

**QUALITY STANDING INSTRUCTION**  
**INDUSTRIAL CONTROL DEPARTMENT**

**NUMBER**

3.7.5.711

**TITLE:** 1050HLE SIMULATOR TEST FOR  
THE SMI4 BOARD

**REVISION RECORD**

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### PURPOSE:

To describe the procedure for testing the SMI4 board using the 1050 HLE simulator.

### SCOPE:

These instructions apply to all new and MCN SMI4 boards in test.

### REFERENCE DOCUMENTS:

GEK-71770

### GENERAL:

The SMI4 board is tested using the system's resident diagnostic software.

### RESPONSIBILITY:

It is the responsibility of the simulator operator to carry out these instructions.

PROCEDURE:

1. Remove the test SMI4 board from slot 7 and insert the board to be tested.
2. Special mode switch on (UP).
3. Press "ON".
4. "00" or "20" should appear in the message display and "?" in the alphanumeric display.
5. Press "P4", "1", "ENTER". This instructs the control to read from the resident diagnostic boards.
6. "T" will appear in alpha display. Press "300", "ENTER". This instructs the control to read the block of diagnostics that contains the SMI4 board test. See Exhibit A.
7. Press "FWD".
8. "I" will appear in alpha display. Press "ENTER" to run test once or "00", "ENTER" to iterate testing.
9. "S" will appear in alpha display. Press "ENTER".
10. "V" will appear in alpha display. Press "FWD" to begin testing.
11. Observe display for correct readout. (See Exhibit A).
12. Press "DELETE BLOCK" to exit 300 test.
13. Install dummy plug on RS-232 port.
14. Repeat procedure from step 6, entering "400" instead of "300".
15. See Exhibit B for an explanation of the 400 block.

↓  
Command 2  
@ 0400 C enter 2

## EXHIBIT A

### DATA CONTROLLER DISPLAY EXERCISER

Identification Number: 0300

Boards Tested: SMI, Control Station (Slot No. 99)

Commands: None

Displays: Standard

Error Numbers: None. Display failures must be detected by the user.

#### General Comments:

The display exerciser first checks for interference among the control station display positions. It does this by writing a different character (0-D hex) to each digit position. Since hex digits A-D are not BCD digits, a strange display results when these characters are written to BCD display hardware. The 4 right most main-readout positions will therefore not be recognizable digits during this part of the test.

The next part of the test writes digits 0-9 to all read-out positions. The operator should verify that each position correctly displays every digit. Finally, the alphanumeric character is exercised. The letters A-Z are shown, one after another, and then these punctuation marks: # / - \* ? . Simultaneously, the sign display alternates between '-' and blank, and the decimal point is rotated from 0 through the 7th position.

Recall that holding down Enter halts a test; release Enter and the test resumes. Exploit this feature if the displays are changing too quickly.

# EXHIBIT B

## DATA CONTROLLER RS-232 EXERCISER

Identification Number: 0400

Boards Tested: SMI, Peripheral Device

### Commands:

- 0 - Output or Write mode outputs a series of characters from '01H' to 'FFH'
- 1 - Input or Read mode reads 255 characters from a tape starting with the first non-null character received.
- 2 - Loop back or Mixed mode which makes use of a special dummy RS-232 plug to loop the output character back as the input character

Test

### Displays: Standard displays

- W - Pseudo-hex representation of the character being output or input.
- R - Pseudo-hex representation of the character expected and the character received (only if data compare error detected). The received character is shown to the right of the decimal point while the expected character is located to the left of the decimal point.

### Error Numbers:

- 65 - Framing error
- 66 - Overrun error
- 67 - Data compare error
- 74 - Invalid commands

### General Comments:

Since the diagnostic cannot detect errors in the Output mode, the Output mode would normally be used to generate tapes for the Input mode. The Input mode expects data to be input in the same sequence as it is generated in the Output mode, i.e., a series of 255 characters from '01H' to 'FFH'. An error is detected for any input character that does not properly fit within this sequence; thus up to 255 errors can be detected per pass.

The W display changes as characters are output or input, so it is a good display to watch. However, it conveys no information relevant to errors. When errors occur, view the R display.