

**TL MICROWAVE RADIO
ORDER WIRE AND ALARM
ALARM CIRCUIT CHECKS**

Tests listed in this section cover the over-all operation of the TL radio alarm circuits. Steps 1 through 3 are to be performed at stations not requiring lighted towers and alarm encoders. Steps 4 through 13 are to be performed at stations provided with a TL radio alarm encoder normally used for tower light alarms. Tests listed in this section can be performed without disrupting service. Steps in this section concerned with tower lighting alarms have been written for stations with maximum tower lighting. Omit the steps not applicable for stations with less than maximum tower lighting.

APPARATUS:

2 Clip Leads at least 6 inches long

STEP	PROCEDURE
	<p>Tests on order-wire panels listed in this section are to be performed on the order-wire panels at near terminal, far terminal, and each near repeater transmitter-receiver bay. The alarm equipment at radio repeater stations is located on the order-wire and alarm panel in the near repeater transmitter-receiver bay.</p> <p>The following tests require communication with the attendant at the control station via the order wire circuit.</p> <p style="text-align: center;">STATIONS WITHOUT ALARM ENCODER</p> <p>1 Remove the leads from terminals 36 and 46 on TSA. TSA is located on the left side of the transmitter-receiver cabinet or bay framework.</p> <p>Removing these leads releases relay A on the order-wire panel which opens the 2600-cps alarm loop for a period of 80 seconds. Release of relay A also opens the interrogation path.</p> <p>Verify that an alarm is indicated at the control station and that no tone is received upon interrogation of the station being checked.</p> <p>2 On the alarm panel, clip from terminal 12 on TS2 to ground.</p> <p>Grounding this terminal starts the pulser on the alarm panel which opens and closes the interrogation path in a regular sequence.</p> <p>Verify that upon interrogation of the station being checked a pulsed tone is returned.</p> <p>3 Remove the ground from terminal 12 of TS2 and replace the leads on terminals 36 and 46 of TSA.</p> <p>Verify that no alarm is indicated at the control station, and that upon interrogation of the station being checked a full tone is returned.</p>

STEP	PROCEDURE														
STATIONS WITH ALARM ENCODER															
<p><i>Note:</i> It is important that the remaining steps in this section be performed in the indicated sequence. Switches operated and leads removed in Steps 4 through 8 will be returned to their normal position in Steps 9 through 13.</p>															
4	<p>On the tower lighting control box, operate any one of the test switches, S1, S2, S3, or S4. This will simulate a failure of one side light.</p> <p>Verify that an alarm occurs at the alarm control station. The attendant at the control station should now operate the proper station key, and on interrogation, code E is received.</p> <p><i>Note:</i> The codes are listed in Table A.</p>														
<table border="1"> <thead> <tr> <th colspan="2" data-bbox="795 693 1258 745">TABLE A</th> </tr> <tr> <th data-bbox="625 745 795 798">DESIGNATION</th> <th data-bbox="795 745 1258 798">CODE</th> </tr> </thead> <tbody> <tr> <td data-bbox="625 798 795 850">A</td> <td data-bbox="795 798 1258 850">Three short tones</td> </tr> <tr> <td data-bbox="625 850 795 903">B</td> <td data-bbox="795 850 1258 903">Two short tones</td> </tr> <tr> <td data-bbox="625 903 795 955">C</td> <td data-bbox="795 903 1258 955">Uniform pulsed tone</td> </tr> <tr> <td data-bbox="625 955 795 1008">D</td> <td data-bbox="795 955 1258 1008">No tone</td> </tr> <tr> <td data-bbox="625 1008 795 1018">E</td> <td data-bbox="795 1008 1258 1018">One short and one long tone</td> </tr> </tbody> </table>		TABLE A		DESIGNATION	CODE	A	Three short tones	B	Two short tones	C	Uniform pulsed tone	D	No tone	E	One short and one long tone
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5	<p>On the alarm encoder panel, remove the lead on terminal 6 of TS1.</p> <p><i>Note:</i> There are -27 volts present on this lead. Removal of this lead simulates an alarm from the diversity switch circuit.</p> <p>Verify that a new alarm is initiated and that code D is received at the control station.</p>														
6	<p>On the alarm encoder, clip from terminal 5 of TS1 to ground, and on the order-wire and alarm panel clip from terminal 12 of TS2 to ground.</p> <p>Grounding of these two terminals will simulate a low-battery alarm. Verify that a new alarm is initiated and that code C is received at the control station.</p>														
7	<p>On the tower lighting control unit, operate switch TST FS. This switch is used to simulate a flasher failure.</p> <p>Verify that a new alarm is initiated and that code B is received at the control station.</p>														
8	<p>On the tower lighting control unit, operate both TST A and TST B switches. This simulates the failure of both top lights. Verify that a new alarm is initiated and that code A is received at the control station.</p>														
9	<p>On the tower lighting control unit, operate both the TST A and TST B to OFF. This simulates restoration of both top lights. Verify that an alarm is initiated and that code B is again received at the control station.</p>														
10	<p>On the tower lighting control unit, operate switch TST FS to OFF. This simulates removal of a flasher failure condition. Verify that an alarm is initiated and that code C is again received at the control station.</p>														

STEP	PROCEDURE
11	On the alarm encoder, remove the ground on terminal 5 of TS1, and on the order-wire panel remove the ground from terminal 12 of TS2. This simulates removal of a low-battery alarm condition. Verify that a new alarm is initiated and that code D is again received at the control station.
12	On the encoder panel, replace the lead removed in Step 5 on terminal 6 of TS1. This simulates the removal of the alarm from the diversity switch circuit. Verify that a new alarm is initiated and that code E is received at the control station.
13	On the tower lighting control unit, operate the switch previously operated in Step 4 to OFF. This simulates removal of the alarm for one side light. Verify that no new alarm is initiated and full tone is received at the control station.