1A TELEPHONE WARNING SYSTEM IDENTIFICATION, INSTALLATION, CONNECTIONS, AND MAINTENANCE

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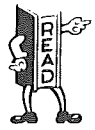
1. GENERAL

1.01 This section provides information on the 1A Telephone Warning System, a self-contained circuit which provides a means of security-type communication between eleven remote stations and two control stations. It also includes information on the emergency alert pushbutton, common alarm and cutoff key, and J58833A fuse panel. Other information in this section was formerly contained in Section 480-315-200, which is hereby canceled.



It is extremely important that this system provide reliable and uninterrupted service at all times. Be guided by the information in sections covering special safeguarding measures and special service protection.

2. IDENTIFICATION

CONTROL CABINET AND EQUIPMENT

2.01 The control equipment for one system consists of an ED-91981-70 cabinet containing the following:

Remote Telephone Set Unit (J1G018B)

Control, Interrupter, and Lamp Resistance Unit (J1G018C)

Signaling Unit (J1G018D)

Rectifier (J87211A)

Discharge Fuse Alarm Unit (J86814B)

Fuse Panel (J58833A)

Subcycle Generator (TB-20-S23, LORAIN Products Company)

48-Volt Battery Equipment (J86814C).

Included, in addition to the above, are battery accessories consisting of a hydrometer, thermometer, and water filler syringe.

2.02 These control units are factory assembled, wired, and tested before being delivered to

the customer location. Figure 1 shows the control cabinet containing the control equipment. This equipment is always located at control station No. 1.

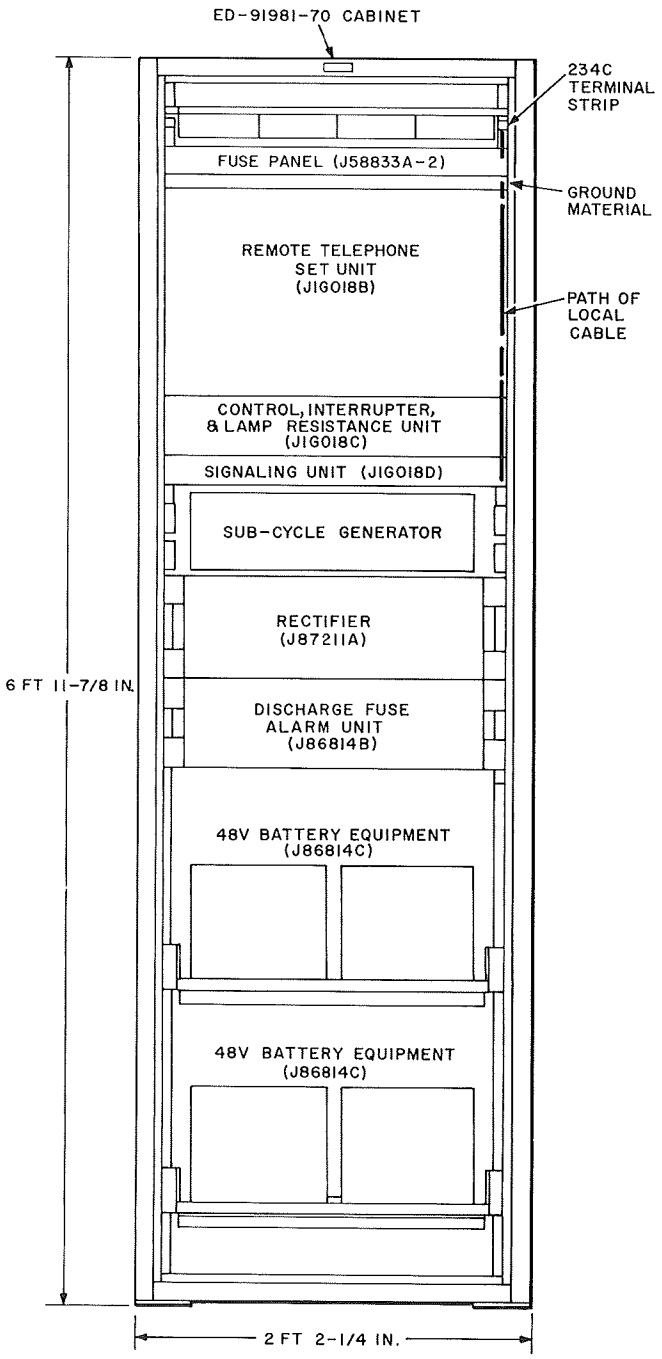


Fig. 1—J1G018A Equipped Control Cabinet—Door Removed

2.03 To further aid in the identification of the J1G018 units, Fig. 2, 3, and 4 show the remote telephone set unit; the control, interrupter, and lamp resistance unit; and the signaling unit, respectively.

REMOTE LAMP AND KEY CABINET

2.04 Each system requires two remote lamp and key cabinets, one for control station No. 1 and a second for control station No. 2. These cabinets are to be wall-mounted at each control station. The remote lamp and key cabinet for control station No. 1 is shown in Fig. 5. The remote lamp and key cabinet for control station No. 2 differs from that in control station No. 1 in that it has 39B apparatus blanks instead of 552G keys in the two bottom key rows.

2.05 All connections to each remote lamp and key cabinet are made by means of a plug-ended cable (A25C connector cable) which originates from the control cabinet at control station No. 1.

REMOTE TELEPHONE SETS

2.06 Each system accommodates a maximum of 11 remote telephone sets. Each remote telephone set is a 525A set mounted in a weatherproof enclosure (Fig. 6). Connections to each remote telephone set consist of one pair of leads (T and R) which originates from the control cabinet at control station No. 1. Detailed identification and assembly information for the 525A set is given in Section 502-560-100.

EMERGENCY ALERT PUSHBUTTON

2.07 Each remote telephone location requires one emergency alert pushbutton. It consists of a CH-10250T7 contact block and CH-10250T173 push-button mounted in a CH-10250TN11 weatherproof housing. Connections to each pushbutton consist of one pair of leads which originates from the associated remote telephone set.

CONTROL STATION TELEPHONE SETS

2.08 Each control station requires either a wall- or desk-mounted telephone set. The 558CR-type set is used when wall mounted; the 510ER-type set is used when desk mounted. Each set requires two pairs of leads which originate from the control cabinet at control station No. 1. Figures 7

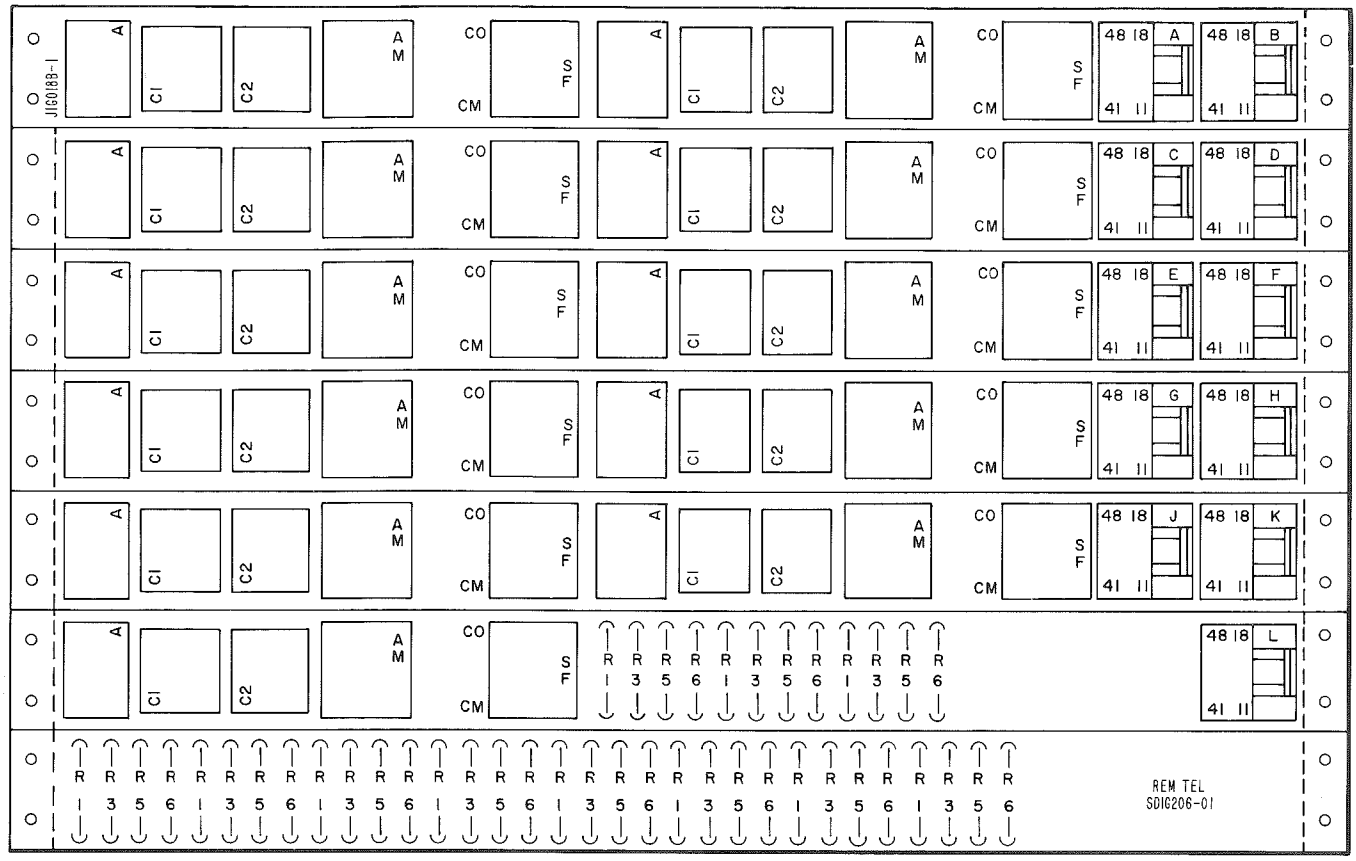


Fig. 2—Remote Telephone Set Unit—J1G018B

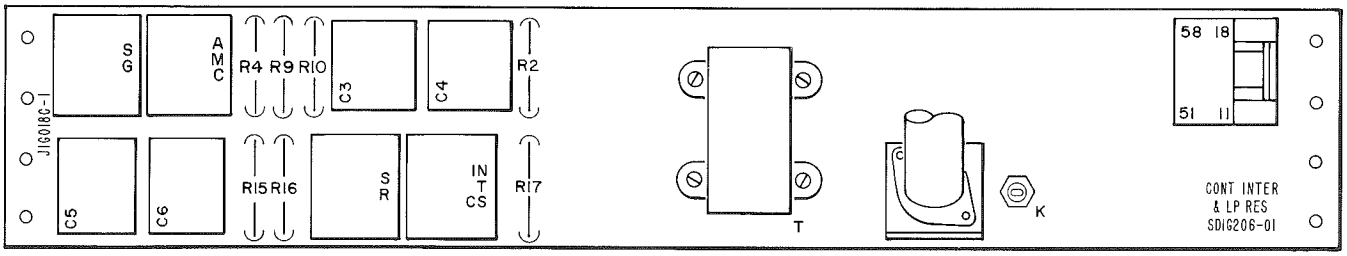


Fig. 3—Control, Interrupter, and Lamp Resistance Unit—J1G018C

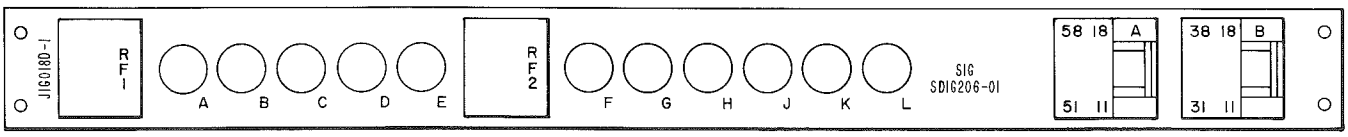


Fig. 4—Signaling Unit—J1G018D

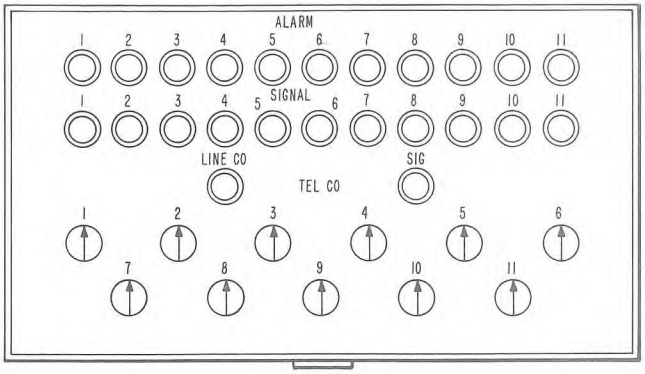


Fig. 5—Remote Telephone Lamp and Key Cabinet J1G018F

and 8 show the wall-type and desk-type telephone sets, respectively. Detailed identification and assembly information for the 510- and 558-type sets is given in Section 502-515-100.

COMMON ALARM AND CUTOFF KEY

2.09 The common alarm and cutoff key consists of a modified ED-69086-30,G1 buzzer and cutoff key box. Its overall dimensions are approximately 6-1/2 inches long, 7-7/8 inches high, and 1-1/4 inches deep. The field modification involves the following: substitute a 2V lamp for the B2 lamp and a 7F buzzer for the 7A-49 buzzer; stamp "mod per SD-1G206-01 note 203" on cover.

3. PLANNING AND INSTALLATION

CONTROL CABINET

3.01 The overall control cabinet is 84 inches high, 26-1/4 inches wide, and 17 inches deep. A reasonable vertical clearance is necessary above the cabinet for cables which enter the cabinet through the top. A front and rear clearance of 30 inches should be provided to allow the cabinet doors to be fully opened. No specific clearance is required at the sides of the cabinet except that which will allow the cabinet to be placed into position.

3.02 Prior to installation of the control cabinet, it should be determined that the load capacity of the floor is adequate for the equipment weight.

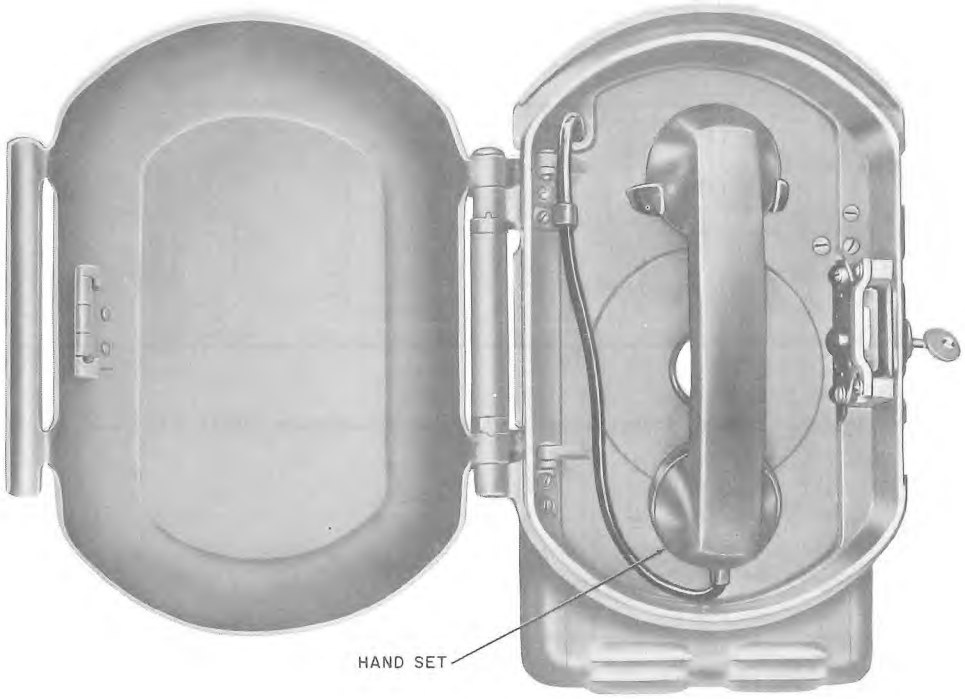


Fig. 6—525A Outdoor Telephone Set—Door Open

Fig. 7—558-Type Telephone Set

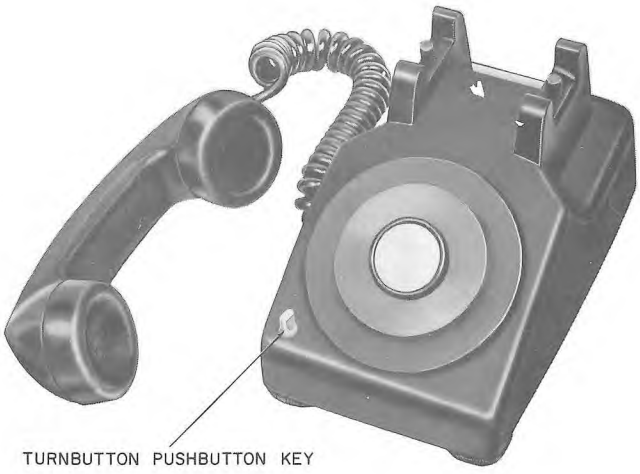


Fig. 8—510-Type Telephone Set

3.03 Single-phase commercial power of 115 volts, 60 cycles at 8 amperes and a suitable ground shall be provided at the control cabinet location by the customer.

3.04 When placed in position, the control cabinet should be level. Small strips of hardwood to shim the base of the cabinet should be used, if necessary. A sufficient number of shims should be used to equalize the weight distribution at the cabinet base.

3.05 The cabinet may be bolted down using the four factory-provided holes in the cross-members at the bottom of the cabinet.

3.06 It is assumed that the batteries for the emergency power supply will be shipped (dry, but fully charged) separately from the control cabinet. The batteries should be installed and serviced in accordance with Section 157-601-201 and 157-601-301.

REMOTE LAMP AND KEY CABINET

3.07 The remote lamp and key cabinet containing the line cutoff keys is to be located at control station No. 1, and the remote lamp and key cabinet containing apparatus blanks instead of line cutoff keys is to be located at control station No. 2.

3.08 Each remote lamp and key cabinet is 4-4/5 inches high, 8-2/5 inches wide, and 5-4/5 inches deep. Each should be flush-mounted on a wall or other suitable surface, as specified by the customer.

3.09 In determining the exact location of the remote lamp and key cabinets, the customer preference, cabinet accessibility, ease of cable connections, and ease of viewing the signal lamps should be considered.

> *Note:* Do not mount the remote lamp and key cabinet where direct light will nullify any lamp signal or where operation of the keys will be made difficult.

REMOTE TELEPHONE SETS

3.10 A maximum of 11 remote telephone sets are to be used in the 1A Telephone Warning System. The location of each set shall be as determined by the customer. Detailed information on installing the remote telephone sets is given in Section 502-560-201.

> *Note:* A maximum conductor loop resistance of 500 ohms from control station No. 1 to

each remote telephone set may be allowed under the worse circuit and voltage conditions. Exceeding this loop resistance will result in low transmission levels and a decrease in system reliability.

EMERGENCY ALERT PUSHBUTTON

3.11 One emergency alert pushbutton is to be located at each of the remote telephone sets. It should be installed approximately 4 inches below the telephone set and connected to it by rigid metal conduit. There is a threaded hole in the bottom of the 525A telephone set housing and in the top of the pushbutton enclosure suitable for 1/2-inch conduit. The pushbutton may be mounted on a backboard or fastened to the fence post with hose clamps (Fig. 9). The exact location and method of attachment must be determined locally with the customer.

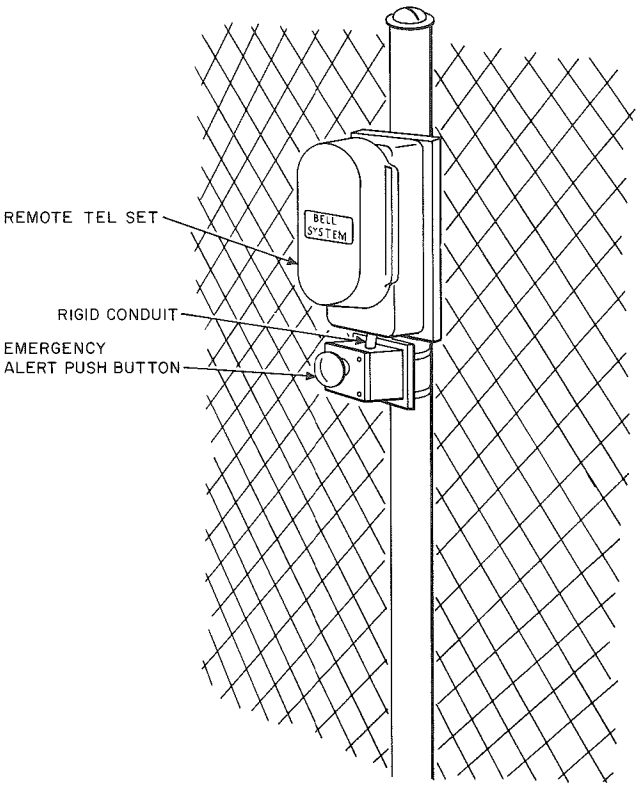


Fig. 9—Typical Installation of Emergency Alert Pushbutton

CONTROL STATION TELEPHONE SETS

3.12 Each control station requires either a wall- or desk-mounted telephone set. The type of set shall be determined by the customer. The location of the set shall be in accordance with customer requirements and Section 502-120-200. Section 502-120-201 gives detailed installation information on the control station telephone sets.

COMMON ALARM AND CUTOFF KEY

3.13 The common alarm and cutoff key should be installed at control station No. 1 in a location convenient to the customer. Mounting holes are provided in the key for mounting to a backboard or wall. Connections to the common alarm and cutoff key consist of one pair of leads originating from the control cabinet.

4. CONNECTIONS

4.01 All connections, with the exception of ac power and ground and the connections to the common alarm and buzzer circuit, are made from the 234C terminal strip located within the control cabinet (Fig. 1).

4.02 Table A gives the connections required between the control cabinet and the remote lamp and key cabinet located at control station No. 1.

4.03 Table B gives the connections required between the control cabinet and the remote lamp and key cabinet located at control station No. 2.

4.04 Table C gives the connections required between the control cabinet and each remote telephone set. In addition to the T and R leads connecting to terminals L1 and L2 as shown in Table C, one KS-13491, L1 9100-ohm resistor R18 should be installed between terminals L1 and L2 at each remote telephone set. Terminal G of each remote telephone set should be connected to ground. Section 502-560-400 shows the connections to the remote telephone set. Section 638-210-100 gives information on grounding methods necessary at each remote telephone set.

4.05 A KS-13491, L1 9100-ohm resistor (R-19) must be connected across the T and R leads of each unequipped remote telephone line circuit.

TABLE A

CONTROL CABINET (234C TERMINAL)	LEAD FUNCTION	CABLE A25C WIRE COLOR	REMOTE LAMP AND KEY CABINET (KS-16785 L4 PLUG)
3-16	LA1	BL-W	1
3-20	LR1	W-BL	26
2-16	LA2	O-W	2
2-20	LR2	W-O	27
1-16	LA3	G-W	3
1-20	LR3	W-G	28
3-17	LA4	BR-W	4
3-21	LR4	W-BR	29
2-17	LA5	S-W	5
2-21	LR5	W-S	30
1-17	LA6	BL-R	6
1-21	LR6	R-BL	31
3-18	LA7	O-R	7
3-22	LR7	R-O	32
2-18	LA8	G-R	8
2-22	LR8	R-G	33
1-18	LA9	BR-R	9
1-22	LR9	R-BR	34
3-19	LA10	S-R	10
3-23	LR10	R-S	35
2-19	LA11	BL-BK	11
2-23	LR11	BK-BL	36
2-25	LC0	O-BK	12
2-27	LS	BK-O	37
NO CONN		G-BK	13
NO CONN		BK-G	38
2-26	CB	BR-BK	14
NO CONN		BK-BR	39
3-24	BZ	S-BK	15
NO CONN		BK-S	40
3-30	CO1	BL-Y	16
2-30	CO2	Y-BL	41
1-30	CO3	O-Y	17
3-31	CO4	Y-O	42
2-31	CO5	G-Y	18
1-31	CO6	Y-G	43
3-32	CO7	BR-Y	19
2-32	CO8	Y-BR	44
1-32	CO9	S-Y	20
3-33	CO10	Y-S	45

TABLE A (Cont)

CONTROL CABINET (234C TERMINAL)	LEAD FUNCTION	CABLE A25C WIRE COLOR	REMOTE LAMP AND KEY CABINET (KS-16785 L4 PLUG)
2-33	CO11	BL-V	21
NO CONN		V-BL	46
NO CONN		O-V	22
NO CONN		V-O	47
3-77	GRD B	G-V	23
NO CONN		V-G	48
NO CONN		BR-V	24
3-79	GRD C	V-BR	49
NO CONN		S-V	25
1-79	BAT C	V-S	50

Make this connection at the 234C terminal strip. See Table C for terminal assignments.

4.06 The emergency alert pushbutton connections are made as follows: Connect the T and R terminals of the pushbutton to L1 and L2 terminals, respectively, of the associated remote telephone set.

4.07 Table D gives the connections required between the control cabinet and the wall- or desk-mounted telephone set at control station No. 1.

4.08 Table E gives the connections required between the control cabinet and the wall- or desk-mounted telephone set at control station No. 2.

4.09 Connections for the modified ED-69086-30 G1 common alarm and cutoff key are shown in Fig. 10. Table F gives the connections required between the control cabinet and the common alarm and cutoff key.

4.10 Commercial power and ground (supplied by the customer) is connected to the system via the J87211 rectifier located in the control cabinet. The ac line (115 volts) is connected to TS4-L1. AC ground is connected to TS4-L2.

4.11 Discharge ground connection is made as follows: Using KS-5517, L1 solderless lugs, connect a KS-5482-01, 12-gauge stranded wire between the discharge ground bar on the J87211 rectifier and the BAT GRD terminal on the ground bar at the top of the cabinet.

4.12 Office ground connection is made as follows: Using KS-5517, L1 solderless lugs, connect a KS-5482-01, 6-gauge stranded wire between customer-furnished ground and the OFFICE GRD terminal on the ground bar at the top of the cabinet.

5. MAINTENANCE

Since the 1A Telephone Warning System is a security-type system, it is extremely important that the system provide reliable and uninterrupted service at all times. The circuit should never be taken out of service without the express permission of the customer.

5.01 Control station key, lamp, bell, and buzzer functions are listed in Table G. Malfunctions can be cleared with the aid of CD- and SD-1G206-01. Performance tests are provided in Section 480-315-500.

Caution: During any cleaning operation, exercise extreme care to avoid an off-hook condition at any station in order to prevent

TABLE B

CONTROL CABINET (234C TERMINAL)	LEAD FUNCTION	CABLE A25C WIRE COLOR	REMOTE LAMP AND KEY CABINET (KS-16785 L4 PLUG)
3-34	LA1	BL-W	1
3-38	LR1	W-BL	26
2-34	LA2	O-W	2
2-38	LR2	W-O	27
1-34	LA3	G-W	3
1-38	LR3	W-G	28
3-35	LA4	BR-W	4
3-39	LR4	W-BR	29
2-35	LA5	S-W	5
2-39	LR5	W-S	30
1-35	LA6	BL-R	6
1-39	LR6	R-BL	31
3-36	LA7	O-R	7
3-40	LR7	R-O	32
2-36	LA8	G-R	8
2-40	LR8	R-G	33
1-36	LA9	BR-R	9
1-40	LR9	R-BR	34
3-37	LA10	S-R	10
3-41	LR10	R-S	35
2-37	LA11	BL-BK	11
2-41	LR11	BK-BL	36
3-25	LC0	O-BK	12
3-27	LS	BK-O	37
NO CONN		G-BK	13
NO CONN		BK-G	38
3-26	CB	BR-BK	14
NO CONN		BK-BR	39
3-24	BZ	S-BK	15
NO CONN		BK-S	40
		BL-Y	16
		Y-BL	41
		O-Y	17
		Y-O	42
		G-Y	18
		Y-G	43
		BR-Y	19
NO CONN		Y-BR	44

TABLE B (Cont)

CONTROL CABINET (234C TERMINAL)	LEAD FUNCTION	CABLE A25C WIRE COLOR	REMOTE LAMP AND KEY CABINET (KS-16785 L4 PLUG)
NO CONN		S-Y	20
		Y-S	45
		BL-V	21
		V-BL	46
		O-V	22
		V-O	47
		G-V	23
		V-G	48
NO CONN		BR-V	24
3-79	GND C	V-BR	49
NO CONN		S-V	25
1-79	BAT C	V-S	50

a false signal from being transmitted to the control or remote stations.

5.02 Maintenance of telephone sets, batteries, and other components should be in accordance with sections covering the item involved.

5.03 Operation and maintenance of the J87211 rectifier and the J86814 power plant is covered in Sections 169-245-301 and 167-210-302, respectively. Maintenance information for the remote telephone sets and control station telephone sets is covered in Sections 502-560-201 and 502-515-300, respectively.

TABLE C

CONTROL CABINET (234C TERMINAL)	LEAD FUNCTION	REMOTE SITE	525A TELEPHONE SET TERMINAL
3-0	T	1	L1
2-0	R		L2
3-1	T	2	L1
2-1	R		L2
3-2	T	3	L1
2-2	R		L2
3-3	T	4	L1
2-3	R		L2
3-4	T	5	L1
2-4	R		L2
3-5	T	6	L1
2-5	R		L2
3-6	T	7	L1
2-6	R		L2
3-7	T	8	L1
2-7	R		L2
3-8	T	9	L1
2-8	R		L2
3-9	T	10	L1
2-9	R		L2
3-10	T	11	L1
2-10	R		L2

TABLE D

CONTROI CABINET (234C TERMINAL)	LEAD FUNCTION	TELEPHONE SET TERMINAL	
		558CR	510ER
3-14	T3	4 and 2	BK and G
2-14	R3	3 and 1	R and Y
1-14	BR	8	BL
3-79	GRD C	7	W

TABLE E

CONTROL CABINET (234C TERMINAL)	LEAD FUNCTION	TELEPHONE SET TERMINAL	
		558CR	510ER
3-15	T3	4 and 2	BK and G
2-15	R3	3 and 1	R and Y
1-15	BR	8	BL
3-79	GRD C	7	W

TABLE F

LEAD	CONNECT FROM	CONNECT TO
G	2Y lamp in common alarm and cutoff key	Term G on TS of J58833A-2 fuse panel
D	Term C on 7F buzzer in common alarm and cutoff key	Term 2 on TS of J58833A-2 fuse panel
(strap)	Term 2 on TS of J58833A-2 fuse panel	RFA on TS-2 of J87211A-1 rectifier panel
(strap)	RFA on TS-2 of J87211A-1 rectifier panel	Term 2 on TS-2 of J86814B-1 discharge fuse alm panel
(strap)	Term 2 on TS-2 of J86814B-1 discharge fuse alm panel	Term 3 on TS-2 of J86814B-1 discharge fuse alm panel

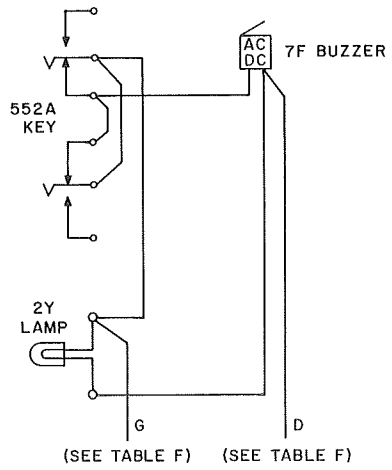


Fig. 10—Connections for Modified ED-69086-30, G1 Common Alarm and Cutoff Key

TABLE G

DESIGNATION	FUNCTION
TEL CO Key(1 to 11)	When operated, disconnects remote telephone line — ( ).
Control Station Telephone Set Turnbutton Pushbutton Key	When operated, directs ringings to other control station and blocks ringing to remote stations.
ALARM Lamp (1 to 11)	When lighted, indicates that remote telephone line — ( ) is grounded or open.
SIGNAL Lamp (1 to 11)	When lighted, indicates that remote telephone handset — ( ) is off-hook, or emergency alarm pushbutton has been operated.
SIG Lamp	When lighted, indicates that other control station handset is off-hook.
LINE CO Lamp	When lighted, indicates that one or more remote telephone lines have been disconnected by TEL CO key(s).
CC Bell	When ringing, indicates that a remote station or the other control station is off-hook, or a remote station emergency alarm pushbutton has been operated.
CC Buzzer	When sounding, indicates that a remote telephone line is grounded or open.
FUSE ALARM Lamp	When lighted, indicates high voltage, low voltage, or fuse alarm.
FUSE ALARM Buzzer	When sounding, indicates same as lighted FUSE ALARM lamp; can be silenced by turning FUSE ALARM key to OFF.