

INCOMING, OUTGOING, TWO-WAY CENTRAL OFFICE AND LOCAL TRUNKS OPERATION TESTS 606A, 607A AND 607B PBX

1. GENERAL

- 1.01 This section describes a method of testing the incoming, outgoing, two-way central office and local trunks of the 606A, 607A and 607B PBX. It also includes the purpose of each test.
- 1.02 This section has been reissued to change the title for clarification purposes and convert it to letter size.
- 1.03 The tests are as follows:
- (A) Test of Trunk Jacks for Cut-outs—A.C. Continuity Method.
 - (B) Test of Trunk Jacks for Cut-outs—D.C. Click Method.
 - (C) Test of Idle Indicating Lamps.
 - (D) Operation Test of the Ring-Up Relay of Incoming and Two-Way Central Office Trunks.
 - (E) Operation Test of Outgoing and Two-Way Trunks.
 - (F) Operation Test of Interposition Trunks.
 - (G) Operation Test of Trouble Intercepting Trunks.
 - (H) Operation Test of Outgoing Dialing Trunks to Selector (606-A and 702-A P B X only).
- 1.04 Test (A) checks the trunk jacks for cut-outs or troubles using the a-c continuity test circuit SD-66240-01.
- 1.05 Test (B) checks the trunk jacks for cut-outs indicating a worn condition in the jacks.
- 1.06 Test (C) checks the indicating lamp sequence operation.
- 1.07 Test (D) checks the operation of the ring-up relay and signal lamps of trunk circuits.
- 1.08 Test (E) checks the operation of the trunk.
- 1.09 Test (F) checks the line lamp operation of trunk and supervision.
- 1.10 Test (G) checks the operation of the indicating and trouble lamps associated with trouble intercepting trunks.
- 1.11 Test (H) checks the operation of the idle indicating trunk lamp and supervision.
- 1.12 Test (A) should be employed when the switchboard is equipped with an A.C. continuity test circuit. Test (B) should be followed when this circuit is not installed in the switchboard.

Note: When making test (A), change in volume is not necessarily an indication of trouble. After several tests the tester should become familiar with the normal volume of tone which should be heard.

- 1.13 Arrangements should be made to have outward calls placed over another group of trunks while test (C) is being applied to a group of trunks.

Caution: When making test (A) or (B) exercise care to avoid dropping the No. 121-A cord weights on the keyshelf, particularly on the glass bulletin holder.

2. APPARATUS

Test (A)

- 2.01 Test Line Circuit SD-66240-01.
- 2.02 Testing Cords—Two Test cord assemblies shown in Fig. 1 used in testing jacks for cut-out by the A.C. Continuity Method. (To be made up locally).
- 2.03 Testing Cord—W4G cord, 9 feet, 6 inches long (or equivalent), equipped with a No. 289A or 289B plug on one end and two No. 252-A or No. 252-B plugs on the other.

Test (B)

- 2.04 Testing cord—Test Cord Assembly shown in Fig. 2 for testing jacks for cut-out by the D.C. click method. (To be made up locally).

- 2.05 Testing cord—Test Cord Assembly for testing jacks shown in Fig. 2, modified by replacing the R2BT cord by an M2CP cord. (Connect two No. 105 cord tips to the leads at the lamp socket end of the cord).

Tests (A) and (B)

- 2.06 Testing cord—R2BT cord, shown in Fig. 2, equipped with a No. 716-E receiver (or equivalent), a No. 121-A cord weight and a No. 113-B Gauge.

Tests (C), (D) and (E)

- 2.07 Attendants Telephone Set.

Test (G)

- 2.08 Testing cord—W2F cord 9 feet 6 in. long (No. 2W7A cord) equipped with one No. 47A plug with the tip and ring conductors short-circuited.

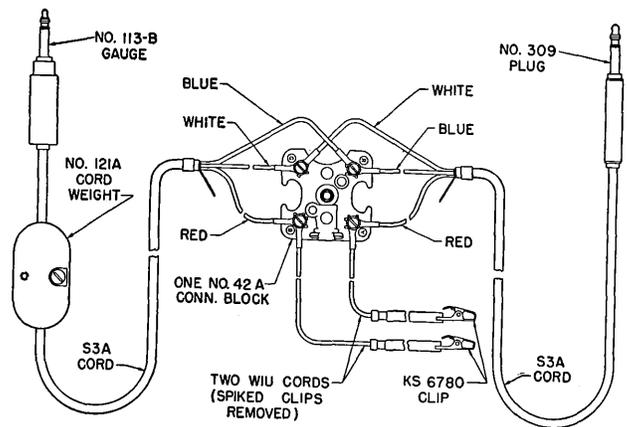


Fig. 1

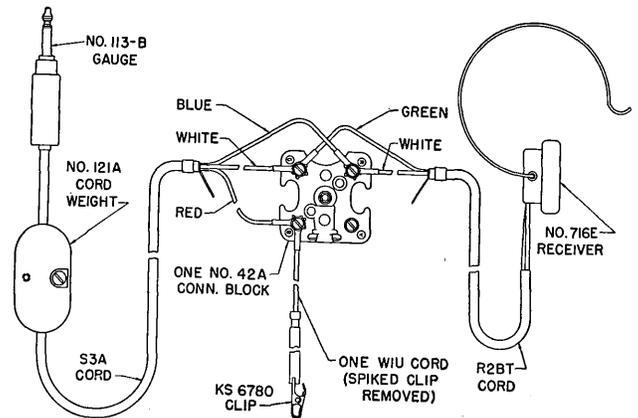


Fig. 2

3. METHOD**(A) Test of Trunk Jacks for Cut-outs—A.C. Continuity Method****Outgoing and Two-way Trunks to Manual and Dial Central Offices**

3.01 Insert a No. 113-B gauge into a multiple jack of an idle outgoing trunk to be tested and the associated No. 309 plug into the CON REAR jack of the test line circuit. Attach the No. 309 sleeve cord clip (see Fig. 1) to the sleeve of a plug of an idle cord.

3.02 Insert the other No. 113-B gauge into another multiple jack of the trunk and the associated No. 309 plug into the CON FRONT jack of the test line circuit. Attach the No. 309 plug sleeve cord clip to the sleeve of another plug of an idle cord.

3.03 Insert the plug of the receiver cord into the REC jack and note that a slight tone is heard in the receiver.

Note: On some idle trunks the tone volume may differ because of the circuit unbalance caused by the relays which are connected in the ring side.

3.04 Rotate one of the gauges one revolution while listening in the receiver for any clicks or changes in the volume of the tone, which would indicate a jack cut-out or other trouble condition.

3.05 Rotate the other gauge one revolution while listening in the receiver for a similar indication of jack cut-out.

3.06 Transfer the testing cords to two other trunk jacks to be tested. These may be other jacks of the same trunk, in which case it will be necessary to transfer all of the cords to another position of the board or they may be jacks of another trunk in the same section, in which case only the gauges will have to be moved.

3.07 Upon completion of the test disconnect the testing cords.

Outgoing Dialing Trunk to Selector (606-A and 702-A P B X'S Only)

3.08 Insert the plug of a front cord into a jack of an idle trunk to be tested.

3.09 Insert a No. 113-B gauge (Fig. 1) into a multiple jack of the trunk. Attach the gauge sleeve cord clip to an idle cord plug sleeve. Insert the associated No. 309 plug into the CON REAR jack and attach its sleeve cord clips to the sleeve of another idle switchboard plug. Insert the plug of the receiver cord into the REC jack. Disconnect the cord first used.

3.10 Insert the other No. 113-B gauge (Fig. 1) into another multiple jack of the trunk and the associated No. 309 plug into the CON FRONT jack. Attach the No. 309 plug sleeve cord tip to the sleeve of another idle cord.

3.11 Rotate first one gauge and then the other gauge one revolution while listening in the receiver for any clicks or changes in the volume of the tone, which would indicate a cut-out or other trouble condition.

3.12 Upon completion of the test disconnect the testing cords from the jacks.

Incoming Trunks from Selector Level or Central Office

3.13 Proceed as in 3.01 to 3.07 inclusive.

Interposition Trunks

3.14 Connect the cords used for testing in accordance with 3.01 to 3.07.

3.15 Transfer the testing cords to two other jacks and repeat the tests.

3.16 When all the trunks have been tested, disconnect the test cords.

Trouble Intercepting Trunks — When Provided With an Intercepting Plug at Switchboard and a Single Plug with Two Conductor Cord at the Distributing Frame (606-A and 702-A P B X'S Only)

3.17 Insert the plug into the jack box at the frame and connect the cord tips to the tip and ring terminals of a station line circuit without relay equipment.

3.18 Insert the 113-B gauge (Fig. 1) into the TBL jack. Attach the gauge sleeve cord clip to the sleeve of an idle cord. Insert the No. 309 plug into the CON REAR jack and connect its sleeve cord clip to another idle cord sleeve. Then insert the intercepting plug into a multiple jack of the same station line mentioned in 3.17.

3.19 Insert the plug of an idle front cord into the INCPT jack and the plug of the back cord into the CON FRONT jack.

3.20 Insert the plug of the receiver cord into the REC jack and note that a slight tone is heard in the receiver.

3.21 Rotate the gauge one revolution while listening in the receiver for any clicks or changes of volume in the tone, which would indicate a jack cut-out or other trouble condition.

3.22 Remove the gauge from the TBL jack and the cord plug from the INCPT jack.

3.23 Insert the gauge into the INCPT jack and the cord plug into the TBL jack, then test for jack cut-out as described in 3.21.

3.24 When the test is completed disconnect the testing cords.

Trouble Intercepting Trunks — When the Trunk is Provided with Double Jacks at the Distributing Frame and a No. 252A or B Plug for Use on Lines with Heat Coils

3.25 Insert a No. 289-B plug (strap the tip and sleeve of each prong together) into the frame jack box. The cord and plug used at the frame may be used for this purpose by strapping the prongs of the shoe.

3.26 Insert a No. 113-B gauge (Fig. 1) into the TBL jack. Attach the gauge sleeve cord clip to the sleeve of an idle switchboard cord. Insert the associated No. 309 plug into the CON REAR jack.

3.27 Insert the other No. 113-B gauge (Fig. 1) into the INCPT jack and its associated No. 309 plug into the CON FRONT jack. Connect the gauge sleeve cord clip and the No. 309 plug sleeve cord clip to the sleeves of separate idle switchboard cords.

3.28 Insert the plug of the receiver cord into the REC jack. A slight tone may be heard in the receiver.

3.29 Rotate first one gauge then the other gauge one revolution while listening in the receiver for any clicks or changes of volume in tone which would indicate a jack cut-out or other trouble condition.

3.30 When the test is completed disconnect the testing cords.

(B) Test of Trunk Jacks for Cut-outs—DC Click Method**Outgoing and Two-Way Trunks to Manual and Dial Central Offices**

3.31 Insert the No. 113-B gauge (2.05, Fig. 2 modified) into a multiple jack of the trunk. Connect the green conductor of the No. M2CP cord to the sleeve of the plug of an idle cord and the white conductor to the key cam of an operated cord circuit key.

3.32 Insert the other No. 113-B gauge (Fig. 2) of the receiver cord into another multiple jack of the trunk and note that a click is heard as the gauge is inserted. Rotate each gauge one revolution while listening in the receiver for clicks. If a click is heard it indicates that the jack cuts out.

3.33 When all jacks have been tested disconnect the cords.

Incoming Trunks from Manual and Dial Central Offices

3.34 Proceed as in 3.31 to 3.33 inclusive.

Outgoing Dialing Trunk to Selector (606-A and 702-A P B X'S Only)

3.35 Insert the plug of an idle front cord into a jack of the trunk that is to be tested.

3.36 Insert the No. 113-B gauge (Fig. 2) of the receiver cord into a multiple jack of the trunk. Note that a click is heard as the gauge is inserted.

3.37 Rotate the gauge one revolution while listening in the receiver for clicks. If a click is heard it indicates that the jack cuts out.

- 3.38 When all jacks have been tested disconnect the cords from the trunk.

Interposition Trunks

- 3.39 Insert the plug of an idle front cord into an answering jack of an idle trunk under test.
- 3.40 Insert the 113-B gauge (Fig. 2) into the trunk jack to be tested. Note that a click is heard as the plug is inserted.
- 3.41 Rotate the gauge one revolution while listening in the receiver for clicks. If a click is heard it indicates that the jack cuts out.
- 3.42 Repeat the test in 3.39 to 3.41 at each appearance of the trunk jacks until all jacks, except the one to which the switchboard cord is connected, have been tested.
- 3.43 Transfer the switchboard cord to a previously tested trunk jack and repeat the test in 3.40 and 3.41.
- 3.44 Disconnect the cords when the tests are completed.

Trouble Intercepting Trunks — When Provided With an Intercepting Plug at the Switchboard

- 3.45 Using the M2CP cord, connect one end of the green conductor to the tip of the intercepting plug and the other end to the sleeve of an idle switchboard cord. Connect the white conductor to the sleeve of the intercepting plug and the other end to the key cam of an operated cord circuit key.
- 3.46 Insert the 113-B gauge (Fig. 2) into the INCPT jack and attach the gauge sleeve cord to the sleeve of another idle switchboard cord.
- 3.47 Rotate the gauge one revolution while listening in the receiver for clicks. If a click is heard, it indicates that the jack cuts out.
- 3.48 Disconnect all cords when the jack has been tested.
- 3.49 Insert the gauge (Fig. 2) into the TBL jack. Note that a click is heard as the plug is inserted.
- 3.50 Rotate the gauge one revolution while listening in the receiver for clicks. If a click is heard it indicates that the jack cuts out.
- 3.51 Disconnect the cords when the test is completed.

Trouble Intercepting Trunks — When the Trunk is Provided With Double Jacks at the Distributing Frame

- 3.52 Insert the No. 289A or B plug of the W4AD frame cord into the frame box jack of the trunk under test. Connect the tip and sleeve of each prong together.
- 3.53 Insert the plug of an idle front cord into the TBL jack of the trunk under test.
- 3.54 Insert the No. 113-B gauge (Fig. 2) into the INCPT jack of the trunk. Note that a click is heard as the plug is inserted.
- 3.55 Rotate the gauge one revolution while listening in the receiver for clicks. If a click is heard it indicates that the jack cuts out.
- 3.56 Remove the plugs from the TBL and INCPT jacks. Then insert the plug of the idle front cord into the INCPT jack.
- 3.57 Attach the gauge sleeve cord clip to the sleeve of an idle switchboard cord. Insert the plug of the No. 113-B gauge (Fig. 2) into the TBL jack. Note that a click is heard as the plug is inserted.
- 3.58 Proceed as described in 3.55, then remove all the plugs from the trunk jacks.

(C) Test of Idle Indicating Lamps

- 3.59 Observe that the idle indicating lamps of the first idle trunk of the group are lighted. Check all sections to see that the multiple appearances of the lamps are also lighted.
- 3.60 Insert the plug of an idle cord into the first idle trunk jack. Observe that the idle indicating lamps associated with the jack are extinguished and the next idle lamps are lighted. Check each multiple appearance of these lamps.

- 3.61 Leave the plug inserted in each tested jack and repeat the operation on each of the succeeding jacks in the group until all the associated idle lamps have been checked.

- 3.62 Remove the plugs from the jacks of the trunk group.

(D) Operation Test of the Ring-up Relay of Incoming and Two-way Central Office Trunks

Trunks from Manual Central Office

- 3.63 Call the central office operator over any outgoing trunk except the one to be tested. Request her to ring on the trunk to be tested.
- 3.64 Observe that the trunk lamps light without flickering when ringing current is applied.
- Note: When testing two-way trunks note that the idle indicating lamp is extinguished when ringing is applied to the line and that the succeeding trunk lamp is lighted.
- 3.65 Answer the call on the trunk and observe that the line lamps are extinguished.

Trunk from a Dial Office

- 3.66 Dial the test desk and give the attendant the number of each trunk to be tested. Request him to ring on the first trunk and disconnect the cord.
- 3.67 When the attendant rings, observe that the trunk lamps light without flickering.
- 3.68 When testing two-way trunks, note that the idle indicating lamps, if lighted, are extinguished and those of the next trunk are lighted.
- 3.69 Answer the call and observe that the line lamps are extinguished.
- 3.70 When the first trunk has been tested request the test desk attendant to ring on the next trunk and proceed as in 3.67 and 3.69.
- 3.71 Repeat the operations in 3.67 to 3.69 inclusive on each succeeding trunk until all trunks of the group have been tested.

(E) Operation Test of Outgoing and Two-way Trunks

Trunks to Manual Central Office

- 3.72 On two-way trunks, observe that all indicating lamps are lighted on the first idle trunk of a group.
- 3.73 Using a regular switchboard cord and the attendant telephone set, call the operator over this trunk. When the call is answered request the operator to leave the cord up until a disconnect signal is received.
- 3.74 Observe that all indicating lamps are lighted on the next higher idle numbered trunk.
- 3.75 Leave the cord in the first trunk and call the central office operator on the next trunk, using another cord. Request that she leave her cord up until she receives a disconnect signal.

Note: The P B X and central office cords must be left up on all trunks of the group preceding the trunk under test.

- 3.76 Repeat the test in 3.73 and 3.74 on succeeding trunks until all trunks have been checked for proper indicating lamp operation.
- 3.77 When the test has been applied to all trunks in the group withdraw the plug from each trunk in turn, beginning at the last trunk.

Trunks to Panel or Crossbar Central Office

- 3.78 Observe that all indicating lamps are lighted on the first trunk of the group of trunks to be tested.
- 3.79 Insert the plug of an idle front cord into the trunk jack. When dial tone is heard dial the permanently made busy number in the panel or crossbar office. Note that busy tone is heard in the receiver.
- 3.80 Observe that all indicating lamps of the second trunk are lighted.

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3.81 Leave the cord in the first trunk and proceed as in 3.79 on the second trunk. When the central office connection has been established, observe that the indicating lamps of the next trunk of the group are lighted.

3.82 Test each successive trunk in the same manner leaving the cords up throughout the test. Then repeat the operation under 3.77.

Trunks to Step-by-Step Central Office

3.83 Observe that all indicating lamps are lighted on the first trunk of the group to be tested.

3.84 Insert a switchboard cord into the trunk and when dial tone is heard, dial the connector multiple test line number in a non-reverse battery connector group in the office. Note that an interrupted tone is heard in the receiver.

3.85 Continue the tests as in 3.83 and 3.84 inclusive.

Note: If a connector multiple test line number in a non-reverse battery connector group in the office is not available, dial zero and when the operator answers, request that she leave the cord up until a disconnect signal is received. Conduct the tests covered under 3.74 to 3.77 inclusive.

(F) Operation Tests of Interposition Trunks

Jack Ended Trunks

3.86 Insert a front switchboard cord into an outgoing jack of the trunks. Observe that all trunk lamps associated with this trunk light steadily. Note that the cord supervisory lamp is extinguished when a cord is inserted into one of the corresponding jacks at the other end of the trunk. Observe that the supervisory lamps in both cords are extinguished. Remove the cords.

Jack and Plug Ended Trunks (606-A or 702-A P B X 'S Only)

3.87 Observe that the idle indicating lamp of the first interposition trunk circuit in the group is lighted. Check that the associated indicating lamps are lighted in all appearances.

3.88 Insert the plug of an idle front cord into the trunk jack. Observe that the idle indicating lamps are extinguished and the idle indicating lamps on the next idle trunk are lighted. Check that the guard and disconnect lamp at the terminating end of the trunk circuit lights.

3.89 Insert the plug of the interposition trunk cord into an extension line jack having its tip and ring terminals short-circuited. Observe that the guard and disconnect lamps of the circuit and the front cord supervisory lamp are extinguished.

3.90 Remove the front cord from the trunk jack. Observe that the indicating lamp and guard and disconnect lamps relight. Remove the plug of the interposition trunk cord from the short-circuited extension line jack. The guard and disconnect lamps will be extinguished, restoring the circuit to normal.

(G) Operation Tests of Trouble Intercepting Trunks

Test of Plug Ended Trunks (606-A or 702-A P B X 'S Only)

3.91 Insert the intercepting plug into a multiple jack of a station line circuit without relay equipment.

3.92 Insert a rear cord into an idle station line jack and the associated front plug into a multiple jack appearance of the line into which the intercepting plug has been inserted. Observe that the lamp associated with the intercepting jack lights.

3.93 Insert a rear cord into the intercepting jack and note that the lamp is extinguished.

3.94 Insert the plugging up cord into the jack of the jack box on the distributing frame and short the tip and ring conductors of the W2F cord or the two tip conductors of the W4G cord.

3.95 At the switchboard observe that the associated TBL (trouble) lamp is lighted when the TR (trouble release) key is normal (pulled out). Operate (push in) the TR key and observe that the lamp is extinguished.

3.96 Insert an idle front cord into the TBL (trouble jack) and note that the lamp relights.

3.97 Restore the key and observe that the lamp is extinguished. Disconnect the cord and observe that the lamp relights.

3.98 Disconnect the cord at the distributing frame jack box to restore the circuit to normal.

Test of Plugging Up Line Circuit and Trouble Indicating Circuit

3.99 To test the equipment associated with the trouble jack, insert the No. W4AD cord with the green and red leads clipped together, into the jack of the frame jack box.

3.100 Repeat the tests described in 3.95 to 3.98.

3.101 To test the equipment associated with the intercept jack, insert the 298A or B plug of the W4AL or the W4AG cord into the jack of the frame jack box and connect the other end with an idle station line.

3.102 At the switchboard plug an idle front cord into the associated station jack.

3.103 Operate the cord circuit ring key and observe that the INCPT lamp lights when ringing is applied.

3.104 Insert the front cord of another idle cord circuit into the INCPT jack and observe that the INCPT lamp is extinguished.

3.105 Remove all the cords and restore the circuit to normal.

(H) Operation Test of Outgoing Dialing Trunks to Selector (606-A or 702-A P B X 's Only)

3.106 Observe that the idle indicating lamps are lighted on the first trunk of the group and insert a front switchboard cord into a multiple jack of this trunk.

3.107 Observe that the indicating lamps are extinguished and those of the next trunk light.

3.108 Observe that front supervisory lamp lights.

3.109 Dial a tie trunk number (also the number of a station if a repeating tie line is selected) and when the distant attendant or party answers, observe that the supervisory lamp in the cord is extinguished.

3.110 Request the called party to disconnect and remove the cord from the jack.

3.111 Reinsert the cord in the jack to hold the trunk and light the indicating lamps of the succeeding trunk.

3.112 When the test has been applied to all trunks, remove the cords from each trunk, beginning at the last trunk.

4. REPORTS

4.01 The required record of these tests should be entered on the proper form.