

PERFORMANCE REQUIREMENTS
TD-3 RADIO
STATION AUDIBLE, VISUAL, AND
COMMON ALARM CIRCUITS
GENERAL EQUIPMENT REQUIREMENTS
TOLL SYSTEMS

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4. LOCAL AUDIBLE ALARM RELAYS	3	1.01 This section covers the performance requirements which the TD-3 and TH-3 radio station audible and visual alarms shall meet before acceptance by the telephone company.	
5. OPEN DOOR ALARM (SD-50594-01, Fig. 2, 3, AND 4 IF EQUIPPED)	3	1.02 This BSP is reissued to add tests of:	
6. OBSTRUCTION LIGHTING ALARMS FIG. 6, 9, and 12	5	(a) TH-3 radio station audible, visual, and common office alarm circuits for long- and medium-haul systems.	
7. DISTRIBUTION FUSE ALARMS	6	(b) Add checks for test 24-volt fusing	
—24V ABS FUSE ALARM, FIG. 13	6	(c) To recognize the E-type status reporting and control system	
—24V SIGNAL FUSE ALARM, FIG 16	6	1.03 The requirements are based on the use of the following test equipment or its equivalent.	
DISTRIBUTION FUSE ALARM, FIG. 10 and 22	7	KS-14510, List 1 Volt-ohm-milliammeter (VOM)	
8. 24-VOLT ABS ALARM TRANSFER, FIG. 15	7	1.04 The TD-3 and TH-3 radio station alarms consist of:	
9. LIGHTNING PROTECTION ALARM, FIG. 5 AND 7	7	(a) ED-50538-33 Audible Alarm and Order-wire Buzzer Assembly	
10. DEHYDRATOR ALARM, FIG. 7	8	(b) ED-50538-34 Main or Cross Aisle Pilot Lamps—SD-50593-01	
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(c) J68391A, E, or J68423T Distribution Fuse, Individual Alarm, and Control Relays for Common Office and Building Equipment—SD-50594-01

(d) J68391B, C, and D Aisle Pilot Relays and Lamps—SD-50593-01

Note: For medium-haul TH-3 radio, the aisle pilot system will generally not be used. Visual display is provided by a lamp in the individual alarm panel.

1.05 The J68391 aisle pilot relay and lamp assemblies are associated with each radio bay lineup or with other equipment distributed throughout the station. Thus, when an alarm originates, the group of equipment producing the alarm can readily be identified.

1.06 The ED-50538-33 audible alarm and order-wire buzzer assembly contains the alarm wiring bell and buzzer for major and minor alarms (SD-50593-01). In addition, the order-wire notification buzzer is located on the same panel and is covered by its appropriate schematic drawing, SD-56227-01, SD-56228-01 or SD-1C245-01. These audible alarms are mounted miscellaneously in the station.

1.07 The ED-50538-34 main or cross aisle pilot lamp serves to identify the main or cross aisle in which an aisle pilot relay and lamp assembly is activated. This unit is also mounted in the engine room for purposes of reporting alarm conditions existing outside of the engine room.

1.08 The distribution fuse and individual alarm panel provides a means to mount individual alarm relays and lamps for miscellaneous common office and building equipments that are not equipped with an alarm control panel. In addition, this panel provides control relays for station major and minor audible alarms. Three types of panels are available:

- (1) J68391A for TD-3 and TH-3 radio stations that send alarms using the C1 Alarm System.
- (2) J68391E for TD-3 and TH-3 radio stations that send alarms using the E Type Alarm System or do not send alarms.
- (3) J68423T for TH-3 medium-haul radio stations.

1.09 The station alarms mentioned above are tested in the following sequence:

- (1) Test will initially be made on the distribution fuse and individual alarm panel and the associated station alarm equipment. This will include tests of its associated aisle pilot relay and lamp assembly and main or cross aisle pilot lamps if provided.
- (2) Each succeeding aisle pilot relay and lamp assembly in the station will then be tested by simulating a failure in the associated lineup or group of equipment for which the aisle pilot assembly is monitoring.

2. FUSING

Note: See Table A for fuse panels associated with various distribution fuse and individual alarm panels.

TABLE A	
DISTRIBUTION FUSE AND INDIVIDUAL ALARM PANEL	FUSE PANEL
J68391A	ED-92034-01 (EXISTING C1 ALARM PANEL)
J68391E	ED-51160-30 (LOCATED WITH J68391E PANEL)
J68423T	ED-51304 (J68423C BAY FUSE PANEL)

2.01 Check the input voltage to each fuse assignment using the VOM.

Requirement: The voltage at the fuse holder shall be within the limits of -21 to -26 volts dc.

2.02 Power the aisle pilot assembly from the DC distribution circuit by operating the appropriate circuit breakers.

2.03 Check for the presence of negative battery with the VOM at the terminals of the

distribution fuse and individual alarm panel according to Table B.

3. DISTRIBUTION FUSE AND INDIVIDUAL ALARM FOR COMMON OFFICES AND BUILDING EQUIPMENT (SD-50594-01)

3.01 Each common office alarm feature which will be tested in this section is shown in Table C. These features will be tested by operating various test keys on the panels under test or grounding various terminals on the equipment under test.

Caution: In the following operation, it is possible that numerous alarms will be initiated. If an alarm does occur, operate any alarm cutoff (ACO) key, Fig. 8, to silence the audible alarm.

3.02 Operate the AG switch in Fig. 21 or 23 to energize the local audible alarms.

Requirement 1: Lamp AG shall light on the individual alarm lamp panel.

Requirement 2: Relay LA1 shall lock operated.

3.03 During the following tests, it will be assumed that only the alarm condition being tested

exists. If other alarms exist in the same aisle or location as the distribution fuse and individual alarm panel, a no-alarm condition should be simulated on all equipment using the same aisle pilot assembly serving the distribution fuse and individual alarm panel.

4. LOCAL AUDIBLE AND ALARM RELAYS

4.01 For Fig. 18, Table D ensures that the major audible alarm inputs are correctly multiplied in the panel prior to an actual operating test.

5. OPEN DOOR ALARM (SD-50594-01, FIG. 2, 3, AND 4 IF EQUIPPED)

5.01 If the station is equipped to Cl alarm sending equipment temporarily *Insulate* or block open make contact 10 of the floor alarm DA relay, Fig. 3. (With E-type alarm it is not necessary to insulate contact 10 of the DA relay.)

5.02 Close and lock all of the station outside doors.

Requirement: The DA relay shall be de-energized.

TABLE B			
J68391A OR E PANEL		J68423T PANEL	
TERMINAL STRIP	TERMINAL NO.	TERMINAL STRIP	TERMINAL NO.
TSA	26 29 30	TSA	30
TSC	32	TSB	32
TSG	16 32	TSC	30 31 32
TSE	30 31 32	TSD	6 7 8 9

TABLE C	
ALARM FEATURE	SD-50594-01 FIG. NO.
DEHYDRATOR	1 & 7
WAVEGUIDE PRESSURE	7
OBSTRUCTION LIGHTING	6
SIDE LIGHTING FAILURE	9
FLASHER FAILURE	12
-24V ABS FUSE	13 & 14 OR 26
-24V SIG FUSE	16 & 17 OR 27
+24V SIG FUSE	30 & 31
+130V ABS FUSE	10 & 22 OR 28
LOCAL AUDIBLE CONTROL RELAYS	18
SWITCH & GUARD LAMP	21, 23, 24
DOOR ALARMS	2 & 3, 4
LIGHTNING PROTECTION	5 & 7
-24V ABS TRANSFER	15
ALARM KEY AND GUARD LAMP	20
HEAT AND AIR CONDITIONING	25

TABLE D		
SD-50594-01 FIG. NO.	MOMENTARILY APPLY A CLIP LEAD ON UNIT BETWEEN TERMINALS ON THE J68391A	AUDIBLE ALARMS RECEIVED
18	1 AND 2 OF TSA	MAJOR
	3 AND 4 OF TSA	
	5 AND 6 OF TSA	
	7 AND 9 OF TSA	
	9 AND 10 OF TSA	
	10 AND 12 OF TSA	
	10 AND 13 OF TSA	*MAJOR AND MINOR†
	10 AND 14 OF TSA	
	10 AND 15 OF TSA	
	10 AND 16 OF TSA	

* FOR STATIONS EMPLOYING NONDISTINCTIVE ALARMS, A MAJOR ALARM WILL BE INITIATED.

† FOR STATIONS PROVIDING DISTINCTIVE ALARMS, A MINOR ALARM WILL BE INITIATED.

5.03 If equipped with alarm sending equipment, contact the alarm center and scan the station to observe and record all alarm conditions.

5.04 Unlock the door to be tested from the inside of the station.

Requirement 1: The door alarm lamp(s) shall light at the alarm lamp panel.

Requirement 2: If this station is equipped with C1 or E-type alarm sending equipment, the appropriate alarm shall be received at the alarm center.

5.05 Open the door under test and operate the door lock switch S2 (Fig. 2) to simulate a locked condition.

Requirement: The door alarm indications shall remain lighted if the door is equipped with OPEN DOOR switch, Fig. 2.

- 5.06 Repeat 5.02 through 5.05 for each outside door.
- 5.07 Close and lock all doors and then remove the insulator, if it was installed, from 5.01.

6. OBSTRUCTION LIGHTING ALARMS, FIG. 6, 9, AND 12

6.01 The TD1 and TD2 time delay relays shall be adjusted as specified on the schematic drawing.

6.02 **Single Top Lamp Failure:** Temporarily connect a clip lead from terminal LA to terminal G2 on the terminal strip in the obstruction lighting alarm panel or operate the TST A switch, if so equipped, on the obstruction lighting panel.

Requirement 1: The TD1 and TD2 time delay relays shall both be operating.

Requirement 2: After a delay of approximately 10 minutes, the L3 relay shall operate.

Requirement 3: The minor audible and appropriate visual aisle pilot lamps shall operate.

Requirement 4: The obstruction lighting alarm lamp shall light on the individual alarm lamp panel and at any other appearances.

Requirement 5: If this station is equipped with C1 or E-type alarm sending equipment, the appropriate alarm shall be received at the alarm center.

6.03 Momentarily operate any station ACO key.

Requirement 1: The minor audible alarm shall silence.

Requirement 2: The minor visual aisle pilot alarm shall extinguish and the white aisle pilot lamp shall light.

Requirement 3: The individual alarm lamps shall remain lighted.

6.04 Remove the clip lead or release the switch operated in 6.02.

Requirement: All of the visual alarms shall be extinguished.

6.05 Repeat 6.02 through 6.04 for the other top lamp. In 6.02, apply the clip lead between terminals LB and G2 or operate the TST B switch.

6.06 **Failure of Both Top Lights:** Failure of both top lamps constitutes a major alarm.

6.07 On the obstruction lighting panel, operate the TST A and TST B keys, if so equipped, or temporarily clip terminals LA and LB to terminal G2 on the obstruction lighting alarm panel.

Requirement 1: After a delay of approximately 10 minutes, the L3 relay shall operate.

Requirement 2: The major audible and appropriate visual aisle pilot lamps shall operate.

Requirement 3: The obstruction lighting alarm lamp shall light on the individual alarm lamp panel and at any other appearance.

Requirement 4: If this station is equipped with alarm sending equipment, the appropriate alarm shall be received at the alarm center.

6.08 Release the operated switches TST A and TST B or remove the appropriate leads placed in 6.07.

6.09 **Flasher Failure (If So Equipped), Fig. 12:**

On the obstruction lighting panel, operate the TST FS switch to simulate a flasher failure or temporarily connect a clip lead between terminals LG and G2 on the terminal strip in the obstruction lighting panel.

Requirement 1: After a delay of approximately 10 minutes, the L3 relay shall operate.

Requirement 2: A major audible and the appropriate visual aisle pilot lamps shall operate.

Requirement 3: The flasher failure alarm lamp shall light on the individual alarm lamp panel and at any other appearance.

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Requirement 4: If the station is equipped with alarm sending equipment, the appropriate alarms shall be received at the alarm center.

6.10 Operate any station ACO key.

Requirement: The station audible alarm shall be retired and the individual alarm lamp shall remain lighted.

6.11 Release the switch TST FS or remove the lead placed in 6.09.

Requirement: All of the visual alarms shall be extinguished.

6.12 Side Lighting Failure, Fig. 9: On the obstruction lighting panel, operate switch S1 to simulate a side lighting failure or temporarily connect a clip lead between terminals LS and G2 on the obstruction lighting panel.

Requirement 1: After a delay of approximately 10 minutes, the L3 relay shall operate.

Requirement 2: A minor audible and the appropriate visual aisle pilot lamps shall operate.

Requirement 3: The side lighting failure alarm lamp shall light on the individual alarm panel and at any other appearance.

Requirement 4: If this station is equipped with alarm sending equipment, the appropriate alarm shall be received at the alarm center.

6.13 Operate any station ACO key.

Requirement: The station audible alarm shall be retired, and the individual alarm lamps shall remain lighted.

6.14 Release the switch S1 or remove the lead placed in 6.12.

Requirement: All of the visual alarms shall be extinguished.

7. DISTRIBUTION FUSE ALARMS

–24V ABS FUSE ALARM, FIG. 13

7.01 On the fuse panel at the top of the bay, remove the –24 volt ABS A fuse and temporarily replace it with a blown fuse.

Requirement 1: The –24 volt ABS fuse alarm lamp shall light on the individual alarm lamp panel and at any other appearance.

Requirement 2: The major audible alarm and the associated red aisle pilot lamps shall light.

Requirement 3: If this station is equipped with alarm sending equipment, the appropriate alarm shall be received at the alarm center.

7.02 Remove the blown fuse and replace the original fuse.

Requirement: The alarm indications shall return to normal.

7.03 Repeat 7.01 and 7.02 for each equipped –24 volt ABS fuse used on this panel.

–24 V SIGNAL FUSE ALARM, FIG. 16

7.04 Remove the –24 volt SIG G fuse at the top of the bay and replace it with a blown fuse.

Requirement 1: The –24 volt SIG fuse alarm lamp shall light on the individual alarm lamp panel and at any other appearance.

Requirement 2: The major audible alarm and the associated red aisle pilot lamps shall light.

Requirement 3: If this station is equipped with C1 or E-type alarm sending equipment, the appropriate alarm shall be received at the alarm center.

7.05 Remove the blown fuse and return the original fuse to its holder at the top of the bay.

Requirement: The alarm indication shall return to normal.

- 7.06 Repeat 7.04 and 7.05 for each -24 volt SIG H fuse.

+24 SIG FUSE ALARM, FIG. 13

- 7.07 On the fuse panel at the top of the bay, remove the +24 volt SIG fuse and temporarily replace it with a blown fuse.

Requirement 1: The +24 volt SIG fuse alarm lamp shall light on the individual alarm lamp panel and at any other appearance.

Requirement 2: The major audible alarm and the associated red aisle pilot lamps shall light.

Requirement 3: If this station is equipped with alarm sending equipment, the appropriate alarm shall be received at the alarm center.

- 7.08 Remove the blown fuse and replace the original fuse.

Requirement: The alarm indications shall return to normal.

- 7.09 Repeat 7.07 and 7.08 for each equipped +24 volt SIG fuse on this panel.

DISTRIBUTION FUSE ALARM, FIG. 10 AND 22

- 7.10 Remove the +130 volt distribution fuse and replace it with a blown fuse.

Requirement 1: The +130 volt ABS fuse alarm lamp shall light on the individual alarm lamp panel and at any other appearance.

Requirement 2: The major audible alarm and the associated red aisle pilot lamps shall light.

Requirement 3: If this station is equipped with alarm sending equipment, the appropriate alarm shall be received at the alarm center.

- 7.11 If any other distribution fuses are associated with this panel, repeat 7.10 for each voltage.

- 7.12 Restore the +130 volt supply to this unit.

Requirement: The alarm indication shall return to normal.

8. 24-VOLT ABS ALARM TRANSFER, FIG. 15

- 8.01 Observe that relays B1, B2, and LA1 are operated on J68391A distribution fuse and individual alarm unit.

- 8.02 Remove the -24 volt ABS F fuse.

Requirement 1: Relay B1 shall be de-energized and relay B2 shall remain operated.

Requirement 2: Relay LA1 shall remain operated.

Requirement 3: The -24 volt ABS TRANSFER ALARM lamp shall light on the individual alarm panel and at any other alarm appearance.

Requirement 4: The major audible and appropriate red visual aisle pilot lamps shall operate.

Requirement 5: If this station is equipped with alarm sending equipment, the appropriate alarm shall be received at the center.

- 8.03 Replace the -24 volt ABS F fuse.

Requirement: Relays B1 and B2 shall be operated and all alarms shall return to normal.

- 8.04 Remove the -24 volt ABS J fuse.

Requirement 1: Relay B2 shall be de-energized and relay B1 shall remain operated.

Requirement 2: The same alarms shall be initiated as described in 8.02, Requirements 3 through 5.

- 8.05 Relay the -24 volt ABS J fuse.

Requirement: Relays B1 and B2 shall be operated on the unit and all alarms shall be returned to normal.

9. LIGHTNING PROTECTION ALARM, FIG. 5 AND 7

- 9.01 Temporarily connect a clip lead between terminals GA and LPA of the terminal strip and the lightning protection unit, see SD-81798-01, Fig. 8.

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Requirement 1: The lightning protection alarm lamp shall light on the individual alarm panel and at any other appearance.

Requirement 2: The major audible and the associated red visual aisle pilot lamps shall be operated.

Requirement 3: If this station is equipped with C1 or E-type alarm sending equipment, the appropriate alarm will be received at the alarm center.

9.02 Momentarily depress any station ACO key.

Requirement 1: The station audible alarms shall be retired.

Requirement 2: The visual aisle pilot red indications shall transfer to a white guard lamp.

9.03 Remove the strap connected in 9.01 at the lightning protection unit.

Requirement: All visual alarms shall be extinguished.

10. DEHYDRATOR ALARM, FIG. 7

10.01 Temporarily connect a strap between terminals 74 and 75 in KS-19553, List 1 remote control panel on the unit.

Requirement 1: The dehydrator alarm lamp shall light on the individual alarm lamp panel and at any other appearance.

Requirement 2: The appropriate audible and visual aisle pilot lamps shall be operated.

Requirement 3: If this station is equipped with alarm sending equipment, the appropriate alarm will be received at the alarm center.

10.02 Momentarily depress any station ACO key.

Requirement 1: The station audible alarm will be silenced.

Requirement 2: The visual aisle pilot *green* indications shall be transferred to a white aisle pilot guard lamp.

10.03 Remove the strap connected in 10.01.

Requirement: All visual alarms shall be extinguished.

10.04 On the KS-19553, List 1 remote control panel, depress the humidity test key.

Requirement: The HUMST TST lamp shall light on the individual alarm lamp panel.

11. WAVEGUIDE PRESSURE ALARMS, FIG. 7

11.01 *Hatch A Test:* Temporarily connect a strap between terminals 1 and 2 of the MERCROID switch, KS-5793, List 3.

Requirement 1: The waveguide pressure lamp on the individual alarm lamp panel shall light and at any other appearance.

Requirement 2: The minor audible and appropriate green visual aisle pilot lamps shall be operated.

Requirement 3: If this station is equipped with alarm sending equipment, the appropriate alarm will be received at the alarm center.

11.02 Momentarily depress any station ACO key.

Requirement 1: The station audible alarms will be silenced.

Requirement 2: The visual aisle pilot alarms will be transferred from a green to a white indication.

11.03 Remove the strap connected in 11.01.

Requirement: All visual alarms shall be extinguished.

11.04 Repeat 11.01 through 11.03 for waveguide hatches B, and if provided, C, and D.

12. HEATING AND AIR-CONDITIONING ALARM

12.01 Initiate an alarm at the heating and air-conditioning panel.

Requirement: The appropriate audible and visual alarms shall be operated.

12.02 Operate any station ACO key.

Requirement: The station audible alarm shall be silenced.

13. OFFICE AUDIBLE AND VISUAL ALARM CIRCUIT (SD-50593-01)

13.01 The following tests shall be made for each aisle pilot relay and lamp unit in the station.

13.02 Using the VOM, measure the -24 volts on the aisle pilot unit.

(1) For a 3- or 4-lamp unit, measure the voltage on TSA between terminal 5 and ground and terminal 8 and ground.

(2) For a 2-lamp unit, measure the voltage on TSA between terminal 5 and ground and terminal 7 and ground.

Requirement: In each case, the voltage shall be between 23 and 26 volts.

13.03 Equipment such as the TD-3 and TH-3 radio bays, 100A Protection Switching System, dc distribution circuits, etc, shall each be tested before being placed in service to ensure that the self-contained alarm relays in the equipment are connected properly to their associated aisle pilot relay and lamp assembly.

Requirement: Each lamp on the assembly under test shall light when the appropriate alarm is simulated at the equipment generating the alarm.