

LOSS-OF-FACILITY ALARM CIRCUIT

J70165E

DESCRIPTION

1. GENERAL

1.01 This section covers the purpose, applications, and description of the loss-of-facility alarm circuit [J70165E()]. It also provides a basic working knowledge of the circuit. The information in this section can be used as a maintenance aid for the loss-of-facility alarm circuit.

1.02 The loss-of-facility alarm circuit interconnects the low-level alarm leads of the 43B1 VFCD System and Data Sets 108-, 109-, and 110-Types and the central office alarm systems in common use. The loss-of-facility alarm circuit provides 12 interface circuits to connect either EIA or open-circuit-to-ground alarms to a common central office alarm system. The circuit is basically a relay driver circuit with twelve individual and two common outputs.

1.03 Options for the loss-of-facility alarm circuit include lamps, an alarm release key, and an audible alarm cutoff key. All of these are mounted on a separate key and lamp panel.

2. PHYSICAL DESCRIPTION

Loss-of-Facility Alarm Circuit

2.01 The loss-of-facility alarm circuit [J70165E()] consists of a printed circuit card (alarm converter), twelve relays, and two terminal strips (Fig. 1, front view). All of these are mounted on a relay panel. The complete unit is 23 inches wide, 2 inches high, 10 inches deep, and weighs 6 pounds.

2.02 The alarm converter is a circuit board that measures 8-1/2 inches by 5-1/2 inches. This converter has components for twelve relay driver circuits and twenty-nine wire wrap terminals (Fig. 1, back view). The alarm converter is interconnected to the relay panel by means of these wire wrap terminals.

2.03 The relay panel is a standard 23-inch panel on which six identical dual relays and two terminal strips are mounted. Each relay has three dry contacts as outputs.

2.04 Input and output connections of the loss-of-facility alarm circuit relay panel are made through numbered wire wrap terminals on terminal strips A (inputs) and B (outputs) (Fig. 2). Connection of the alarm converter phase of the loss-of-facility alarm circuit is done on the alarm converter terminal strip.

2.05 There are two models of the loss-of-facility alarm circuit: the J70165E-L1 (used with EIA inputs) and the J70165E-L2 (used with open-circuit, ground inputs). Alarm converter (circuit board) J70165EA is used in circuit L1, and alarm converter (circuit board) J70165EB is used in circuit L2.

Optional Equipment

2.06 An optional key and lamp panel J70165F() is available with the loss-of-facility alarm circuit and comes in six arrangements. The L1 consists of a set of 12 alarm lamps and a cutoff key and lamp, all mounted on a 19-inch panel. This panel has additional space for mounting other lamps and keys. The L2 consists of two sets of alarm lamps and cutoff keys and lamps in addition to L1. The L3 provides an alarm release key that can be added to either L1 or L2. The L4 is identical to L1 except that the components are mounted on a 23-inch panel. The L5 consists of three additional sets of alarm lamps, and cutoff keys and lamps that can be added to L4. The L6 provides an alarm release key that can be added to either L4 or L5.

Power Requirements

2.07 Power requirements for the loss-of-facility alarm circuit depend on the power available

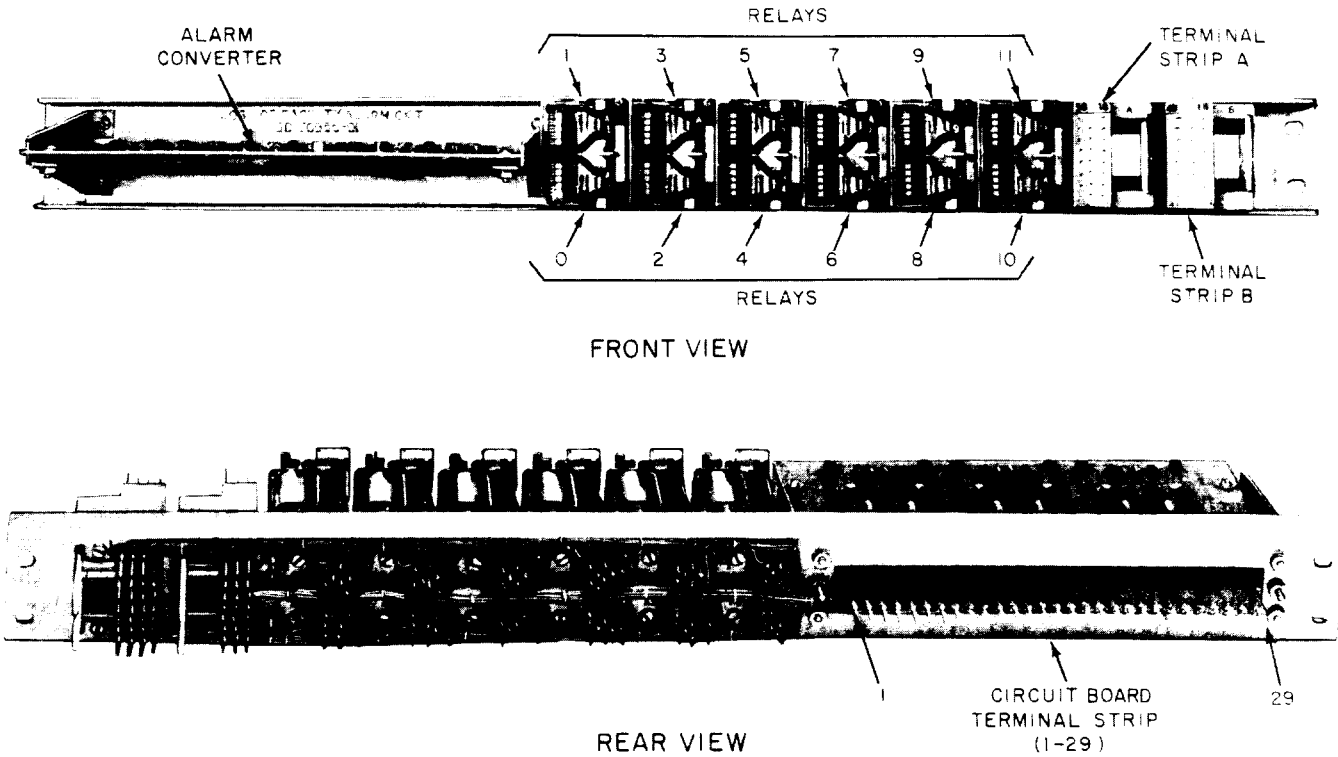


Fig. 1—Loss-of-Facility Alarm Circuit—Front and Back View

38 ○	28 ○	18 ○	48 ○	38 ○	28 ○	18 ○
37 ○	27 ○	17 ○	47 ○	37 ○	27 ○	17 ○
36 ○	26 ○	16 ○	46 ○	36 ○	26 ○	16 ○
35 ○	25 ○	15 ○	45 ○	35 ○	25 ○	15 ○
34 ○	24 ○	14 ○	44 ○	34 ○	24 ○	14 ○
33 ○	23 ○	13 ○	43 ○	33 ○	23 ○	13 ○
32 ○	22 ○	12 ○	42 ○	32 ○	22 ○	12 ○
31 ○	21 ○	11 ○	41 ○	31 ○	21 ○	11 ○

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Fig. 2—Terminal Strip Numbering

in the central office. Central office facilities —24V (option X) or —48 (option Y) will operate all phases of the loss-of-facility alarm circuit and options as required. Current drain for the loss-of-facility alarm circuit is as indicated in Table A.

3. FUNCTIONAL DESCRIPTION

Loss-of-Facility Alarm Circuit

3.01 The loss-of-facility alarm circuit (Fig. 3) consists of twelve identical circuits. Each is comprised of one relay driver and one relay. There are twelve inputs (individual) and fourteen outputs (twelve individual and two common). The inputs are either EIA voltages or open-circuit ground condition (L1 and L2, respectively). The outputs are all dry relay contacts.

3.02 In the L1 model of the loss-of-facility alarm circuit, one or more EIA voltages (alarm signal) causes the relay drivers to operate. This applies a ground to the relays energizing them. The contacts of the relays close providing the outputs for the alarm circuit.

TABLE A
LOSS-OF-FACILITY ALARM CIRCUIT POWER REQUIREMENTS

CIRCUIT ARRANGEMENT	POWER REQUIRED				MIN CURRENT DRAIN (MA)		MAX CURRENT DRAIN (MA)	
	RELAYS		ALARM CONVERTER		-24V	-48V	-24V	-48V
	-24V (X OPTION)	-48V (Y OPTION)	-24V (X OPTION)	-48V (Y OPTION)				
Alarm Circuit:								
List 1*	X	X	—	—	—	—	250	500
List 2*	X	X	X	X	60**	70**	310	570
Options:								
Alarm Lamps*	X	X	X	X	—	—	575	575
Cutoff Key and Lamp*	X	X	X	X	—	—	48	48

* Do not connect X and Y options to the same unit. Use either one or the other.

** Steady state of List 2 alarm circuit.

3.03 The L2 model of the alarm circuit operates in a similar way. A ground signal (alarm condition) on the input to the circuit is applied through the relay driver to the relays. These relays energize, their contacts close, and provide outputs for the L2 model.

3.04 There are three closed contacts per relay that are used as outputs in both models of the loss-of-facility alarm circuit. One of these contacts may be connected to an individual alarm. The other two contacts are connected to common central office alarms (one contact per common alarm). The alarm contacts are connected in parallel to the other eleven.

Options

3.05 A J70165F alarm key and lamp panel is available with the loss-of-facility alarm circuit. It consists of alarm lamps, audible alarm cutoff key and lamp, and an optional alarm release key. This

equipment is mounted on a 19- or 23-inch jack mounting. When the audible alarm cutoff key is operated, it will disable the audible alarm and light the cutoff lamp, indicating that the alarm has been disabled. Lamps for the alarm key and lamp panel consist of 12 individual indicators and the audible alarm cutoff lamp.

3.06 When the alarm lamps on the key and lamp panel operate, they will remain in this state until the alarm input disappears or the optional alarm key is depressed.

4. MAINTENANCE

4.01 The alarm converters are self-contained units and require no maintenance. When trouble arises in one driver circuit within the alarm converter, it can be replaced by connecting the failed circuit to a spare one in the same alarm converter circuit board or in any operative converter (like model) in a different system or set. If no

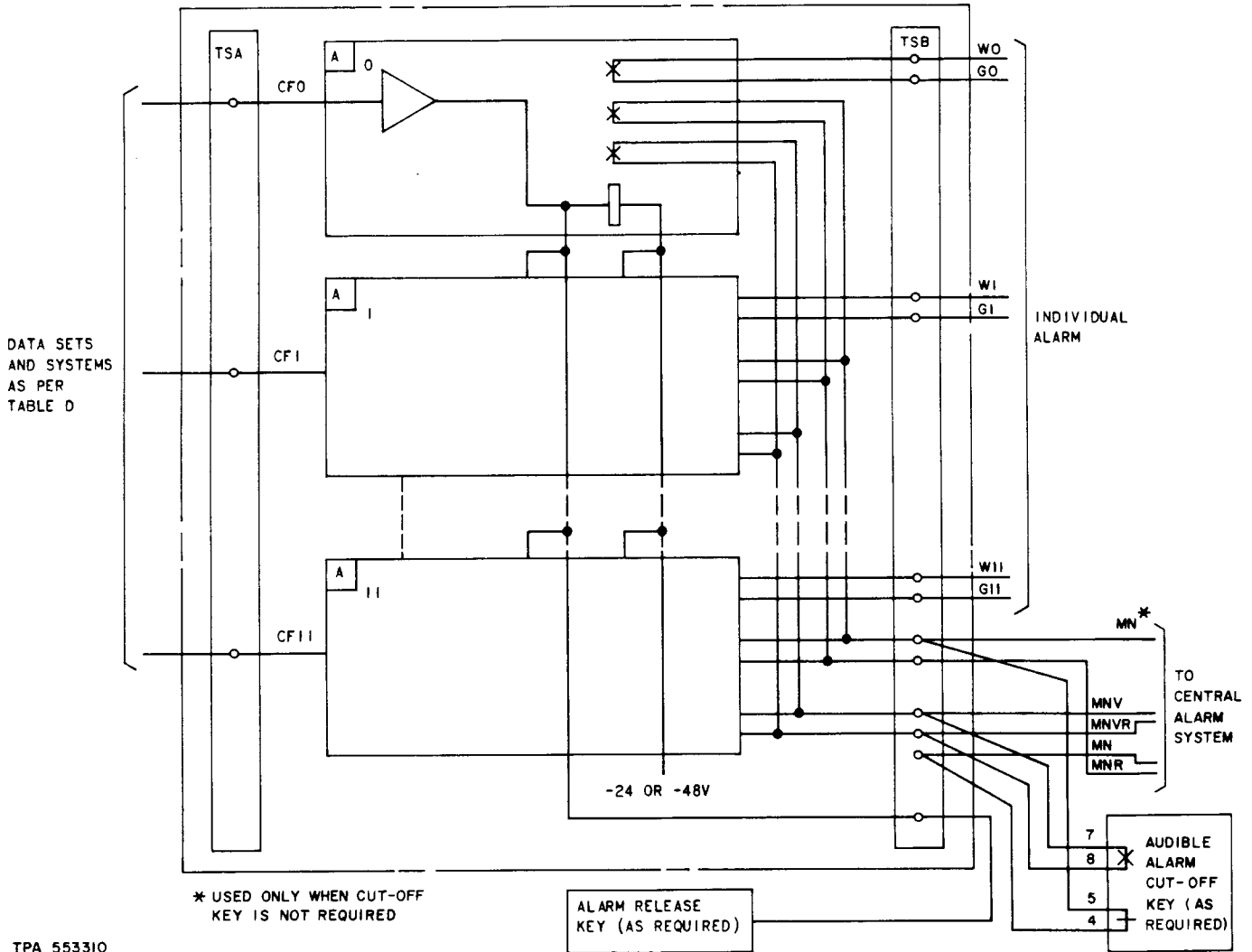


Fig. 3—Loss-of-Facility Alarm Circuit—Functional Diagram

space is available in either of these places, the complete alarm converter (circuit board) must be replaced (Table B) by a like converter (J70165EA or J70165EB).

4.02 The loss-of-facility alarm circuit may be replaced according to Tables C and D. Table E lists common input connections to the alarm circuit.

5. REFERENCE

5.01 Additional information on the loss-of-facility alarm circuit may be found in schematic diagram (SD) and circuit description (CD) 70956-01—Loss-of-Facility Alarm Circuit and in the section entitled Mounting and Connecting Units—Central Office Data Sets (807-017-150).

TABLE B
ALARM CONVERTER CIRCUIT CONNECTIONS

INPUTS	TERMINAL STRIP A	CIRCUIT BOARD TERMINAL STRIP NOS.		RELAY CONNECTIONS	ASSOCIATED RELAY
		INPUTS	OUTPUTS		
CF0	38	5	1	1L	A0
CF1	28	7	6	1U	A1
CF2	18	13	10	1L	A2
CF3	37	16	15	1U	A3
CF4	27	24	19	1L	A4
CF5	17	27	29	1U	A5
CF6	36	4	2	1L	A6
CF7	26	8	9	1U	A7
CF8	16	12	11	1L	A8
CF9	35	17	18	1U	A9
CF10	25	23	21	1L	A10
CF11	15	26	28	1U	A11
-24V Supply (X)	11**	25*			
-48V Supply (Y)	13**	4*			
GROUND	31	3			

* Not connected for EIA inputs

** Strapped to terminal 33 for relay power requirements.

TABLE C

INDIVIDUAL ALARM CIRCUIT
CONNECTIONS

INPUTS	OUTPUTS	
	TERMINAL STRIP B NUMBERS	ASSOCIATED RELAY
CF0	38 and 48	A0
CF1	18 and 28	A1
CF2	37 and 47	A2
CF3	17 and 27	A3
CF4	36 and 46	A4
CF5	16 and 26	A5
CF6	35 and 45	A6
CF7	15 and 25	A7
CF8	34 and 44	A8
CF9	14 and 24	A9
CF10	33 and 43	A10
CF11	13 and 23	A11

TABLE D

COMMON CIRCUIT CONNECTIONS

OUTPUTS	WITHOUT KEY AND LAMP PANEL		WITH KEY AND LAMP PANEL	
Common (Visual)	22	12	22	12
Comon (Audio)	42	32	31	32
Cut-Off Key (Audio)	—	—	42	31
Alarm Release Key	—	—	—	41

TABLE E

LOSS-OF-FACILITY ALARM CIRCUIT
INPUT CONNECTIONS

DATA EQUIPMENT	ALARM LEAD INPUTS
43B1 VFCD Channel Alarm (EIA)	CF2
43B1 VFCD System Alarm (EIA)	SAS
Data Set 108D (EIA)	CA
Data Set 109G (EIA)	CA
43B1 HDX/FDX HV Converter (DP64) (Ground)	CF3
43B1 HDX HV Converter (DP53) (Ground)	CF3
Data Auxiliary Set 811C1 (Ground) (W/108B or 109B Data Set)	CA
Data Set 110B1 (Ground)	CA
Data Auxiliary Set 811K (Ground) (W/108D or 109G Data Set)	CA3