

OUTGOING INTEROFFICE TRUNKS  
OPERATION TESTS  
USING TEST SET SD-31858-01 (J34701A)  
355A COMMUNITY DIAL OFFICES

1. GENERAL

1.01 This section describes tests of outgoing trunks from No. 355A community dial offices to other step-by-step, panel, or crossbar offices or to manual offices, local or toll, using test set SD-31858-01 (J34701A).

1.02 This section is reissued to delete No. 356A offices from the title, and to include tests to panel and crossbar offices under Test A. The previous Test C is changed to Test D and a new Test C is added to cover tests of the dial back operation feature of trunks used between dial offices and local or toll operator offices. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 The tests covered are:

**A. Operation Test of Outgoing Trunks to Step-by-Step, Panel, or Crossbar Offices:**

This test checks pulsing, supervision, and continuity of outgoing trunks, including outgoing end of 2-way trunk.

**B. Operation Test of Trunks to Manual Offices, Local or Toll:**

This test checks signaling, supervision, and continuity of outgoing trunks to an operator office. It also tests class of service tones, where provided.

**C. Operation Test of Trunks to Step-by-Step or Manual Offices, Local or Toll, Arranged for Dial Back Operation — SD-30889-01 and SD-30890-01:**

This test checks signaling, supervision, and continuity of outgoing trunks to step-by-step or manual offices, local or toll, which are arranged for dial back operation. It also tests class of service tones, where provided.

**D. Fuse Failure Make-Busy Test:** This test checks the self-busy feature of the trunk on the operation of the battery supply fuse.

1.04 Test A will require actions and verifications in the distant office if connector multiple test line, final multiple test line, or incoming trunk test line is not provided.

1.05 Test B will require actions and verifications at the switchboard.

1.06 Test C will require actions and verifications at the switchboard and also at the distant office if connector test line is not provided.

1.07 Parts of Test C are made with all trunks of a group made busy.

1.08 Before performing Test A it will be necessary to determine the type of verification (ringing induction if any, tone, and supervision) provided by the test line in the distant office.

1.09 The test equipment specified in this section is designed to apply proper marginal tests (simulated critical circuit conditions) when the circuit under test and the test equipment have an applied voltage of 48.5 to 50. In those offices where power plants are normally operated at more than 50 volts, the battery voltage should be reduced and maintained within the required limits while the tests are being made.

1.10 **Lettered Steps:** A letter a, b, c, etc, added to a step number in Parts 3 and 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

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

**2. APPARATUS**

**2.01** The apparatus required for each test is shown in the following list. The details of the items are covered in the indicated paragraphs.

APPARATUS	NO. REQUIRED FOR TESTS			
	A	B	C	D
Test Set (2.02)	1	1	1	—
Head Telephone Set (2.03)	1	1	1	—
Patching Cord (2.04)	*	*	*	—
Testing Cord (2.05)	*	*	*	—
Patching Cord (2.06)	1	1	1	—
Testing Cord (2.07)	—	1	1	—
Testing Cord (2.08)	—	—	—	1
Make-Busy Plugs (2.09)	—	—	—	1
Testing Cord (2.10)	—	—	—	1

\* As required

**Tests A, B, and C**

**2.02** Test Set J34701A (SD-31858-01)

**2.03** Head Telephone Set

**2.04** P3E Cord, 6 feet long, equipped with two No. 310 Plugs (3P7A Cord) for use when the trunk test jack is a No. 458A Jack or equivalent. An additional cord is required for use where a battery supply jack is available.

**2.05** W2M Cord, 9 feet long, equipped with one No. 310 Plug and two No. 59 Cord Tips (2W12A Cord) (for use where a battery supply jack is not available).

**2.06** P3H Cord, 10 feet long, equipped with one No. 310 Plug and one No. 240A Plug (3P2A Cord) (for use when the trunk test jack is a No. 328 Jack, or equivalent). This 240A Plug will also be used for connecting to the selector test jack where a trunk test jack is not provided or where the sleeve of the trunk test jack is not connected to the S lead of the trunk circuit.

**Tests B and C**

**2.07** W1B Cord, 10 feet long, equipped with one No. 310 Plug and one KS-6780 Connecting Clip with one No. 108 Cord Tip (1W5A Cord).

**Test D**

**2.08** Headset composed of one No. 716C Receiver attached to a W2AB Cord, 6 feet long, equipped with two No. 360A Tools (2W21A Cord), one No. 365 Tool and one No. 411A Tool (test pick).

**2.09** No. 258C (make-busy) Plugs or No. 477A (make-busy) Tools, as required.

**2.10** W1U Cord, 1 foot 8 inches long, equipped with one No. 2 Test Clip and one KS-6780 Connecting Clip, as required. (For use when trunk test jacks are not provided.)

**3. PREPARATION**

STEP	ACTION	VERIFICATION
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**TESTS A, B, AND C**

*Note:* To avoid possible grounding of the battery supply lead, connect battery supply cord to the test set first and when disconnecting, remove the cord from the test set last.

1a If battery supply jack is available —  
Using P3E cord, patch BAT G jack of test set to 48-volt battery supply jack.

2b If battery supply jack is not available —  
Insert No. 310 plug of W2M cord into BAT G jack and connect red (sleeve) conductor to frame ground and white (tip) conductor to equipment side of a convenient fuse (not over 3 amperes).

STEP	ACTION	VERIFICATION
3	Connect head telephone set to test set TEL jack.	
4	Operate TRS key.	
5c	If trunk test jacks are provided — Connect P3E cord to T jack of test set.	
6d	If trunk test jacks are not provided and test is being made at a selector having access to trunk to be tested — Connect P3H cord to T jack of test set.	

**TESTS B AND C**

7e	If class of service tone is provided on trunk — Operate BY key on test set.	
8e	Determine type of service tones provided on trunks from office records.	
9e	Connect W1B cord from CL jack of test set to "A" lead terminal of trunk under test, or to "A" lead wiper cord terminal when testing from a selector.	
10f	If trunk is arranged for one class of service tone — Operate TR key before connecting to trunk when 221- or 222-type relays are used in class of service tone circuit, or NTR or PTR key when Y-type relays are used.	
11g	If trunk is arranged for two classes of service tone — Observe that TR-NTR or TR-PTR keys are normal.	

**4. METHOD**

STEP	ACTION	VERIFICATION
<b>A. Operation Test of Outgoing Trunks to Step-by-Step, Panel, or Crossbar Offices</b>		
7e	If test is to be made from a first selector associated with a line finder circuit in which the AB lead is normally extended through contacts of the VON spring assembly — Operate associated line finder MB key.	
8c	If trunk test jacks are provided — Connect free plug of P3E cord to test jack of trunk to be tested.	BSY lamp does not light. <i>Note:</i> If BSY lamp lights proceed to another trunk.
9c	Operate LP and DL ST keys.	SL lamp lights.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
10d	If trunk test jack is not provided and test is being made at a selector having access to trunk to be tested — Connect 240A plug of P3H cord to selector test jack.	
11d	Operate LP and DL ST keys.	
12d	Dial switch to proper level.	Selector steps to level dialed, rotates smoothly to first idle trunk. SL lamp lights.
13d	If necessary, select trunk to be tested on level dialed by removing switch cover and operating off-normal springs to rotate selector wipers to proper trunk.	
14	Restore DL ST key.	SL lamp remains lighted.
15f	If connector multiple test line, final multiple test line, or incoming trunk test line is available in the distant step-by-step, panel, or crossbar office — Dial the terminal which is associated with the test line in the distant office.	When test line is seized — Ringing induction, if provided, is heard for at least one ringing interval. Ringing tripped. REV lamp indicates supervision and tone is heard in headset according to type of test line called.
16g	If connector multiple test line final multiple test line, or incoming trunk test line is not provided in distant office — Dial the distant office telephone.	When distant telephone is answered — Ringing is tripped. REV lamp lights if distant number is arranged to give reverse battery supervision. Observe that transmission is satisfactory to distant office.
17g	At distant office — Replace receiver on switchhook.	REV lamp extinguished if lighted.
18	Restore LP key.	
19	Operate and hold FL key.	SL lamp extinguished. REV lamp extinguished if lighted.
20	Release FL key.	
21	Unless other trunks are to be tested — Restore all keys and remove all test connections.	
22e	If test was made from first selector — Restore associated line finder MB key.	

**B. Operation Test of Trunks to Manual Offices, Local or Toll**

12h	If test is to be made from a first selector associated with a line finder circuit in which the AB lead is normally extended through contacts of the VON spring assembly — Operate associated line finder MB key.
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STEP	ACTION	VERIFICATION
13c	If trunk test jack is provided — Connect free plug of P3E cord to test jack of trunk to be tested.	BSY lamp does not light. <i>Note:</i> If BSY lamp lights proceed to another trunk.
14c	Operate LP and DL ST keys.	SL lamp lights.
15d	If trunk jack is not provided and test is being made at a selector having access to trunk to be tested — Connect 240A plug of P3H cord to selector test jack.	
16d	Operate LP and DL ST keys.	
17d	Dial switch to proper level.	Selector steps to level dialed, rotates smoothly to first idle trunk. SL lamp lights.
18d	If necessary, select trunk to be tested on level dialed by removing switch cover and operating off-normal springs to rotate wipers to proper trunk.	
19	Restore DL ST key.	SL lamp remains lighted. Audible ringing induction heard. <i>Note:</i> If call is answered at switchboard in less than 4 seconds, audible ringing induction may not be heard. When call is answered — Audible ringing ceases. Transmission satisfactory. REV lamp lights on trunks designed to furnish reverse battery supervision. At switchboard — Proper class of service tone heard, if provided. <i>Note:</i> For trunks not arranged for reverse battery supervision, REV lamp does not light.
20f	If trunk is arranged for one class of service tone — At switchboard — Remove plug from trunk jack and reinsert it.	Same tone heard at switchboard as in Step 19. SL lamp remains lighted. REV lamp, if lighted, is extinguished and relighted.
21f	Restore TR, NTR, or PTR key, if operated.	
22g	If trunk is arranged for two classes of service tone — Operate TR key.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
23g	At switchboard — Remove plug from trunk jack and reinsert it.	Same tone heard at switchboard as in Step 19. SL lamp remains lighted. REV lamp, if lighted, is extinguished and relighted.
24g	Restore TR key.	
25g	Operate PTR or NTR key.	
26g	At switchboard — Remove plug from trunk jack and reinsert it.	Different tone heard at switchboard from that in Step 19. SL remains lighted. REV lamp, if lighted, is extinguished and relighted.
27i	If charge feature is provided — At switchboard — Operate charge key.	REV lamp lights while key is operated.
28j	If trunk is arranged for recalling subscriber — At switchboard — Ring back on trunk upon receipt of disconnect signal.	
29j	Operate RR key.	
30j	Operate and hold FL key.	RR lamp lights on ringback. Disregard flashing of REV lamp.
31j	Restore FL and RR keys.	
32	At switchboard — Observe supervision.	
33	Operate and restore FL key three times to test holding and supervision.	Switchboard cord lamp flashes in unison.
34	Operate and hold FL key.	When switchboard disconnects on receipt of disconnect signal — SL lamp extinguished. REV lamp extinguished.
35	Unless other trunks are to be tested — Restore all keys and remove all test connections.	
36h	If test was made from first selector — Restore associated line finder MB key.	
<b>C. Operation Test of Trunks to Step-by-Step or Manual Offices, Local or Toll, Arranged for Dial Back Operation — SD-30889-01 and SD-30890-01</b>		
12h	If test is to be made from a first selector associated with a line finder circuit in which the AB lead is normally extended through contacts of the VON spring assembly — Operate associated line finder MB key.	

STEP	ACTION	VERIFICATION
13j	If trunk test jack is provided and sleeve of test jack is connected to "S" lead of circuit — Connect free plug of P3E cord to test jack of trunk to be tested.	BSY lamp does not light. <i>Note:</i> If busy lamp lights proceed to another trunk.
14j	Operate LP and DL ST keys.	SL lamp lights.
15d	If trunk jack is not provided and test is made at a selector having access to trunk to be tested — Connect 240A plug of P3H cord to selector test jack.	
16d	Operate LP and DL ST keys.	
17d	Dial switch to proper level.	Selector steps to level dialed, rotates smoothly to first idle trunk. SL lamp lights.
18d	If necessary, select trunk to be tested on level dialed by removing switch cover and operating off-normal springs to rotate wipers to proper trunk.	
19	Restore DL ST key.	SL lamp remains lighted. Audible ringing heard.
20	At switchboard — Answer trunk signal.	Audible ringing ceases. REV lamp lights. Transmission satisfactory. At switchboard — Class of service tone heard, if provided.
21	At switchboard — Observe supervision.	
22	Operate and restore test set FL key slowly three times to test holding and supervision.	REV lamp flashes. At switchboard — Switchboard cord lamp flashes in unison with FL key.
23f	If trunk is arranged for one class of service tone — At switchboard — Remove plug from trunk jack and reinsert it.	SL lamp remains lighted. REV lamp flashes. At switchboard — Trunk signal relights while plug is removed. Same tone heard as in Step 20, if provided.
24f	Restore TR, NTR, or PTR key, if operated.	
25g	If trunk is arranged for two classes of service tone — Operate TR key.	
26g	At switchboard — Remove plug from trunk jack and reinsert it.	SL lamp remains lighted. REV lamp flashes. At switchboard — Trunk signal relights while plug is removed. Same tone heard as in Step 20, if provided.

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STEP	ACTION	VERIFICATION
27g	Restore TR key.	
28g	Operate PTR or NTR key.	
29g	At switchboard — Remove plug from trunk jack and re-insert it.	At switchboard — Different tone heard from that in Step 20.
30k	If connector multiple test line is available in local or outlying community dial office — At switchboard — Dial a preliminary digit (3) and then dial multiple test line number in local or outlying community dial office over trunk under test.	Dial pulses not heard in test receiver. Audible ringing induction heard in test receiver. At switchboard — Dial tone heard after digit 3. Switchboard cord lamp relights. When test number is seized — Audible ringing induction ceases. Tone is heard according to type test line called. At switchboard — Switchboard cord lamp flashes according to type test line called.  <i>Note:</i> Either the calling or called party may flash the switchboard provided the other party's receiver is off the hook. If switchboard remains on the connection both parties and the switchboard must release before circuit is restored to normal.
31k	At switchboard — Disconnect from trunk and after short interval — Redial called number.	At switchboard — Busy indication will be received.
32k	Observe that tone is still heard according to type test line dialed in 30k.	REV lamp flashes.  <i>Note:</i> When switchboard disconnects from circuit, the connection to this circuit can not be re-established by the switchboard. However, the 2-way operator office trunk associated with the one-way automatic trunk is free to be used by the switchboard on other incoming calls to the local or outlying dial office.
33k	Operate and hold FL key.	SL lamp extinguished. REV lamp extinguished.
34m	If connector multiple test line is not available in local or outlying community dial office — At switchboard — Dial a preliminary digit (3) and then dial an office telephone in local or outlying community dial office over trunk under test.	Dial pulses not heard in test receiver. Audible ringing heard in test receiver. At switchboard — Dial tone heard after digit 3. When call is answered — Audible ringing ceases. Transmission satisfactory.

STEP	ACTION	VERIFICATION
35m	Operate and restore FL key slowly three times.	REV lamp flashes. SL lamp remains lighted. At switchboard — Switchboard cord lamp flashes in unison with FL key.
36m	At called telephone — Operate switchhook.	At switchboard — Switchboard cord lamp flashes.  <i>Note:</i> Either the calling or called party may flash the switchboard, provided the other party's receiver is off the hook. If switchboard remains on the connection both parties and the switchboard must release before circuit restores to normal.
37m	At switchboard — Disconnect from trunk and after short interval — Redial called number.	At switchboard — Busy indication will be received.  <i>Note:</i> When switchboard disconnects from circuit, the connection to this circuit can not be re-established by the switchboard. However, the 2-way operator office trunk is free to be used by the switchboard on other incoming calls to the local or outlying community dial office.
38m	At called telephone — Replace receiver on switchhook.	Transmission still satisfactory to called telephone after switchboard disconnects.
39m	Operate and hold FL key.	REV lamp extinguished.
40	Release FL key.	SL lamp extinguished.
41	At switchboard — Answer trunk signal. Check that busy indication was received at switchboard in Step 31k or 37m.	SL lamp lighted.
42n	If trunk circuit is arranged to provide flashing signals on busy line — Busy an office telephone line in the approved manner — At switchboard — Dial the line made busy.	REV lamp lighted. Busy indication verified by switchboard.
43n	Remove busy from line.	At switchboard — Switchboard cord lamp flashes.
44p	If trunk circuit is arranged to provide flashing signals on busy trunk groups — Busy, momentarily, a trunk group in the approved manner — At switchboard — Dial level of the group made busy.	At switchboard — Switchboard cord lamp flashes.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
45p	Remove make-busy from trunks.	
46	Momentarily busy all trunks in the group being tested in the approved manner and with hand test set — Dial level connecting to this trunk group.	Busy tone heard indicating busy trunk group.
47	Remove make-busy from trunks.	
48q	If intercept trunk is connected to dial back trunk — At switchboard — Dial a line connected to intercept.	At switchboard — Short spurt of intercept tone received.
49q	At switchboard — Release dialed test call.	
50	At switchboard — Disconnect upon receipt of disconnect signal.	
51	Operate and hold FL key.	SL lamp extinguished.
52	Unless other trunks are to be tested restore all keys and remove all test connections.	
53h	If test was made from first selector restore associated line finder MB key.	

**Test of Trunks from an Outlying Office Connecting to Dial Back Trunks**

54	If a trunk from an outlying office is connected to the dial back trunk — In outlying office — Dial proper digit to connect to dial back trunk, using dial hand test set.	Audible ringing heard. Trunk signal lights on switchboard.
55	At switchboard — Answer trunk signal.	Audible ringing ceases. Transmission satisfactory.
56	At switchboard — Observe supervision.	
57	Operate and restore TALK key of handset slowly.	At switchboard — Switchboard cord lamp flashes with handset key.
58s	If connector multiple test line is provided in community dial office — At switchboard — Dial a preliminary digit (3) and then dial connector multiple test line in community dial office over trunk being tested.	When test line is seized — Ringing induction, if provided, is heard for at least one ringing interval. Ringing tripped. Tone heard in handset according to type test line called. At switchboard — Switchboard cord lamp flashes according to type test line called.

STEP	ACTION	VERIFICATION
59s	At switchboard — Disconnect from trunk.	Tone still heard in handset in accordance with test line called.
60t	If connector multiple test line is not provided in community dial office — At switchboard — Dial preliminary digit (3) and then dial telephone number in community dial office over trunks being tested.	
61t	At called telephone — Answer telephone.	Audible ringing ceases. Transmission satisfactory.
62t	At called telephone — Operate switchhook.	At switchboard — Switchboard cord lamp flashes.
63t	At switchboard — Disconnect from trunk.	Transmission to called telephone still satisfactory.
64t	At called telephone — Replace receiver on switchhook.	
65	Disconnect from trunk.	

#### D. Fuse Failure Make-Busy Test

1	Connect KS-6780 connecting clip of WIU cord associated with test receiver to equipment side of a spare battery fuse.	
2	Momentarily connect test pick attached to test receiver to sleeve of trunk to be tested.	No click is heard. <i>Note:</i> If click is heard, trunk is busy. Delay test until trunk is idle, or proceed to another trunk.
3	Ground sleeve of trunk selected by inserting make-busy plug in trunk jack.	
4	Remove battery fuse of trunk under test.	
5	Momentarily remove make-busy plug.	
6	Immediately connect test pick to sleeve of trunk.	Click heard in test receiver.
7	Remove test pick from sleeve of trunk.	
8	Immediately replace make-busy plug in trunk jack.	
9	Replace battery fuse of trunk.	
10	Remove make-busy plug from trunk jack.	