

TROUBLE AND FUSE ALARMS

MISCELLANEOUS CIRCUITS

OPERATION TESTS

STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes the methods of testing the visual and audible alarms associated with the miscellaneous circuits in step-by-step offices, step-by-step intertoll arranged for CAMA, and miscellaneous ANI alarms.

1.02 This section is reissued to provide coverage for offices equipped with ANI-type C in Test A, to include tests for line concentrator alarm, second alarm checking terminal used for TOUCH-TONE dialing in Test O, and to add Test X.

1.03 The tests covered are:

A. Miscellaneous Relay Rack Fuse Alarms:

This test checks that the alarm circuit functions properly on either the battery actuated or ground actuated fuse alarms associated with miscellaneous relay racks and miscellaneous fuse alarm circuits for ANI-type C equipment.

B. Switchroom Power and Supervisory Panel Fuse Alarms: This test checks that the alarm circuit functions properly on either battery actuated or ground actuated fuse alarms associated with switchroom power and supervisory panels.

C. 60- and 120-IPM Interrupter Circuit Alarms SD-30284-01 and SD-31606-01: This test checks that the alarm circuit functions properly under various trouble conditions, i.e., false ground on interrupter leads to connecting equipment, open or grounded interrupter brush, or failure of the interrupter.

D. Message Rate Trunk Alarm: This test checks that the alarm circuit functions properly when the B relay of the 1MR trunk circuit or the H relay of the 2MR trunk circuit fails to release on disconnect.

E. Long Subscriber Line or PBX Trunk Circuit Alarm ES-30000-01: This test checks that the alarm circuit functions properly when a C or C1 relay in any trunk group is operated.

F. Common Timing Circuit Alarm—Dash Pot Relays ES-241766: This test checks that the alarm circuit functions properly when the B relay of the timing circuit fails to operate or fails to release, or when any of the leads to brushes B and D of selector A become open.

G. Common Timing Circuit Alarm—Counting Relays SD-30303-01 and SD-31558-01: This test checks that the alarm circuit functions properly when the selector A switch fails to advance from any position, or when a contact failure on working contacts is encountered.

H. Office Alarm Frame, Floor Cabinets, or Ceiling Lamp Panel Alarm Pilots: This test checks that all pilot lamps will light and that each one is associated with the proper alarm circuit.

I. Message Rate Trunk Interrupter Alarm Circuit SD-31494-01: This test checks that the alarm circuit functions properly when any of the INT or PKU leads are falsely grounded, also when an open occurs on these leads, when the operating leads for the INT relays become falsely grounded, when the transfer keys are improperly operated, or when any of the INT,

PU, or PU1 relays in the translator or interrupter circuit fail to operate or fail to release. In offices equipped with individual MR trunks arranged for a delay interval and for overtime charging (Fig. 3 and 6 of SD-31494-01) a test is made which checks that the alarm circuit functions properly when false battery or ground is encountered on any INT lead associated with these trunks.

J. 8-Party Ringing Interrupter SD-31336-01:

This test checks the various lamp and alarm features of the ringing interrupter, including an alarm when the transfer keys are improperly operated and a test of the lamp and alarm of the automatic transfer.

K. 10-Party Terminal-per-Station Ringing Interrupter SD-31298-01: This test checks the various lamp and alarm features of the ringing interrupter, including an alarm when the transfer keys are improperly operated and a test of the lamp and alarm of the automatic transfer.

L. 10-Party Terminal-per-Line Ringing Interrupter SD-31187-01: This test checks the alarm features of the ringing interrupter, including a false ground on the PKU lead.

M. Ringer Test Circuit Alarm SD-31140-01 and SD-31141-01: This test checks that the alarm circuit functions when for any reason the P selector fails to restore to normal.

N. Dial Test Circuit Alarms SD-31138-01:

This test checks that the alarm circuit functions when for any reason the PC selector fails to restore to normal.

O. Alarm Checking Terminal Circuit

SD-31835-01: This test checks the trouble identifying features of the second alarm checking terminal used for TOUCH-TONE dialing and the overriding feature of successive alarms in the order of their importance.

P. Extended Alarms: This test checks that the alarm circuit in a distant office alarm cabinet functions properly when minor and major alarms are extended from the originating office, and that a major alarm, when extended, overrides a minor alarm indication. A check is also

made that the audible and visual alarm indications can be transferred from the alarm cabinet to the office alarm system of the distant office or other locations and that proper alarm indications are received when the alarms are extended to a switchboard in the same building.

Q. Verification of Alarm Transfer: This test verifies that alarms will be received at the distant office when the alarm transfer key is operated. It does not cover a thorough test of all features as does Test P, but is intended to permit a rapid check each time the alarms are transferred.

R. Common Timing Circuit Alarm — 350A

Dial Offices SD-31310-01: This test checks that the alarm circuit functions properly when the selector switch fails to advance from any position or when a contact failure occurs.

S. Announcement Trunk Circuit Alarms

SD-31362-01 and SD-31700-01: This test checks that the alarms associated with announcement trunk circuits SD-31362-01 and SD-31700-01 function properly. It covers a test of the announcement release alarm and the announcement trunk permanent alarm.

T. Message Register Trunk Interrupter and Interrupter Alarm Circuits SD-31223-01:

This test checks that message register trunk interrupter and interrupter alarm circuits function properly.

U. Alarm Sender SD-32193-01:

This test checks that the alarms are transmitted from the alarm control circuit to an operator office over one or two operator office trunks.

V. 8- and 10-Party Ringing Interrupter

SD-32135-01: This test checks that the alarm circuits function properly when any of the lamp leads are falsely grounded or if ringing code failure occurs.

W. Interrupter Relay and Alarm Circuit

SD-32180-01: This test checks that the alarm circuit functions properly with false ground on INT or PKU leads to connecting equipment. Included is a test of lamp and alarm features when the INT and PKU leads are open.

X. Miscellaneous ANI-Type C Circuits —

Trouble Alarms SD-32375-01: This test checks that the alarm circuits function properly when an open output preference chain is encountered or an output alarm relay is activated.

1.04 Whenever battery or ground is applied in the tests of this section, it should be applied through the use of a test receiver except in Tests A, B, and S where the W1AF cord is used.

1.05 A timed delay interval, between application of the test condition and receipt of audible and visual alarm indications, will be encountered in a majority of the tests covered in this section. Reference to a specified time interval in receiving these individual alarm indications is omitted, as the intervals will vary depending on circuit options used, alarm speed-up features, etc. Accordingly, it will be necessary for the tester to familiarize himself with the particular time intervals applicable in his office on the various tests.

1.06 When performing Tests F, G, I, V, and W, opening and grounding of leads will interfere with service calls.

1.07 Tests P, Q, and U require action and verification at the distant office or switchboard and other locations within the same building.

1.08 Where duplicate relay circuits are provided, as in Tests F, G, I, and T, the tests should be made of the duplicate or emergency circuits on alternate test periods.

1.09 Tests of the cable insulation alarm and permanent signal alarm circuit per SD-31912-01 are covered in Section 226-802-500. Tests of cable insulation alarm circuit per SD-96348-01 are covered in another section.

1.10 In some offices instead of a major alarm as indicated herein a minor alarm will result.

1.11 In the various tests where it is necessary to dial a connector terminal or communicate with an operator or another craftsman either the office telephone or dial hand test set may be used for this purpose.

1.12 Lettered Steps: A letter a, b, c, etc, added to a step number in Part 3 or 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 the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS**Tests A and B**

2.01 Test receiver, 509 receiver attached to a W2AB cord, equipped with two 360A tools (2W21A cord), 411B tool, and 365A tool or KS-6278 connecting clip (for use in applying battery or ground to 35R-type fuse).

2.02 Testing cord, W1AF cord, 8 feet 6 inches long, equipped with two 360A tools, KS-6278 connecting clip, and 411B tool (for use in connecting battery to alarm stud or where 70-type fuses are used in circuits of 52 volts maximum).

2.03 266C tool (wire burnisher) held in a 265C tool (contact burnisher holder) (for use where 70-type fuses are used in dc circuits exceeding 52 volts or in ac circuits).

2.04 KS-14510 volt-ohm-milliammeter (or equivalent).

2.05 3-inch C screwdriver (or the replaced 3-inch cabinet screwdriver).

Tests A, B, and I

2.06 720A tool to be used for connecting battery in offices with 70-type fuses where test battery is not provided.

Tests A, B, and S

2.07 Testing cord, W1AF cord, 8 feet 6 inches long, equipped with two 360A tools and two 411B tools (for use in applying battery or ground to apparatus as required).

SECTION 226-801-500

Tests A, C, H, I, J, K, L, T, V, and W

2.08 Test receiver, 716C receiver (or equivalent) attached to a W2AB cord, equipped with two 360A tools (2W21A cord), 365 tool, and 411B tool (for use in checking the presence or absence of battery or ground and for applying battery or ground to apparatus as required).

Tests C, F, G, I, J, K, M, N, O, P, R, T, and W

2.09 Blocking and insulating tools as required. Use tools and apply as covered in Section 069-020-801.

Tests O, P, Q, and U

2.10 1011G dial hand test set (handset) equipped with a W2CL cord, 471A jack, and 240A plug (2W39A cord).

3. PREPARATION

STEP	ACTION	VERIFICATION
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All Tests

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|----|--|---|
| 1a | If provided —
Operate LO, EXT CO, TR, TRNS, AUD ALM, SW, SWBD, or MULT keys to a position in which alarms are not transmitted to a distant office, switchboard, or other alarm location, except when testing extension or grouping of alarms. | If alarms are not extended —
Guard lamp, if provided, lighted. |
| 2b | If office is not equipped with key to prevent signaling distant office —
Follow local instructions relative to disabling signaling features. | |

→ Tests C, D, and F Through X

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| 3 | In offices where equipment has been provided to speed up common timing circuit, when desired for testing purposes, short interval timing shall be used. Whenever this feature is used, it shall be restored to normal at conclusion of tests. | |
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4. METHOD

STEP	ACTION	VERIFICATION
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A. Miscellaneous Relay Rack Fuse Alarms

Note 1: If the fuse alarm circuit being tested is associated with 70-type fuses in dc circuits of 52 volts maximum, to test the alarm feature of the fuse block, establish the test connection by inserting the tip of the 411B tool (attached to the W1AF cord) into the aperture of the fuse block cap and touch the alarm lead ring, thus causing a plant alarm.

STEP	ACTION	VERIFICATION
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Note 2: To apply test battery to the alarm bar on 70-type fuse holders in dc circuits exceeding 52 volts or in ac circuits, insert a 266C tool (wire burnisher) held in a 265C tool (contact burnisher holder) into the aperture of the fuse block cap. Insert tool far enough to short the alarm lead ring in the fuse holder cap to the fuse body, thus causing a plant alarm.

Caution: *If the alarm circuit of the fuse under test should be falsely grounded, severe arcing can result when the tool is inserted. Therefore, before making an alarm test by this method, test the alarm circuit with a volt-ohmmeter to determine first that there is no voltage present on the alarm lead ring and second that there is at least 200 ohms resistance to ground present on the alarm lead ring for the circuit under test. When shorting fuse parts to cause an alarm, hold burnishing tool cap only.*

Individual Circuit Fuse Alarms

3	At fuse under test — Connect battery or ground, as required, to alarm stud for the individual circuit fuses.	FA, floor alarm board lamps lighted. Audible alarm occurred. Aisle pilot lamps lighted, if provided. If testing fuse alarms associated with 35R (0.180 AMP) fuse — Click heard in 509 test receiver.
4	Disconnect battery.	All alarm lamps extinguished. Audible alarm retired. If fuse alarm tested is for outpulser or identifier — Associated fuse guard lamp lighted. Circuit made busy.
5c	If fuse alarm tested is for outpulser or identifier — At equipment frame — Momentarily operate AR key.	Fuse guard lamp extinguished. Circuit restored to normal.

Caution: *When testing alarm-type pilot fuses, every precaution should be taken to avoid accidental grounding of the test equipment, as the battery sides of alarm-type pilot fuses are directly connected to main distributing fuses.*

SECTION 226-801-500

STEP	ACTION	VERIFICATION
Battery Distributing Fuse Alarms—35-type Fuses		
6	Remove pilot fuse.	
7	Connect one pilot fuse post to associated alarm stud.	FA, floor alarm board lamps lighted. Audible alarm occurred. Aisle pilot lamps lighted, if provided.
8	Remove connection.	All alarm lamps extinguished. Audible alarm retired. If fuse alarm tested is for outpulser or identifier — Associated fuse guard lamp lighted. Circuit made busy.
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9c	If fuse alarm tested is for outpulser or identifier — At equipment frame — Momentarily operate AR key.	Fuse guard lamp extinguished. Circuit restored to normal.
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10	Repeat Steps 7 through 9c using other pilot fuse post.	
11	Replace pilot fuse.	
Battery Distributing Fuse Alarms—70-type Fuses		
12	Remove pilot fuse.	
13	Test for battery on spring upon which base of fuse normally rests.	Battery present.
14	Test for battery on contact nearest small slot in fuse block.	Battery present.
15	Replace fuse.	
16	Connect battery to alarm lead ring.	FA, floor alarm board lamps lighted. Audible alarm occurred. Aisle pilot lamps lighted, if provided.
17	Disconnect battery.	All alarm lamps extinguished. Audible alarm retired. If fuse alarm tested is for outpulser or identifier — Associated fuse guard lamp lighted. Circuit made busy.
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18c	If fuse alarm tested is for outpulser or identifier — At equipment frame — Momentarily operate AR key.	Fuse guard lamp extinguished. Circuit restored to normal.
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STEP	ACTION	VERIFICATION
B. Switchroom Power and Supervisory Panel Fuse Alarms		
<i>Caution: If the alarm circuit being tested is associated with 70-type fuses, follow the procedure outlined in Test A given in Notes 1, 2 and the Caution preceding Step 3.</i>		
3	Test each battery fuse alarm circuit by momentarily applying battery, and each ground fuse alarm by momentarily applying ground, to associated fuse alarm strip, stud, or alarm lead ring.	Each time battery or ground is applied — Proper fuse alarm and aisle pilot lamps lighted. Audible alarm occurred.
C. 60- and 120-IPM Interrupter Circuit Alarms SD-30284-01 and SD-31606-01		
4	Momentarily apply ground to individual lead terminal of each resistance circuit or lamp circuit of 60- and 120-ipm interrupter circuit.	Each time ground is applied — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
5c	If interrupter is equipped with TST keys — Operate TST key of 60- or 120-ipm interrupter circuit.	In proper time — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
6	Restore TST key.	All lamps extinguished. Audible alarm retired.
7	Block operated PA, PB relays of 60- or 120-ipm interrupter circuit.	Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
8	Remove blocking tools.	All lamps extinguished. Audible alarm retired.
<i>Note: If circuit is equipped with RLS key, operate key to retire alarm in addition to releasing PA and PB relays.</i>		
D. Message Rate Trunk Alarm		
Individual Message Rate Trunks SD-30452-01 and ES-30426-01		
4	Manually operate, hold B relay of trunk under test in group of trunks to be tested.	In proper time — R lamp of trunk group under test lighted. Aisle pilot lamps lighted. Audible alarm occurred.
5c	If office is provided with short timing interval — Release B relay.	All lamps extinguished. Audible alarm retired.
6d	If office is not provided with short timing interval — Manually operate, hold B relay of next trunk, then release B relay of preceding trunk tested.	R, aisle pilot lamps remained lighted. Audible alarm continued.

SECTION 226-801-500

STEP	ACTION	VERIFICATION
7	Repeat Steps 4 and 5c or 4 and 6d on each trunk in group to be tested.	
8d	If office is not provided with short timing interval — Release B relay of last trunk tested.	All lamps extinguished. Audible alarm retired.
2-Party Message Rate Trunks SD-31506-01 and SD-31174-01		
9	Manually operate, hold H relay of trunk under test in group of trunks to be tested.	In proper time — B lamp of trunk group under test lighted. Aisle pilot lamps lighted. Audible alarm occurred.
10c	If office is provided with short timing interval — Release H relay.	All lamps extinguished. Audible alarm retired.
11d	If office is not provided with short timing interval — Manually operate, hold H relay of next trunk, then release H relay of preceding trunk tested.	B, aisle pilot lamps remained lighted. Audible alarm continued.
12	Repeat Steps 9 and 10c or 9 and 11d on each trunk in group to be tested.	
13d	If office is not provided with short timing interval — Release H relay of last trunk tested.	All lamps extinguished. Audible alarm retired.

E. Long Subscriber Line Or PBX Trunk Circuit Alarm ES-30000-01

3	Manually operate, hold one C relay (circuit breaker relay) in each group of trunks to be tested.	Associated group lamp lighted. Audible alarm occurred.
4	Release C relay.	All lamps extinguished. Audible alarm retired.

F. Common Timing Circuit Alarm—Dash Pot Relays ES-241766

4	Hold nonoperated B relay.	In proper time — Office alarm, aisle pilot lamps lighted. Audible alarm occurred.
5	Release B relay.	All lamps extinguished. Audible alarm retired.
6	Manually operate, hold B relay.	In proper time — Office alarm, aisle pilot lamps lighted. Audible alarm occurred.

STEP	ACTION	VERIFICATION
7	Release B relay.	All lamps extinguished. Audible alarm retired.
8	Manually advance selector A to position 1.	
9	Block nonoperated B relay.	
10	Insulate 2T of B relay.	Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
11	Remove blocking and insulating tools.	All lamps extinguished. Audible alarm retired.
12	Repeat Steps 8 through 11 with selector A on positions 5, 10, 15, 20, and 25.	
G. Common Timing Circuit Alarm—Counting Relays SD-30303-01 and SD-31558-01		
4	Manually advance selector A to odd position (1, 3, 5, etc).	
5	Hold nonoperated B relay.	After third operation of AC or A relay — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
6	Release B relay.	Selector advanced. All lamps extinguished. Audible alarm retired.
7	Manually advance selector A to even position (2, 4, 6, etc).	
8	Hold nonoperated B relay.	After third operation of AC or A relay — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
9	Release B relay.	Selector advanced. All lamps extinguished. Audible alarm retired.
10	Insulate interrupter springs of selector A.	
11	Manually advance selector A to position 11, then to position 22.	In each position — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
12	Remove insulating tool.	Selector advanced. All lamps extinguished. Audible alarm retired.
13c	If testing circuit SD-30301-01 — Hold operated K relay.	Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
14d	If testing circuit SD-31558-01 — Hold nonoperated first A-1 relay.	Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.

SECTION 226-801-500

STEP	ACTION	VERIFICATION
	<i>Note:</i> If more than one A-1 relay is provided, alarms are controlled by first A-1 relay.	
15	Release A-1 or K relay.	All lamps extinguished. Audible alarm retired.
16	Operate, or if operated, restore transfer MR key or B key.	Associated guard lamp lighted.
17	Restore or operate key.	Guard lamp extinguished.
18	Hold nonoperated T or X relay.	Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
19	Release T or X relay.	All lamps extinguished. Audible alarm retired.

H. Office Alarm Frame, Floor Cabinets, Or Ceiling Lamp Panel Alarm Pilots

4	Prepare list of all pilot lamps from associated designations.	
5	As outlined in other tests of this section — Perform necessary operations on sufficient groups of equipment to cause each pilot lamp to light once.	As each test is applied — Each pilot lamp associated with proper alarm circuit lighted.

I. Message Rate Trunk Interrupter Alarm Circuit SD-31494-01

Note: Apply these tests only to interrupter circuits in service.

4	Momentarily apply ground to spring or terminal of relays listed in Table A.	While ground is applied — Associated lamp in Table A lighted.
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TABLE A

RELAY	SPRING	TERMINAL	LAMP
INT	4B		A1
INT		4RT	C (of alarm circuit)
PU	3T		B1
PU1	3T		B1

5	Apply ground to 2T of INT relay.	In proper time — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
6	Remove ground.	All lamps extinguished. Audible alarm retired.

STEP	ACTION	VERIFICATION
7	While translator circuit is not operating — Momentarily operate or restore one of the transfer keys.	While all keys are not in same position — D lamp lighted. While all keys are in same position — D lamp extinguished.
<i>Note:</i> If office is provided with short timing interval, perform Steps 8 through 15; if not, perform Steps 16 through 27.		
Offices Provided With Short Timing Interval		
8	Manually operate, hold PU relay.	If check circuit is not provided — In proper time — E lamp of alarm circuit lighted. Audible alarm occurred. If check circuit is provided — CK, aisle pilot lamps lighted. Audible alarm occurred.
9	Release PU relay.	All lamps extinguished. Audible alarm retired.
10	Manually operate, hold PU1 relay.	If check circuit is not provided — In proper time — E lamp of alarm circuit lighted. Audible alarm occurred. If check circuit is provided — CK, aisle pilot lamps lighted. Audible alarm occurred.
11	Release PU1 relay.	All lamps extinguished. Audible alarm retired.
12	Block nonoperated INT relay.	If check circuit is provided — CK, aisle pilot lamps lighted. Audible alarm occurred.
13	Manually operate E relay of alarm circuit.	If check circuit is not provided — E relay locked operated. In proper time — E lamp of alarm circuit lighted. Audible alarm occurred.
14	Remove blocking tool from INT relay.	If check circuit is not operated — On first operation of INT relay — E relay released. E lamp extinguished. Audible alarm retired. If check circuit is provided — On operation of PU, PU1 relays — CK, aisle pilot lamps extinguished. Audible alarm retired.

SECTION 226-801-500

STEP	ACTION	VERIFICATION
15	If this test is to be applied to additional interrupter circuits — Repeat Steps 4 through 14 for each circuit to be tested.	
Offices Not Provided With Short Timing Interval		
16	Manually operate, hold PU relay.	In proper time — E lamp of alarm circuit lighted. Audible alarm occurred.
17	Manually operate, hold PU relay of next interrupter circuit, then release PU relay of preceding interrupter circuit.	E lamp remained lighted. Audible alarm continued.
18	Repeat Steps 16 and 17 on each interrupter circuit to be tested.	
19	Release PU relay of last interrupter circuit tested.	All lamps extinguished. Audible alarm retired.
20	Manually operate, hold PU1 relay.	In proper time — E lamp of alarm circuit lighted. Audible alarm occurred.
21	Manually operate, hold PU1 relay of next interrupter circuit, then release PU1 relay of preceding interrupter circuit.	E lamp remained lighted. Audible alarm continued.
22	Repeat Steps 20 and 21 on each interrupter circuit to be tested.	
23	Release PU1 relay of last interrupter circuit tested.	All lamps extinguished. Audible alarm retired.
24	Block nonoperated INT relay.	
25	Manually operate E relay of alarm circuit.	E relay locked operated. In proper time — E lamp of alarm circuit lighted. Audible alarm occurred.
26	Block nonoperated INT relay of next interrupter circuit, then remove blocking tool from INT relay of preceding interrupter circuit.	E relay of alarm circuit remained operated. E lamp remained lighted. Audible alarm continued.
27	Repeat Steps 24 through 26 on each interrupter circuit to be tested.	
28	Remove blocking tool from INT relay of last interrupter circuit tested.	On first operation of INT relay — E relay released. E lamp extinguished. Audible alarm retired.

STEP	ACTION	VERIFICATION
29c	If office is equipped with individual MR trunks arranged for a delayed interval and for overtime charging — Apply battery to 2T of INT relay.	INT relay not operated. IB alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
30c	Remove battery.	
31c	Operate, restore RS toggle switch.	All lamps extinguished. Audible alarm retired. After toggle switch is restored — BA relay operated, remained operated.
32c	Manually operate, hold ST1 relay.	
33c	Apply ground to 2T of INT relay of interrupter circuit.	A, alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
34c	Remove ground.	
35c	Release ST1 relay.	All lamps extinguished. Audible alarm retired.
36	Repeat Steps 29c through 35c on each interrupter circuit.	

J. 8-Party Ringing Interrupter SD-31336-01

Note: These tests shall be made while selector switch is normal. If it should move off normal, immediately remove test connection.

4	Apply ground to 2T of SR relay.	In proper time — S, alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
5	Remove ground.	All lamps extinguished. Audible alarm retired.
6	Momentarily apply ground to individual lead terminal of A, B, D, E, F, 1+, 2+, 1+A lamps.	While ground is applied — Each lamp lighted.
7	Momentarily apply ground to 3B of C relay.	While ground is applied — 1- lamp lighted.
8	Momentarily apply ground to 5B of G relay.	While ground is applied — 2- lamp lighted.
9	Momentarily apply ground to 1T of PU1 relay and immediately disconnect.	While ground is applied — PKU lamp lighted. M selector may step off normal. When ground is removed — PKU lamp extinguished. If M selector operated — M selector returned to normal.

SECTION 226-801-500

STEP	ACTION	VERIFICATION
10c	If interrupter circuit is equipped with manual transfer keys — Operate or restore transfer keys individually.	While all keys are not in same position — K lamp lighted. While all keys are in same position — K lamp extinguished.
11d	If interrupter circuit is equipped with automatic transfer feature — Operate or restore key A.	
12	Repeat Steps 4 through 9 and 10c or 11d on interrupter circuit now in service.	
13d	If interrupter circuit is equipped with automatic transfer feature — Restore key A, if operated.	
14d	Hold nonoperated S relay of first interrupter circuit.	In proper time after next operation of ST relay — TR2 lamp lighted. Minor alarm occurred.
15d	Release S relay.	
16d	Momentarily depress RLS key.	TR2 lamp extinguished. Minor alarm retired.
17d	Connect ground to 3B of ATR relay.	
18d	Block operated ATR relay.	
19d	Manually operate, hold T1 relay.	In proper time — Major alarm occurred.
20d	Release T1 relay.	Major alarm retired.
21d	Operate key A.	
22d	Manually operate, hold AT1 relay.	In proper time — Major alarm occurred.
23d	Release AT1 relay.	Major alarm retired.
24d	Remove blocking tool from ATR relay.	
25d	Disconnect ground from 3B of ATR relay.	
26d	Hold nonoperated S relay of second interrupter circuit.	In proper time after next operation of ST relay — TR1 lamp lighted. Minor alarm occurred.
27d	Release S relay.	
28d	Momentarily depress RLS key.	TR1 lamp extinguished. Minor alarm retired.

STEP	ACTION	VERIFICATION
29d	Momentarily apply ground to 1B of ATR relay.	While ground is applied — TR lamp lighted.
30e	If interrupter is equipped with 1+T, 1+B, 2+T, and 2+B lamps — Momentarily apply ground to individual lead terminal of each lamp.	While ground is applied — Each lamp lighted.
31e	Momentarily apply ground to 3T of 1- relay.	While ground is applied — 1-T lamp lighted.
32e	Momentarily apply ground to 3B of 1- relay.	While ground is applied — 1-B lamp lighted.
33e	Momentarily apply ground to 3T of 2- relay.	While ground is applied — 2-T lamp lighted.
34e	Momentarily apply ground to 3B of 2- relay.	While ground is applied — 2-B lamp lighted.
35f	If interrupter is equipped with ringing alarm lamps — Insulate each pair of contacts of H relay except 3B.	
36f	Apply ground to terminal 4RT of H relay.	PG, NG, NT, PT, aisle pilot lamps lighted. Audible alarm occurred.
37f	Remove ground.	M selector operated. Lamps remained lighted.
38f	Remove insulating tools.	M selector returned to normal. All lamps extinguished. Audible alarm retired.

K. 10-Party Terminal-per-Station Ringing Interrupter SD-31298-01

Note: These tests shall be made while selector switch is normal. If it should move off normal, immediately remove test connection.

4	Momentarily apply ground to individual lead terminal of RS, C1 through C5 lamps.	While ground is applied — Each lamp lighted.
5	Insulate 3T and 4T of P relay.	
6	Apply ground to 1T of PU1 relay only long enough to observe that PKU lamp lights.	While ground is applied — PKU lamp lighted. M selector may step off normal. When ground is removed — PKU lamp extinguished. If M selector operated — M selector returned to normal.
7	Remove insulating tool from P relay.	

SECTION 226-801-500

STEP	ACTION	VERIFICATION
8c	If interrupter circuit is equipped with manual transfer keys — Apply ground to 2T of SR relay.	In proper time — S, alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
9c	Remove ground.	All lamps extinguished.
10c	Operate or restore transfer keys individually.	When all keys are not in the same position — K lamp lighted. When all keys are in the same position — K lamp extinguished.
11c	Repeat Steps 4 through 9c on interrupter circuit now in service.	
12d	If interrupter circuit is equipped with automatic transfer feature — Operate or restore key A.	
13d	Repeat Steps 4 through 7 on interrupter circuit now in service.	
14d	Restore key A, if operated.	
15d	Hold nonoperated S relay of first interrupter circuit.	In proper time after next operation of ST relay — TR2 lamp lighted. Minor alarm occurred.
16d	Release S relay.	
17d	Momentarily depress RLS key.	TR2 lamp extinguished. Minor alarm retired.
18d	Connect ground to 3B of ATR relay.	
19d	Block operated ATR relay.	
20d	Manually operate, hold T1 relay.	In proper time — Major alarm occurred.
21d	Release T1 relay.	Major alarm retired.
22d	Operate key A.	
23d	Manually operate, hold AT1 relay.	In proper time — Major alarm occurred.
24d	Release AT1 relay.	Major alarm retired.
25d	Remove blocking tool from ATR relay.	
26d	Remove ground from 3B of ATR relay.	

STEP	ACTION	VERIFICATION
27d	Hold nonoperated S relay of second interrupter circuit.	In proper time after next operation of ST relay — TR1 lamp lighted. Minor alarm occurred.
28d	Release S relay.	
29d	Momentarily depress RLS key.	TR1 lamp extinguished. Minor alarm retired.
30e	If interrupter circuit is equipped with RST, RSB, C1A, C1T through C5T, C1B through C5B lamps — Test each lamp by momentarily applying ground to individual lead terminal.	While ground is applied — Each lamp lighted.

L. 10-Party Terminal-per-Line Ringing Interrupter SD-31187-01

4	Apply ground to 3T of B relay.	In proper time — AL, alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
5	Remove ground.	All lamps extinguished. Audible alarm retired.
6c	If circuit is equipped with PA relay — With selector A normal — Momentarily apply ground to 1B of PA relay and immediately disconnect.	While ground is applied — AL lamp lighted. Selector attempted to step. When ground is removed — AL lamp extinguished. Selector should not step.

M. Ringer Test Circuit Alarm SD-31140-01 and SD-31141-01

4	With circuit idle — Insulate interrupter springs of P selector.	
5	Manually step selector off normal.	In proper time — Associated alarm, aisle pilot, office alarm lamps lighted. Audible alarm occurred.
6	Remove insulating tool.	Selector returned to normal. All lamps extinguished. Audible alarm retired.
7	Repeat Steps 4 through 6 on remaining circuits.	

N. Dial Test Circuit Alarms SD-31138-01

4	With circuit idle — Insulate interrupter springs of PC selector.	
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SECTION 226-801-500

STEP	ACTION	VERIFICATION
5	Manually step selector off normal.	In proper time — Associated alarm, aisle pilot, office alarm lamps lighted. Audible alarm occurred.
6	Remove insulating tool.	Selector returned to normal. All lamps extinguished. Audible alarm retired.
7	Repeat Steps 4 through 6 on remaining circuits.	

O. Alarm Checking Terminal Circuit SD-31835-01

4	Retire existing alarms (except permanent signal alarms) in approved manner.	
5	Block nonoperated D relay.	
6	Dial connector terminal number () assigned to alarm checking terminal. <i>Note:</i> If alarm checking terminal is reached through terminal-per-line connectors, arranged to cut through without station digit, do not dial station digit.	MR-R2 ringing tone heard in receiver (two short rings).
7	Remove blocking tool from D relay.	<i>Note:</i> If office is equipped with individual permanent signal alarm feature, and a permanent signal alarm is present when the blocking tool is removed from the D relay, tone heard in receiver will change to MR-R1 (one long ring) and it will not be necessary to perform Step 8c.
8c	If individual permanent signal alarm feature is provided — Block operated D relay.	Tone heard in receiver changes to MR-R1 ringing tone (one long ring).
9	Originate minor alarm.	Tone heard in receiver changes to busy tone.
10d	If cumulative permanent signal and low cable insulation alarm feature SD-31912-01 or cable insulation alarm feature SD-96348-01 is provided — Without retiring alarms originated in Step 9 — Block operated B or MP relay.	Tone heard in receiver changes to dial tone.
11	Without retiring alarms originated in Step 8c, 9, or 10d — Originate step-by-step major alarm, for example, block operated A1 or A1 and A3 relays of alarm circuit.	Tone heard in receiver changes to no tone.

STEP	ACTION	VERIFICATION
12	Retire all alarms.	
13	Remove blocking tool from B, D, or MP relay.	Indication heard in receiver changes from no tone to MR-R2 ringing tone (two short rings).
Γ 14	Apply ground to the 6TF terminal of the line concentrator control (LC) relay.	Low tone interrupted at 120 ipm heard in receiver.
15	Remove ground applied to 6TF terminal of LC relay.	MR-R2 ringing tone heard in receiver.
16e	If office is equipped with two alarm checking terminals — Dial connector terminal number () assigned to second alarm checking terminal.	MR-R2 ringing tone heard in receiver (two short rings).
17e	Originate minor TOUCH-TONE alarm.	Tone heard in receiver changes to busy tone.
18e	Without retiring alarm originated in Step 17e — Block operated CTMJ relay.	Tone heard in receiver changes to steady high tone.
19e	Retire all alarms.	
L 20e	Remove blocking tool from CTMJ relay.	MR-R2 ringing tone heard in receiver.
21	Disconnect from alarm checking terminal circuit.	

P. Extended Alarms

Alarms Extended To Alarm Cabinet Of Distant Office

4	Retire all alarms in approved manner.	
	<i>Note:</i> If individual selector permanent signal and connector disconnect alarms are not transmitted to distant office, they need not be retired.	
5	Establish talking connection to alarm cabinet of distant office.	
6	Operate LO, EXT CO, TR, AUD LAM keys (if provided) to normal position.	Associated guard lamp extinguished. At distant office — No alarms received.

Note: It may be necessary to operate and release DA key at originating office to retire any residual alarm indications.

SECTION 226-801-500

STEP	ACTION	VERIFICATION
7	<p>Originate class B (minor) alarm.</p> <p><i>Note:</i> If office is not arranged for alarm checking, major and minor alarms may be extended as class A alarms and permanent signal and connector disconnect alarms may be extended as class B alarms.</p>	<p>At distant office — Class B white lamp lighted. Audible alarm occurred.</p>
8	<p>Without retiring alarm originated in Step 7 — At originating office — Operate, release DA key.</p>	<p>At distant office — B lamp remained lighted. Audible alarm retired.</p>
9	<p>Without retiring minor alarm originated in Step 7 — Originate class A (major) alarm by blocking operated A1 or A1 and A3 relays of office alarm frame.</p> <p><i>Note:</i> The ABS (alarm battery supply) fuse audible alarm is normally a subset bell but when alarms are extended it is transmitted as a major alarm.</p>	<p>At distant office — Class A lamp lighted. Class B lamp extinguished. Audible alarm occurred.</p>
10	<p>At originating office — Using appropriate associated switching facilities, extend alarm from alarm cabinet successively to each available alarm receiving location.</p> <p><i>Note:</i> It will be necessary in these tests at distant office alarm cabinet to verify alarm indications appearing at other locations.</p>	<p>At distant office — Major alarm indication received at each extended location.</p>
11	<p>At originating office — Restore switching transfer key or keys.</p>	<p>At distant office — Major alarm retired at extended locations. Major alarm still received at alarm cabinet.</p>
12	<p>At originating office — Operate, release DA key.</p>	<p>At distant office — Class A alarm lamp remained lighted. Audible alarm retired.</p>
13	<p>Without retiring minor alarm originated in Step 7 — Retire major alarm originated in Step 9.</p>	<p>At distant office — Class A lamp extinguished. Class B lamp lighted. Audible alarm occurred.</p>
14	<p>At originating office — Using appropriate associated switching facilities, extend alarm from alarm cabinet successively to each available alarm receiving location.</p>	<p>At distant office — Minor alarm indication received at each extended location.</p>

STEP	ACTION	VERIFICATION
15	At originating office — Restore switching transfer key or keys.	At distant office — Minor alarm retired at extended locations. Minor alarm still received at alarm cabinet.
16	At originating office — Operate, release DA key.	At distant office — Class B lamp remained lighted. Audible alarm retired.
17	Retire minor alarm originated in Step 7.	At distant office — SUPV lamp lighted. Class B lamp extinguished. Audible alarm occurred.
18	At originating office — Operate, release DA key.	At distant office — SUPV lamp extinguished. Audible alarm retired.
19	At originating office — Restore LO, EXT CO, TR, AUD ALM keys, if provided, to operated position.	Associated guard lamp lighted. At distant office — Normal OK or trouble guard indication for particular alarm circuit under test received.
20	Disconnect talking connection.	
Alarms Extended To a Switchboard In the Same Building		
21	At originating office — Retire all alarms. <i>Note:</i> If individual selector permanent signal and connector disconnect alarms are not transmitted, they need not be retired.	
22	Establish talking connection to switchboard.	
23	Operate keys to transfer alarms to switchboard.	Associated guard lamp extinguished, if provided.
24	Originate class A (major) alarm by blocking operated A1 or A1 and A3 relays of office alarm frame. <i>Note:</i> The class A and class B alarms, in some cases, may be extended to same trunk lamp and jack appearance at switchboard. If the alarms are so arranged, it will be necessary to dial alarm checking terminal to determine the class of alarm.	At switchboard location — Class A lamp lighted. Audible alarm occurred, if provided.
25	At switchboard — Insert answering cord into trunk answering jack.	Line signal extinguished. Cord lamp not lighted. Audible alarm retired.
26	At originating office — Retire alarm originated in Step 24.	At switchboard — Cord lamp lighted.

SECTION 226-801-500

STEP	ACTION	VERIFICATION
27	At switchboard — Remove answering cord from trunk jack.	
28	At originating office — Originate class B (minor) alarm.	At switchboard — Class B trunk lamp lighted. Audible alarm occurred.
	<i>Note:</i> If office is not arranged for alarm checking, major and minor alarms may be extended as class A alarms and permanent signal and connector disconnect alarms may be extended as class B alarms.	
29	At switchboard — Insert answering cord into trunk answering jack.	Line signal extinguished. Cord lamp not lighted. Audible alarm retired.
30	At originating office — Retire alarm originated in Step 28.	At switchboard — Cord lamp lighted.
31	At switchboard — Remove answering cord from trunk jack.	
32	Restore all transfer keys to position where alarms are no longer extended.	Associated guard lamps lighted, if provided.
33	Disconnect talking connection.	

Alarms Extended Or Grouped Within the Same Building

34	Prepare list of pilot lamps from associated designations.	
35	Operate TR, MULT, or SW key in accordance with local practice.	
36	Perform necessary operations, as outlined in tests of this section, on sufficient groups of equipment to cause each pilot, group, exit, or floor lamp to be lighted once.	Each pilot lamp associated with proper alarm circuit lighted.
37	Restore TR, MULT, or SW key in accordance with local practice.	

Q. Verification Of Alarm Transfer

4	Establish talking connection to distant office.	
5	At originating office — Ascertain that alarm transfer keys are in a position to extend alarms to distant office.	Associated guard lamps extinguished, if provided.
6	Originate minor alarm.	At distant location — Minor alarm indication received.

STEP	ACTION	VERIFICATION
7	At originating office — Retire minor alarm.	At distant location — Minor alarm indication retired.
8	At originating office — Originate major alarm.	At distant location — Major alarm indication received.
9	At originating office — Retire major alarm.	At distant location — Major alarm indication retired.
10	Disconnect talking connection.	

R. Common Timing Circuit Alarm—350A Dial Offices SD-31310-01

4	Manually advance selector A to an odd position (1, 3, 5, etc).	
5c	If S2 relay is provided — Hold nonoperated S2 relay.	In proper time after operation of S relay — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
6c	Release S2 relay.	Selector advanced. All lamps extinguished. Audible alarm retired.
7d	If S2 relay is not provided — Block nonoperated S1 relay.	In proper time after operation of S relay — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
8d	Remove blocking tool from S1 relay.	Selector advanced. All lamps extinguished. Audible alarm retired.
9	Manually advance selector A to an even position (2, 4, 6, etc).	
10c	If S2 relay is provided — Block nonoperated S2 relay.	In proper time after operation of S relay — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
11c	Remove blocking tool from S2 relay.	Selector advanced. All lamps extinguished. Audible alarm retired.
12d	If S2 relay is no provided — Block nonoperated S1 relay.	In proper time after operation of S relay — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
13d	Remove blocking tool from S1 relay.	Selector advanced. All lamps extinguished. Audible alarm retired.
14	Insulate interrupter springs of selector A.	

SECTION 226-801-500

STEP	ACTION	VERIFICATION
15	Manually advance selector A to position 11, then to position 22.	In both positions — Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
16	Remove insulating tool.	Selector advanced. All lamps extinguished. Audible alarm retired.
17	Block nonoperated TA relay.	Alarm frame, aisle pilot lamps lighted. Audible alarm occurred.
18	Remove blocking tool from TA relay.	All lamps extinguished. Audible alarm retired.

S. Announcement Trunk Circuit Alarms SD-31362-01 and SD-31700-01

Announcement Trunk Release Alarm Test

4	Manually operate, hold rotary armature of 204-type selector of an idle trunk so that off-normal spring assembly is operated.	In proper time — RLS, aisle pilot lamps lighted. Audible alarm occurred.
5	Repeat Step 4 on remaining trunks in group, holding off-normal selector in trunk last tested until selector in next trunk has been manually operated.	RLS, aisle pilot lamps remained lighted. Audible alarm continued.
6	When last trunk in group has been tested — Release selector.	All lamps extinguished. Audible alarm retired.

Announcement Trunk Permanent Alarm Test

7	Connect ground to lower terminal of A or C resistance of alarm circuit associated with group of trunks to be tested.	In proper time — PS, aisle pilot lamps lighted. Audible alarm occurred.
8	Remove ground.	All lamps extinguished. Audible alarm retired.

T. Message Register Trunk Interrupter and Interrupter Alarm Circuits SD-31223-01

Note: This test shall be applied only on circuits in service, starting with first interrupter circuit.

4	At a time when INT relay is unoperated — Momentarily apply ground to 4B of INT relay.	GA, aisle pilot lamps lighted. Audible alarm occurred.
5	Proceed to next interrupter circuit. At a time when INT relay is unoperated — Momentarily apply ground to 4B of INT relay.	Associated GA lamp lighted. GA lamp of preceding interrupter circuit remained lighted. Audible alarm continued.

STEP	ACTION	VERIFICATION
6	Momentarily separate 1T and 2T of INT relay of preceding interrupter circuit.	Associated GA lamp extinguished.
7	Repeat Steps 5 and 6 until last interrupter circuit is tested.	
8	Momentarily separate 1T and 2T of INT relay of last interrupter circuit.	All lamps extinguished. Audible alarm retired.
9	At a time when the translator is not operating — Block nonoperated ST relay of translator circuit.	
10	Apply ground to 3T of B relay.	B relay operated and locked. G, aisle pilot lamps lighted. Audible alarm occurred.
11	Remove ground.	All lamps extinguished. Audible alarm retired. B relay remained operated. At end of timing interval — T, aisle pilot lamps relighted. Audible alarm occurred.
12	Block nonoperated INT relay of first interrupter circuit.	T, aisle pilot lamps remained lighted. Audible alarm continued.
13	Remove blocking tool from ST relay of translator circuit.	Same as Step 12.
14	Block operated ST relay of translator circuit.	Same as Step 12.
15c	If B relay did not release in Step 14 — Manually release B relay.	Same as Step 12.
16	Block nonoperated INT relay of next interrupter circuit.	Same as Step 12.
17	Remove blocking tool from INT relay of preceding interrupter circuit.	Same as Step 12.
18	Repeat Steps 16 and 17 until last interrupter circuit has been tested.	Same as Step 12.
19	Remove blocking tool from last interrupter circuit.	Same as Step 12.
20	Remove blocking tool from ST relay of translator circuit.	All lamps extinguished. Audible alarm retired.

SECTION 226-801-500

STEP	ACTION	VERIFICATION
U. Alarm Sender SD-32193-01		
Equipped For Locking To Operator Office Trunk Until Operator Answers and Disconnects		
4	Establish talking connection at operator office.	Trunk or trunks associated with alarm sender idle. <i>Note:</i> If trunk is not idle, delay test.
5	Originate minor alarm.	At operator office — Trunk lamp lighted.
6	At operator office — Answer trunk as if indication were regular call.	Trunk lamp extinguished.
7	Disconnect from trunk.	Trunk lamp not relighted.
8	At originating office — Retire minor alarm.	
9c	If two office operator trunks are associated with alarm sender — Make busy first trunk.	
10c	Repeat Steps 5 through 8 on second trunk.	
Equipped For Locking To Operator Office Trunk Until Operator Dials Alarm Checking Terminal Circuit		
11	Establish talking connection at operator office.	Trunk or trunks associated with alarm sender idle. <i>Note:</i> If trunk is not idle, delay test.
12	Originate minor alarm.	At operator office — Trunk lamp lighted.
13	At operator office — Answer trunk as if indication were regular call.	Trunk lamp extinguished.
14	Leave plug of answering cord inserted in trunk.	
15	At originating office — Dial number () assigned to alarm checking terminal circuit.	Busy tone heard in receiver. At operator office — Trunk lamp lighted.
16	At originating office — Disconnect from alarm checking terminal circuit.	
17	At operator office — Disconnect from trunk.	Trunk lamp extinguished.

STEP	ACTION	VERIFICATION
18	At originating office — Retire minor alarm.	
19c	If two office operator trunks are associated with alarm sender — Make busy first trunk.	
20c	Repeat Steps 12 through 18 on second trunk.	

V. 8- and 10-Party Ringing Interrupter SD-32135-01

Note: These tests shall be made while relay circuit is normal. If it should move off normal, immediately remove test connection.

8-Party Terminal-per-Station Connectors and Reverting Call Selectors

4	At unit terminal strip — Apply ground to terminal 26 or 29.	S relay operated. R1, R2 relays operated, released, following code ringing interruptions. R11, R12, R21, R22 relays operated, released following code ringing interruptions, if provided.
5	Remove ground from unit terminal strip.	All relays released.
6	At unit terminal strip — Apply ground momentarily to individual lead terminal of 1+1, 1+2, 2+1, 2+2, 1-1, 1-2, 2-1, 2-2 lamps.	1+1, 1+2, 2+1, 2+2, 1-1, 1-2, 2-1, 2-2 lamps lighted in order while ground is applied. While ground is applied — Aisle pilot lamp lighted, if provided. While ground is applied — Audible alarm occurred.
7	Repeat Step 6 on remaining 1+, 2+, 1-, 2- lamps on unit terminal strip of supplementary units, if provided.	While ground is applied — Corresponding lamps lighted.
8c	If code failure alarm is provided — At unit terminal strip — Apply ground to terminal 26 or 29.	S relay operated.
9c	Block nonoperated SO relay.	INT lamp lighted. Aisle pilot lamp lighted, if provided. Audible alarm occurred.
10c	Remove blocking tool from SO relay.	
11c	Operate, release RL key.	INT, aisle pilot lamps extinguished. Audible alarm retired.
12c	Remove ground from unit terminal strip.	All relays released.

SECTION 226-801-500

STEP	ACTION	VERIFICATION
10-Party Terminal-per-Station Connectors		
13	Connect ground to punching 24 on B terminal strip.	ST relay operated. RS, C1 through C5 relays operated, released following code ringing interruptions.
14	Remove ground.	All relays released.
15	At unit terminal strip — Momentarily apply ground to RS, C1 through C5 terminals.	While ground is applied — Corresponding lamps lighted. While ground is applied — Aisle pilot lamp lighted, if provided. While ground is applied — Audible alarm occurred.
16	Repeat Step 15 on remaining RS, C1 through C5 terminals of initial, supplementary units.	
17c	If code failure alarm is provided — Connect ground to punching 24 on B terminal strip.	ST relay operated.
18c	Insulate 7T of ST relay.	INT lamp lighted. Aisle pilot lamp lighted, if provided. Audible alarm occurred.
19c	Remove insulator from ST relay.	
20c	Operate, release RL key.	INT, aisle pilot lamps extinguished. Audible alarm retired.
21c	Insulate 1T of ST relay.	INT lamp lighted. Aisle pilot lamp lighted, if provided. Audible alarm occurred.
22c	Remove insulator from ST relay.	
23c	Operate, release RL key.	INT, aisle pilot lamps extinguished. Audible alarm retired.
24c	Remove ground punching 24 on B terminal strip.	All relays released.

W. Interrupter Relay and Alarm Circuit SD-32180-01

4c	If P or I relays are provided — Block operated ST relay.	
5	At unit terminal strip — Momentarily apply ground to individual PKU, INT lead terminal of each resistance lamp.	Each time ground is applied — PU or INT lamp lighted within 5 seconds. Aisle pilot lamp lighted. Audible alarm occurred.

STEP	ACTION	VERIFICATION
6d	If ALA relay is provided — Block nonoperated N, PKU relays.	ALA relay operated. OP, aisle pilot lamps lighted. Audible alarm occurred.
7d	Remove blocking tools from N, PKU relays.	
8d	Momentarily operate RL key.	ALA relay released. OP, aisle pilot lamps extinguished. Audible alarm retired.
9d	Block nonoperated PKU relay.	ALA relay operated. OP, aisle pilot lamps lighted. Audible alarm occurred.
10d	Remove blocking tool from PKU relay.	
11d	Momentarily operate RL key.	ALA relay released. OP, aisle pilot lamps extinguished. Audible alarm retired.
12d	Repeat Steps 6d through 11d on each INT, PKU lead check circuit.	
13c	Remove blocking tool from ST relay.	

↳ **X. Miscellaneous ANI-Type C Circuits—Trouble Alarms SD-32375-01**

Note: These tests shall be made while relay circuit is normal. If it should move off normal, immediately defer tests.

Outpulser Frame—Miscellaneous Circuit

4	At outpulser miscellaneous circuit on outpulser frame — Momentarily operate CH relay manually.	At outpulser frame — CH lamp lighted. Frame pilot, aisle pilot lamps lighted, if provided. Audible alarm occurred.
5	Momentarily operate AR key.	CH lamp extinguished. Pilot lamps extinguished. Audible alarm retired.
6	Manually operate EOTM relay.	TA lamp lighted. Frame pilot, aisle pilot lamps lighted. Minor alarm occurred.
7	Momentarily operate AR key.	TA lamp extinguished. Frame pilot, aisle pilot lamps extinguished. Minor alarm retired.

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SECTION 226-801-500

STEP	ACTION	VERIFICATION
↗ 8	Manually operate MJ relay.	At trouble ticketer frame — TTR lamp lighted. Frame pilot, aisle pilot lamps lighted. Major alarm occurred.
9	Momentarily operate AR key.	TTR lamp extinguished. Frame pilot, aisle pilot lamps extinguished. Major alarm retired.
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