

B1 DATA CARRIER TERMINAL MULTIPLEXER AND MODULATOR TESTS AND TROUBLE LOCATION

1. GENERAL

1.01 This section is being issued as one section associated with Section 314-016-550, Tests and Trouble Location — General. Each section refers to one class of trouble condition as determined by the 20A toll testboard.

2. PURPOSE

2.01 This section describes a series of tests designed to isolate a trouble condition of the multiplexer and modulator to within one circuit package. It is to be used when the 20A toll testboard attendant has verified that the output of the affected supervisory signaling circuit is incorrect. Before beginning the tests, all *E, M, B1-B2* leads associated with the affected unit should be blocked at the 20A toll testboard by placing a ground on the corresponding six SIG L jack sleeves and inserting make-busy plugs in the six MB jacks.

3. APPARATUS

Triplett 630NA Volt-Ohm-Milliammeter or equivalent (20,000 ohms/volt)

908A Logic Circuit Test Set (J79908A)

Hewlett-Packard AC Transistor Voltmeter 403A

4. PROCEDURE

4.01 The 908A logic circuit test set specified in Part 3 of this section has been designed specifically for use on the B1 data carrier terminal. The 908A operates on 12 volts derived from the +12 volt supply of the B1 terminal. A single lead with a clip suitable for attaching to the test points of the B1 terminal circuit packages is provided for the input. An 11-position rotary switch selects the desired function. Frequency is measured with the rotary switch set to one of four positions, depending on the frequency to be measured. Maximum accuracy is

obtained when using the scale setting which gives the highest reading on the meter (nearest to full scale). For all measurements specified in this section, the DF-AF switch should be set to DF.

4.02 To measure bias with the 908A meter, the rotary switch is set to either BIAS (+) or BIAS (-) to provide a positive reading on the meter.

4.03 If the trouble is associated with a particular channel, switch the test key to TST and proceed as follows:

(1) Ground the CM test point (CP1 or CP3) of the affected channel and use the 908A meter with the rotary switch set to the 50 cps setting, to verify the presence of a frequency between 9 and 12 cps on the corresponding B test point (CP3 or CP4). If this frequency is not present, change CP3 for channels 1 through 4 and CP4 for channels 5 and 6.

(2) If Step 1 is satisfied, remove the ground from the CM test point of the affected channel. With the Triplett meter, measure the voltage found on the CM test point of the affected channel. This voltage should be between 4.2 and 6.1 volts. If the correct voltage is not found, the trouble is in either CP3 (channels 1 and 2) or CP1 (channels 3 through 6) or in the trunk or the wiring from the trunk.

4.04 If the trouble is not associated with a particular channel, perform the steps stated in Column I in sequence. Upon failure to achieve results stated for any step in Column I, take the action listed in Column II.

4.05 In all cases where wiring checks are to be made, such checks should include card connectors and plugs.

COLUMN I

- (1) Switch test key to TST position.
- (2) Connect the input lead of the 908A meter to test point 477.5 (CP1) and set the rotary switch to 500 cps. The meter should read between 46 and 49.
- (3) Connect the input lead of the 908A meter to test point 95.5 (CP1). With the rotary switch set to 500 cps, the meter should read between 8.5 and 10.5.
- (4) Connect the input lead of the 908A meter to test point IN (CP1). With the meter set to 500 cps, the meter should read between 8.5 and 10.5.
- (5) With the rotary switch set to 50 cps, connect the input lead of the 908A meter to test point N (CP2). The meter should read between 8 and 12.
- (6) With the rotary switch set to 50 cps, connect the input lead of the 908A meter to test point B8 (CP4). The meter should read between 3 and 7. Connect the input lead to B7 (CP4). The meter should read between 3 and 7.
- (7) Ground test point DG (CP2) and connect the input lead of the 908A meter to test point BO (CP3). With the rotary switch set to 50 cps, the meter should read between 45 and 50.
- (8) Use the Triplet meter to measure the voltage between test point CSS (CP5) and ground. This voltage should be between 4 and 6 volts.
- (9) With test point DG grounded, connect the input lead of the 908A meter to test point LF (CP5). With the rotary switch set to 500 cps, the meter should read between 33 and 37.
- (10) Use the Hewlett-Packard ac voltmeter to measure the signal level at test point SO (CP5). With the FUNCTION switch set to 15 CPS-1MC and the RANGE switch set to -10 db, the meter should read between -0 db and -5 db.

COLUMN II

- (1) No action required.
- (2) Check output of 477.5-cps signal from carrier supply and trace wiring.
- (3) Replace CP1.
- (4) Remove CP2 and repeat the test. If the requirement is met, replace CP2 with a spare. If the requirement is not met replace CP1 and repeat the test.
- (5) Replace CP2.
- (6) Replace CP4.
- (7) Replace CP3 and repeat Step 7. If it again fails, replace CP4.
- (8) Check voltage of test point CSS on the carrier supply and check the wiring between the two points.
- (9) Replace CP5.
- (10) Replace CP5.

**5. LIST OF DRAWINGS AND SECTIONS FOR
REFERENCE**

TITLE	NO.
Data Systems — Central Office — B1 Data Carrier Terminal — Supervisory Signaling Circuit	SD-73017-01
Data Systems — Central Office — 908A Logic Circuit Test Set (J79908A)	SD-73021-01
908A Logic Circuit Test Set — Description and Operation	Section 100-171-101