CORD CIRCUITS
OPERATION TESTS
607B PBX

1. GENERAL

1.01 This section describes a method of testing the operating features of cord circuits in the No. 607B PBX.

1.02 The tests covered are:

(A) Station to Station Condition

This test checks the operation of sleeve relays, cord lamps, ringing keys, manual flashing and flashing recall, under conditions of a station to station call.

(B) Central Office Trunk to Station Condition

This test checks the operation of sleeve relays, cord lamps, ringing keys, cord circuit bridge, manual flashing and flashing recall under conditions of a central office trunk to station call.

(C) Station to Central Office Trunk Condition

This test checks the operation of sleeve relays, cord lamps, cord circuit bridge, manual flashing and flashing recall under conditions of a station to central office trunk call.

(D) Busy Test on Front and Rear Cords

This test checks the operation of the busy test associated with cords when in their normal condition.

(E) Battery on Ring of Front Cord in Normal Condition

This test checks that battery is present on the ring of the front cord when the cord is not in use.

(F) A-C Continuity of Talking Circuits

This test checks, by means of a tone method, the continuity of the leads in the cord circuit which carry voice currents.

(G) Continuity of Holding Bridge

This test provides an approximate check of the resistance of the 350 ohm holding bridge in the cord circuit.

(H) Continuity of Sleeve Circuits

This test provides an approximate check of the resistance of the front and rear sleeve circuits.

(I) Overthrow on TALK AND DIAL Key

This test checks whether the TALK AND DIAL key overthrows into the RING FRONT position when allowed to return to normal unrestrained.

(J) Overthrow on NIGHT AND THRU DIAL Key

This test checks whether the NIGHT AND THRU DIAL key overthrows into the RING REAR position when allowed to return to normal unrestrained.

(K) Overthrow on RING REAR Key

This test checks whether the RING REAR key overthrows into the NIGHT AND THRU DIAL position when allowed to return to normal unrestrained.

1.03 When applying test (F), a low volume of tone will be noted in the test receiver, even on cords in good condition. This volume can be expected and is not an indication of trouble. After testing several cords, the tester should become familiar with the normal volume of tone which should be heard. Cords on which the volume is appreciably greater than normal, or cords on which clicks are heard during testing should be considered in trouble.

1.04 These tests should be made only at positions that have been vacated by the attendant.

1.05 The test receiver should be held slightly away from the ear while testing.

1.06 **Lettered Steps**—The letters a, b, c, etc. are added to a step number to indicate that the steps cover an action which may or may not be required, depending on local conditions. The conditions under which a lettered step or series of steps should be made, are given in the action column, and all steps governed by the same condition are designated by the same letter. Where a condition does not apply, the associated steps should be omitted.

2. APPARATUS

2.01 The apparatus required for each test is shown in the following table. The details for each item are given in the indicated paragraphs.

APPARATUS		A	B	C	D	E	F	G	H	I	J	K
Portable Ringer	2.02	1	—	—	—	—	—	—	—	—	—	—
Test Receiver	2.03	2	1	1	—	—	1	—	—	1	1	—
Telephone Set	2.04	—	—	—	1	—	—	—	—	—	—	1
Test Set	2.05	—	—	—	—	—	—	1	1	—	—	—
Patching Cord	2.06	—	—	—	—	—	—	1	—	—	—	—
Patching Cord	2.07	—	—	—	—	—	—	1	—	—	—	—
Test Circuit	2.08	—	—	—	—	—	1	—	—	—	—	—
Test Line Circuit	2.09	1	1	1	—	—	—	1	—	1	1	1

2.02 No. 531A-3 subscriber set or equivalent connected to an S3H cord 5 feet long equipped with a No. 309 plug. The sleeve conductor of the cord should be taped and dead ended at the subscriber set. If the sound of the ringer is considered undesirable in the PBX operating room a No. 21B-3 indicator similarly connected to an S3H cord and No. 309 plug may be substituted for the subscriber set.

2.03 No. 716E or No. 528 receiver attached to an R2CU cord 6 feet long and a No. 309 plug (2W29A cord).

2.04 Attendant telephone set.

2.05 No. 35F test set or equivalent.

2.06 No. 893 cord 6 feet long equipped with No. 360 tools (1W13B cord) and one No. 364 tool and one No. 365 tool (For connecting testing ground to No. 35F test set).

2.07 P3D cord 6 feet long equipped with 2 No. 309 plugs (3P3A cord) (For connecting No. 35F test set to test line circuit).

2.08 Test circuit SD-66240-01 for making a-c continuity tests on cord circuits of the PBX.

2.09 Test line circuit SD-65693-01 for setting up trunk and station conditions on the cord circuit under test.

3. METHOD

STEP	ACTION	VERIFICATION
	(A) Station to Station Condition	
1	Connect rear cord under test into S jack of test line circuit	Rear cord lamp lights
2	Connect portable ringer into T jack of test line circuit	
3	Operate RING REAR key momentarily	Ringer rings
4	Disconnect portable ringer from T jack	
5	Connect test receiver into T jack	Rear cord lamp goes out
6	Unplug and plug test receiver in T jack several times at the rate of about twice per second	Rear cord lamp flashes in unison

STEP	ACTION	VERIFICATION
7	Connect front cord into S1 jack of test line circuit	Front cord lamp lights
8	Connect portable ringer into T1 jack of test line circuit	
9	Operate RING FRONT key momentarily	Ringer rings
10	Disconnect portable ringer from T1 jack	
11	Connect another test receiver into T1 jack	Front cord lamp goes out
12	Unplug and plug test receiver in T1 jack several times at the rate of about twice per second	Front cord lamp flashes in unison
13	Disconnect test receiver from T1 jack	Front cord lamp lights
14	Disconnect test receiver from T jack	Rear cord lamp lights
15a	If flashing recall is provided— Reconnect test receiver to T jack	Rear cord lamp flashes
16a	Operate TALK AND DIAL key momentarily	Rear cord lamp stops flashing and remains out
17	Disconnect cord circuit and test receiver from test jacks	
(B) Central Office Trunk to Station Condition		
1	Connect spare rear cord into S1 jack of test line circuit	Rear spare cord lamp lights
2	Connect front cord under test into T1 jack of test line circuit	Rear spare cord lamp goes out. Front cord lamp under test does not light
3	Operate spare cord RING REAR key	Front cord lamp under test lights. Spare rear cord lamp lights
4	Restore spare cord RING REAR key	Front cord lamp under test goes out. Spare rear cord lamp goes out
5	Connect rear cord under test into S jack of test line circuit	Rear cord lamp under test lights
6	Connect test receiver into T jack of test line circuit	Rear cord lamp under test goes out
7a	If flashing recall is provided— Operate TALK AND DIAL key of cord under test	
8a	Disconnect test receiver from T jack	Rear cord lamp under test lights. Rear spare cord lamp remains out
9a	Restore TALK AND DIAL key	Rear cord lamp under test remains lighted
10a	Reconnect test receiver into T jack	Rear cord lamp under test flashes
11a	Operate TALK AND DIAL key momentarily	Rear cord lamp under test stops flashing and remains out
12b	If flashing recall is not provided— Insulate 1B contact of B relay of cord under test	
13b	Disconnect test receiver from T jack	Rear cord lamp under test lights. Rear spare cord lamp remains out
14b	Remove insulation from B relay contact	
15b	Reconnect test receiver into T jack	Rear cord lamp under test goes out
16	Remove spare rear cord from S1 jack	Rear cord lamp under test lights
17	Listen in test receiver and remove front cord under test from T1 jack	Click is heard. Rear cord lamp under test goes out
18	Disconnect test receiver from T jack	Rear cord lamp under test lights
19	Disconnect rear cord from S jack	
(C) Station to Central Office Trunk Condition		
1	Connect test receiver into T jack of test line circuit	
2	Connect rear cord under test into S jack of test line circuit	Rear cord lamp out
3	Listen in test receiver and connect front cord under test into T1 jack of test line circuit	Click is heard. Rear cord lamp lights
4	Operate TALK AND DIAL key	
5	Listen in test receiver and connect spare rear cord into S1 jack of test line circuit	Click is heard. Rear cord lamp goes out
6	Restore TALK AND DIAL key	
7a	If flashing recall on all calls except outgoing C.O. calls is provided— Disconnect and then reconnect test receiver into T jack	Rear cord lamp under test lights and then goes out
8b	If flashing recall on all calls is provided— Disconnect and then reconnect test receiver into T jack	Rear cord lamp under test flashes
9b	Momentarily operate TALK AND DIAL key of cord under test	Flashing stops
10c	If flashing recall is not provided— Disconnect and then reconnect test receiver into T jack	Rear cord lamp under test lights and then goes out
11	Disconnect plugs from S, T, S1 and T1 jacks	
(D) Busy Test on Front and Rear Cords		
1	Connect attendant telephone set into position telephone set jacks	
2	Listen in attendant receiver and touch sleeve of spare rear cord to tip of each front cord in turn	Click is heard at each touch
3	Touch sleeve of spare rear cord to tip of each rear cord in turn	Click is heard at each touch
4	Disconnect attendant telephone set	
(E) Battery on Ring of Front Cord in Normal Condition		
1	Touch sleeve of spare rear cord to ring of each front cord in turn	Spare rear cord lamp lights at each touch
(F) A-C Continuity of Talking Circuits		
1	Connect test receiver into REC jack of a-c continuity test circuit Note: Disregard cord lamp signals.	

STEP	ACTION	VERIFICATION
2	Listen in test receiver and connect front cord under test into CON FRONT jack	Low volume of tone indicates normal condition. Clicks or changes in tone volume indicate trouble
3	Hold plug in jack with one hand and shake cord with other hand	
4	Turn plug in jack	
5	Tap lightly on cord key top	
6	Disconnect cord from CON FRONT jack	
7	Connect rear cord into CON FRONT jack	
8	Repeat 3, 4, 5 and 6	
9	Connect front cord into CON REAR jack (Rear cord still connected into CON FRONT jack)	
10	Operate TALK AND DIAL key	
11	Tap lightly on key top near front key lever	
12	Restore TALK AND DIAL key	
13	Operate NIGHT AND THRU DIAL key	
14	Tap lightly on key top near rear key lever	
15	Restore NIGHT AND THRU DIAL key	
16	Disconnect cord circuit from CON REAR and CON FRONT jacks	
17	Disconnect test receiver from REC jack at end of tests	
(G) Continuity of Holding Bridge		
1	Connect spare rear cord into T&R jack of No. 35F test set	
2	Patch L1 terminal of test set to ground at a key cam	
3	Patch BAT & GRD jack of test set to S jack of test line circuit	
4	Restore test set keys to normal	
5	Operate L switch of test set to 10 position	
6	Connect any front cord into T jack of test line circuit. Use as reference cord to adjust current thru test set to 25 milliamperes	
7	Disconnect reference cord from T jack	
8	Connect each front cord in turn into T jack	Test set indicates 25 ± 1/4 milliamperes
9	Disconnect all test connections	
(H) Continuity of Sleeve Circuits		
1	Connect spare front cord into BAT & GRD jack of 35F test set	
2	Connect any front cord to S jack of No. 35F test set. Use as reference cord to adjust current thru test set to 25 milliamperes	
3	Disconnect reference cord	
4	Connect each front cord in turn to the S jack of No. 35F test set	Test set indicates 25 ± 1/4 milliamperes
5	Connect each rear cord in turn to the S jack of No. 35F test set	Test set indicates 25 ± 1/4 milliamperes
6	Disconnect all test connections	
(I) Overthrow on TALK AND DIAL Key		
1	Connect spare rear cord into S jack of test line circuit	Spare rear cord lamp lights
2	Connect test receiver into T1 jack of test line circuit	
3	Operate NIGHT AND THRU DIAL key of cord circuit under test	
4	Connect front cord under test into T jack and rear cord under test into S1 jack of test line circuit	Click heard in test receiver. Spare rear cord lamp goes out
5	Operate TALK AND DIAL key of cord circuit under test and allow it to restore to normal without restraint	No click heard in test receiver
6	Disconnect cord circuit under test and restore associated NIGHT AND THRU DIAL key	
7	Repeat steps 3 to 6 for each cord circuit to be tested	
8	Disconnect test receiver and spare rear cord	
(J) Overthrow on NIGHT AND THRU DIAL Key		
1	Connect test receiver into T jack of test line circuit	
2	Connect front cord under test into T1 jack, and rear cord under test into S jack of test line circuit	Rear cord lamp lights
3	While listening in test receiver, operate NIGHT AND THRU DIAL key, and then let it restore to normal unrestrained	No loud click is heard
4	Disconnect cord circuit under test	
5	Repeat steps 2, 3 and 4 for each cord circuit to be tested	
6	Disconnect test receiver	
(K) Overthrow on RING REAR Key		
1	Connect spare rear cord into S jack of test line circuit	Spare rear cord lamp lights
2	Connect front cord under test into T jack of test line circuit and rear cord under test into S1 jack	Spare rear cord lamp goes out. Rear cord lamp under test lights
3	Operate TALK AND DIAL key of cord circuit under test	
4	While listening in receiver of attendant telephone set, operate RING REAR key of cord circuit under test and allow it to restore to normal unrestrained	No click is heard
5	Restore TALK AND DIAL key and disconnect cord circuit under test	
6	Repeat steps 1 to 5 for each cord circuit to be tested	