

CIVIL AIR DEFENSE WARNING SYSTEM
DIAL PULSE RECEIVING AND CODE DISTRIBUTING CIRCUIT SD-95678-01
MAXIMUM 200 LINES
AND PUBLIC SIGNAL CONTROL CIRCUIT SD-95688-01
TESTS

1. GENERAL

1.01 This section describes a method of testing dial pulse receiving and code distributing circuit SD-95678-01. It also describes a method of testing the public signal control circuit SD-95688-01 used for disseminating signals to siren stations when this circuit is connected to SD-95678-01.

1.02 This section is reissued to cover offices where optional equipment has been added to provide automatic termination of alert signals.

1.03 The tests covered are:

A. Local Operation Test (Except Public Signal Control Circuit): This test checks that the equipment will respond properly to dial pulse signals, transmit the correct code or continuous ringing signals to the warning stations, and when the STOP digit is dialed or the automatic signal stopping equipment functions, the circuit is restored to normal. It checks that the office alarm will sound and a lamp indication will lock in when dialing occurs or when trouble occurs on the incoming loop. It also checks that the extension lamps and the extension cancel alarm key or alarm cutoff circuit function properly.

B. Positive Superimposing Battery Test: This test checks that the positive superimposing dry cell batteries of this equipment are within satisfactory voltage limits.

C. Fuse Alarm Relay Test: This test checks that if a fuse blows on this equipment the office alarm will sound and a fuse alarm lamp will light.

D. Test of Siren Line Failure Alarm Feature: This test checks that if a trouble condition occurs on a siren line equipped for

continuous line test, the office alarm will sound and the ALM or the LT ALM lamp will light.

E. Local Operation Test of Public Signal Control Circuit Where the Position 2 Signal or the Blue Signal Sounds the Sirens as an ALERT Signal: This test checks that the public signal control equipment will respond properly to signals received over the R and B leads from the dial pulse receiving and code distributing circuit and transmit the correct signals to the siren stations.

1.04 WARNING: Permission MUST be obtained from the Telephone Company civil defense (formerly the CADW) network control supervisor before any tests are performed on this equipment. All other Telephone Company personnel who may be concerned shall be informed when tests are to be conducted, and both the control supervisor and other concerned Telephone Company personnel shall be informed when the tests are completed and the equipment is restored to service.

1.05 WARNING: When performing maintenance operations on this equipment, it is extremely important to avoid transmitting false signals to the warning stations and siren stations. Therefore, before making the tests covered herein, the RCO (ringing cutoff) key and the SCO (siren cutoff) key, if provided, shall be operated to prevent the connection of ringing current to any of the lines. Before restoring the RCO key or the SCO key to normal, make certain that the equipment is normal.

1.06 If it becomes necessary to restore this equipment to service at any step in the progress of these tests, a method of rapidly effecting the restoral is described under 3. METHOD for each test.

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1.07 Test A requires verification at the extension lamp circuit.

1.08 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Part 3 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

2.01 The apparatus required for each test is shown in the following list. The details for each item are covered in the indicated paragraphs.

APPARATUS	NO. REQUIRED FOR TESTS				
	A	B	C	D	E
Dial Hand Test Set (2.02)	1	-	-	-	1
Patching Cord (2.03)	1	-	-	-	1
Signal Indicator Set (2.04)	1	-	-	-	-
Testing Cord (2.05)	-	-	1	-	-
Testing Cord (2.06)	-	-	-	1	-
Voltmeter (2.07)	-	1	-	-	-
Stop Watch (2.08)	1	-	-	-	1
Plug (2.09)	1	-	-	-	1
Plug (2.10)	1	-	-	-	1

Using Dial Hand Test Set

2.02 1011G dial hand test set, equipped with a 2W38A cord assembly consisting of a W2CK cord, 471A jack, and a 310 plug.

3. METHOD

STEP	ACTION	VERIFICATION
	A. Local Operation Test (Except Public Signal Control Circuit)	
	<i>TO RESTORE THIS EQUIPMENT TO SERVICE at any step in the progress of the test, immediately remove the blocking tools from any relays that may be blocked, dial 2-88-2-00, then proceed at once with the Restoral Procedure, Steps 65 through 74.</i>	
1	Operate SCO key of public signal control circuit, if provided.	SCO lamp lighted.

Using Relay Rack Mounted Dial

2.03 Patching cord, P3E cord, 6 feet long, equipped with two 310 plugs (3P7A cord) (for use in patching the DIAL jack to the C jack of the dial pulse receiving circuit).

2.04 Station signal indicator circuit SD-69211-01, Fig. 1, with "Z" wiring, connected to an S3B cord, 10 feet long, equipped with a 310 plug (3W1A cord) as follows:

TESTING CORD TERMINAL	SIGNAL INDICATOR TERMINAL
Tip	L2
Ring	L1
Sleeve	G

Note: If all warning stations associated with the dial pulse receiving and code distributing unit under test are provided with "audible only" signal indicators, Fig. 2 may be used instead of Fig. 1, omitting connection to G terminal. In this case, disregard all reference to position 1, 2, 3, and 4 lamps or Y, B, R, and W lamps.

2.05 Testing cord, W1AF cord equipped with one KS-6278 connecting clip and one 411A tool (for use in connecting battery to fuse alarm studs).

2.06 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord), a KS-6278 connecting clip, and a 411A tool (for use in connecting ground to relay springs).

2.07 KS-14510 volt-ohm-milliammeter.

2.08 KS-3008 stop watch (or equivalent).

2.09 165D (dummy) plug.

2.10 258D (dummy) plug.

STEP	ACTION	VERIFICATION
2	Operate RCO key. <i>WARNING: Do not restore either of these keys to normal before instructed to do so under the Restoral Procedure, or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.</i>	CO lamp lighted.
3	Insert 258D plug into PLS (pulse) jack.	
4	Insert 165D plug into S or SJ (shunt) jack.	
5a	If using dial hand test set — Insert 310 plug into C jack.	
6b	If using relay rack mounted dial — Connect DIAL jack to C jack, using P3E cord.	
7	Remove plug from PLS jack.	ALM or DP ALM lamp remains extinguished. Office alarm remains silent.
8	Insert plug of signal indicator set into TLO (test line — odd) jack on LINE CONN unit.	
9c	If extension alarm circuit is provided — Dial 4.	PD lamp lighted. ALM or DP ALM lamp lighted. Office alarm sounds. At extension lamp circuit — DP ALM lamp lighted.
10d	If CA (cancel alarm) key is provided at extension lamp circuit — Operate momentarily.	ALM or DP ALM lamp extinguished. Office alarm silenced. At extension lamp circuit — DP ALM lamp extinguished.
11e	If extension CA key is not provided — Operate CA key momentarily.	ALM or DP ALM lamp extinguished. Office alarm silenced. At extension lamp circuit — DP ALM lamp extinguished.
12f	If extension lamp circuit is not provided — Dial 4.	PD lamp lighted. ALM or DP ALM lamp lighted. Office alarm sounds.
13g	If alarm cutoff circuit is provided — Using office telephone, dial assigned alarm cutoff number ().	ALM or DP ALM lamp extinguished. Office alarm silenced.
14h	If alarm cutoff circuit is not provided — Operate CA key momentarily.	ALM or DP ALM lamp extinguished. Office alarm silenced.
15	Block nonoperated AL relay of dial pulse receiving circuit.	

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STEP	ACTION	VERIFICATION
16i	If PD lamp is still lighted — Dial 2.	PD lamp extinguished.
17	Dial 4.	PD lamp lighted. PD lamp extinguished in 16 to 48 seconds.
18	Dial 4. Perform next step within 16 seconds.	PD lamp lighted.
→ 19	Dial 4.	Ringer and position 1 lamp, or Y lamp, respond to code cycle of 1/2 second on — 1/2 second off — 1/2 second on — 2-1/2 seconds off. If automatic time-out equipment is provided — After approximately three minutes — Ringer silenced. Position 1 lamp, or Y lamp, extinguished. PD lamp extinguished (if still lighted).
→ 20j	If automatic time-out equipment is not provided — Dial 2.	Ringer silenced. Position 1 lamp, or Y lamp, extinguished. PD lamp extinguished (if still lighted).
21	Dial 6. Perform next step within 16 seconds.	PD lamp lighted.
→ 22	Dial 6.	Ringer and position 2 lamp, or B lamp, respond to code cycle of 1/2 second on — 1/2 second off — 1/2 second on — 1/2 second off — 1/2 second on — 1-1/2 seconds off. If automatic time-out equipment is provided — After approximately three minutes — Ringer silenced. Position 2 lamp, or B lamp, extinguished. PD lamp extinguished (if still lighted).
→ 23j	If automatic time-out equipment is not provided — Dial 2.	Ringer silenced. Position 2 lamp, or B lamp, extinguished. PD lamp extinguished (if still lighted).
24	Dial 8. Perform next step within 16 seconds.	PD lamp lighted.
→ 25	Dial 8.	Ringer and position 3 lamp, or R lamp, respond to code cycle of 1/2 second on — 1/2 second off (60 IPM). If automatic time-out equipment is provided — After approximately three minutes — Ringer silenced. Position 3 lamp, or R lamp, extinguished. PD lamp extinguished (if still lighted).

STEP	ACTION	VERIFICATION
→ 26j	If automatic time-out equipment is not provided — Dial 2.	Ringer silenced. Position 3 lamp, or R lamp, extinguished. PD lamp extinguished (if still lighted).
27	Dial 0. Perform next step within 16 seconds.	PD lamp lighted.
→ 28	Dial 0.	If equipment arranged for coded position 4 signal, or white signal — Ringer and position 4 lamp, or W lamp, respond to code cycle of 16 seconds on — 16 seconds off. PD lamp extinguished in less than 48 seconds. If equipment arranged for continuous position 4 signal, or continuous white signal — Ringer and position 4 lamp, or W lamp, operate continuously. PD lamp extinguished in less than 48 seconds.
29	Dial 4. Perform next step within 16 seconds.	PD lamp lighted.
30	Dial 4.	Position 4 lamp, or W lamp, extinguished. Ringer and position 1 lamp, or Y lamp, respond to code cycle of 1/2 second on — 1/2 second off — 1/2 second on — 2-1/2 seconds off. PD lamp extinguished in less than 48 seconds. <i>Note:</i> Any mutilation of the first code cycle may be ignored.
31	Dial 6. Perform next step within 16 seconds.	PD lamp lighted.
32	Dial 6.	Position 1 lamp, or Y lamp, extinguished. Ringer and position 2 lamp, or B lamp, respond to code cycle of 1/2 second on — 1/2 second off — 1/2 second on — 1/2 second off — 1/2 second on — 1-1/2 seconds off. PD lamp extinguished in less than 48 seconds. <i>Note:</i> Any mutilation of the first code cycle may be ignored.
33	Dial 8. Perform next step within 16 seconds.	PD lamp lighted.
34	Dial 8.	Position 2 lamp, or B lamp, extinguished. Ringer and position 3 lamp, or R lamp, respond to code cycle of 1/2 second on — 1/2 second off — (60 IPM). PD lamp extinguished in less than 48 seconds.

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STEP	ACTION	VERIFICATION
35	Dial 0. Perform next step within 16 seconds.	PD lamp lighted.
→ 36	Dial 0.	If equipment arranged for coded position 4, or white signal — Position 3 lamp, or R lamp, extinguished. Ringer and position 4 lamp, or W lamp, respond to code cycle of 16 seconds on — 16 seconds off. If equipment arranged for continuous position 4 signal, or continuous white signal — Position 3 lamp, or R lamp, extinguished. Ringer and position 4 lamp, or W lamp, operate continuously.
37	Dial 2.	Ringer silenced. Position 4 lamp, or W lamp, extinguished. PD lamp extinguished (if still lighted).
38	Dial 1.	WD lamp lighted. WD relay releases in 16 to 48 seconds. At extension alarm circuit, if provided — WD lamp lighted.
39	Operate WD (wrong digit) key momentarily.	WD lamp extinguished. At extension lamp circuit, if provided — WD lamp extinguished.
40	Dial 1. Perform next step within 16 seconds.	Ringer remains silent. Position 1, 2, 3, and 4 lamps, or Y, B, R, and W lamps, remain extinguished. WD lamp lighted.
41	Dial 4.	PD lamp remains extinguished.
42	Operate WD key momentarily.	WD lamp extinguished.
43	Repeat Steps 40 and 42 for digits 3, 5, and 7.	
44	Dial 9.	TST lamp lighted. At extension lamp circuit, if provided — TST lamp lighted.
45	Operate TST (test) key momentarily.	TST lamp extinguished. At extension lamp circuit, if provided — TST lamp extinguished.
46	Dial 4. Perform next step within 16 seconds.	PD lamp lighted.
47	Dial 6.	WD lamp lighted. PD lamp extinguished.
48	Operate WD key momentarily.	WD lamp extinguished.
49	Dial 4. Perform next step within 16 seconds.	PD lamp lighted.
50	Dial 8.	WD lamp lighted. PD lamp extinguished.
51	Operate WD key momentarily.	WD lamp extinguished.

STEP	ACTION	VERIFICATION
52	Dial 4. Perform next step within 16 seconds.	PD lamp lighted.
53	Dial 0.	WD lamp lighted. PD lamp extinguished.
54	Operate WD key momentarily.	WD lamp extinguished.
55	Dial 6. Perform next step within 16 seconds.	PD lamp lighted.
56	Dial 4.	WD lamp lighted. PD lamp extinguished.
57	Operate WD key momentarily.	WD lamp extinguished.
58	Block operated RA relay of dial pulse receiving circuit.	RA1 relay of dial pulse receiving circuit operated.
59	Manually operate P4 and P6 relays of dial pulse receiving circuit.	P4 and P6 relays remain operated.
60	Manually operate LE relay of dial pulse receiving circuit momentarily.	WD lamp lighted.
61	Remove blocking tool from RA relay.	P4, P6, and RA1 relays released.
62	Operate WD key momentarily.	WD lamp extinguished.
63	Remove plug from TLO jack and insert it in TLE (test line — even) jack.	
64	Repeat Steps 17 through 28.	

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65	Dial 2.	Ringer remains silent. Signal indicator lamps remain extinguished.
66	Remove blocking tool from AL relay.	
67	Insert No. 258D plug into PLS jack.	
68a	If using dial hand test set — Remove plug from C jack.	
69b	If using relay rack mounted dial — Remove P3E cord from DIAL and C jacks.	
70	Remove plug from S or SJ jack.	
71	Remove plug from PLS jack.	Ringer remains silent. Position 1, 2, 3, 4, or Y, B, R, W, and PD, WD, and TST lamps remain extinguished.

WARNING: If the signal indicator set is responding in any manner to ringing current, or if relay Y, B, R, or W of the dial pulse receiving circuit or any of the relays of the public signal control circuit are operated, do not proceed to Steps 72 through 74, or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.

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STEP	ACTION	VERIFICATION
72	Restore RCO key.	CO lamp extinguished.
73	Remove plug from TLE jack.	
74	Restore SCO key, if provided.	SCO lamp extinguished.

B. Positive Superimposing Battery Test

TO RESTORE THIS EQUIPMENT TO SERVICE at any step in the progress of the test, immediately remove all test connections, then proceed at once with the Restoral Procedure, Steps 10 through 12.

1	Operate SCO key of public signal control circuit, if provided.	SCO lamp lighted.
2	Operate RCO key.	CO lamp lighted.
	<i>WARNING: Do not restore either of these keys to normal before instructed to do so under the Restoral Procedure, or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.</i>	
3	Connect the voltmeter to VM jacks on the AUX RING SUP unit.	
4	Operate TST key to position B1.	Voltmeter indicates 52 volts or less.
5	Operate and hold LOAD key for 10 seconds minimum.	Voltmeter indicates 46 volts or more.
6	Restore LOAD key.	
7	Operate TST key to position B2.	Voltmeter indicates 52 volts or less.
8	Operate and hold LOAD key for 10 seconds minimum.	Voltmeter indicates 46 volts or more.
9	Restore LOAD key.	

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10	Disconnect voltmeter from VM jacks.	
	<i>WARNING: If relay Y, B, R, or W of the dial pulse receiving circuit or any of the relays of the public signal control circuit are operated, do not proceed to Steps 11 and 12 or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.</i>	
11	Restore RCO key.	CO lamp extinguished.
12	Restore SCO key, if provided.	SCO lamp extinguished.

STEP	ACTION	VERIFICATION
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C. Fuse Alarm Relay Test

TO RESTORE THIS EQUIPMENT TO SERVICE at any step in the progress of the test, immediately remove all test connections, then proceed at once with the Restoral Procedure, Steps 6 and 7.

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| 1a | Operate SCO key of public signal control circuit, if provided. | SCO lamp lighted. |
| 2 | Operate RCO key.

<i>WARNING: Do not restore either of these keys to normal before instructed to do so under the Restoral Procedure, or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.</i> | CO lamp lighted. |
| 3 | At fuse panel at top of frame connect the equipment end of a 48-volt fuse to its associated alarm stud, using W1AF cord. | Office alarm sounds.
FA lamp lighted. |
| 4 | Remove test connection between fuse and alarm stud. | Office alarm silenced.
FA lamp extinguished. |
| 5 | Repeat Steps 3 and 4 for one of the + BAT fuses and for one of the RS fuses. | |

Restoral Procedure

WARNING: If relay Y, B, R, or W of the dial pulse receiving circuit or any of the relays of the public signal control circuit are operated, do not proceed to Steps 6 and 7, or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.

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|---|-------------------------------|------------------------|
| 6 | Restore RCO key. | CO lamp extinguished. |
| 7 | Restore SCO key, if provided. | SCO lamp extinguished. |

D. Test of Siren Line Failure Alarm Feature

TO RESTORE THIS EQUIPMENT TO SERVICE at any step in the progress of the test, immediately remove the insulator or test ground connection and the blocking tool from the CO relay, then proceed at once with the Restoral Procedure, Steps 12 and 13.

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| 1 | Operate SCO key of public signal control circuit. | SCO lamp lighted. |
| 2 | Operate RCO key of associated dial pulse receiving circuit. | CO lamp lighted. |

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STEP	ACTION	VERIFICATION
	<i>WARNING: Do not restore either of these keys to normal before instructed to do so under the Restoral Procedure, or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.</i>	
3	Block nonoperated CO relay of first continuous line test circuit.	
4	Insulate contact 5T of CO relay.	Office alarm sounds. ALM or LT ALM lamp lighted.
5	Remove insulator from 5T of CO relay.	Office alarm silenced. ALM or LT ALM lamp extinguished.
6	Repeat Steps 4 and 5 for contacts 2B and 8B of CO relay.	
7	Connect ground to spring 5T of CO relay.	Office alarm sounds. ALM or LT ALM lamp lighted.
8	Remove ground connection from 5T of CO relay.	Office alarm silenced. ALM or LT ALM lamp extinguished.
9	Repeat Steps 7 and 8 for springs 2B and 8B of CO relay.	
10	Remove blocking tool from CO relay.	
11	Repeat Steps 3 through 10 for all other continuous line test circuits provided.	

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WARNING: If relay Y, B, R, or W of the dial pulse receiving circuit or any of the relays of the public signal control circuit are operated, do not proceed to Steps 12 and 13 or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.

12	Restore RCO key.	CO lamp extinguished.
13	Restore SCO key.	SCO lamp extinguished.

E. Local Operation Test of Public Signal Control Circuit Where the Position 2 Signal or the Blue Signal Sounds the Sirens as an ALERT Signal

TO RESTORE THIS EQUIPMENT TO SERVICE at any step in the progress of the test, proceed at once with the Restoral Procedure, Steps 17 through 25.

1	Operate SCO key.	SCO lamp lighted.
2	Operate RCO key of associated dial pulse receiving circuit.	CO lamp lighted.

STEP	ACTION	VERIFICATION
	<i>WARNING: Do not restore either of these keys to normal before instructed to do so under the Restoral Procedure, or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.</i>	
3	Insert No. 258D plug into PLS jack of dial pulse receiving circuit.	
4	Insert No. 165D plug into S or SJ jack of dial pulse receiving circuit.	
5a	If using dial hand test set — Insert No. 310 plug into C jack of dial pulse receiving circuit.	
6b	If using relay rack mounted dial — Connect DIAL jack to C jack of dial pulse receiving circuit, using P3E cord.	
7	Remove plug from PLS jack.	ALM or DP ALM lamp remains extinguished. Office alarm remains silent.
8	Block nonoperated AL relay of dial pulse receiving circuit.	
9	Dial 00.	RW- relays remain released.
10	Dial 2.	
11	Dial 44.	RW- relays remain released.
12	Dial 2.	
13	Dial 66.	RW- relays operated. CO relays operated, if provided.
14	Dial 2.	RW- relays released. CO relays released, if provided.
15	Dial 88.	RW- relays operate and release in response to the closed and open settings, respectively, of the "red alert signal generator." (Obtain local settings for timing requirements.) CO relays operated, if provided.
16	Dial 2.	RW- relays released, and remain released. CO relays released, if provided.
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17c	If test has been interrupted — Dial 2 before proceeding with Steps 18 through 25.	
18	Remove blocking tool from AL relay.	
19	Insert No. 258D plug into PLS jack of dial pulse receiving circuit.	

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STEP	ACTION	VERIFICATION
20a	If using dial hand test set — Remove plug from C jack.	
21b	If using relay rack mounted dial — Remove P3E cord from DIAL and C jacks.	
22	Remove plug from S or SJ jack.	
23	Remove plug from PLS jack.	ALM or DP ALM lamp remains extinguished. Office alarm remains silent.
<p><i>WARNING: If relay Y, B, R, or W of the dial pulse receiving circuit or any of the relays of the public signal control circuit are operated, do not proceed to Steps 24 and 25 or a false signal may be transmitted to the warning stations and siren stations connected to this equipment.</i></p>		
24	Restore RCO key.	CO lamp extinguished.
25	Restore SCO key.	SCO lamp extinguished.

4. INTERPRETATION OF LAMP SIGNALS

TABLE A

LAMP	LIGHTED LAMP INDICATES
Dial Pulse Receiving and Code Distributing Circuit	
CO	Ringing supply cut off (RCO key operated). <i>or</i> Equipment removed from service (plug in S or SJ jack). <i>or</i> Pulsing circuit opened (plug in PLS jack).
DP ALM or ALM DP ALM PD TST WD	Visual alarm. Visual alarm (extension lamp). A prime digit has been received. Test digit 9 has been received. A wrong digit has been received.
Public Signal Control Circuit	
LT ALM or ALM SCO	Visual alarm. Siren lines cut off.
Signal Indicator Set (Blue Used for ALERT Signal)	
Y B R W	Yellow warning signal. Blue ALERT signal. Red TAKE COVER signal. White warning signal.
Signal Indicator Set (Words and Digits)	
1 2 3 4	TEST ALERT TAKE COVER Optional