Installation Engineering Handbook 59
Western Electric Company, Incorporated
Hawthorne Works

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Section 111
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OUTGOING TRUNK, TO SENDER TANDEM,

FOR DIAL COIN ZONE SERVICE

CONTENTS

1. GENERAL INFORMATION

1.1 Description: This section describes the tests to be applied to the Outgoing Trunk Circuit, to Sender Tandem, arranged for Dial Coin Zone Service, SD-96366-01. The Coin Trunk Test Set, SD-96372-01 (J94721), is used for applying the routine tests.

1.2 Test Method: When cross-connections are installed by the Western Electric Company, the routine test should be made between the trunk frame and the switchboard using the test set-up shown in Figure 1 (see Paragraph 4.1). The test is outlined in Paragraphs 6.01 to 6.20. When cross-connections have not been installed, the routine test should be made between the trunk frame and the distributing frame using the test setup shown in Figure 2 (see Paragraph 4.2). The test is outlined in Paragraphs 6.01 to 6.14 and 6.21 to 6.26. All other tests outlined herein should be made for either condition.

1.3 Sequence of Test: It is recommended that the supplementary tests be made first and that the routine tests be made in the sequence as prepared.

2. RECORDS AND REQUIREMENTS

2.1 Records

2.11 Forms SD-4-1313 and SD-4-1315 are required for recording the results of these tests. For further information see Handbook 3, Section 6B.

2.2 Requirements

2.21 A routine test consists of applying the operations of Paragraph 6, to each trunk, clear of trouble over the last two cycles:

Min. 1-6 days
Max. 1-1 day

3. TEST EQUIPMENT

3.1 Test Sets

Note	Amt	Code	Description
T	1	J94721	Coin Trunk Test Set
%	2	ITE-4011	Trunk Test Set
	1	ITE-4034	Volt-Ohmmeter
	1	ITE-4631	Test Receiver

3.2 Cords

Note	Amt	Code or ITE	Lgth	Cdrs	One End	Other End	With Set
T	3	3P7A	6'	3	310 Plug	310 Plug	J94721
T	1	3P12E	6'	3	309 Plug	310 Plug	J94721
T	1	3P15A	6'	3	310 Plug	310 Plug	J94721
	1	9547	12'	1	ITE-2455	ITE-2455	ITE-4011
	13	9548	9"	1	ITE-2455	ITE-2455	ITE-4011
%	2	9601	12'	3	310 Plug	310 Plug	ITE-4011
%	3	9639	12'	3	310 Plug	3-ITE-2455	ITE-4011

3.3 Accessories

Note	Amt	Code	Description	With Set
T	1	52A	Opr. Tel. Set	J94721
%	2	ITE-9650	Opr. Tel. Set	-
k	1	KS-3008	Stop Watch	-
	As Req.	ITE-8507	Alligator Clip	ITE-4011

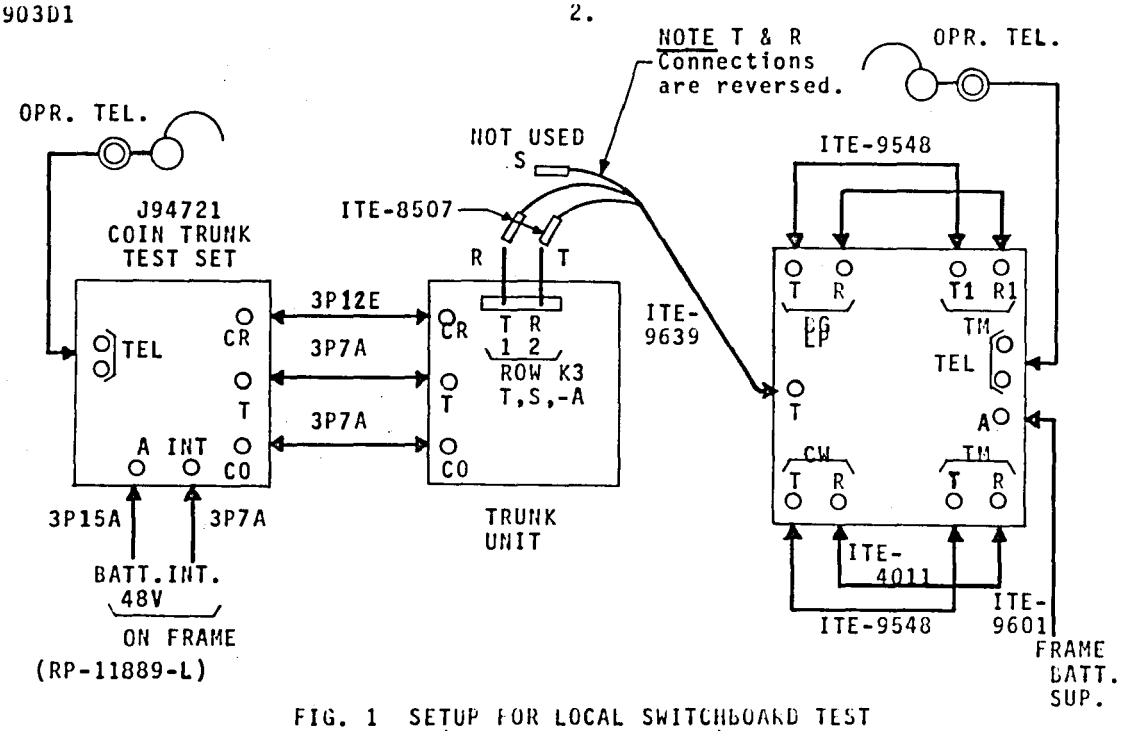

FIG. 1 SETUP FOR LOCAL SWITCHBOARD TEST
(para. 6.01 to 6.20)

3.4 Notes

T - Telephone Company maintenance equipment which should be available on the job and need not be requisitioned.

R - Requisition.

% - When Figure 1 test setup is used (see Paragraph 1.2), only 1 required.

4. TEST SETUP

4.1 Figure 1 is used when testing from the local switchboard. The ITE-4011 test set is located at the trunk frame and substitutes the functions of the sender tandem office.

4.2 Figure 2 is used when the cross-connections have not been installed and when the test is made from the distributing frame. Two ITE-4011 test sets are required. Test set A substitutes the functions of the sender tandem office and test set B substitutes the functions of the local switchboard. Both ITE-4011 test sets are located at the distributing frame.

5. SUPPLEMENTARY TESTS

5.1 Wiring Between Frames: Verify the following wiring for continuity and crosses. See Handbook 50, Section 2.

From	To
T.S.A, row K2, Term 1,	Distributing Frame 2,3, (also 4, X-Bar only) 5,6,9,10,13 & 14.
T.S.A, row K3, Term 1,	Distributing Frame 2&3. (also 4, X-Bar only).
T.S.A, row K3, Term 11	Distributing Frame 12,13,14 (Lamp Leads).

5.2 Cross-Connections: When cross-connections are installed by the Western Electric Company, any portion that is not used for the Routine test, shall be verified for continuity and crosses.

5.3 Fusing

5.31 Using a test receiver or volt-ohmmeter, check the specified fuse posts for absence of battery and ground.

5.32 Using fuses of correct type as indicated by circuit drawing and fuse panel designations, install the fuses one at a time. Check at one point in the circuit that each fuse is associated with its proper equipment and is free from crosses with other unfused posts on the fuse panel.

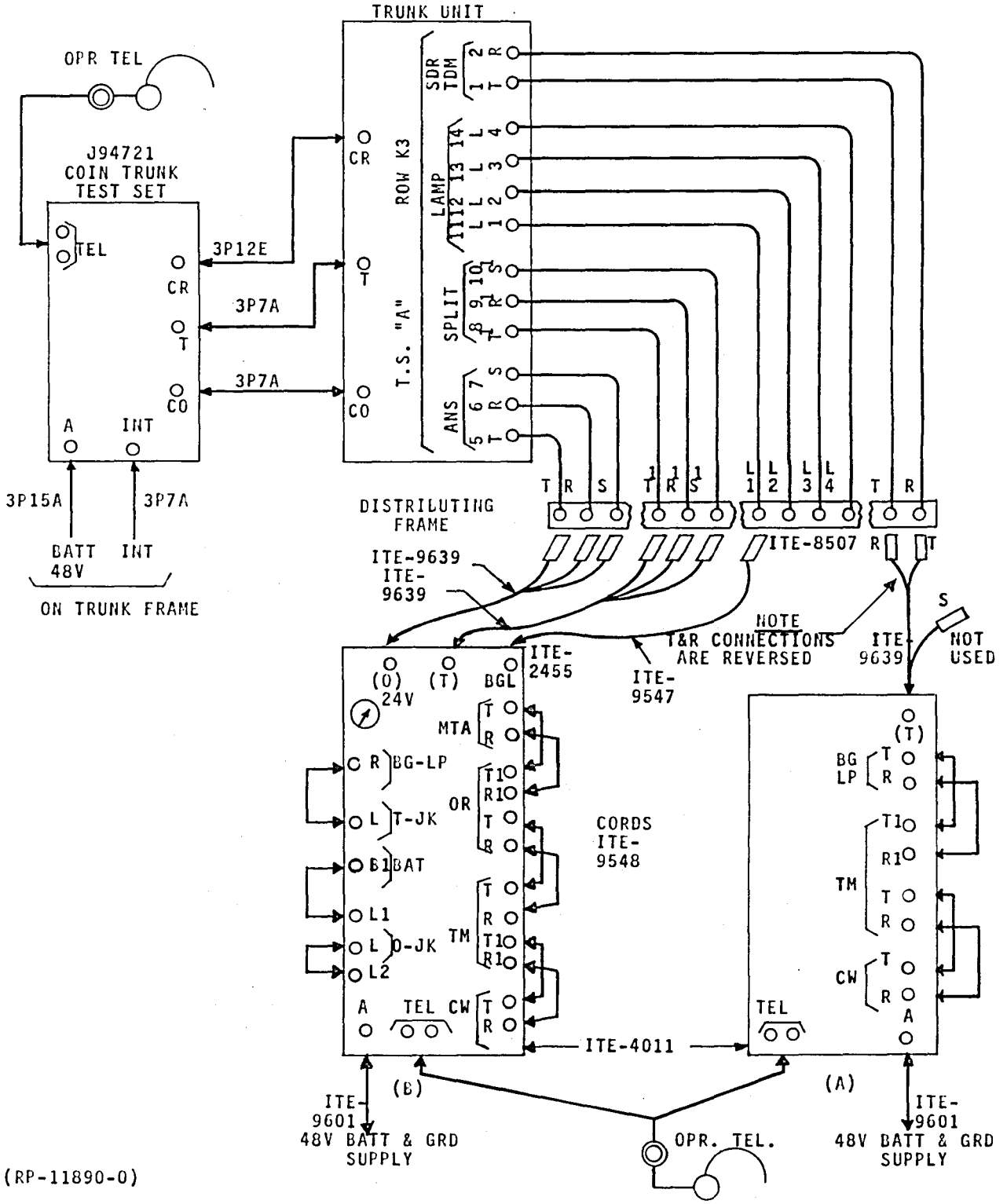

FIG. 2 SETUP FOR DISTRIBUTING FRAME TEST
w/o Cross Connections
(Para. 6.01 to 6.14, 6.21 to 6.26)

5.4 Traffic Register: Manually operate the P1 relay and with the test receiver, test for ground on T.S. A, row K3 Term. 15, separately for each trunk. Test for absence of ground with P1 relay normal. Also verify the wiring between trunks and between the trunk frame and distributing frame in accordance with the job specification.

5.5 Line Discharge Feature

5.51 This test verifies the E resistance that is connected across the tip and ring just prior to coin test.

5.52 Fusing is not required, but if already installed, will not interfere with test.

5.53 Block normal the D and SP relays. Block operated the C and CR relays. Insulate contacts 1T-2T, and 1B-2B, of relay SP. This disconnects the A relay. Insert a cord in the CR jack.

5.54 Using the volt-ohmmeter, verify the tip and ring of the cord for absence of battery or ground or any circuit closure between them.

5.55 Block operated the CC relay and insulate the lower 3 and 4 contacts. Using the volt-ohmmeter, verify that there is a 100 ohm closure between the tip and ring of the cord, plus or minus 10%.

5.56 Block operated the BY relay. Using the volt-ohmmeter, verify that there is a 50 ohm closure between the tip and ring of the cord, plus or minus 10%.

5.57 block operated the Z relay. Using the volt-ohmmeter, verify that there is a 0 to 5 ohm closure between the tip and ring of the cord.

5.58 Remove the insulation from the CC and SP relays and the blocks from relays C, D, CT, CC, BY, SP, Z and the cord from the CR jack. Check that all relays restore to normal.

5.6 Interrupters

5.61 General

5.611 During this test, the front and back contact and armature circuits, for each interrupter, will be verified by applying battery or ground thru a test receiver and also by the manual operation of relays.

5.612 After the test is completed on one contact, all relays that were blocked should be restored to normal before starting the test on the other contact or on the armature.

5.613 Insulate the armature from both contacts during the test, unless otherwise specified.

5.614 Check to see that the 1B timer is normal.

5.62 CH Interrupter

5.621 Front Contact: Operate I relay. Ground placed on contact will operate the CH relay.

5.622 Back Contact: Ground placed on contact will operate the I relay.

5.623 Armature: Test for absence of ground. Operating relays W1, CH, IC, places ground on the armature.

5.63 OT Interrupter

5.631 Front Contact: No wiring.

5.632 Back Contact: Operate relays A, IC, OT. Ground placed on contact will operate LP relay.

5.633 Armature: Test for absence of ground. Operating relay A2 places ground on the armature.

5.64 CN Interrupter

5.641 Front Contact: No wiring

5.642 Back Contact: Test for absence of ground. Operating relay CC places ground on the contact.

5.643 Armature: Insulate contact 2 top of Z relay and block relay normal. Ground placed on the armature of the interrupter will make the W relay chatter.

5.65 C Interrupter

5.651 Front Contact: Operate relay TM. Ground placed on contact will operate the CA relay.

5.652 Back Contact: Ground placed on contact will operate the TM relay.

5.653 Armature: Test for absence of gound. block operated relay TA. Test that ground is now present. Remove insulation from between contacts.

Check that, in not less than 5 or more than 12 seconds, relay CA operates and CT lamp lights. Remove block from TA relay. The CT lamp remains lighted. Momentarily operate the RL key. The CT lamp is extinguished. Also check that the aisle pilot and alarm will function when the CA relay operates.

5.66 TO Interrupter

5.661 Front Contact: Test for absence of ground. Operating the CH1 and G relays places ground on the contact.

5.662 Back Contact: Ground placed on contact will operate the CH1 relay.

5.663 Armature: Test for absence of ground. Operating the CT1 relay places ground on the armature.

5.67 RB Interrupter

5.671 Front Contact: No wiring.

5.672 Back Contact: Operate RL relay. Ground placed on contact will operate G relay.

5.673 Armature: Test for ground.

5.68 RF Interrupter

5.681 Front Contact: Ground placed on contact will operate RL relay.

5.682 Back Contact: No wiring.

5.683 Armature: Test for absence of ground. Operating relays TC and CH1, places ground on the armature.

5.7 Test of Figure F

5.71 This test verifies the ringing, coin control and supervisory features associated with DSA switchboard cord circuits.

5.72 Insulate 2 and 3 upper and 2 and 3 lower contacts on relay SP1. Check continuity of the following:

Relay	Contacts
TK	3 to 6 upper
TK	3 to 6 lower

5.73 Apply 48 volt battery to T.S.A, row K3, terminal 5. Check for approximately 230 ohm at 3 upper, and continuous ringing current at 3 lower, contacts of relay TK. Check for absence of ground and ringing current at 6 upper and 6 lower contact, respectively, of relay TK. Remove the 48 volt battery.

5.74 Using an ITE-9547 cord, equipped with alligator clips, apply CC+ current to T.S.A, row K3, terminal 6. This current is available at CC resistance lamp, or if CC+ current is used for coin return, at CR resistance lamp. Using the volt-ohmmeter, check for approximately 110V+ battery at 3 upper and 3 lower contacts of relay TK. Remove the CC+ current from terminal 6 and the insulation from SP1 relay.

5.75 Using the volt-ohmmeter, check for approximately 81 ohm ground at T.S. A, row K3, terminal 7. Short-circuit 7 upper and 7 lower contacts of TK relay. Check that approximately 1800 ohm ground is now present at T.S.A, row K3, terminal 7. Remove the short-circuit.

5.76 Check that 4 lower contact of relay OT is clear of battery. Using an ITE-9547 cord, apply 48 volt battery to T.S. A, row K3, terminal 7. Check that 48 volt battery thru approximately 226 ohms is now present at 4 lower contact of relay OT. Remove the 48 volt battery.

5.77 Check that 10 lower contact of relay TK is clear of battery. Using an ITE-9547 cord, apply 48 volt battery to T.S. A, row K3, terminal 10. Check that 48 volt battery thru approximately 226 ohms is now present at 10 lower contact of relay TK.

6. ROUTINE TESTS

6.01 General Information

6.011 Prepare a test setup as shown in Figure 1 or Figure 2 of Paragraph 4; depending on job conditions (see Paragraph 1.2).

6.012 A separate talking line between the two testers may be found to be heldful.

6.013 The entire test is controlled from the J94721 coin trunk test set. All lamps and keys mentioned are at this test set unless otherwise specified. The CNF key shall be operated for all tests except where otherwise noted. To reduce repetition in the test, some of the unessential lamp signals have been omitted, beginning with Paragraph 6.15.

6.014 Since each trunk has 4 sets of jacks and lamps, it is necessary that tests be made with each set. For convenience, the first jack (10) and lamp (L1) may be used on most of the tests. To assure that the other sets are included, the following arrangement is proposed.

Use CR & CO Jack	Lamp	WHEN TESTING PER PARAGRAPHS
10	L1	6.15 or 6.21
15	L2	6.16 or 6.22
20	L3	6.17 or 6.23
25	L4	6.18 or 6.24

NOTE: When checking Lamp leads L2, L3 and L4, using Paragraphs 6.22, 6.23 and 6.24, it will be necessary to shift the test cord ITE-9547, shown in Figure 2, to terminals L2, L3 and L4, respectively, at the distributing frame.

6.015 It will only be necessary to test the wiring that is equipped.

6.02 Busy Test: If trunk is busy, lamp B lights as a busy indication.

6.03 Idle, Continuity and Polarity Test

6.031 Remove the cord from the trunk CO jack. Operate keys STT and BG in the ITE-4011 test set for the tandem office (test set A, when Figure 2 setup is used). Operate key BT-CP when trunk is idle. Lamp IDL lights, as an idle trunk indication. Lamp CP lights, indicating tip and ring continuity and polarity thru the CR jack and the trunk to the ITE-4011 test set, which represents the tandem office. Lamp H-A1 lights, as an indication that the trunk A1 relay is connected to the tip of the T jack, (but does not operate).

6.032 Release all keys in the ITE-4011 test set for the tandem office.

6.04 Operation of Trunk T and C Relays

6.041 Connect the cord to the CO jack.

6.042 Operate key T-C,O. Lamps IDL and CP are extinguished. Lamps T and R light as an indication that operate current is being applied to the trunk T and C relays. Lamp T-C lights, as an indication of the operation of the trunk T and C relays.

6.05 Operation of Trunk CO Relay Operate key CO and hold it. Lamps T and R are extinguished, as an indication that the tip and ring has been opened to the CO jack. Lamp CO lights, as an indication of the satisfactory operation of the CO relay and release of the C relay in the trunk. Lamp T-C remains lit in a local circuit.

6.06 Release Test of Trunk T Relay

6.061 Release key CO. Lamps T-C and CO are extinguished. Lamps T and R light.

6.062 Operate key T-RL.

6.063 Release key T-C,O. If the test is satisfactory, the T-C lamp will not light. Lamps T and R remain lit. Lamp IDL lights.

6.07 Preparation for Trunk P Relay Test

6.071 Release key T-RL. Lamps T and R are extinguished.

6.072 Operate key T-C,O. Lamps T and R and T-C, light. Lamp IDL is extinguished.

6.073 Release key T-C,O. Lamps T,R and T-C are extinguished. Lamp IDL lights.

6.074 Operate key P. Lamp P lights.

NOTE: If the SG lamp lights, then the trunk P relay has operated falsely.

6.08 Negative Soak Test of Trunk P Relay: Operate key P-NS for 3 or 4 seconds and then release it. If the SG lamp lights, then the trunk P relay has operated falsely.

6.09 Operate Test of Trunk P Relay: Operate key P-OPR for 1 or 2 seconds and then release it. Lamp SG lights, indicating the operation of the trunk P relay. Lamp TG lights, indicating that the trunk has satisfactorily grounded the tip of the CO jack. Lamp TRK-C lights, indicating a trunk closure thru the CR jack to the trunk A relay. Lamp H-A1 is extinguished, indicating the proper operation of the trunk A relay. Lamp P is extinguished.

6.10 Positive Soak Test of Trunk P Relay

6.101 Restore and reconnect the trunk as follows: Operate and release keys A-RL and A1-RL. Release and reoperate key BT-CP. Lamp IDL lights. Operate and release key T-C, O.

6.102 Operate key P. Operate key P-PS for 3 or 4 seconds and then release it. Lamp SG lights, indicating the operation of the trunk P relay and its satisfactory release. Lamp TG lights, indicating that the trunk has satisfactorily grounded the tip of the CO jack. Lamp TRK-C lights, indicating a trunk closure thru the CR jack to the trunk A relay. Lamp H-A1 is extinguished, indicating the proper operation of the trunk A relay.

6.103 Continue with the nonoperate test of Paragraph 6.11 as quickly as possible, before the "Soak" test has lost its effectiveness.

6.11 Nonoperate Test of Trunk P Relay

6.111 Release key P. Restore and reconnect the trunk as follows: Operate and release key A-RL and then A1-RL. Release and reoperate key BT-CP. Lamp IDL lights. Operate and release key T-C, O.

6.112 Operate key P. Operate key P-NO for 3 or 4 seconds and then release it. Lamp SG should not light.

6.12 Operate Test of Trunk A Relay

6.121 Operate and release key P-OPR. Lamp H-A1 is extinguished, indicating the proper operation of the trunk A relay. Lamp TG lights, indicating that the trunk has satisfactorily grounded the tip of the CO jack. Lamp SG lights, indicating the proper operation and release of the trunk P relay. Lamp TRK-C lights, indicating tip and ring closure thru the CR jack. Lamp ANS lights steadily at the switchboard but can be disregarded at this time.

6.122 Release all keys. All lamps are extinguished.

6.13 Disconnect Between Trunk Seizure and Trunk Closure

6.131 Operate key DISC-5-12 and BT-CP. Lamp IDL lights, as an idle trunk indication. Lamp H-A1 lights, as an indication that the trunk A1 relay is connected (but does not operate).

6.132 Operate key T-C, O. Lamp IDL is extinguished. Lamps T and R light, indicating tip and ring continuity. Lamp T-C lights, indicating T jack sleeve closure.

6.133 Release key T-C, O. Lamps T, R and T-C are extinguished. Lamp IDL lights.

6.134 Operate key P. Operate and release key P-OPR. Lamp SG lights, indicating CR jack sleeve closure.

6.135 The TO interrupter functions within an interval of 5 to 12 seconds, causing the trunk to disconnect. Lamp SG is extinguished.

6.136 Using a stop watch or any watch with a second hand, measure the time that takes place between the lighting of the SG lamp and its extinguishment. The time should be between 5 to 12 seconds.

6.137 Release keys DISC-5-12, P and BT-CP. The trunk restores to normal. Lamp IDL is extinguished.

6.14 Disconnect After Trunk Closure Within 5 Seconds

6.141 Operate keys A1-RL, DISC-5-12 and BT-CP. Lamp IDL lights, as an idle trunk indication.

6.142 Operate key T-C, O. Lamp IDL is extinguished. Lamps T and R light, indicating tip and ring continuity. Lamp T-C lights, indicating T jack sleeve closure.

6.143 Release key T-C, O. Lamps T, R and T-C are extinguished. Lamp IDL lights.

6.144 Operate key P. Operate and release key P-OPR. Lamps TG and SG light.

6.145 Immediately (within 5 seconds) after lamp SG lights, release and reoperate key DISC-5-12. Lamps TG and SG are extinguished.

6.146 Release keys A1-RL, DISC-5-12, P, and BT-CP. The trunk restores. Lamp IDL is extinguished.

NOTE 1: Tests per Paragraphs 6.15 to 6.20 are to be made only when cross-connections between the trunk and the DS-A switchboard have been installed.

NOTE 2: One of the last two cycles clear of trouble (see Paragraph 2.2) must be made exactly as directed. On other cycles the 4-1/2 minutes wait may be eliminated by shorting terminals 8 and 9, K3, T.S. B on the trunk until after the CH1 and CH relays operate and until the LP relay begins to pulse. The 1 to 2 or 2 to 4 minutes wait may be eliminated by grounding through a test receiver terminal 4, K2. T.S. CA or CB (odd or even trunks respectively) on the common equipment unit, for about ten seconds after relay RL operates.

6.15 Disconnect After a Minimum Talking Period of 12 Seconds

6.1501 Operate key BT-CP. Operate key T-C, O and then release it. Operate key P. Operate and release key P-OPR. Lamp ANS lights steadily at the switchboard. Also lamps SG, TG and TRK-C light.

6.1502 Insert a talking cord in the switchboard ANS jack associated with the lighted ANS lamp. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at the switchboard. Lamp TRK-C is extinguished. Lamps CR, C and TRK-C light.

6.1503 Talk between the Coin Trunk Test Set and the switchboard.

6.1504 Remove the cord from the switchboard ANS jack. Lamp TG, C and CR are extinguished.

6.1505 Operate keys CS and CS-OPR. Measure a time interval of 12 seconds, using a stop watch or any watch with a second hand.

6.1506 Then operate and release key A-RL. Lamp H-A1 lights, as an indication that the trunk A relay has satisfactorily released.

6.1507 Operate key A1-RL. Lamp TRK-C is extinguished. Restore CNF key.

6.1508 The trunk continues to disconnect and applies and removes Coin Collect battery. Lamps CC and C light.

6.1509 When the trunk CT relay releases, lamp SG is extinguished.

6.1510 Operate key CTR. Lamp CP lights as an indication of the release of trunk relay CO, CT, CT1, TC and SP. Release key CTR. Operate RST key. Lamps C and CC are extinguished. Operate CNF key.

6.1511 Release all keys except the CNF key. All associated lamps are extinguished.

6.16 Check Trunk Under Various Time Periods

6.1601 Operate key BT-CP. Operate key T-C, O and then release it. Operate key P. Operate and release key P-OPR. Lamp ANS lights steadily at the switchboard.

6.1602 Insert a talking cord in the switchboard ANS jack associated with the lighted ANS lamp. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at the switchboard. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.1603 Talk between the Coin Trunk Test Set and the switchboard. Also operate and release the T key and observe that the switchboard tester hears the tone from the test set.

6.1604 Remove the cord from the switchboard ANS jack. Lamps TG, C and CR are extinguished.

6.1605 Temporarily remove the cord from the trunk CO jack. At the ITE-4011 test set, operate keys BG, STT and DD-CW. This simulates the Sender Tandem office by providing talking facilities. (Trunk CS relay does not operate). Lamps BG and BG1 light in the ITE-4011 test set.

6.1606 Make a talking test between the Coin Trunk Test Set (calling subscriber) and the ITE-4011 test set (called subscriber).

6.1607 Reinsert the test cord in the trunk CO jack. Release all keys in the ITE-4011 test set. Lamps BG and BG1 are extinguished.

6.1608 Operate keys CS-NS and CS. Lamp CS lights, as an indication of tip and ring continuity thru the CO jack.

6.1609 Release key CS-NS. Lamp CS is extinguished.

6.1610 Operate key CS-OPR. No additional lamps should light. Restore CNF key.

6.1611 Using a stop watch or any watch with a second hand, start to measure the time. The trunk functions, and after 4-1/2 minutes Coin Collect battery is applied. Lamp TRK-C is extinguished. Lamps CC and C light. The trunk functions and removes Coin Collect battery. Lamp TRK-C lights. Operate CNF key.

6.1612 The trunk continues to function and in 5 minutes causes the ANS lamp at the switchboard to flash. Measure the time between the lighting of the lamps in preceding paragraph (6.1611) and the lighting of the ANS lamp. The interval of time should be close to 30 seconds. If it is appreciably less it may indicate that the N contact of the Charge Timer of the trunk may have failed to open.

6.1613 Insert a talking cord in the ANS jack at the switchboard, associated with the ANS lamp that is flashing. Talk between the Coin Trunk Test Set and the switchboard.

6.1614 Operate key TLK-OE at the test set. Talk between the Coin Trunk Test Set and the switchboard.

6.1615 Insert another cord in the associated SPLIT jack. Using the listening key of only one cord at a time, at the switchboard, test for the following:

(a) Talking from the switchboard on the SPLIT jack can only be heard at the Coin Trunk Test Set when the TLK-OE key is normal.

(b) Talking from the switchboard on the ANS jack can only be heard at the Coin Trunk Test Set when the TLK-OE key is normal.

6.1616 Remove the cords from the SPLIT then the ANS jacks. Operate key RST. Restore CNF key. Lamps CC and C are extinguished. Release key RST.

6.1617 Operate and release key A-RL; then operate and release key A1-RL. The trunk proceeds to disconnect and applies Coin Collect battery. Lamp TRK-C is extinguished. Lamps CC and C light. Operate CNF key. The trunk removes Coin Collect battery and completes the disconnection. Lamp SG is extinguished. Operate key RST. Lamps C and CC are extinguished.

6.1618 Release all keys. All lamps are extinguished.

6.17 Non-Charge Test

6.171 Operate key BT-CP. Operate key T-C, O and then release it. Operate key P. Operate and release key P-OPR. Lamp ANS lights steadily at the switchboard.

6.172 Insert a talking cord in the switchboard ANS jack associated with the lighted ANS lamp. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at the switchboard. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.173 Talk between the Coin Trunk Test Set and the switchboard.

6.174 Remove the cord from the switchboard ANS jack. Lamps TG, C and CR are extinguished.

6.175 Operate keys CS and CS-S-R. Lamp CS flashes on and off. Observe with a stop watch or any watch with a second hand, for a minimum of 7 seconds, that the CS lamp flashes in response to the interrupter thru the INT test jack.

6.176 Operate and release key A-RL. Lamp H-A1 lights. Lamp SG remains lighted. Observe these two lamps for at least 2 seconds.

6.177 Operate key A1-RL. Lamps SG, CS and TRK-C are extinguished.

6.178 The trunk continues to disconnect. Observe that lamps CC and C do not light. If the trunk furnishes Coin Collect battery, causing lamps CC and C to light, it is an indication that the trunk CS relay failed to release properly during the test of Paragraph 6.175.

6.179 Release all keys. All lamps are extinguished.

6.18 Operator Disconnects the Trunk

6.181 Operate key BT-CP. Operate key T-C, O and then release it. Operate key P. Operate and release key P-OPR. Lamp ANS lights steadily at the switchboard.

6.182 Insert a talking cord in the switchboard ANS jack associated with the lighted ANS lamp. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at the switchboard. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.183 Talk between the Coin Trunk Test Set and the switchboard. Insert another talking cord in the associated SPLIT jack at the switchboard. Lamps TG, CR and C are extinguished.

6.184 Remove the cord from the ANS jack. Measure the time and after 5 seconds, remove the cord from the SPLIT jack. During this 5 second interval, the trunk should not disconnect and the SG lamp should remain lit. When SPLIT jack cord is removed, lamp SG is extinguished.

6.185 Release all keys. All lamps are extinguished.

6.19 Timed Release Test After Talking 7 Seconds

6.191 Operate key BT-CP. Operate key T-C, 0 and then release it. Operate key P. Operate and release key P-OPR. Lamp ANS lights steadily at the switchboard.

6.192 Insert a talking cord in the switchboard ANS jack associated with the lighted ANS lamp. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at the switchboard. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.193 Talk between the Coin Trunk Test Set and the switchboard.

6.194 Remove the cord from the switchboard ANS jack. Lamps TG, C and CR are extinguished.

6.195 Operate keys CS and CS-OPR. Measure the time and after 7 seconds release key CS-OPR and operate key CS-NS. Lamp CS lights and remains lit for 1 to 2 minutes or 2 to 4 minutes, depending on the type of interrupter furnished, and then it is extinguished. Lamps CC, C and HA1 light. Lamp SG is extinguished.

6.196 Release all keys. All lamps are extinguished.

6.20 Timed Release Test After Talking 5 Minutes

6.2001 Operate key BT-CP. Operate key T-C, 0 and then release it. Operate key P. Operate and release key P-OPR. Lamp ANS lights steadily at the switchboard.

6.2002 Insert a talking cord in the switchboard ANS jack associated with the lighted ANS lamp. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at the switchboard. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.2003 Talk between the Coin Trunk Test Set and the switchboard.

6.2004 Remove the cord from the switchboard ANS jack. Lamps TG, C and CR are extinguished.

6.2005 Operate keys CS and CS-OPR. After 4-1/2 minutes, the trunk functions, and Coin Collect battery is applied and removed. Lamp TRK-C is extinguished. Lamps CC, C and finally TRK-C light.

6.2006 The trunk continues to function and in 5 minutes causes the ANS lamp at the switchboard to flash.

6.2007 Insert a talking cord in the ANS jack at the switchboard, associated with the ANS lamp that is flashing. Talk between the trunk unit and the switchboard. DO NOT remove the cord from the ANS jack.

6.2008 Measure the time and after 4 seconds release key CS-OPR and operate key CS-NS. Lamp CS lights, and remains lighted.

6.2009 After the trunk RF and RB interrupters and time release circuit functions in 1 to 2 minutes, or 2 to 4 minutes, depending on the type of interrupter furnished, the CS lamp is extinguished.

6.2010 Operate and release key RST. Lamps C and CC are extinguished. Operate key OPR-DISC. Lamp TRK-C is extinguished. Lamp OPR-D lights.

6.2011 The supervisory lamp of the cord, inserted in the ANS jack at the switchboard, lights, as a disconnect signal. Remove the cord from the ANS jack.

6.2012 The trunk proceeds to disconnect. Coin Collect battery is applied and removed by the trunk. Lamps CC, C and HA1 light. Lamp SD is extinguished.

6.2013 After completion of test, restore circuit to normal and remove all associated cords, plugs, strapping, insulators and blocking tools if applicable.

NOTE 1: Tests per Paragraphs 6.21 to 6.26 are to be made only when cross-connections between the trunks and the DS-A switchboard have not been installed.

NOTE 2: One of the last two cycles clear of trouble (see Paragraph 2.2) must be made exactly as directed. On other cycles the 4-1/2 minutes wait may be eliminated by shorting terminals 8 and 9, K3, T.S. B on the trunk unit after the CH1 and CH relays operate and until the LP relay begins to pulse. The 1 to 2 or 2 to 4 minutes wait may be eliminated by grounding through a test receiver terminal 4, K2, T.S. CA or CB (odd or even trunks respectively) on the common equipment unit, for about ten seconds after relay RL operates.

6.21 Disconnect After a Minimum Talking Period of 12 Seconds (See Fig. 2)

NOTE: At test set B, operate L key to 24V. Leave this key operated during tests per Paragraphs 6.21 to 6.26. The statement, release all keys, shall be taken to mean, all keys except the L key.

6.2101 Operate key BT-CP. Operate key T-C, O and then release it. Operate key P. Operate and release key P-OPR. Lamp L1 lights steadily at test set B. SG, TG and TRK-C light.

6.2102 Operate keys DD-CW and STO, at test set B and listen on operators telephone set. Lamp MB lights at test set B when Figure E is furnished. The trunk functions applying and removing Coin Return battery. Tone is heard for about 2 seconds at test set B. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.2103 Talk between the Coin Trunk Test Set and test set B.

6.2104 Release key STO, at test set B. Lamp MB (if lighted) is extinguished. Lamps TG, C and CR are extinguished.

6.2105 Operate keys CS and CS-OPR. Measure a time interval of 12 seconds, using a stop watch or any watch with a second hand.

6.2106 Then operate and release key A-RL. Lamp H-A1 lights, as an indication that the trunk A relay has satisfactorily released.

6.2107 Operate key A1-RL. Lamp TRK-C is extinguished.

6.2108 The trunk continues to disconnect and applies and removes Coin Collect battery. Lamps CC and C light.

6.2109 When the trunk CT relay releases, lamp SG is extinguished.

6.2110 Operate key CTR. Lamp CP lights, as an indication of the release of trunk relays CO, CT, CT1, TC and SP. Release key CTR. Operate key RST. Lamps C and CC are extinguished.

6.2111 Release all keys. All lamps are extinguished.

6.22 Check Trunk Under Various Time Periods

6.2201 Operate key BT-CP. Operate key T-C, O and then release it. Operate key P. Operate and release key P-OPR. Lamp L1 lights steadily at test set B.

6.2202 Operate DD-CW, and STO at test set B, and listen on operators telephone set. Lamp MB lights at test set B when Figure E is furnished. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at test set B. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.2203 Talk between the Coin Trunk Test Set and test set B. Also operate and release the T key and observe that the tester at test set B hears the tone.

6.2204 Release key STO at test set B. Lamp MB (if lighted) is extinguished. Lamps TG, C and CR are extinguished.

6.2205 Temporarily remove the cord from the trunk CO jack. Operate keys BG, STT and DD-CW at test set A. This simulates the Sender Tandem Office by providing talking facilities. (Trunk CS relay does not operate). Lamps BG and BG1 light at test set A.

6.2206 Talk between the Coin Trunk Test Set (calling subscriber) and test set A (called subscriber).

6.2207 Reinsert the test cord in the trunk CO jack. Release all keys at test set A. Lamps BG and BG1 are extinguished.

6.2208 Operate keys CS-NS and CS. Lamp CS lights, as an indication of tip and ring continuity thru the CO jack.

6.2209 Release key CS-NS. Lamp CS is extinguished.

6.2210 Operate key CS-OPR. No additional lamps light.

6.2211 Using a stop watch or any watch with a second hand, start to measure the time. The trunk functions, and after 4-1/2 minutes Coin Collect battery is applied. Lamp TRK-C is extinguished. Lamps CC and C light. The trunk functions and removes Coin Collect battery. Lamp TRK-C lights.

6.2212 The trunk continues to function and in 5 minutes causes the L1 lamp to flash at test set B. Measure the time between the lighting of the lamps in preceding Paragraph 6.2211 and the lighting of the L1 lamp at set B. The interval of time should be very close to 30 seconds. If the interval of time is appreciably less, it may indicate that the N contact of the Charge Timer of the trunk may have failed to open.

6.2213 Operate keys STO and BG at test set B. Lamp MB lights at test set B when Figure E is furnished. Talk between the Coin Trunk Test Set and test set B.

6.2214 Operate key STT, then release key STO at test set B. Talking can only be accomplished between the Coin Trunk Test Set and test set B when the Coin Trunk Test Set key TLK-OE is operated.

6.2215 Operate key STO, then release key STT at test set B. Talking can only be accomplished between the Coin Trunk Test Set and test set B when the Coin Trunk Test Set key TLK-OE is normal.

6.2216 Release all keys at test set B. Operate key RST. Lamps CC and C are extinguished. Release key RST.

6.2217 Operate and release key A-RL; then operate and release key A1-RL. The trunk proceeds to disconnect and applies Coin Collect battery. Lamp TRK-C is extinguished. Lamps CC and C light. The trunk removes Coin Collect battery and completes the disconnection. Lamp SG is extinguished. Operate key RST. Lamps C and CC are extinguished.

6.2218 Release all keys. All lamps are extinguished.

6.23 Non-Charge Test

6.231 Operate key BT-CP. Operate key T-C, O and then release it. Operate key P. Operate and release key P-OPR. Lamp L1 lights steadily at test set B.

6.232 Operate key DD-CW, and STO at test set B and listen on operators telephone set. Lamp MB lights at test set B when Figure E is furnished. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at test set B. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.233 Talk between the Coin Trunk Test Set and test set B.

6.234 Release key STO at test set B. Lamp MB (if lighted) is extinguished. Lamps TG, C and CR are extinguished.

6.235 Operate keys CS and CS-S-R. Lamp CS flashes on and off. Observe with a stop watch or any watch with a second hand, for a minimum of 7 seconds, that the CS lamp flashes in response to the interrupter thru the INT test jack.

6.236 Operate and release key A-RL. Lamp H-A1 lights. Lamp SG remains lighted. Observe these two lamps for at least two seconds.

6.237 Operate key A1-RL. Lamps SG, CS and finally TRK-C are extinguished.

6.238 The trunk continues to disconnect. Observe that lamps CC and C do not light. If the trunk furnishes Coin Collect battery, causing lamps CC and C to light, it is an indication that the trunk CS relay failed to release properly during the test of Paragraph 6.235.

6.239 Release all keys. All lamps are extinguished.

6.24 Operator Disconnects the Trunk

6.241 Operate key BT-CP. Operate key T-C, 0 and then release it. Operate key P. Operate and release key P-OPR. Lamp L1 lights steadily at test set B.

6.242 Operate keys DD-CW, BG and STO at test set B, and listen on operators telephone set. Lamp MB lights at test set B when Figure E is furnished. The trunk functions, applying Coin Return battery. Tone is heard for about 2 seconds at test set B. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.243 Talk between the Coin Trunk Test Set and test set B. Operate key STT at test set B. Lamp BG1 lights at test set B. The trunk proceeds to function. Lamps TG, CR and C are extinguished.

6.244 Release key STO at test set B. Lamp MB (if lighted) is extinguished. Measure the time and after 5 seconds, release key STT at test set B. During this 5 second interval, the trunk should not disconnect and the SG lamp should remain lit. When the STT key is released, lamp SG is extinguished.

6.245 Release all keys. All lamps are extinguished.

6.25 Timed Release Test After Talking 7 Seconds

6.251 Operate key BT-CP. Operate key T-C, 0 and then release it. Operate key P. Operate and release key P-OPR. Lamp L1 lights steadily at test set B.

6.252 Operate keys DD-CW and STO, at test set B, and listen on the operators telephone set. Lamp MB lights at test set B when Figure E is furnished. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at test set B. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.253 Talk between the Coin Trunk Test Set and test set B.

6.254 Release key STO, at test set B. Lamp MB (if lighted) is extinguished. Lamps TG, C and CR are extinguished.

6.255 Operate keys CS and CS-OPR. Measure the time and after 7 seconds release key CS-OPR and operate key CS-NS. Lamp CS lights, and remains lit for 1 to 2 minutes or 3 to 4 minutes, depending on the type of interrupter furnished, and then it is extinguished. Lamps CC and C light. Lamp SG is extinguished.

6.256 Release all keys. All lamps are extinguished.

6.26 Timed Release Test After Talking 5 Minutes

6.2601 Operate key BT-CP. Operate key T-C, 0 and then release it. Operate key P. Operate and release key P-OPR. Lamp L1 lights steadily at test set B.

6.2602 Operate keys DD-CW and STO, at test set B, and listen on the operators telephone set. Lamp MB lights at test set B when Figure E is furnished. The trunk functions, applying and removing Coin Return battery. Tone is heard for about 2 seconds at test set B. Lamp TRK-C is extinguished. Lamps CR, C and finally TRK-C light.

6.2603 Talk between the Coin Trunk Test Set and test set B.

6.2604 Release key STO, at test set B. Lamp MB (if lighted) is extinguished. Lamps TG, C and CR are extinguished.

6.2605 Operate keys CS and CS-OPR. After 4-1/2 minutes, the trunk functions and Coin Collect battery is applied and removed. Lamp TRK-C is extinguished. Lamps CC, C and finally TRK-C light.

6.2606 The trunk continues to function, and in 5 minutes, causes the L1 lamp to flash at test set B.

6.2607 Operate key STO, at test set B. Lamp MB lights at test set B when Figure E is furnished. Talk between the Coin Trunk Test Set and test set B. Leave the keys operated.

6.2608 Measure the time and after 4 seconds, release key CS-OPR and operate key CS-NS. Lamp CS lights, and remains lighted.

6.2609 After the trunk RF and RB interrupters and time release circuit functions in 1 to 2 minutes or 2 to 4 minutes, depending on the type of interrupter furnished, the CS lamp is extinguished.

6.2610 Operate and release key RST. Lamps C and CC are extinguished. Operate key OPR-DISC. Lamp TRK-C is extinguished. Lamp OPR-D lights.

6.2611 At test set B, lamp MB (Figure E furnished) is extinguished, or lamp L2 (Figure F furnished) is lighted, as a disconnect signal. Release key STO at test set B.

6.2612 The trunk proceeds to disconnect. Coin Collect battery is applied and removed by the trunk. Lamps CC and C light. Lamp SG is extinguished.

6.2613 After completion of test, restore circuit to normal and remove all associated cords, plugs, strapping, insulators and blocking tools if applicable.

⟹ Arrows not shown due to extensive changes.

Manager, Engineering, Switching Equipment and SXS P.E.C.C.

Reason for Reissue:

To incorporate miscellaneous Handbook Sections into one Handbook Section and to make general revisions to update to current engineering standards.