

**"COMM-STOR*" II COMMUNICATIONS STORAGE UNIT
EQUIPPED WITH 8A1/8B1 PROTOCOL OPTION
TESTING AND TROUBLESHOOTING PROCEDURES**

1. GENERAL

1.01 This section covers the COMM-STOR II Communications Storage Unit equipped with 8A1/8B1 protocol option manufactured by Sykes Datatronics, Incorporated, as described in their section SYKS 578-400-501.

1.02 Whenever this section is reissued, the reason(s) for reissue will be listed in this paragraph.

1.03 Testing and troubleshooting procedures covering the COMM-STOR II Communications Storage Unit equipped with the 8A1/8B1

protocol option are contained in the attached reprint of the practice prepared by Sykes Datatronics, Incorporated. (No special equipment is required for the procedures described herein.)

1.04 An operational checkout should be performed after installation or on trouble calls. It may be a brief checkout to ensure that the station is operable or a complete checkout to exercise all features and options. Since off-line checkout procedures do not check the interface or send and receive capabilities, an on-line checkout is also required to completely test the COMM-STOR II unit. (Refer to Section 578-400-201.)

* Registered trademark of Sykes Datatronics, Incorporated.

Comm-Stor II
COMMUNICATIONS STORAGE UNIT
WITH THE 8A1/8B1 PROTOCOL OPTION
TEST AND TROUBLESHOOTING PROCEDURES

	CONTENTS	PAGE		CONTENTS	PAGE
1.	GENERAL	1	F.	Configuration Memory Faults—Test B	8
	DANGER AND WARNINGS	2	G.	ROM Faults	8
2.	PRELIMINARY CHECK	2	H.	Drive 1 Faults	9
	USER DIAGNOSTIC TESTS	3	I.	Drive 2 Faults	9
4.	BASIC TROUBLESHOOTING PROCEDURE	3	J.	Bit Rate Specification	10
5.	USER DIAGNOSTIC PROCEDURE	3	K.	Terminal Receive/Transmit Faults	11
	DIAGNOSTIC TESTS	4	L.	Terminal EIA Control Faults	11
	Test A—LED/Switch Test	4	M.	Modem Receive/Transmit Faults	12
	Test B—Hardware Features Check	5	N.	Modem EIA Control Faults	12
	Test C—Internal Tests: Memory/Disk/Timer/ Bit Rate	7	O.	Printer Receive/Transmit Faults	12
	Test D—Terminal and Modem Port Tests	10	P.	Printer EIA Control Faults	13
	Test E—Printer Port Test	13	Q.	Configuration Memory Faults—Test G	15
	Test F—Isochronous Operation Test	14	R.	User Diagnostic Memory Test	16
	Test G—Configuration Memory Test	14	S.	Checklist #1	19
	Test H—Diskette Test	15	T.	Checklist #2	21
	Test M—RAM Memory Test	16	U.	Installation Test Procedures	23
	Test V—Drive/Disk Verify Test	17			
	Test CM—Configuration Memory Test	18	1.	GENERAL	
6.	CHECKLIST #1—DIAGNOSTIC DOES NOT RUN	19	1.01	This section provides testing and troubleshooting procedures for the Comm-Stor® II Communications Storage unit equipped with the 8A1/8B1 protocol option, hereafter referred to as the Comm-Stor II unit. No special equipment is required for the procedures described herein.	
7.	CHECKLIST #2—OTHER DIFFICULTIES	21	1.02	Whenever this section is reissued, the reason(s) for reissue will be listed in this paragraph.	
8.	COMMUNICATIONS CHECKOUT	23	1.03	An operational checkout should be performed after installation or on trouble calls. It may be a brief checkout to make sure the station is operable, or a complete checkout to exercise all	
Tables					
A.	Test Selections	3			
B.	LED Display	5			
C.	Failure Interpretation	5			
D.	Hardware Features Table	6			
E.	RAM Faults	8			

features and options. Since off-line checkout procedures do not check the interface or send and receive capabilities, an on-line checkout is also required to completely test the Comm-Stor II unit (refer to Section 578-400-201).

1.04 With the station arrangement properly interfaced to the system where it will be used, conduct a complete checkout of send and receive capabilities, taking into account all option and feature variables. Check all operational modes in sending to or receiving from the network controller.

1.05 Use the local checkout for installation if a complete checkout has not been performed prior to installation. Continue with a complete checkout, if needed, to check all features and options.

1.06 On maintenance or trouble calls at a location, confine the checkout to the specified trouble area. Use the local checkout to isolate poorly defined trouble areas. Perform a complete checkout after an extensive repair.

1.07 If the indicated response is not obtained in any step of a checkout procedure, repeat the step to make sure that the procedure has been performed correctly. If the results are still unsatisfactory, replace the module indicated as the possible cause.

1.08 As a further aid to troubleshooting, refer to the wiring diagrams for the Comm-Stor II unit in Section 578-400-400. For help in identifying components, refer to Section 578-400-700, *Dis-assembly/Reassembly and Parts*.

DANGER AND WARNINGS

1.09

Danger: Turn off all power and signal sources before removing or replacing any module or component.

Warning 1: To avoid possible internal damage to circuitry, wear a static discharge strap connected to ground to allow static discharge before handling circuit boards or components for removal or replacement. Avoid touching circuit lands or components as much as possible.

Warning 2: Put the replaced board in a static bag immediately after removal from unit. Never handle the board outside the bag without being properly grounded.

Warning 3: Handle all diskettes with care:

- ***Never touch the exposed diskette surface. Handle the diskette only near the label.***
- ***Do not write on the diskette cover; write only on the label. If possible, write on the label before placing it on the diskette using a felt marker—do not use a ball point pen or pencil.***
- ***Do not attempt to clean a dirty or dusty diskette; such a diskette should be discarded.***
- ***Keep the diskette away from potentially magnetic materials (paper clips, etc.) or magnetic sources (unshielded power supplies, CRT monitors, etc.).***
- ***Do not bend the diskette.***
- ***Do not expose the diskette to extremes of heat or cold.***
- ***Keep the diskette in its protective cover when not in use.***
- ***Store diskettes vertically in boxes when not in use.***

2. PRELIMINARY CHECK

2.01 Before turning on any equipment, check that the station is connected to a properly grounded AC service. Also check the seating of all circuit boards and cable connectors.

2.02 If there are operational difficulties with a Comm-Stor II unit, peripheral devices such as the terminal, data set, and printer should be checked, depending on the area of difficulty.

2.03 Also, a check of the Comm-Stor II unit's variable configuration data should be made. All configuration parameters should be checked and changed if required. The parameters should then be rechecked after the unit has been off for several hours.

2.04 If difficulties are encountered with data transfers on and off a diskette, other diskettes should be tried and a check should be made of diskette handling procedures.

3. USER DIAGNOSTIC DESCRIPTION

3.01 The User Diagnostic Kit (SYKES part number 1030A5191) consists of a special Diagnostic diskette and a 3-port EIA connector plug (Fig. 1). The test procedure is automatically loaded from the diskette into the unit's memory when the test is performed.

3.02 The results of the tests A-H are displayed on the front panel LEDs, allowing the tests to operate independently of the terminal.

USER DIAGNOSTIC TESTS

- Test A — LED/Switch Test
- Test B — Hardware Features Check
- Test C — Internal Tests: Memory/Disk/Timer/Bit Rate
- Test D — Terminal and Modem Port Tests
- Test E — Printer Port Test
- Test F — Isochronous Operation Test
- Test G — Configuration Memory Test
- Test H — Diskette Test
- Test M — RAM Memory Test*
- Test V — Drive/Disk Verify Test*
- Test CM — Configuration Memory Test*

*These tests must be run with a terminal attached to the Comm-Stor II unit.

4. BASIC TROUBLESHOOTING PROCEDURE

4.01 To simplify isolating the problem area of the Comm-Stor II unit, begin all troubleshooting procedures by loading or attempting to load the User Diagnostic diskette as described in Part 5.

4.02 Because of the complicated interconnection of circuitry, it is recommended that a spare set of modules be used to swap/verify the operation of questionable areas as described in the User Diagnostic Procedure.

4.03 If the unit is completely dead, or will not load and execute the User Diagnostic Procedure, refer to Table S, Checklist #1 in Part 6 of this section.

4.04 If the unit passes all tests in the diagnostic procedure, but other difficulties are still experienced, refer to Table T, Checklist #2 in Part 7 of this section.

5. USER DIAGNOSTIC PROCEDURE

5.01 If a Comm-Stor II unit malfunction prevents reading the User Diagnostic diskette, the READY light will blink.

5.02 The STATUS light will blink if one of the following conditions exists:

- the binary switch is set to EXIT and the modem switch is set to 0,
- the user has inserted the incorrect Diagnostic diskette for the system being tested.

5.03 The diagnostic test plug has two switches, numbered "1" and "2", for simulating peripheral cabling. The plug is placed over *all three* EIA ports.

5.04 Tests are selected by setting the modem bit rate switch on the back of the unit (Table A). The LED/Switch test and the Hardware Features Check must be performed *before* any other diagnostic test. Further, diagnostics should be performed in the order they are presented in this section.

**TABLE A
TEST SELECTIONS**

MODEM SWITCH SETTING	TEST
1	LED/Switch Test
2	Internal Tests
3	Terminal and Modem Port Tests
4	Reserved
5	Printer Port Test
6	Isochronous Operation Test
7	Hardware Features Check
8	Configuration Memory Test
9	Diskette Test

DIAGNOSTIC TESTS

Test A—LED/Switch Test

5.05

- (a) Turn the Comm-Stor II unit ON.
- (b) Remove any diskettes from the drives. Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.
- (e) Set the modem switch to 1.
- (f) Set the binary switch to EXIT. Set the terminal switch to 0. Set the printer switch to 0.
- (g) Depress the RESTART button.

(h) LED Test: The following LED patterns are displayed immediately:

Requirement 1: All the LEDs are lit (1 second).

Requirement 2: The READY (1) and BUSY (1) LEDs are lit (1 second)

Requirement 3: The LEDs will flicker randomly (15 seconds) then all will go off.

Requirement 4: Walking lights: each LED is lit independently and sequentially (1 second each).

Requirement 5: The READY (1) LED will come back on.

Note: This display is a binary representation of the bit rate switch settings (Table B).

(i) Switch Tests: The switch test values are in a logical "OR" state represented by the LED display.

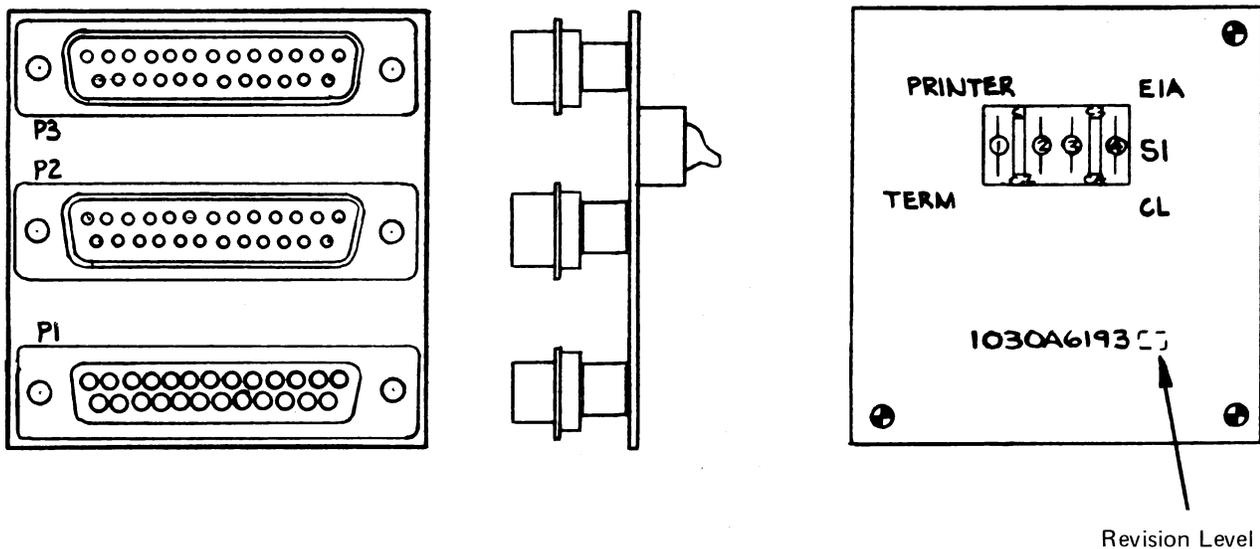


Fig. 1—Diagnostic Test Plug

TABLE B
LED DISPLAY (TEST A)

BIT RATE SWITCH SETTING	LED DISPLAY			
	STATUS	CARRIER	BUSY (1)	READY (1)
BINARY VALUE	8	4	2	1
0	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	ON
2	OFF	OFF	ON	OFF
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	OFF
5	OFF	ON	OFF	ON
6	OFF	ON	ON	OFF
7	OFF	ON	ON	ON
8	ON	OFF	OFF	OFF
9	ON	OFF	OFF	ON

NOTE: The LED display is a binary representation of the bit rate switch setting.

TABLE C
FAILURE INTERPRETATION

TEST FAILURE	PROBABLE CAUSE
LED Test	Replace the communications ports board (LED driver circuit). If the LED still fails, replace the defective LED.
Bit Rate Switch	Replace the defective bit rate switch on microprocessor-RAM board. If switch still fails, replace the MP-RAM board (bit rate switch multiplexer).
Binary Switch	Replace the "ENTER/EXIT" switch on I/O panel. If switch still fails, replace the communications ports board.

Requirement 1: Set all bit rate switches to 0. All the LEDs should be off (not lit).

Requirement 2: Move the binary mode switch to ENTER; the STATUS LED should be lit. Move the switch to EXIT; the STATUS LED should be off.

Requirement 3: Move the printer switch through its settings of 0 to 9. (The other switches must be set to 0.) Examine the LEDs at each setting and compare the values displayed with values in Table B. Each bit rate setting should generate a corresponding LED display. Return the printer switch to 0 and follow the same procedure for the terminal and modem bit rate switches.

(j) Refer to Table C for failure interpretation.

(k) Remove the diagnostic diskette from the drive.

Test B—Hardware Features Check

5.06

- (a) Turn the Comm-Stor II unit ON.
- (b) Remove any diskettes from the drives. Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.

**TABLE D
HARDWARE FEATURES TABLE**

LED PATTERN				PATTERN SEQUENCE				
				EXPANDED RAM MEMORY SIZE		NUMBER OF DRIVES/ STANDBY MODE (3rd)	EDITOR FORMS OPTIONS (4th)	PRINTER PORT/ USER COMMAND TABLE OPTIONS (5th)
STS	CAR	BSY (1)	RDY (1)	(1st)	(2nd)			
○	○	○	○	---	---	-----	-----	-----
○	○	○	●	32K	0K	1 DRIVE NO STAND-BY NO 8A1/8B1	NO FORMS NO EDITOR	NO PRINTER PORT NO EXTENDED USER COMMAND TABLE
○	○	●	○	36K	4K	2 DRIVES NO STAND-BY NO 8A1/8B1	EDITOR	PRINTER PORT NO EXTENDED USER COMMAND TABLE
○	○	●	●	40K	8K	1 DRIVE STAND-BY NO 8A1/8B1	FORMS	NO PRINTER PORT EXTENDED USER COMMAND TABLE
○	●	○	○	*44K	12K	2 DRIVES STAND-BY NO 8A1/8B1	FORMS AND EDITOR	PRINTER PORT AND EXTENDED USER COMMAND TABLE
○	●	○	●	*48K	14K	1 DRIVE NO STAND-BY 8A1/8B1	EXTENDED EDITOR	-----
○	●	●	○	*52K	16K	2 DRIVES NO STAND-BY 8A1/8B1	EXTENDED FORMS	-----
○	●	●	●	*56K	20K	1 DRIVE STAND-BY 8A1/8B1	EDITOR AND EXTENDED FORMS	-----
●	○	○	○	*60K	24K	2 DRIVES STAND-BY 8A1/8B1	FORMS AND EXTENDED EDITOR	-----
●	○	○	●	N/A	28K	-----	EXTENDED FORMS AND EXTENDED EDITOR	-----

*Reserved for future expansion.

ON ●
OFF ○

- (e) Set the modem switch to 7.
Set the printer switch to 0.
Set the terminal switch to 0.
Set the binary switch to EXIT.
- (f) Depress the RESTART button.

Requirement: The LED test (Test A) is *automatically* performed. The user may perform the Switch test and proceed to step (g).

- (g) Open and close the drive 1 door.

Requirement 1: All LEDs will blink in unison.

Requirement 2: The hardware features will be indicated by a series of LED ON/OFF patterns. To obtain the first pattern, open and close the drive 1 door. Determine the hardware feature by locating the LED on/off pattern in the first column of Table D. Then read across to the first pattern of the sequence; record the feature. Open and close the drive 1 door again to obtain the second LED pattern and locate the associated feature in the second column. Follow this procedure until all five patterns have been obtained. When the last pattern has been displayed, all the LEDs will blink in unison.

For example, if the *fourth* pattern is:

STS	CAR	BSY (1)	RDY (1)
○	○	●	●
(OFF)	(OFF)	(ON)	(ON)

This would indicate that the FORMS option is installed.

Note 1: If an installed feature is not indicated by the Diagnostic, the associated component(s) either malfunctioned or is not properly installed. A faulty component should be replaced. If a feature is not detected by this check, it will not be tested in any of the Diagnostics.

Note 2: RAM memory size is indicated by the first *or* second LED pattern. Therefore, one of these patterns will show *all the LEDs OFF*. For example, if a unit contains 16K of RAM memory, the first pattern will be:



The second pattern will be:



- (h) Remove the diagnostic diskette from the drive.

Test C—Internal Tests: Memory/Disk/Timer/Bit Rate

5.07

- (a) Turn the Comm-Stor II unit ON.
- (b) Remove any diskettes from the drives. Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.
- (e) Remove all cables from the rear of the Comm-Stor II unit.
- (f) Set the modem switch to 2.
Set the printer switch to 0.
Set the terminal switch to 0.
Set the binary switch to EXIT.
- (g) Depress the RESTART button.
- (h) The Diagnostic will immediately perform the LED Test. The user may also perform the Switch Test or proceed to step (i).
- (i) Open and close the drive 1 door. The Diagnostic will execute the Internal Tests which will run about 10 minutes. This will vary according to the size of memory in the Comm-Stor II unit.

NOTE: Dual drive 8220A systems only: Upon completion of the Diskette test for drive 1, the READY (1) and BUSY (1) LEDs will blink in unison. Remove the User Diagnostic diskette from drive 1; insert it into drive 2 and close the door. The requirement stated above also applies to drive 2. Drive 2 tests will run about 3 minutes.

Requirement: When the tests are completed, all the LEDs will blink in unison.

- (j) Open and close the drive 1 door (or drive 2 door in a dual drive unit).

TABLE E
RAM FAULTS

LIGHT	INTERPRETATION	REMEDY
READY or BUSY	The main memory is faulty. Random and unpredictable operating faults may occur.	Replace the MP-RAM board.
CARRIER or STATUS	The expanded memory is faulty.	Replace the Expanded RAM board.

TABLE F
CONFIGURATION MEMORY FAULTS—Test B

LIGHT	INTERPRETATION	REMEDY
READY	The main memory is faulty. Random and unpredictable operating faults may occur.	Replace the MP-RAM board.
BUSY	The Extended User Command Table is faulty.	Replace the MP-RAM board.

TABLE G
ROM FAULTS

LIGHT	INTERPRETATION	REMEDY
READY	The main memory is faulty. Random and unpredictable operating faults may occur.	Replace the ROM board.

**TABLE H
DRIVE 1 FAULTS**

LIGHT	INTERPRETATION	REMEDY
READY or BUSY	Diskette drive 1 cannot read properly.	Replace the diskette drive assembly. If drive 1 still fails, replace the diskette controller board and cable. Continued failure of drive 1 indicates a bad User Diagnostic diskette.
CARRIER or STATUS	Diskette drive 1 cannot write properly.	(same as above)

**TABLE I
DRIVE 2 FAULTS**

LIGHT	INTERPRETATION	REMEDY
READY or BUSY	Diskette drive 2 cannot read properly.	Replace the diskette drive assembly. If drive 2 still fails, replace the drive controller board and cable. Continued failure of drive 2 indicates a bad User Diagnostic diskette.
CARRIER or STATUS	Diskette drive 2 cannot write properly.	(same as above)

Requirement 1: If at any time the LEDs blink in unison, go to step (k).

Requirement 2: If a series of LEDs are lit, refer to Table E for the first test results. If *no* LEDs are lit, go to requirement 3.

Requirement 3: Open and close the drive door again. If a series of LEDs are lit, refer to Table F for the second group of test results. If *no* LEDs are lit, go to requirement 4.

Requirement 4: Open and close the drive door again. If a series of LEDs are lit, refer to Table G for the third group of test results. If *no* LEDs are lit, go to requirement 5.

Requirement 5: Open and close the drive door again. If a series of LEDs are lit, refer

to Table H for the fourth group of test results. If *no* LEDs are lit, go to requirement 6.

Requirement 6: Open and close the drive door again. If a series of LEDs are lit, refer to Table I for the last group of test results. If *no* LEDs are lit, go to requirement 7.

Requirement 7: Open and close the door to end the test. All LEDs will blink in unison.

(k) If no further fault conditions exist, the test will end with all LEDs blinking in unison. Those fault tables bypassed by the diagnostic procedure contain no reportable results.

(l) Remove the diagnostic diskette from the drive.

Test D—Terminal and Modem Ports Tests

5.08

- (a) Turn the Comm-Stor II unit ON.
- (b) Remove any diskettes from the drives. Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.

TABLE J

BIT RATE SPECIFICATION

This table specifies the terminal, modem, and printer port bit rates. If the terminal and modem port rates are different, run the test twice, once at each bit rate.	
DESIRED BIT RATE	TERM SWITCH SETTING
110	1
134	2
150	3
300	4
1200	5
2400	6
4800	7
7200	8
9600	9

- (e) Mount the diagnostic test plug on the rear panel. Set switch 1 up (EIA) and switch 2 down (TERM).
- (f) Set the modem switch to 3.
Set the printer switch to 0.
Set the terminal switch to 0.
Set the binary switch to EXIT.
- (g) Depress the RESTART switch.

Requirement: The LED Test (Test A) is *automatically* performed. The user may also perform the Switch Test or proceed to step (h).

(h) Refer to Table J and set the terminal port switch on the back of the Comm-Stor II unit. The terminal *and* modem ports will be tested at the selected bit rate.

(i) Open and close the drive 1 door to start the tests.

Requirement: The tests will run about 3 minutes. When completed, all LEDs will blink in unison.

(j) Open and close the drive 1 door to obtain the test results as displayed by the LEDs.

Requirement 1: If at any time the LEDs blink in unison, go to step (k).

Requirement 2: If a series of LEDs are lit, refer to Table K for the first test results. If *no* LEDs are lit, go to requirement 3.

Requirement 3: Open and close the drive door again. If a series of LEDs are lit, refer to Table L for the second group of test results. If *no* LEDs are lit, go to requirement 4.

Requirement 4: Open and close the drive door again. If a series of LEDs are lit, refer to Table M for the third group of test results. If *no* LEDs are lit, go to requirement 5.

Requirement 5: Open and close the drive door again. If a series of LEDs are lit, refer to Table N for the fourth group of test results. If *no* LEDs are lit, go to requirement 6.

Requirement 6: Open and close the drive door again. If a series of LEDs are lit, refer to Table I for the last group of test results. If *no* LEDs are lit, go to requirement 7.

Requirement 7: Open and close the door to end the test. All LEDs will blink in unison.

(k) If no further faults exist, the test will end with all LEDs blinking in unison. Those tables bypassed by the diagnostic procedure contained no reportable results.

(l) Remove the diagnostic test plug from the unit, and the diagnostic diskette from the drive.

TABLE K
TERMINAL RECEIVE/TRANSMIT FAULTS

LIGHT	INTERPRETATION	REMEDY
READY or BUSY	The terminal port cannot receive and/or transmit characters properly.	Replace the communications ports board.
CARRIER	One or more of the following faults may occur: 1. The terminal port may not respond to a break (i.e., long space) from the terminal. 2. The terminal port cannot send a break to the terminal. 3. A terminal parity error indication may be falsely given.	Replace the communications ports board.
STATUS	The status light is not used.	

TABLE L
TERMINAL EIA CONTROL FAULTS

LIGHT	INTERPRETATION	REMEDY
READY BUSY CARRIER or STATUS	The Terminal port is faulty.	Replace the communications ports board.

TABLE M
MODEM RECEIVE/TRANSMIT FAULTS

LIGHT	INTERPRETATION	REMEDY
READY or BUSY	The modem port cannot receive and/or transmit characters properly.	Replace the communications ports board.
CARRIER	One or more of the following faults may occur: 1. The modem port may not respond to a break (i.e., long space) from the data set. 2. The modem port cannot send a break to the data set. 3. A modem parity error indication may be falsely given.	Replace the communications ports board.
STATUS	Under certain conditions, transmission from the modem to the terminal may be faulty.	Replace the communications ports board.

TABLE N
MODEM EIA CONTROL FAULTS

LIGHT	INTERPRETATION	REMEDY
READY BUSY CARRIER or STATUS	The modem port is faulty.	Replace the communication ports board.

TABLE O
PRINTER RECEIVE/TRANSMIT FAULTS

LIGHT	INTERPRETATION	REMEDY
READY or BUSY	The printer port cannot transmit characters properly.	Replace the printer board.
CARRIER	The printer port may not be able to send a break (i.e., long space) to the printer.	Replace the printer board.
STATUS	The status light is not used.	

TABLE P
PRINTER EIA CONTROL FAULTS

LIGHT	INTERPRETATION	REMEDY
READY BUSY CARRIER or STATUS	The printer port is faulty.	Replace the printer board.

Test E—Printer Port Test (if option installed)

5.09

- (a) Turn the Comm-Stor II unit ON.
- (b) Remove any diskettes from the drives. Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.
- (e) Mount the diagnostic test plug on the rear panel and set switches 1 and 2 both up (EIA and Printer).
- (f) Set the modem switch to 5.
Set the printer switch to 0.
Set the terminal switch to 0.
Set the binary switch to EXIT.
- (g) Depress the RESTART button.

Requirement: The LED Test (Test A) is *automatically* performed. The user may also perform the Switch Test or proceed to step (h).

- (h) Refer to Table J and set the terminal port switch on the back of the Comm-Stor II unit.
- (i) Open and close the drive 1 door to start the test.

Requirement: The test will run about 3 minutes. When completed, all LEDs will blink in unison.

- (j) Open and close the drive 1 door to obtain the test results as displayed by the LEDs.

Requirement 1: If at any time the LEDs blink in unison, go to step (k).

Requirement 2: If a series of LEDs are lit, refer to Table O for the first test results. If *no* LEDs are lit, go to requirement 3.

Requirement 3: Open and close the drive door again. If a series of LEDs are lit, refer to Table P for the second group of test results. If *no* LEDs are lit, go to requirement 4.

Requirement 4: Open and close the drive door again. If a series of LEDs are lit, refer to Table M for the third group of test results. If *no* LEDs are lit, go to requirement 5.

Requirement 5: Open and close the drive door again. If a series of LEDs are lit, refer to Table N for the fourth group of test results. If *no* LEDs are lit, go to requirement 6.

Requirement 6: Open and close the door to end the test. All LEDs will blink in unison.

- (k) If no further faults exist, the test will end with all LEDs blinking in unison. Those tables bypassed by the diagnostic procedures contained no reportable results.
- (l) Remove the diagnostic test plug from the unit, and the diagnostic diskette from the drive.

Test F—Isochronous Operation Test*

5.10

- (a) Turn the Comm-Stor II unit ON.
- (b) Remove any diskettes from the drives. Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.
- (e) Mount the diagnostic test plug on the rear panel. Set switch 1 up (EIA) and switch 2 down (TERM).
- (f) Set the modem switch to 6.
- (g) Depress the RESTART button.

Requirement: The LED Test (Test A) is automatically performed. The user may also perform the Switch Test or proceed to step (h).

- (h) Open and close the drive 1 door to start the test.

Requirement: The tests will run about 3 minutes. When completed, all LEDs will blink in unison.

- (i) Open and close the drive 1 door to obtain the test results as displayed by the LEDs.

Requirement 1: If at any time the LEDs blink in unison, go to step (j).

Requirement 2: If a series of LEDs are lit, refer to Table K for the first test results. If *no* LEDs are lit, go to requirement 3.

Requirement 3: Open and close the drive door again. If a series of LEDs are lit, refer to Table L for the second group of test results. If *no* LEDs are lit, go to requirement 4.

Requirement 4: Open and close the drive door again. If a series of LEDs are lit, refer to Table M for the third group of tests results. If *no* LEDs are lit, go to requirement 5.

*This test may be performed only on units containing the following hardware components at the indicated revision levels or higher:

Communications Board #1030A5162
 I/O Panel #1030A6291D
 Microprocessor Board #1030A6492N

Requirement 5: Open and close the drive door again. If a series of LEDs are lit, refer to Table N for the fourth group of test results. If *no* LEDs are lit, go to requirement 6.

Requirement 6: Open and close the door to end the test. All LEDs will blink in unison.

- (j) If no further faults exist, the test will end with all LEDs blinking in unison. Those tables bypassed by the diagnostic procedures contained no reportable results.
- (k) Remove the diagnostic test plug from the unit, and the diagnostic diskette from the drive.

Test G—Configuration Memory Test

5.11

- (a) Turn the Comm-Stor II unit ON. Set the binary switch to ENTER. Set the modem switch to 0. Set the printer switch to 0.
- (b) Remove any diskettes from the drives. Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.
- (e) Remove all cables (and the test plug) from the ports of the Comm-Stor II unit.
- (f) Set the modem switch to 8.
- (g) Depress the RESTART button.

Requirement: The LED Test (Test A) is automatically performed. The user may also perform the Switch test or proceed to step (h).

- (h) Open and close the drive 1 door to start the tests.

Requirement: When the BUSY LED comes on and stays on, turn the Comm-Stor II unit OFF. Wait about 1 minute.

- (i) Turn the Comm-Stor II unit ON.

Requirement: The LED test is again automatically performed.

TABLE Q
CONFIGURATION MEMORY FAULTS—Test G

BLINKING LIGHT:	INTERPRETATION
BUSY	The battery or the main configuration memory is faulty.
CARRIER	The battery or the Extended User Command Table memory is faulty.

(j) Open and close the drive 1 door.

Requirement 1: If the BUSY or CARRIER LED begins *blinking*, refer to Table Q.

Requirement 2: If the BUSY LED comes on and stays on, no faults exist. Turn the Comm-Stor II unit OFF. Wait about 1 minute.

(k) Turn the Comm-Stor II unit ON.

Requirement: The LED test is again automatically performed.

(l) Open and close the drive 1 door.

Requirement 1: If the BUSY or CARRIER LED begins blinking, refer to Table Q.

Requirement 2: If *all* LEDs blink in unison, the test is finished and no further faults exist.

Note 1: Wait at least 1 minute where required. However, if the suspected configuration memory fault is time related, more or less time may be required between steps.

Note 2: If the problem is heat related, the user may depress the RESTART button between steps rather than turn the unit OFF.

(m) Remove the diagnostic diskette from the drive.

Test H—Diskette Test

5.12

Note: Verify the system's operation first by running Test C: Internal Tests.

(a) Turn the Comm-Stor II unit ON.
Set the binary switch to ENTER.
Set the modem switch to 0.
Set the printer switch to 0.

(b) Remove any diskettes from the drives.
Insert a Refresh diskette into drive 1; close the drive door.

(c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.

(d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.

(e) Set the modem switch to 9.

(f) Depress the RESTART button.

Requirement: The LED Test (Test A) is automatically performed. The user may also perform the Switch test or proceed to step (g).

(g) Open and close the drive 1 door.

Requirement 1: The READY and BUSY LEDs will begin blinking. Remove the Diagnostic diskette and insert the diskette to be tested into drive 1.

Requirement 2: The READY and BUSY LEDs will stop blinking but remain on during the test. The test will run about 2 minutes.

Requirement 3: If *no errors* occur, the BUSY and READY LEDs will start blinking again (READY 2 and BUSY 2 will blink on a dual drive unit). Another diskette may be inserted in the drive (drive 2 of a dual unit) and tested.

Note: In dual drive units additional diskettes are tested by alternating between drives 1 and 2.

Requirement 4: If an error occurs, the CARRIER LED will begin blinking. Remove the faulty diskette from the drive and discard it. To test additional diskettes proceed as described in Requirement 3.

Note: The user can attempt to copy a faulty diskette to save valuable data.

TABLE R
USER DIAGNOSTIC MEMORY TEST

BANK	ADDRESS RANGE	FUNCTION	PCB	IC LOCATION							
				0	1	2	3	4	5	6	7
00	0020-03FF	Standard System	MP-RAM	A1	A3	B1	B3	C3	C3	D1	D3
01	0400-07FF	1K Forms	MP-RAM	A2	A4	B2	B4	C2	C4	D2	D4
02	0800-0BFF	4K RAM	4K RAM/Printer	A1	B1	C1	D1	E1	F1	H1	J1
03	0C00-0FFF	4K RAM	4K RAM/Printer	A1	B1	C1	D1	E1	F1	H1	J1
04	1000-13FF	4K RAM	4K RAM/Printer	A1	B1	C1	D1	E1	F1	H1	J1
05	1400-17FF	4K RAM	4K RAM/Printer	A1	B1	C1	D1	E1	F1	H1	J1
10	4000-40FF	Standard CMOS RAM	MP-RAM	F3	F3	F3	F3	E2	E2	E2	E2

- (1) Test M performs read/write tests on all memory addresses. The test procedure is loaded and executed in Bank 00. If FORMS and EXP RAM questions are answered NO, then Banks 01-05 are not tested.
- (2) If an error occurs, the following information will be displayed: the bank number, the first address which failed within that bank, the value written, and the value read. The bits within these values are organized as follows: 7654.3210. Bit 7 is the MSB.
- (3) Only the first 4K of RAM may be tested on the 16K RAM Board. If a failure occurs, use the table above and change the device in Row 1, even if 2, 3, or 4 is indicated.

Test M—RAM Memory Test

5.13 The purpose of this test is to provide a detailed analysis of the problem area in RAM Memory (refer to Table R). This test need only be run if a RAM failure existed during Test C in Table E or F.

- (a) Turn the Comm-Stor II unit ON.
Set the binary switch to ENTER.
Set the modem switch to 0.
Set the printer switch to 0.
- (b) Remove any diskettes from the drives.
Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.

(e) Connect a terminal to the Comm-Stor II unit's terminal port and set the terminal bit rate switch for the appropriate bit rate.

(f) Depress the RESTART button. The following message is displayed at the terminal:

*** USER DIAGNOSTIC, VER. E ***

ENTER A COMMAND FOLLOWED BY A RETURN.

#

(g) After the number sign prompt (#) appears, type the letter "M" on the terminal followed by a carriage return. After a slight delay, the letter M will be echoed back to the terminal and the following statement will be displayed:

STANDARD RAM

Now type "Y".

(h) The system will print the following message at the terminal:

EXP RAM

Type "Y" if the optional 4K RAM board is installed or "N" if it is not. The memory test will now execute beginning at Bank 00.

Requirement 1: The following table will be displayed at the terminal:

Global W/R Test			
Bank	LOC	Write	Read
XX			
XX			

Where: BANK = hexadecimal RAM Bank number
 LOC = hexadecimal memory address
 WRITE = a 1 or a 0 indicates the logic level of each data bit written into RAM
 READ = a 1 or a 0 indicates the logic level of each data bit read from RAM.

The Global Write/Read test writes a unique value (an ascending number) into each memory location. After the entire memory is written into, each location is read and compared to the expected value. This test will detect addressing faults in both the address logic and in the memory chips themselves. Only the first error in each bank is reported.

Requirement 2: After completing the above test, the Comm-Stor II unit will print GLOB PAT and begin execution. This test writes a unique pattern into memory. After the entire memory is written, it is read back and a comparison is made. The test is repeated 7 times with a different pattern used each time. This test will detect pattern sensitivity and addressing faults.

Requirement 3: After completing the Global Pattern Test, the Comm-Stor II unit will respond with the following message:

PRESS RETURN KEY

Strike any key to perform the final test, W/R ALL V.

This performs a write/read test at each location, writing and reading four different hexadecimal values in the following sequence:

- (1) Write the value.
- (2) Read the location (up to 6 tries) until the correct value is read.
- (3) If the correct value cannot be read, go back and write it again.
- (4) If it still cannot be read (6 tries), repeat the cycle up to 6 times until the correct value is read.

When an error is found (even if it disappears during retry), no more locations in that bank are tested. The test advances to the next bank.

A typical error display is:

BANK	LOC	WRITE	READ		
02	0801	1100.0010	1100.0000	5	4

The number of write tries. (Arrow points from 5 to WRITE column)

The number of read tries after the last write. (Arrow points from 4 to READ column)

If the value cannot be read after 6 read-write cycles, an H (HARD ERROR) is displayed in place of the retry numbers.

At the completion of this test it will loop to the beginning.

- (i) Remove the diagnostic diskette from the drive when the test is finished.

Test V—Drive/Disk Verify Test

5.14 This test provides a means of reading and verifying track/sector identification fields (IDs) and data CRC characters for every sector on the diskette.

5.15 The main purpose of this test is to check the diskette drive and the diskette drive electronics' ability to read. If marginal problems exist, it is imperative that the test be run with several other diskettes or a known good diskette.

5.16 This test can also be used to check and verify diskettes. After the diskette drive and electronics have been verified by successfully reading known good diskettes, the Verify test can be used to verify questionable diskettes. Marginal or bad sectors are indicated by a display which indicates the track number (0-76), the sector number (01-26), and an "S" which indicates a Search Error or "CC" which indicates a CRC or data error.

- (a) Turn the Comm-Stor II unit ON.
Set the binary switch to ENTER.
Set the modem switch to 0.
Set the printer switch to 0.
- (b) Remove any diskettes from the drives.
Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.
- (e) Connect a terminal to the Comm-Stor II unit's terminal port and set the terminal bit rate switch for the appropriate bit rate.
- (f) Depress the RESTART button. The following message is displayed at the terminal:

```
*** USER DIAGNOSTIC, VER. E ***
ENTER A COMMAND FOLLOWED BY A
RETURN.
```

#

- (g) After the number sign prompt (#) appears, type the letter "V" on the terminal followed by a carriage return. After a slight delay, the letter V will be echoed back to the terminal and the following statement will be displayed:

INSERT IN

- (h) Test the system's ability to read a diskette. Insert a known good diskette into drive 1 *or* drive 2.

Note: Marginal diskettes can be tested in known good systems using the same procedure.

- (i) After the scratch diskette has been inserted, the following message will be displayed on the terminal:

TRK

Answer this prompting message with the decimal number of the track to be tested (0-76), or answer it with an upper case "A" which designates all tracks and sectors on the diskette.

- (j) Type a carriage return; the following prompt statement will be displayed on the terminal:

ID REVS (ID Revolutions)

Answer this message with a "C". The "C" causes the same search retry sequence used by the Comm-Stor II unit in normal operation (up to 12 search retries). If marginal diskettes are being tested, a number 1 through 9 can be entered to limit the number of search retries.

Limiting the number of retries will greatly increase the probability of an error indication when the diskette or diskette drive electronics are marginal.

Note: It is normal to have some search errors when ID REVS equal 1 or 2.

- (k) The test will begin automatically after a carriage return has been typed following the ID REVS number.

The following table will be displayed:

TRK	SEC	TRK = track number
		SEC = sector number
RUN1		RUN1 = test cycle 1
XX	YY ZZ	If Read errors occur.

Read errors are indicated in the above table by the track (XX) and sector (YY) numbers where the error occurred. The third column (ZZ) describes the type of error: S = "search" or "diskette" type ID error; CC = "CRC" or "Bad Read" type data error.

If all tracks are tested, the beginning of each read cycle is indicated by the display RUN1, RUN2, RUN3, etc. Otherwise, only RUN 1 is indicated.

The test will run continuously until interrupted. Strike the space bar on the terminal to stop the test and return the procedure to the TRK message. Strike the character "I" to return to the INSERT IN message.

- (l) Remove the diagnostic diskette from the drive when the test is finished.

Test CM—Configuration Memory Test

5.17 This test will confirm the ability of configuration memory to retain information when the main power is disconnected.

5.18 This test should be run if the unit fails to configure properly or loses parameters after refreshed.

5.19 The test procedure will:

Read the previous configuration memory page 0 (and 1 if equipped) into RAM memory from the diskette.

Compare this image with the contents of page 0 (and 1 if equipped) beginning at location 4000.

Report if the compare was "Good" or "Bad" for page 0 (and 1 if equipped).

Write the contents of both configuration memory pages out to the diskette.

- (a) Turn the Comm-Stor II unit ON. Set the binary switch to ENTER. Set the modem switch to 0. Set the printer switch to 0.
- (b) Remove any diskettes from the drives. Insert a Refresh diskette into drive 1; close the drive door.
- (c) Depress the Restart switch. The Refresh procedure ensures that the Comm-Stor II unit is set to the standard factory configuration.
- (d) Remove the Refresh diskette. Insert the Diagnostic diskette into drive 1; close the drive door.
- (e) Connect a terminal to the Comm-Stor II unit's terminal port and set the terminal bit rate switch for the appropriate bit rate.
- (f) Depress the RESTART button. The following message is displayed at the terminal:

*** USER DIAGNOSTIC, VER. E ***

ENTER A COMMAND FOLLOWED BY A RETURN.

#

- (g) After the number sign prompt (#) appears type the letter "C" on the terminal followed by a carriage return. After a slight delay, the letter C will be echoed back to the terminal and the following statement will be displayed:

EXT TABLE?

Type "Y".

Requirement: The test will execute and print the following information:

PAGE 1 (GOOD or BAD)
EXT TABLE (GOOD or BAD)

Note: The test results should be ignored the first time the test is run. This enables the system to write the contents of configuration memory onto the diskette. When the question "EXT TABLE?" is asked again, the results will be valid.

- (h) Two test sequences are possible:

- Sequence 1:
- (a) Run the test.
 - (b) Turn power OFF, wait 5 seconds, restore power.
 - (c) Repeat the test immediately.

Sequence 1 will confirm the following hardware components:

The configuration memory chips in their power down mode.

The configuration memory support chips.

The on-board filter capacitor (which acts as a short-term power source for the configuration memory system).

- Sequence 2:
- (a) Run the test.
 - (b) Turn power OFF.
 - (c) Wait until the next day to repeat the test.

Sequence 2 will confirm the previous hardware as well as the operation of the battery on the mother board.

This test will not alter configuration memory.

6. CHECKLIST #1—DIAGNOSTIC DOES NOT RUN

6.01 Table S lists the most common causes for failure of the Comm-Stor II unit. Observe the symptoms and procede with the indicated remedies.

TABLE S
CHECKLIST #1

SYMPTOM	REMEDY
<p><i>Unit is completely dead.</i> Cooling fan is not spinning, drive motor is not spinning, no illumination of power switch, no front panel LED illumination.</p>	<p>(a) Reset the circuit breaker by pushing the power switch/circuit breaker button located on the back panel.</p>

TABLE S (Cont)

CHECKLIST #1

SYMPTOM	REMEDY
<p><i>LEDs light for one second and go off, but User Diagnostic does not load from the diskette.</i></p>	<ul style="list-style-type: none"> (2) Turn the unit OFF; remove the printer option board if installed, and turn the unit ON. If the LEDs come on, the problem is in the printer option board. (3) Turn the unit OFF; swap/verify the MP-RAM board. (4) Turn the unit OFF; swap/verify the ROM board. (5) Turn the unit OFF; swap/verify the base card. (a) Check the User Diagnostic diskette on another unit. (b) Check for drive motor rotation. (c) Swap/verify the drive ribbon wire cables. (d) Swap the diskette drive assembly and restart the test. (e) Swap/verify the diskette controller board. (f) Swap/verify the remaining circuit boards one at a time.

7. CHECKLIST #2—OTHER DIFFICULTIES

7.01 This part applies to Comm-Stor II units which have passed the User Diagnostic

tests without failure. Table T lists potential trouble symptoms and recommended remedies. Observe the symptoms and proceed with the indicated remedy.

TABLE T

CHECKLIST #2

SYMPTOM	REMEDY
<p><i>System will not respond to certain keyboard commands.</i></p>	<ul style="list-style-type: none"> (a) Using a Configuration diskette, display all parameters and check for valid configuration responses. Change invalid parameters if necessary and recheck. This can be done by "refreshing" the unit. If over the course of time configuration parameters change, check the battery voltage; if OK, replace the MP-RAM board.

TABLE T (Cont)

CHECKLIST #2

SYMPTOM	REMEDY
<p><i>Unit does not respond with "carriage return", "line feed", or "asterisk" when restarted.</i></p>	<p>(b) Swap/verify the ROM board.</p> <p>(a) The terminal bit rate switch is not set the same as the terminal.</p> <p>(b) The parity of the terminal and the Comm-Stor II unit are not set the same.</p> <p>(c) Unit was not refreshed after the MP-RAM board removal/replacement.</p> <p>(d) Check configuration parameters as described in section A, above.</p>
<p><i>"Error-Diskette" Message</i></p>	<p>(a) Probable worn or damaged diskette. Check the unit with other diskettes.</p> <p>(b) Check diskette drive assembly head-to-track alignment.</p> <p>(c) Swap/verify the diskette controller board.</p>
<p><i>"Error-Bad Read" Message</i></p>	<p>(a) Probable worn or damaged diskette. Check the unit with other diskettes.</p> <p>(b) Check head-to-track alignment of the unit which wrote data on the diskette and the unit which is reading diskette.</p> <p>(c) Swap/verify the diskette controller board of the unit which wrote on diskette and the unit reading the diskette.</p> <p>(d) Check read/write compatibility. Write (.E___) and then read (.D __) a diskette.</p> <p>If successful, attempt reading the same diskette on another unit. Check drive head/track alignment.</p>
<p><i>"Error-System" Message</i></p>	<p>(a) Caused by a User diskette with a bad directory.</p> <p>(b) Swap/verify the ROM board.</p> <p>(c) Swap/verify the MP-RAM board.</p> <p>(d) Swap/verify the diskette controller board.</p> <p>(e) Swap/verify the communications ports board.</p>

TABLE T (Cont)

CHECKLIST #2

SYMPTOM	REMEDY
<p><i>Erroneous data transfer between the Comm-Stor II unit and terminal, data set or printer</i></p>	<ul style="list-style-type: none"> (a) Check for proper bit rate adjustment of the Comm-Stor II unit and peripheral device. (b) Check for proper parity adjustment of the Comm-Stor II unit and the terminal. (c) Swap/verify the communications ports board for terminal or data set data transfer problems. (d) Swap/verify the printer board for printer option data transfer problems. (e) Swap/verify the MP-RAM board if erroneous data transfer exists through <i>all</i> I/O ports.

8. COMMUNICATIONS CHECKOUT

8.01 The following on-line check should be performed immediately after installing the Comm-Stor II unit and whenever send/receive problems are indicated. This procedure will determine whether the Comm-Stor II unit can communicate with the network controller through the modem port.

8.02 If private line terminal test access has been provided, request an on-line test of the Comm-Stor II unit. The Test Center will direct the remainder of the on-line test and provide the installer or repairman with the test results.

TABLE U

INSTALLATION TEST PROCEDURES

STEP	PROCEDURE	TROUBLE ANALYSIS
1	Establish a data connection between the Comm-Stor II station and the Test Center.	
2	<p>Check NOT READY response to ADDRESS #1.</p> <ul style="list-style-type: none"> (1) Open the drive 1 door of the Comm-Stor II unit and remove any diskettes. (2) The Test Center will transmit a Sender/Receiver Deselect (SRDs1) character (typically an EOT character). 	<ul style="list-style-type: none"> (1) Check EIA cables and connections. (2) Check bit rate settings. (3) User diskette is not inserted or a bad User diskette is inserted. (4) Check terminal.

TABLE U (Cont)
INSTALLATION TEST PROCEDURES

STEP	PROCEDURE	TROUBLE ANALYSIS
	(3) The Test Center will transmit ADDRESS #1. <i>Requirement:</i> The Comm-Stor II unit will respond by transmitting NOT READY ANSWER-BACK #1. The Test Center will confirm this transmission.	(5) Check data set operation. (6) No response: check 8A1/8B1 configuration option #1P (7) Incorrect response: check 8A1/8B1 option #1K.
3	Check READY response to ADDRESS #1. (1) Insert an 8A1/8B1 User diskette into drive 1 and close the door. (2) The Test Center will transmit an SRDs1 character to deselect the station. (3) The Test Center will transmit ADDRESS #1. <i>Requirement:</i> The Comm-Stor II unit will respond by transmitting a READY TO RECEIVE answerback message. The Test Center will confirm this transmission.	Incorrect response: check 8A1/8B1 option #1J.
4	Check the Comm-Stor II unit's ability to receive data. (1) At the Test Center, depress the LOCAL and HOME keys. Type STX FOX, and the Receive Interrupt character [ETX]. The following display will appear: STX THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 ETX Depress the HOME and SEND keys.	
5	The Test Center will roll call the station to verify that the message in Step 4 was properly received. (1) The Test Center will transmit ADDRESS #1. <i>Requirement:</i> The Comm-Stor II unit will transmit a READY ANSWERBACK if the message was received properly. The Test Center will visually verify the answerback. (2) The Test Center will transmit a SRDs1 to deselect the station.	(1) No response: check 8A1/8B1 option #1H. (2) Incorrect response: check 8A1/8B1 option #40. (3) Comm-Stor II unit transmits NOT READY #1 answerback: the message was received with an error; repeat steps 4 and 5.

TABLE U (Cont)
INSTALLATION TEST PROCEDURES

STEP	PROCEDURE	TROUBLE ANALYSIS
6	<p>Verify that the message in step 4 has been properly stored on the diskette.</p> <p>(1) The station operator will type: .DD *[CR]</p> <p>Requirement: The diskette directory will appear on the station terminal.</p> <p>(2) The station operator visually locates the received message name in the directory.</p> <p>Requirement: The message name will have an R. extension.</p> <p>(3) The station operator will verify the message data by typing: .D message name[CR]</p> <p>Note: The message name in this command is the one with the R. extension.</p> <p>Requirement: The following display will appear on the station terminal:</p> <p style="text-align: center;">THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890</p>	<p>Message name does not appear in the directory: 8A1/8B1 option #53 must be configured NO.</p>
7 (Opt'nal)	<p>If other ADDRESSES are used in the network protocol, repeat step 2 to verify the station's response to each additional address. Otherwise proceed to step 8.</p> <p>Requirement: After the Test Center receives the READY answerback to an ADDRESS, it should transmit an SRDs1 (EOT) to deselect the station.</p>	<p>Check 8A1/8B1 options #1Q, #1R, and #1S.</p>
8	<p>Check the Comm-Stor II unit's ability to detect a parity error.</p> <p>(1) Repeat step 2.</p> <p>(2) At the Test Center, depress the LOCAL and HOME keys. Type STX, OPTION, and the Receive Interrupt character [ETX]. The following display will appear.</p> <p>5 NULLSNuNuNuNuNu ← ≡</p> <p>5 DELETES '/.'/.'/.'/.'/ ← ≡</p> <p>5 CRS ←←←←← ← ≡</p> <p>5 BAD PARITY12345 ← ≡</p> <p>5 BELLSB_LB_LB_LB_LB_LEX</p> <p style="text-align: center;">Depress the HOME and SEND keys.</p>	<p>Check 8A1/8B1 option #40.</p>

TABLE U (Cont)
INSTALLATION TEST PROCEDURES

STEP	PROCEDURE	TROUBLE ANALYSIS
(3)	<p>The Test Center will verify the options message was received but not stored because the parity error was detected. Type ADDRESS #1.</p> <p>Requirement: The Comm-Stor II unit will transmit NOT READY ANSWERBACK #2. The Test Center will visually check the answerback indicating that the message was not stored by the Comm-Stor II unit.</p>	
(4)	<p>The Test Center will transmit the SRDs1 [EOT] to deselect the station.</p>	
9	<p>Check the Com-Stor II unit's ability to send data.</p> <p>(1) The station operator will prepare the message received in step 4 for transmission by typing:</p> <p>.RE message name+W.[CR]</p> <p>(2) The station operator will verify that the message name has a W. extension by typing:</p> <p>.DD message name [CR]</p> <p>Requirement: The following will appear on the station terminal:</p> <pre>message name W. XXXXXX</pre> <p>Note: XXXXXX represents the number of characters contained in the message.</p>	
(3)	<p>The Test Center will poll the station. Type SRDs1 followed by the polling sequence.</p> <p>Requirement 1: The Comm-Stor II unit will transmit the message to the Test Center.</p> <p>Requirement 2: The Test Center will visually verify that the received message is the same as that transmitted in step 4.</p>	<p>(1) No response: check 8A1/8B1 option #11 and #2.</p> <p>(2) Message received incorrectly: an error occurred during transmission; repeat step 9.</p>
(4)	<p>Open the drive 1 door; repeat step 9 (3).</p> <p>Requirement: The Comm-Stor II unit will transmit the NOT READY #1 answerback.</p>	<p>(3) NOT READY #1 answerback incorrect or not sent; check 8A1/8B1 option #18.</p>
10	<p>Check the Comm-Stor II unit's ability to retransmit a message on the current station selection.</p>	<p>(1) Message not transmitted: check 8A1/8B1 option #58.</p>

TABLE U (Cont)
INSTALLATION TEST PROCEDURES

STEP	PROCEDURE	TROUBLE ANALYSIS
	<p>(1) The Test Center will send a Retransmit Sequence (NAK) to the station.</p> <p>Requirement 1: The Comm-Stor II unit will retransmit the message to the Test Center.</p> <p>Requirement 2: The Test Center will visually verify that the received message is identical to that received in step 5.</p>	<p>(2) Message transmitted incorrectly; an error occurred during transmission; repeat step 10.</p>
11	<p>Check the Comm-Stor II unit's ability to identify and store knowledgments to sent messages.</p> <p>This step requires that the Comm-Stor II 8A1/8B1 configuration option #61 be configured Y.</p> <p>(1) The Test Center will transmit the following acknowledgment to send message:</p> <p>TEST OK[STX]</p> <p>Requirement: The Comm-Stor II unit will deselect itself by transmitting an SRDs1 [EOT] character. This will appear on the Test Center's terminal.</p> <p>(2) The station operator will verify reception and storage of the above message.</p> <p>Type:</p> <p>.D message name#[CR]</p> <p>Requirement: The following will appear on the station terminal:</p> <p>THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 TEST OK</p>	<p>(1) Check 8A1/8B1 option #1B; it should be configured for the [STX] character.</p> <p>(2) Check 8A1/8B1 option #61; it should be configured YES.</p>
12	<p>Verify the Comm-Stor II unit's ability to provide a NO TRAFFIC/READY TO RECEIVE answerback in response to a poll.</p> <p>The Test Center will transmit an SRDs1 (EOT) followed by the polling sequence.</p> <p>Requirement: The Comm-Stor II unit will transmit the READY answerback, indicating there are no messages to be sent, but the station is ready to receive.</p>	<p>Incorrect or no response: check 8A1/8B1 option #18.</p>