

CIVIL AIR DEFENSE WARNING SYSTEM
(CADW)

BELL AND LIGHTS

STATION EQUIPMENT - INSTALLATION AND MAINTENANCE

1.00 GENERAL

1.01 This section covers the installation and maintenance of station equipment at civil defense control points and warning stations. Methods of making tests are also included.

1.02 Working limit tables for various combinations of station indicators and ringers when used with various ac-dc ranges have been included.

1.03 Equipment covered in this section is installed only upon proper authorization.

1.04 Binding post insulators shall be installed at all appearances of CADW lines.

2.00 INSTALLATION

2.01 Locate the dial assembly at the control points on a desk, table, or wall, as desired by the customer.

2.02 When the dial assembly is located on a desk or table, connect a D3BP (or equivalent) cord between the 42A connecting block and the connecting block in the dial mounting.

2.03 When the dial assembly is wall-mounted, its location should be unobstructed (Fig. 1).

2.04 The dial assembly is mounted on a wall surface using a backboard per ED-69245-01, Group 2. Remove the four feet from the baseplate, and attach the baseplate to the backboard with four 3/4-inch No. 8 wood screws.

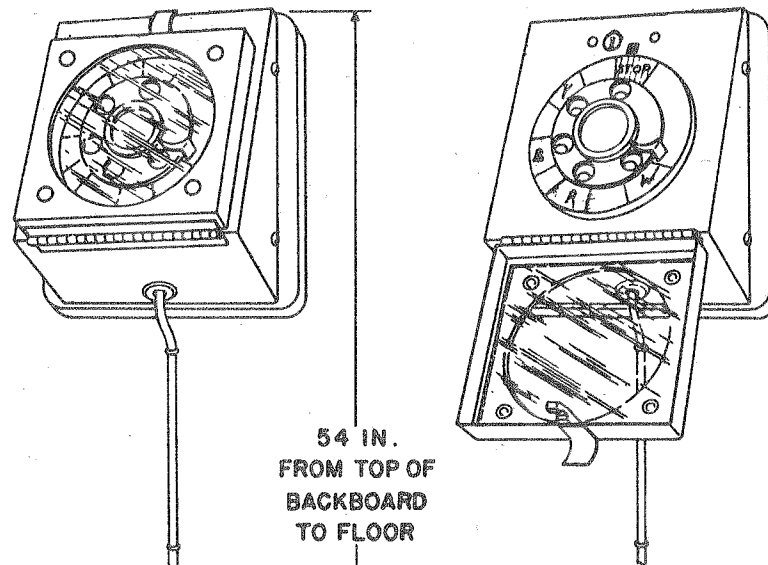


Fig. 1 - Wall-mounted Dial Assembly

TABLE A

15,000 OHMS MINIMUM INSULATION RESISTANCE

Line to CADW Circuit	Minimum Superimposed Voltage		Maximum Earth Potential	Maximum Loop			
				No Extension	One Extension Indicator†	One Extension Ringer	Two Extension Ringers†
	AC	DC *		ohms			
2-wire	65	45	0	600	50	300	200
	70	45	0	1300	400	700	600
	70	45	± 5	800	150	400	200
	70	45	± 10	300			
	75	45	0	1800	800	1200	1000
	75	45	± 5	1300	400	800	600
	75	45	± 10	900	200	400	300
	80	45	± 10	1300	400	900	700
	65	45		500		200	100
	70	45		1000	200	500	400
4-wire	75	45		1500	600	1000	900

TABLE B

50,000 OHMS MINIMUM INSULATION RESISTANCE

Line to CADW Circuit	Minimum Superimposed Voltage		Maximum Earth Potential	Maximum Loop			
				No Extension	One Extension Indicator†	One Extension Ringer	Two Extension Ringers†
	AC	DC*		ohms			
2-wire	65	45	0	1000	200	600	200
	70	45	0	1800	700	1200	700
	70	45	± 5	1300	300	800	400
	70	45	± 10	600		300	
	75	45	0	2600	1000	1700	1200
	75	45	± 5	2000	700	1300	800
	75	45	± 10	1600	400	800	500
	80	45	± 10	2400	800	1500	900
	65	45		800	100	500	300
	70	45		1500	400	800	700
4-wire	75	45		2000	700	1500	1100



**Even though a central office has standard 4-party ringing service available, the following additional battery supplies are required to obtain the voltage necessary for the proper operation of the CADW system:*

Step-by-step offices require a separate 48-volt negative and positive superimposed dry battery supply.

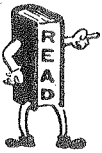
In crossbar and panel offices, the 48-volt negative superimposed battery is obtained from the regular central office supply. In addition, a separate 48-volt positive superimposed dry battery supply is required.

† The addition of an extension indicator or two extension ringers will reduce by one the number of lines which may be served by a given central office unit.

2.05 On wall installations, rotate the dial 180 degrees in the housing so the cover will open down and not obstruct the dial.

2.06 Enter the inside wire through the rubber bushing, and terminate the tip side of the line on terminal No. 1 and the ring side on terminal No. 2.

2.07 Mount the station signal indicator on a wall where it is continuously visible.



Do not mount the station signal indicator in direct sunlight or where direct light on the face of the alert warning designation strip will nullify the brilliance of the lamp signal.

2.08 Two cable pairs are required for station signal indicators associated with the following types of central office units:

- Single-line capacity
- 5-line capacity

2.09 In larger communities only one cable pair is required for station signal indicators associated with the following types of central office units:

- 8-line capacity
- 50- to 200-line capacity

2.10 When ringer cutoff is specified, mount a nonlocking 6017-type key where it will be accessible to the customer. Extensions may be silenced with a locking 6017-type key.

2.11 Associated power relay sets for use with customer-installed sirens shall be installed as covered in the C Section entitled Auxiliary Signals and Power Relay Sets.

2.12 Customers shall have installed any power wiring required for connecting the power relay set and siren.

3.00 LIMITATIONS

Tables A and B give loop limitations for systems requiring extension ringers or

loud-ringing bells. The working limits are based on the use of a 13C or equivalent resistance lamp. Ranges shown apply to the most distant indicator or ringer.

4.00 MAINTENANCE



Because of the importance of the CADW system, no maintenance of any kind shall be performed on the station equipment without proper authorization.

4.01 No attempt shall be made to adjust, lubricate, or repair any part of the F-50090 dial. Any dial requiring adjustment for irregular functioning or having defective parts shall be replaced.

4.02 During any cleaning operations, extreme care shall be exercised to avoid rotation of the finger wheel, which may cause a false alert to be transmitted. Obtain release before working on dial.

4.03 When any component part (except the shield and designation strip) of the station signal indicator requires replacement, the entire indicator should be replaced. Replacement of the shield (P-37A556) and designation strip can be made without affecting operation of the indicator.

4.04 Maintenance of all associated equipment not mentioned above should be in accordance with C Sections covering the items.

5.00 TEST OF DIAL OPERATION

5.01 Observe the READ in 4.00 before making any tests involving operation of dial. Arrangements shall be made for an assistant at the central office to observe test signal indicator during test. Before testing, arrangements shall be made to permit direct conversation between the persons conducting this test. Also, arrangements shall be made before testing to deny warning signals to all warning and public signal control (siren) stations in the network affected. This dialing test shall be completed promptly to prevent confusion with a real warning and to minimize the out-of-service period. In most cases the central office serving the control point also distributes to other warning stations served from connecting central

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offices, and extreme care must be taken to assure that false warnings are not sent out to those offices.

5.02 The WHITE signal is dialed at the beginning of the test to indicate that a test is being made. It is important that the STOP signal be dialed once between each warning signal to avoid the possibility of mutilating the ringing code and thus giving a false test indication.

5.03 The dialing test shall be performed without preliminary dialing. Dial two identical positions in quick succession (not more than about 5 seconds apart) for each warning, followed by STOP, in this order:

WHITE -- WHITE -- STOP

YELLOW -- YELLOW -- STOP

BLUE -- BLUE -- STOP

RED -- RED -- STOP

WHITE -- WHITE -- STOP

Dialing STOP will restore the system to normal after each warning except for the central office alarm. If the dial operation test indicates dial trouble, replace the dial which was under test with a new dial and repeat the test.

5.04 Upon completion of test, the responsible supervisor shall be informed.

6.00 TEST OF STATION SIGNAL INDICATOR AND SIREN STATION EQUIPMENT

6.01 Observe the precautions outlined in 4.00. The arrangements to be made with the central office people with respect to testing station signal indicators will depend on the central office testing facilities available. Where a station line test circuit (SD-95746-01) is part of the CADW equipment in the central office, the workman at the station should request that a test be originated from the CADW equipment bay after following the READ in 4.00. The above test may be made by the test desk, providing it is equipped with 4-party selective ringing. When either method is used, arrangements should be made to ensure that the test currents are applied only to the line of the station under test and are as shown in Table C. In making the test by either method, it is essential that facilities be such as to permit direct conversation between the persons conducting the test. It should be established that the light which functions in the station signal indicator is of the same color signal as the warning being sent from the central office and that the ringer of the indicator (or 687A subscriber set) operates satisfactorily both as to reliability and volume of sound. The test should cover four conditions of warning.

TABLE C

Warning Signal	2-wire Circuit		4-wire Circuit	
	Polarized Ringing Supply	Ringing Ground on	Neg Polarized Ringing Supply on	Ringing Ground on
ALERT SIGNAL (Y)	(-) on R	T	R	T, T1, R1
AUTHENTICATION (B)	(+) on R	T	T, T1, R1	R
TAKE COVER (R)	(-) on T	R	T	R, T1, R1
ALL CLEAR (W)	(+) on T	R	R, T1, R1	T

Siren Station Equipment



Take precautions to avoid personal danger from hazardous voltage on controller relay or siren motor.

6.02 When required, the siren station relay set should be checked to ensure that it responds to spurts of 20-cycle ringing current sent from the central office over the siren station line. Arrangements

should be made to be certain that the test currents are applied only to the line of the station involved.

Caution: If customer-owned equipment is connected to the relay set, care should be taken that the 20-cycle current is sent only in fractional-second spurts with intervals between spurts of no less than 15 seconds. This procedure is to be followed in order that the public signal is not fully activated.

