

**TL MICROWAVE RADIO
ORDER WIRE AND ALARM
ENCODER**

The tests listed in this section may be performed without disconnecting the alarm encoder from its associated circuits. The tests will not interrupt radio transmission; however, they will produce alarms at the alarm control center. Before performing the tests in this section, an overall check of the order-wire and alarm system employing the alarm encoder as given in Section 409-310-502 should be performed.

The following tests may be performed:

- (a) Voltage Check
- (b) Alarm Initiation Check
- (c) Pulser Disabling Circuit Check
- (d) Counter Circuit Operation
- (e) Exciter Circuit Check

APPARATUS:

- 1 — KS-14510, List 1 Volt-ohm-milliammeter (VOM)
- 2 — Clip Leads at least 6 inches long

STEP	PROCEDURE
	<p><i>Note:</i> A check should be made on alarm center and station equipment to be sure that no alarm condition is present when performing the following tests.</p> <p style="text-align: center;">VOLTAGE CHECK</p> <p>1 Connect the VOM, set to measure on the 60-volt dc scale, between terminal 10 of TS1 and terminal 11 (ground) of TS1.</p> <p><i>Requirement:</i> The meter shall indicate between -24 and -28 volts.</p> <p>If this requirement cannot be met, refer to Section 409-308-501.</p> <p style="text-align: center;">ALARM INITIATION CHECK</p> <p>2 Connect the VOM, set to measure on the 60-volt dc scale, between terminals 7 and 11 of TS1.</p> <p>3 Manually hold relay AC released while observing the VOM.</p> <p><i>Requirement:</i> The VOM shall indicate between -24 and -28 volts for a period of from 1 to 3 minutes and then indicate 0 volt.</p> <p>4 Manually hold relay D released while observing the VOM.</p> <p><i>Requirement:</i> Same as in Step 3.</p>

STEP	PROCEDURE																		
5	<p>Manually operate relay F, relay B, and relay S, in turn, while observing the VOM.</p> <p>Requirement: Same as in Step 3.</p> <p>If the requirement cannot be met, replace relay T and repeat Steps 3 through 5. If still cannot be met, visually check the operation of the G, SL, and M relays.</p> <p style="text-align: center;">PULSER DISABLING CIRCUIT CHECK</p>																		
6	<p>Connect the VOM, set to measure on the 60-volt dc scale, between terminals 9 and 11 of TS1.</p>																		
7	<p>Manually release relay AC.</p> <p>Requirement: The VOM shall indicate between -24 and -28 volts.</p>																		
8	<p>Manually operate relay F.</p> <p>Requirement: Same as in Step 7.</p> <p>If this requirement cannot be met, check the wiring on terminal 10B of relay AC and 12M on relay F.</p> <p style="text-align: center;">COUNTER CIRCUIT OPERATION</p>																		
9	<p>With a <i>clip lead</i>, connect from terminal 10 of TS1 to 1L of relay K1.</p>																		
10	<p>Manually operate and release relay E while observing relays K1, K2, K3, and K4.</p> <p>Requirement: The following sequence of counter circuit relay operations shall occur:</p> <table border="1" data-bbox="618 1119 1284 1476"> <thead> <tr> <th data-bbox="618 1119 1008 1171">SEQUENCE</th> <th data-bbox="1008 1119 1284 1171">RELAY OPERATION</th> </tr> </thead> <tbody> <tr> <td data-bbox="618 1171 1008 1224">1. Operate relay E</td> <td data-bbox="1008 1171 1284 1224">K1 Operates</td> </tr> <tr> <td data-bbox="618 1224 1008 1266">2. Release relay E</td> <td data-bbox="1008 1224 1284 1266">K2 Operates</td> </tr> <tr> <td data-bbox="618 1266 1008 1308">3. Operate relay E</td> <td data-bbox="1008 1266 1284 1308">K3 Operates</td> </tr> <tr> <td data-bbox="618 1308 1008 1350">4. Release relay E</td> <td data-bbox="1008 1308 1284 1350">K4 Operates</td> </tr> <tr> <td data-bbox="618 1350 1008 1392">5. Operate relay E</td> <td data-bbox="1008 1350 1284 1392">K1 Releases</td> </tr> <tr> <td data-bbox="618 1392 1008 1434">6. Release relay E</td> <td data-bbox="1008 1392 1284 1434">K2 Releases</td> </tr> <tr> <td data-bbox="618 1434 1008 1476">7. Operate relay E</td> <td data-bbox="1008 1434 1284 1476">K3 Releases</td> </tr> <tr> <td data-bbox="618 1476 1008 1518">8. Release relay E</td> <td data-bbox="1008 1476 1284 1518">K4 Releases</td> </tr> </tbody> </table> <p>If the requirement cannot be met, check the operation of the associated relays.</p> <p style="text-align: center;">EXCITER CIRCUIT CHECK</p>	SEQUENCE	RELAY OPERATION	1. Operate relay E	K1 Operates	2. Release relay E	K2 Operates	3. Operate relay E	K3 Operates	4. Release relay E	K4 Operates	5. Operate relay E	K1 Releases	6. Release relay E	K2 Releases	7. Operate relay E	K3 Releases	8. Release relay E	K4 Releases
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11	<p>Clip ground to terminal 4B of relay E.</p> <p>Requirement: Relay E shall operate and release approximately two or three times per second.</p> <p>If this requirement cannot be met, replace transistor Q1 and repeat Step 8. If the requirement still cannot be met, check R1, C1, and RV1.</p>																		