less brilliancy (low holding bridge). TALK lamp extinguished.
13	Operate TALK key.	TALK lamp lights. TST lamp lights with normal brilliancy.
14	Remove back cord from TRK jack.	TST lamp extinguished.
15	Insert plug of front cord in TRK jack.	TST lamp lights (high talking bridge). Back lamp lights.
16	Operate RLS key.	TST lamp remains lighted with less brilliancy. TALK lamp extinguished.
17	Operate TALK key.	TALK lamp lights. TST lamp lights with normal brilliancy.
18	Operate RLS key.	TALK lamp extinguished.
19	Disconnect cords, restore test keys to normal.	

L. Busy-Test Feature

9	Operate TALK key.	TALK lamp lights.
10	Touch tip of front cord plug to sleeve of EXT jack.	Click heard.
11	Touch tip of back cord plug to sleeve of EXT jack.	Click heard.
12	Release RLS key.	

M. AC Continuity

9	Operate TALK key.	Disregard supervisory lamp signals.
10	Insert plug of back cord in EXT jack.	
11	Insert plug of front cord in TRK jack.	
12	Operate T key.	Low volume tone heard in test receiver.
13	Operate EXT key.	No tone heard.
14	Pull downward on back cord, then at an angle to right and left, twist cord between fingers, shake, rotate plug around in jack.	No clicks or tone heard. (These would indicate cutouts or an unbalanced condition. Scratchy noises while rotating plug should be disregarded.)
15	Operate TRNS key.	
16	Repeat Step 14 on front cord.	Same as Step 14.

SECTION 538-080-524

STEP	ACTION	VERIFICATION
17	Release TRNS key.	
18	Operate TRK key.	Disregard noise when relays operate. No tone heard.
19	Disconnect cords.	
20	Release test set keys.	

N. Transfer Function

9	Operate TALK key.	TALK lamp lights.
10	Operate TRFR key to R or L as appropriate, to an adjoining unattended PBX position with attendant telephone set removed.	TALK lamp extinguished.
11	At adjoining position — Operate TALK key.	At adjoining position — TALK lamp lights.
12	Insert plug of front cord into EXT jack.	Front lamp flashes at 30 ipm. At starting position — Audible ringing heard.
13	At starting position — Operate TRFR key to OFF.	Audible ringing silenced. At adjoining position — Front lamp extinguished. TALK lamp extinguished.
14	Operate TALK key.	At starting position — TALK lamp lights.
15	Operate RLS key.	TALK lamp extinguished.

O. Noninterference Feature

1	Operate TALK key.	TALK lamp lights.
2	Insert plug of back cord into jack of busy central office trunk.	Conversation with existing connection impossible.
3	Repeat Step 2 using front cord.	Same as Step 2.
4	Operate RLS key.	TALK lamp extinguished.