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DATA SYSTEMS STATION EIA TEST ADAPTER NO. 911P FOR USE WITH RS-232A, B, OR C INTERFACE CONNECTORS

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SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 The EIA Test Adapter No. 911P is designed as an aid in testing data set modems and associated terminal equipment which use the standard RS-232A, B, or C interface connectors.

2. GENERAL DESCRIPTION OF OPERATION

2.01 The EIA Test Adapter No. 911P is a small unit which may be carried in the cover of either the 911A or the 911NA data test set (DTS). The adapter is mounted in a metal box which measures 4-3/4 inches high, 2-1/2 inches wide, and 1 inch deep. Attached to the box are two 8-inch cords, terminating in 25-pin connectors, which allow the 911P test adapter to be connected in series with the data set and the terminal equipment. Pin jacks and switches are provided to enable several functions to be checked and measurements to be made with either a 911A or a 911NA DTS. Pin jacks are also provided which enable voltage measurements to be made on the +V, -V, and CF leads and for testing the secondary channel of the data sets 202 type.

SECTION II - DETAILED DESCRIPTION

1. MONITORING INCOMING AND OUTGOING SIGNALS

1.01 The 911P test adapter provides monitoring access to the EIA signals between the data set and the terminal equipment. To prevent the loss of any messages during insertion of the adapter, traffic is stopped momentarily on the circuit to be tested. The female connector on the cord interconnecting the terminal equipment and the data set is removed from the socket, and the adapter is connected in series with the circuit (as shown in Information Note 302). With all switches on the adapter in the NOR (down) position, the circuit is connected through on a lead-by-lead basis so traffic can be restored. As shown on FS1, the pin jacks (BA-T and BA-DS) associated with lead 2 enable the 911 DTS to monitor and measure transmission from the terminal toward the data set. Similarly, the pin jacks (BB-T and BB-DS) associated with lead 3 enable the monitoring and measuring of the incoming signals between the data set and the terminal. Cords coded P1N which are equipped with pin plugs can be used to connect from either the BA (outgoing) or BB (incoming) pin jacks to the VOLT-IN jack [VOLT-IN (911A), VOLT-INPUT (911NA) with input switch on the EIA position] of the 911 DTS and to connect between the circuit ground on the AB pin jack, associated with lead 7 of the adapter, and the 911 DTS ground (GRD). Since this monitoring and/or measurement is done on a high impedance basis, it has no effect on the signals being transmitted or received, thus enabling the checks to be made on a normal operating basis.

2. VOLTAGE MEASUREMENTS OF +V, -V, AND CF

2.01 With the series connections made as discussed in SECTION II, 1.01, voltage measurements of +V, -V, and CF can be made by connecting a voltmeter (10,000 ohms per volt, or higher) or an oscilloscope between the pin jacks on leads 8, 9, and 10 and the circuit ground AB pin jack on lead 7.

3. TRANSMISSION OF SIGNALS FROM THE 911 DTS

3.01 Once the adapter has been connected in series as described in SECTION II, 1.01, signals can be transmitted from the 911 DTS to the data set or the terminal equipment. To transmit from the 911 DTS to the data set, operate the BA switch to the OPEN (up) position, thus opening the path between the terminal and the data set. Connect the 911

DTS VOLT-OUT jack [VOLT-OUTPUT (911A) with output switch on the EIA position, VOLT-OUT EIA (911NA)] to the BA-DS jack and the ground of the 911 DTS to the AB pin jack of the adapter. Asynchronous signals can then be transmitted to (and through) the data set from the 911 DTS.

3.02 The 911NA data test set can be used to transmit through the data set to an outlying selective calling-type station (eg, 85 or 86) by using the three programmable characters to transmit the desired codes. The measuring portion of the 911NA can be used to monitor the answer-back or other signals received from the outlying station. The incoming signals will be shown on the LED display of the 911NA DTS. The correctness of the received characters, parity errors, and the amount of distortion received can thus be checked at one time. The BB switch should be operated to the OPEN (up) position for this test to prevent the incoming signals from going to the terminal. The VOLT-IN pin jack of the 911 DTS should be connected to the BB-DS pin jack in order to monitor the incoming signals.

3.03 If loop-back is available at the outlying station, the method discussed in 3.02 can be used to check transmission through the outlying data set. If the outlying data set is not equipped for loop-back operation, but an EIA test adapter is available at the outlying station, loop-back operation can be obtained as covered in 4.

3.04 To transmit from the 911 DTS to the terminal equipment, operate the BB switch to the OPEN (up) position, thus opening the path between the terminal and the data set. Connect the 911 DTS VOLT-OUT jack [VOLT-OUTPUT (911A), VCLT-OUT EIA (911NA)] to the BB-T pin jack and the ground of the 911 DTS to the AB pin jack of the adapter. Signals can then be transmitted from the 911 DTS to the terminal.

3.05 In a manner similar to that previously described, monitoring and measurement of signals from the terminal can be made simultaneously by connecting the measuring portion of the 911 DTS to pin jack BA-T of the adapter. Any signals being transmitted from the equipment can be blocked or allowed to go to an outlying data set by operating the BA switch to OPEN (to block) or leaving it in the nonoperated (NOR) position to pass the signals. With the BA switch in the nonoperated position, any signals returned from the outlying station may be monitored in the BB-DS jack of the adapter.

4. LOOP-BACK OPERATION

4.01 With the EIA test adapter connected in series as previously discussed, loop-back operation of the data set can be obtained by operating switches BA and BB to the OPEN (up) position and switch LB to the LB (loop-back) position. The looped-back transmission can be measured at the data set by monitoring in either the BA-DS or the BB-DS jack.

4.02 This method of looping back a data set through the use of the EIA test adapter does not require the use of a 911 data test set.

5. OPERATION OF THE CA+, CA-, AND CD SWITCHES

5.01 In normal operation of the data sets, the CA lead (4) is low if tne terminal is not ready to send and high if the terminal is ready to send. Similarly, lead 20 is low or high depending on whether the terminal is not ready or ready. The CA+ and CD switches provide the capability of simulating the ready condition (high) on these leads when operated to the ON (up) position.

5.02 In a similar manner, the operation of the CA- switch to the OFF (up) position opens the CA lead (4) toward the terminal equipment and connects it to -V (lead 10).

6. TESTING THE SECONDARY CHANNEL OF THE DATA SETS 202 TYPE

6.01 Pin jacks CB, CC, CE, SCA, and SCF provide access for making measurements on leads 5, 6, 22, 11, and 12, respectively. The SC switch in the OPEN (up) position opens paths from the terminal equipment on leads 11 and 12 in a manner similar to that of switches BA and BB on leads 2 and 3.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 None.

2. FUNCTIONAL DESIGNATIONS

2.01 None.

3. FUNCTIONS

3.01 Provides monitoring access of the EIA signals between the data set and the terminal equipment.

3.02 Provides access for the 911 DTS for transmitting signals to the data set or to the terminal equipment.

3.03 Provides loop-back operation.

3.04 Provides the capability of making voltage measurements on EIA control leads.

3.05 Provides low potential if the terminal is not ready to send and high potential if the terminal is ready to send.

3.06 Provides access for testing the secondary channel of the data sets 202 type.

4. CONNECTING CIRCUITS

4.01 None.

5. MANUFACTURING TESTING REQUIREMENTS

5.01 The requirements covered herein apply to the EIA Test Adapter No. 911P Circuit per J79911.

5.02 Sufficient checks shall be made to assure that the wiring of the EIA Test Adapter No. 911P is in agreement with SD-73112-01.

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