CORD CIRCUITS
OPERATION TESTS
606A PBX

1. GENERAL

1.01 This section describes methods of testing the operating features of cord circuits in the No. 606A PBX.

1.02 This section has been reissued to change the title for clarification purposes and convert it to letter size.

1.03 The tests covered are:

(A) **Supervisory Relays:** This checks the operating features of the supervisory relays and the continuity of the supervisory lamp circuits.

(B) **Flashing Recall:** This checks the operating features of cord circuits under station-to-station, trunk-to-station and station-to-trunk conditions.

(C) **Break and Make Contacts of NIGHT AND THROUGH DIAL Key (Where Provided):** This checks the continuity of the cord circuit through the make contacts and the operating features of the break contacts.

(D) **Make Contacts of TALK AND DIAL Key:** This checks TIP and RING continuity through the make contacts of the TALK and DIAL key.

(E) **Recall Relay:** This checks the operating features of the recall relay.

(F) **Lamp Sockets Crossed with Battery:** This checks that the supervisory lamp sockets are not crossed with battery.

(G) **350 and 1200-Ohm Bridges:** This checks the continuity of the retard coil low and high resistance bridges and the operating features of the relays controlling them.

(H) **Cords and Keys for Cutouts or Noise—AC Continuity Method:** This checks the talking paths of cord circuits through the use of AC continuity test circuit SD-66240-01.

(I) **Cords and Keys for Cutouts or Noise—DC Click Method:** This checks the talking paths of cord circuits through the use of battery.

(J) **Ringing Features—Test Line Circuit Provided:** This checks the ringing features through the use of the test line circuit SD-66236-01.

(K) **Ringing Features—Test Line Circuit Not Provided:** This provides a manual check of the ringing features.

(L) **Overthrow of Keys:** This checks that the TALK AND DIAL and NIGHT AND THROUGH DIAL keys do not overthrow into the ringing position.

(M) **Tip Circuit Features:** This checks the busy test feature on the tip of idle front cords and the open circuit on the tip of idle rear cords.

(N) **Battery on Ring Front Cord:** This checks for the presence of battery on the ring of idle front cords.

1.04 When tests are conducted on a routine basis, they should preferably be made during periods of light traffic to avoid interference with traffic.

1.05 When making tests which require the use of a receiver, keep the receiver slightly away from the ear so that clicks which may occur during testing will not act directly on the ear.

1.06 Test (H) should be employed when the P B X is equipped with an AC continuity test circuit, otherwise Test (I) should be employed.

1.07 Although not specified in the tests under Method, the cord circuits should be restored to normal upon completion of the highest numbered step in each test.

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.

		Number Required for Tests												
APPARATUS		A	B	C	D	E	F	G	H	I	J	K	L	M	N
Receiver	(2.02)	1	1	—	—	—	1	—	—	—	1	1	1	—	—
Telephone Set	(2.03)	—	—	1	1	—	—	1	—	1	—	—	—	1	1
Cord	(2.04)	1	1	2	2	—	—	1	—	—	1	1	1	—	—
Test Circuit	(2.05)	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Receiver	(2.06)	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Test Circuit	(2.07)	—	—	—	—	—	—	—	—	—	1	—	—	—	—

2.02 No. 716E or No. 528 Receiver equipped with one W2AB Cord and No. 360 Tools (2W21A Cord) and two No. 365B Tools, or equivalent Cord with Clips.

2.03 Attendant Telephone Set.

2.04 W1U Cord.

2.05 AC Continuity Test Circuit SD-66240-01.

2.06 No. 716E or No. 528 Receiver equipped with one R2CU Cord and one No. 309 Plug (2W29A Cord).

2.07 Test Line Circuit SD-66236-01.

3. PREPARATION

3.01 One spare trunk and two spare station line circuits are required. Arrange them as follows for the tests indicated.

Tests (B), (C) and (I)

(a) One spare multiple or answering jack with ground on the sleeve through 60 ohms (No. 18BR resistance or equivalent) and having its tip and ring terminals short-circuited.

Tests (B), (C), (E), (G) and (L)

(b) One spare multiple or answering jack with ground on the sleeve through 1800 ohms (No. 18EY resistance or equivalent).

(c) One spare multiple or answering jack with ground on the sleeve through 60 ohms (No. 18BR resistance or equivalent) and connected to the spare jack in (b) tip-to-tip and ring-to-ring.

Tests (C), (D), (G), (I), (M) and (N)

3.02 Insert the attendant's telephone set in the telephone set jacks.

4. METHOD

Step	Action	Verification
(A) Supervisory Relays		
1	Ground sleeve rear cord	Rear lamp lighted
2	Connect receiver clips to tip and ring rear cord	Click heard—rear lamp extinguished
3	Repeat Steps 1 to 3, testing front cord	—

Step	Action	Verification
(B) Flashing Recall		
Under Station-to-Station Condition — Rear Cord		
1	Insert front cord in short-circuited jack 3.01(a)	No lamp signals
2	Ground sleeve rear cord	Rear lamp lighted
3	Connect receiver clips to tip and ring rear cord	Rear lamp extinguished
4	Remove and restore ring clip	Rear lamp flashes — audible signal heard
5	Operate TALK AND DIAL key	Rear lamp extinguished —signal silenced
Under Station-to-Station Condition — Front Cord		
1	Insert rear cord in short-circuited jack 3.01(a)	No lamp signals
2	Ground sleeve front cord	Front lamp lighted
3	Connect receiver clips to tip and ring front cord	Front lamp extinguished
4	Remove and restore ring clip	
	(a) Flashing recall— single end	Front lamp lighted and extinguished
	(b) Flashing recall— both ends	Front lamp flashes — audible signal heard
5	Operate TALK AND DIAL key	Front lamp extinguished —signal silenced
Under Trunk-to-Station Condition — Front Cord		
1	Insert idle front cord in spare jack 3.01(c)	Disregard signals — idle cord
2	Insert rear cord under test in spare jack 3.01(b)	—
3	Ground sleeve front cord	Front lamp lighted
4	Connect receiver clips to tip and ring front cord	Front lamp extinguished
5	Remove and restore ring clip	Front lamp flashes — audible signal heard
6	Operate TALK AND DIAL key	Front lamp extinguished —signal silenced
Under Station-to-Trunk Condition — Rear Cord		
1	Insert idle front cord in spare jack 3.01(c)	Disregard signals — idle cord
2	Insert front cord under test in spare jack 3.01(b)	—
3	Ground sleeve rear cord	Rear lamp lighted
4	Connect receiver clips to tip and ring rear cord	Rear lamp extinguished
5	Remove and restore ring clip	
	(a) Flashing recall— single end	Rear lamp lighted and extinguished
	(b) Flashing recall— both ends	Rear lamp flashes — audible signal heard
6	Operate TALK AND DIAL key	Rear lamp extinguished —signal silenced
(C) Break and Make Contacts of NIGHT AND THROUGH DIAL Key		
1	Operate NIGHT AND THROUGH DIAL key cord under test	—
2	Ground sleeve front cord	—
3	Operate TALK AND DIAL key idle cord and ground sleeve front cord	—
4	Touch tip and then ring idle front cord to tip and ring front cord under test	No clicks heard
5	Restore normal—Repeat Step 1	—
6	Insert idle front cord in spare jack 3.01(c)	—
7	Insert rear cord under test in short-circuited jacks 3.01(a)	Rear lamp lighted
8	Insert front cord in spare jack 3.01(b)	Rear lamp extinguished —front lamp does not light
(D) Make Contacts TALK AND DIAL Key		
1	Operate TALK AND DIAL key and ground front sleeve cord under test	—
2	Ground sleeve idle front cord	—
3	Touch tip cord under test to ring idle front cord, then ring to tip	Click heard each test
(E) Recall Relay		
1	Insert front cord under test in spare jack 3.01(b)	—
2	Insert idle front cord in spare jack 3.01(c)	—
3	Operate idle front ringing key	Front and rear lamps cord under test lighted
4	Release ringing key	Lamps extinguished
(F) Lamp Sockets Crossed with Battery		
1	Ground receiver clip	—
2	Touch other clip to metal frames supervisory lamp caps	No clicks heard
(G) 350 and 1200-Ohm Bridges		
350-Ohm Bridge		
1	Insert idle front cord in spare jack 3.01(c)	—
2	Insert front cord under test in spare jack 3.01(b)	—
3	Operate another idle TALK AND DIAL key —Momentarily touch tip front cord to tip rear cord under test	Sharp click heard
1200-Ohm Bridge		
4	Ground ring rear cord under test	—
5	Touch tip idle front cord to tip rear cord under test	Light click heard
(H) Cords and Keys for Cutouts or Noise—AC Continuity Method		
1	Receiver to REC jack	—
2	Rear cord to CON FRONT jack	Low volume of tone (can be expected and is not an indication of trouble. Appreciable increase in normal volume indicates trouble condition)

Step	Action	Verification
3	Hold plug firmly in jack —Pull downward and at an angle to right and left. Shake cord	No clicks or changes in the volume of tone
4	Rotate plug in jack	Same as Step 3 (disregard scratchy noises while rotating plug)
5	Tap lightly on key tops near front and rear key levers	Same as Step 3
6	Open keyshelf—Lightly tap form associated cord, also exert slight pressure on form from side to side	Same as Step 3
7	Disconnect rear cord-front cord to CON FRONT jack — Repeat Steps 3 to 6, inc.	Same as Step 3
8	Rear cord to CON REAR jack	Slight volume or no tone
9	With all other TALK AND DIAL keys normal operate associated TALK AND DIAL key	—
10	Repeat Steps 5 and 6 then restore TALK AND DIAL key	Same as Step 3
11	Operate NIGHT AND THROUGH DIAL key (where provided)	Disregard any change in tone volume while key lever is moving
12	Repeat Steps 5 and 6	Same as Step 3

(I) Cords and Keys for Cutouts or Noise—DC Click Method

1	Operate TALK AND DIAL key	—
2	Insert associated front cord in spare jack 3.01(a)	—
3	Hold plug firmly in jack —Pull downward and at an angle right and left—shake cord	No clicks or scratchy noises heard
4	Rotate plug in jack	Same as Step 3 (disregard scratchy noises while rotating plug)
5	Tap lightly on key tops near front and rear key levers	Same as Step 3
6	Open keyshelf—lightly tap form associated cord, also exert slight pressure on form from side to side	Same as Step 3
7	Disconnect front cord	—
8	Insert rear cord in spare jack 3.01(a) Repeat Steps 3 to 6, inc.	—
9	Restore normal	—

(J) Ringing Features—Test Line Circuit Provided

Machine Ringing

1	Insert front cord in T jack	Subscriber set bell does not ring
2	Ground sleeve rear cord	Subscriber set bell rings
3	Connect receiver clips to tip and ring rear cord	Ringing induction heard in receiver
4	Disconnect ground cord and receiver	—

Step	Action	Verification
Pretripping		
5	Insert 32B test set in TR jack	—
6	Insert rear cord in C1 jack	Subscriber set bell rings
7	Operate WHITE button of test set at beginning of ringing interval	Subscriber set bell continues to ring
8	Release WHITE button	—
Tripping		
9	Operate RED button of test set at beginning of ringing interval	Subscriber set bell silenced
10	Release RED button	—
11	Disconnect test set and rear cord	—
Manual Ringing		
12	Operate front RINGING key	Subscriber set bell rings
13	Restore RINGING key	Subscriber set bell silenced
14	Disconnect front cord	—
15	Repeat Steps 1, 12 and 13 above, using rear cord and rear ringing key	—

(K) Ringing Features—Test Line Circuit Not Provided

Machine Ringing

1	Insert front cord in jack of nearby station	Front lamp lighted
2	Ground sleeve rear cord	Rear supervisory lamp lighted — station bell rings
3	Connect receiver clips to tip and ring rear cord	Ringing induction heard in receiver—rear supervisory lamp extinguished
Tripping		
4	Remove station receiver from switchhook	Station bell silenced—Front supervisory lamp extinguished
5	Replace station receiver Disconnect ground cord and receiver	—
Manual Ringing		
6	Operate front ringer key	Station bell rings
7	Restore RINGING key	Station bell silenced
8	Disconnect front cord	—
9	Repeat Steps 1, 6 and 7 above, using rear cord and rear ringing key	—

(L) Overthrow of Keys

1	Insert idle front cord in spare jack 3.01(c)	—
2	Insert rear cord under test in spare jack 3.01(b)	—
3	Ground sleeve front cord	—
4	Connect receiver clips to tip and ring front cord	—
5	Operate TALK AND DIAL key and let it snap back to normal	No loud clicks heard

Step	Action	Verification
6	Operate NIGHT AND THROUGH DIAL key (where provided) and let it snap back to normal	No loud clicks heard
7	Disconnect idle front cord and rear cord under test	—
8	Operate rear ringing key and let it snap back to normal (only necessary when P.B.X. is equipped with NIGHT AND THROUGH DIAL key)	No loud clicks heard

Step	Action	Verification
	(M) Tip Circuit Features	
	Busy Test on Front Cord	
1	Touch tip front cord to sleeve idle cord	Click heard
	Normally Open Tip to Rear Cord	
2	Touch tip idle front cord to tip rear cord under test	No click heard
	(N) Battery on Ring Front Cord	
1	Touch tip idle front cord to ring front cord under test	Click heard

5. REPORTS

5.01 Enter the required record of these tests on the proper form.