

3.0

General Description

This test is comprised of four distinct sections. They may be performed separately or in any order.

The operator is first asked for the device address of the board. Then he is asked if Internal Data Wrap is being used (Y/N). If the answer is "N" the third question is whether a Wraparound cable is being used (Y/N). If the answer is "N" it is assumed that modems are being used. The diagnostic does not distinguish between 201 and 303B type data sets. The fourth question would then be the device address of the second test reference 20002602 board.

3.1

Section One

This section exercises the modem signals. Tests are made for Ringing Indicator, Clear to Send, Data Set Ready, and Received Line Signal Detector.

If Internal Data Wrap or Wrap-around Test Cable is being used, the input modem signals are exercised by toggling Request to Send and Data Terminal Ready (See Wrap-around Test Cable Detail). Notice that Request to Send sets Clear to Send and Data Terminal Ready sets the remaining three signals.

If modems are being used, dial out on the modem connected to the 20002602 whose device address was typed in last.

Data Terminal Ready will be raised on the answering modem. The Diagnostic will wait for Data Set Ready, Ringing Indicator, and Carrier Detect. Then the Request to Send and Clear to Send logic will be tested in both directions on the two modems.

3.2

Section Two

In this test the "Pure Data Wrap" mode will be used to test the data paths for output and input. The output data is wrapped into the input data side of the 2602 board. Cydic Redundancy check (CRC) generation and insertion of characters on output is bypassed as well as input CRC and control character checking. The test is for the data path only and a minimum of control characters.

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The data is sent in blocks of the following format:

SYN SYN STX DATA... ETX BCC PAD

Five data patterns are output and verified on input. These are as follows:

1. All ones
2. All zeroes
3. Shifting ones
4. Shifting zeroes
5. Random data (random number generator)

The objective is to transfer a large number of characters to verify that the data path is working and to make sure that it is not data sensitive to any particular pattern.

Data is transferred for one half second for each of the five data patterns. Then the patterns are repeated while the modem signal Request to Send is toggled to see if there is any cross talk between Request to Send and the data lines. Section two runs about five seconds.

3.3

Section Three

This section tests the "Output Pure" mode of the 2602. In this test mode the 2602 will not disturb the output data but will leave it "pure" for the normal input side. The input side does its normal BCC(CRC) checking and format control character processing.

The diagnostic will first generate various control character sequences to check the control detection. The two Status Byte bits Format Error and Message Terminator will be exercised by the different control character sequences.

The next part of section three generates various combinations of CRC errors to check the BCC circuitry. All of the bit positions of the 16-bit CRC will be tested.

3.4

Section Four

This is the "Input Pure" test. The 2602 will not disturb the input data but will leave it "pure" as received from the output side. The output does its normal SYN insertion, BCC generation, and "pad" addition.

This section will test these three functions of the output side: SYN insertion, BCC generation, and addition of a pad

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character X'FF' at the end of a transmission.

The first test will be to see if two SYN characters are added to the beginning of each transmission. The next test on SYN is to see if SYN characters are inserted if characters are not supplied to the output fast enough. A concurrent output will be initiated without end characters (EOT, ETX, ETB), and the input tested to see if SYN characters have been inserted by the output.

Transparent mode of operation will be tested by sending out the standard DLE STX pair and sending the transparent text followed by DLE ETB BCC PAD.

The next test of Input Pure will be to test BCC generation. Various data will be output to test each bit of the 16-bit CRC generator.

The three-second timeout associated with link turnaround reply and receive procedures is tested next. Upon reverting to receive mode from transmit mode, the 2602 should wait three seconds for reception of sync-idle characters (SYN SYN) before notifying the software.

This test will end a transmission with EOT, send the function code to set the 3 second timeout, switch to receive mode, and wait for the timeout.

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4.0 Operator Instructions

4.1 Title

REALITY Diagnostic Test for PS20002602 - This message is typed to identify the test.

4.2 Requests for Operator Intervention

The Diagnostic Monitor is boot loaded from the disc using the Cold-start Switch. The 2602 diagnostic is then entered using the diagnostic monitor.

4.2.1 ENTER DEV. ADDR. - The operator should enter the device address that the board is strapped for (normally X'10') then terminate with CR.

4.2.2 STD. CRC? - The operator should enter Y if CRC-16 is being used. If N is entered the CRC for CCITT will be used.

4.2.3 INTERNAL DATA WRAP? - The operator should enter Y if internal wrap testing is being used, or N if not. If N is entered it is assumed that a Wrap-around Cable or modems are being used.

4.2.4 WRAP-AROUND CABLE? - The operator should enter Y if a Wrap-around Cable is being used at the J3 connector, or N if modems are being used.

4.2.5 If modems are being used the following instruction is typed:

ENTER DEV. ADDR. OF 2ND 2602 - The operator should enter the device address that the second 2602 is strapped for (usually X'10' to X'13').

4.2.6 ENTER SECTION NOS. - The operator should enter the section numbers of the test that he wishes to be performed. Input can be any combination of the digits 1-4 separated by blanks and terminated with a CR. Any section may be performed in any sequence. If testing is being performed through modems, Section One should be performed first to establish the line. Sections Two, Three, and Four may

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then be performed at will.

The program checks for non-digit inputs or non-existent section numbers and if either occur, a question mark is output following the last input which must be re-entered.

- 4.2.7 CONTROLS - The operator should enter control options. Control 1 causes the selected sections to be repeated. If control 1 is not selected, control will pass back to operator at end of last section and operator then selects new sections and control. Control 2 suppresses output.

Input format is the same as that for sections selection.

EXAMPLE:

CONTROLS 1

Test will be repeated indefinitely.

After Control is specified the specified sections are executed in numerical sequence.

To terminate test before completion use console interrupt to go to entry for Section's specification.

- 4.2.8 DIAL TEST REFERENCE 2602 - This message will appear if Section 1 is entered and modems are being used. The operator should use the data set hooked to the 2602 board whose device address was typed in last and dial the number of the other data set. As soon as the second data set answers, push the DATA button on the data set.

- 4.2.9 SECTION N - This message indicates that section N (1 to 4) has been completed.

- 4.2.10 TEST COMPLETE - This message means that all Sections have been completed as requested.

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