"COMM-STOR*" II COMMUNICATIONS STORAGE UNIT INSTALLATION PROCEDURES

1. GENERAL

1.01 This section covers the COMM-STOR II Communications Storage Unit manufactured by Sykes Datatronics, Incoporated.

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

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1.03 The installation procedures covering the COMM-STOR II Communications Storage Unit are contained in the attached reprint of the practice prepared by Sykes Datatronics, Incorporated.

1.04 If COMM-STOR II Communications Storage Units are equipped for 8A1/8B1 Protocol operations, refer to Section 578-400-201 for installation instructions.

Comm-Stor II
COMMUNICATIONS STORAGE UNIT
INSTALLATION PROCEDURES

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1. INTRODUCTION

GENERAL

1.01 This section provides installation information for the Comm-Stor®II Communications Storage Unit hereafter referred to as Comm-Stor. Comm-Stor is available in two basic models: Model 8120A (Single Drive unit) and Model 8220A (Dual Drive unit). Edit, standby disk power, and the extended user command table are standard features in both models. One or more configuration diskettes

and manuals are also provided. Available options consist of:

Printer Port

Forms

Expanded RAM Memory

Rack Mount Enclosure

3740 Format Program

A plate on the rear of each unit indicates those options which are included in the unit (Fig. 1).

1.02 Whenever this section is reissued, the reason for the reissue will be given in this paragraph.

1.03 This section does not apply to Comm-Stor II systems equipped for 8A1/8B1 protocol operation. To install such systems, refer to Section 578-400-201.

1.04 Any form of the word ***display*** as used throughout this section refers to data output through the terminal port of the Comm-Stor unit (i.e. sending data to the terminal).

DANGER AND WARNINGS

1.05

Danger: Turn off all the 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.

(Refer to paragraph 6.11)

2. INSTALLATION OUTLINE

☐ (1) Review Service Order

☐ (2) Unpack and Inspect Equipment (Part 3)

☐ (3) Check Environmental and Placement Requirements (Part 4)

☐ (4) Power on (Part 5)

- (a) Front Panel Indicators
- (b) Powering Comm-Stor

☐ (5) Select the Diskette (Part 6)

- (a) Configuration
- (b) Refresh
- (c) User
- (d) Diagnostic

☐ (6) Perform Diagnostic Check (Stand Alone Tests) (Part 7)

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☐ (8) Set Transmission Rates (Part 9)

☐ (9) Configure the System (Part 10)

- (a) Dataset
- (b) Terminal
- (c) Comm-Stor
- (d) Printer (optional)

☐ (10) Build a User Diskette (Part 10)

☐ (11) Local Terminal Tests (Part 11)

☐ (12) Perform Operational Checkout (On-Line Tests) (Part 12)

☐ (13) Instruct Customer on Diskette Care (Part 6)

☐ (14) Have Customer Try Out Comm-Stor

☐ (15) Complete the Installation:

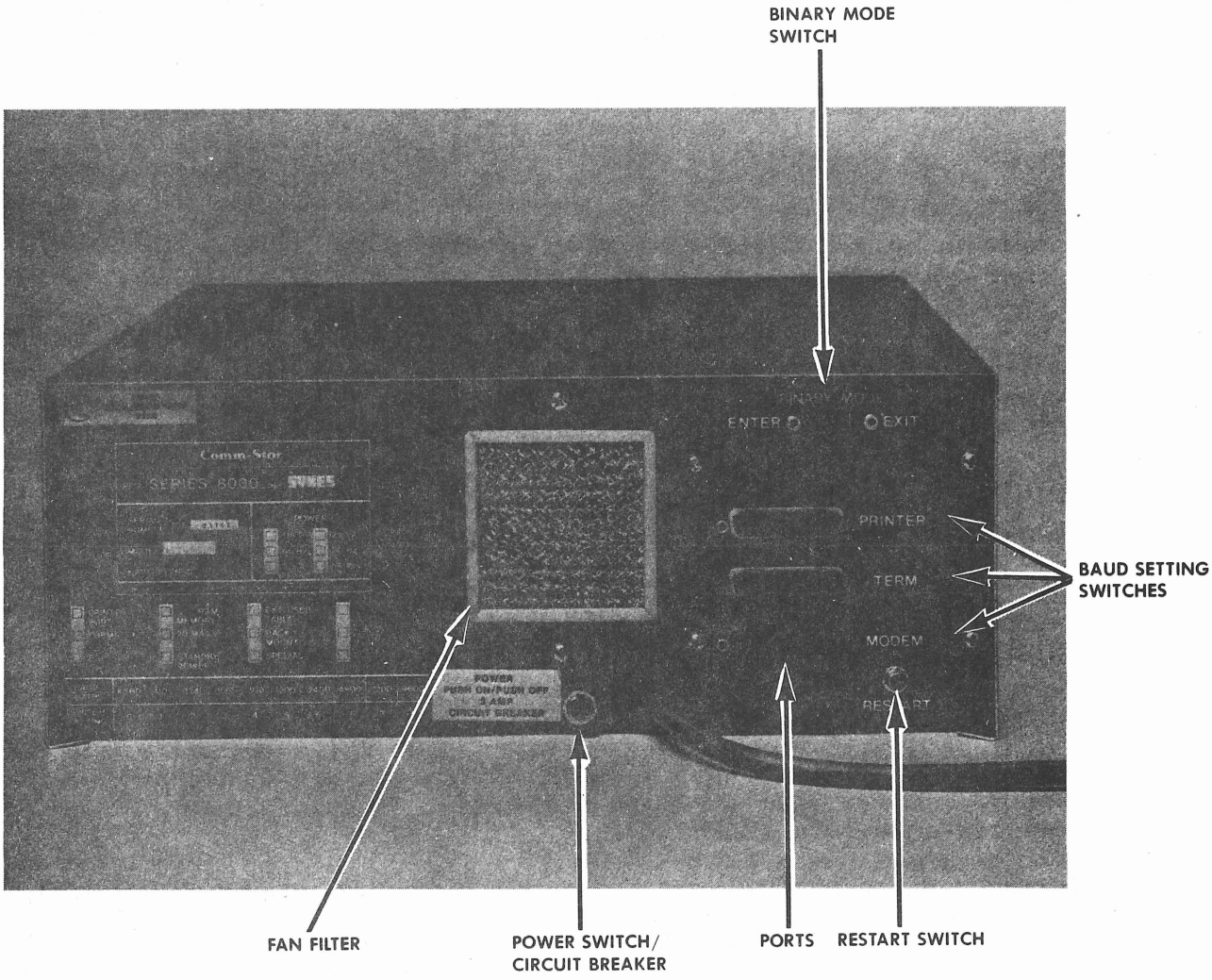


Fig. 1—Rear View of Comm-Stor Unit

(a) Give documentation to customer
(b) Clean up
(c) Complete

3. UNPACKING AND INSPECTING THE EQUIPMENT

3.01 To avoid equipment damage, unpack the equipment as close as possible to the installation site.

UNPACKING INSTRUCTIONS (Fig. 2)

3.02 To unpack Comm-Stor and accessories, proceed as follows:

(1) With box in upright position, open top flaps and fold outward.

(2) Turn box bottom side up, keeping top flaps folded outward.

(3) Lift box off unit and place aside.

(4) Remove inner packing material from around Comm-Stor.

(5) Remove plastic bag and all foreign material from Comm-Stor.

(6) Look for any accessories that would be packed separately (see Part 1.)

(7) Compare accessories and options (on rear plate of unit) with the packing slip to assure completeness of the order.

(8) Retain the shipping container for repacking if service is needed on the unit.

VISUAL INSPECTION

3.03 After removing Comm-Stor from its shipping container, visually inspect the unit for any shipping damage.

Warning: It is not necessary to remove the cover to perform any of the installation operations. Removing the cover and improperly handling the integrated circuits or other components may cause failures in these parts.

4. ENVIRONMENTAL AND PLACEMENT REQUIREMENTS

ENVIRONMENTAL

4.01 The Comm-Stor unit will function satisfactorily under temperature and humidity conditions suitable for operation of other equipment in an office or laboratory environment: relative humidity ranging from 20% to 90% (non-condensing) and temperature ranging from 45° to 95° F (7° to 35° C).

PLACEMENT

4.02 The Comm-Stor unit can be positioned at almost any angle and still function satisfactorily. However, the ideal position is right side up on a table or desk top, or any other hard, flat surface. The rack mounted Comm-Stor unit may be mounted in a 19-inch enclosure rack.

4.03 The Comm-Stor unit must be situated such that it has at least 4 inches clearance at the rear to allow intake of air by the cooling fan and must be free of any magnetic fields because of the media.

ELECTRICAL POWER REQUIREMENTS

4.04 Voltage and frequency requirements are listed on the configuration plate attached to the rear of the unit. The standard operating requirements are 110V, 60Hz at 2.5 amps. Before connecting Comm-Stor to a power source, check to be certain that both voltage and frequency agree with local usage, and that Comm-Stor is properly grounded.

4.05 The units are shipped with a three-prong power plug commonly used in the U.S.A. and Canada which meets safety requirements. Do not attempt to defeat the purpose of this plug.

5. POWER ON

FRONT PANEL INDICATORS

5.01 The front panel of Comm-Stor has several indicators to assist the operator. Two of the indicators, READY and BUSY, are duplicated in a dual drive unit to provide information about each drive. When power is turned on, all lamps are illuminated for a short time to allow the operator to

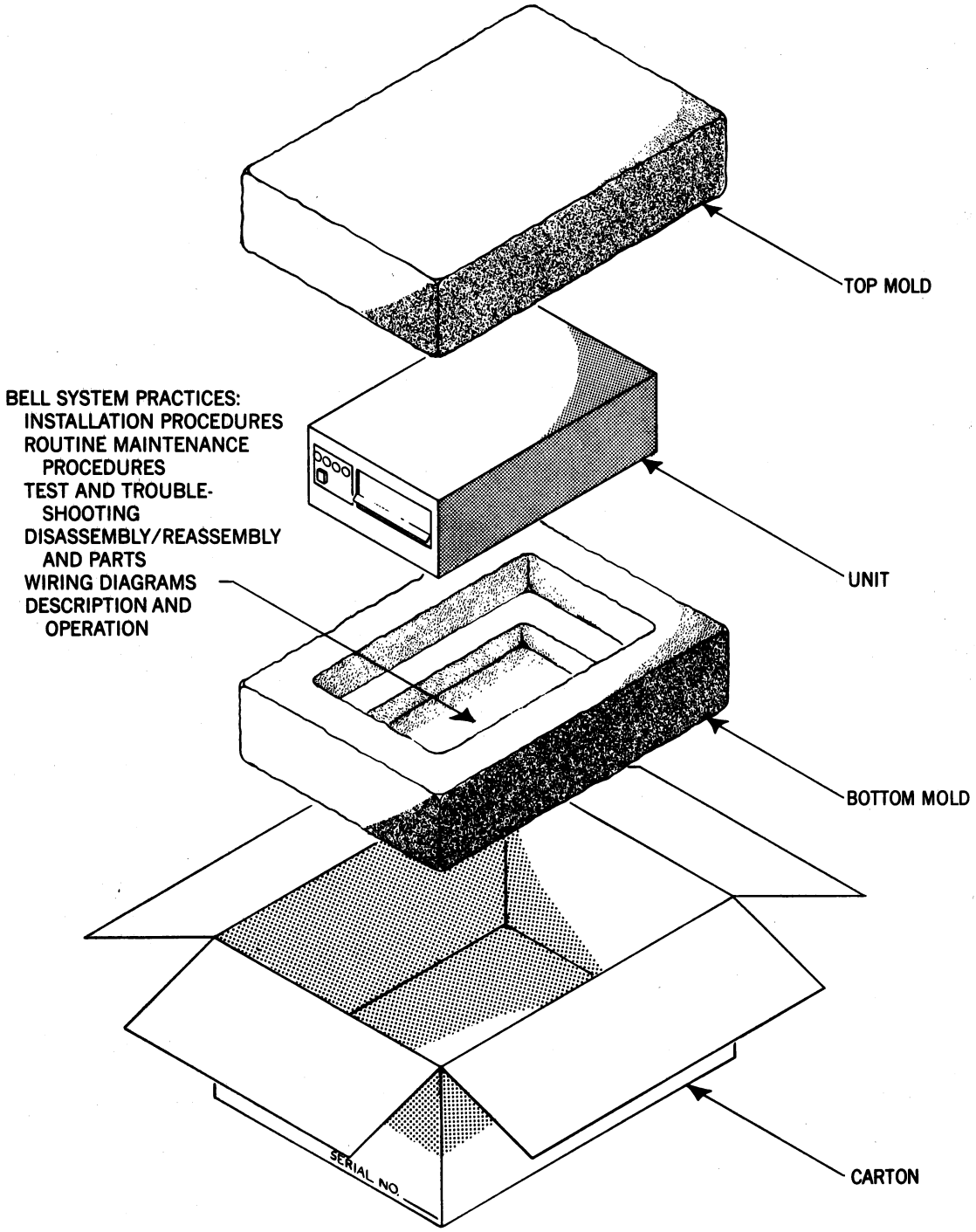


Fig. 2—Packaging Components

perform a visual lamp test. The function of each indicator is described below (Fig. 3).

Restart: A switch/indicator to show when power is turned on to the unit.

Ready: An indicator which signifies that a diskette has been properly inserted in the drive (when not in Standby Mode).

Busy: An indicator which signifies that data is being transferred to or from the diskette. A diskette should not be removed when the BUSY indicator is illuminated. To interrupt an operation, a Reset command should be entered and the operator should wait until the BUSY lamp extinguishes before removing the diskette.

Carrier: An indication of the presence of a Carrier Detect Signal from the modem.

Status: This indicator has a dual purpose: first, it indicates that data is being transferred to or from any of the ports, and second, it indicates the presence of a parity error. The lamp will glow at half brilliance when data is being transferred to or from any port. If a parity error occurs and data is not being transferred through any of the ports, it will illuminate at full brilliance. No correction procedures are required. When a parity error occurs and data is being transferred through a port, the lamp will illuminate at half brilliance but will return to full brilliance after completion of the data transfer. After a parity error, the lamp can only be extinguished by entering a Reset command from the terminal keyboard.

POWERING Comm-Stor

5.02 The Comm-Stor unit is to be connected to a power source as described in paragraph 4.04.

5.03 The POWER switch, located on the rear of the unit, turns power on and off and acts as a circuit breaker.

5.04 To power the unit, depress the power switch; the RESTART button on the ***front panel*** should illuminate. If it does not light, press the power switch again. It should be noted that there is also a RESTART button on the rear panel of the unit. Both buttons function identically; however, the one on the rear panel is non-illuminating.

5.05 When provided, the terminal and printer must also be powered on. The order in which power is applied to these devices will not affect the performance of Comm-Stor.

6. SELECTING THE DISKETTE

Comm-Stor DISKETTES

6.01 This section contains important reference materials but no procedures necessary for installing the system.

6.02 Each diskette is composed of 77 tracks, and each track contains 26 sectors. General user information (data) is stored in the "Library" section of the diskette and a listing of all files is kept in the Directory (Fig. 4).

A. Configuration Diskette

6.03 The Configuration diskette contains prerecorded information for configuring a system and for creating Refresh and User diskettes. Use of the Configuration diskette is covered briefly in Part 10 of this manual and more completely in the manual "How to Configure . . . Comm-Stor II" (Bell System Practice 999-302-150).

B. Refresh Diskette

6.04 Once Comm-Stor is configured, it is possible to store this configuration on a diskette called a Refresh diskette. After a Refresh diskette has been created from a User diskette, another Comm-Stor unit can be identically configured by inserting the Refresh diskette and pressing the RESTART button.

C. User Diskette

6.05 The User diskette contains a Directory and data files. It is used for all normal operations.

6.06 The User diskette is created with the Configurator. It is initialized with such parameters as the maximum number of characters in the file name and the maximum file length.

D. Diagnostic Diskette

6.07 The Diagnostic diskette contains prerecorded information for running the Comm-Stor User Diagnostic tests described in Part 7.

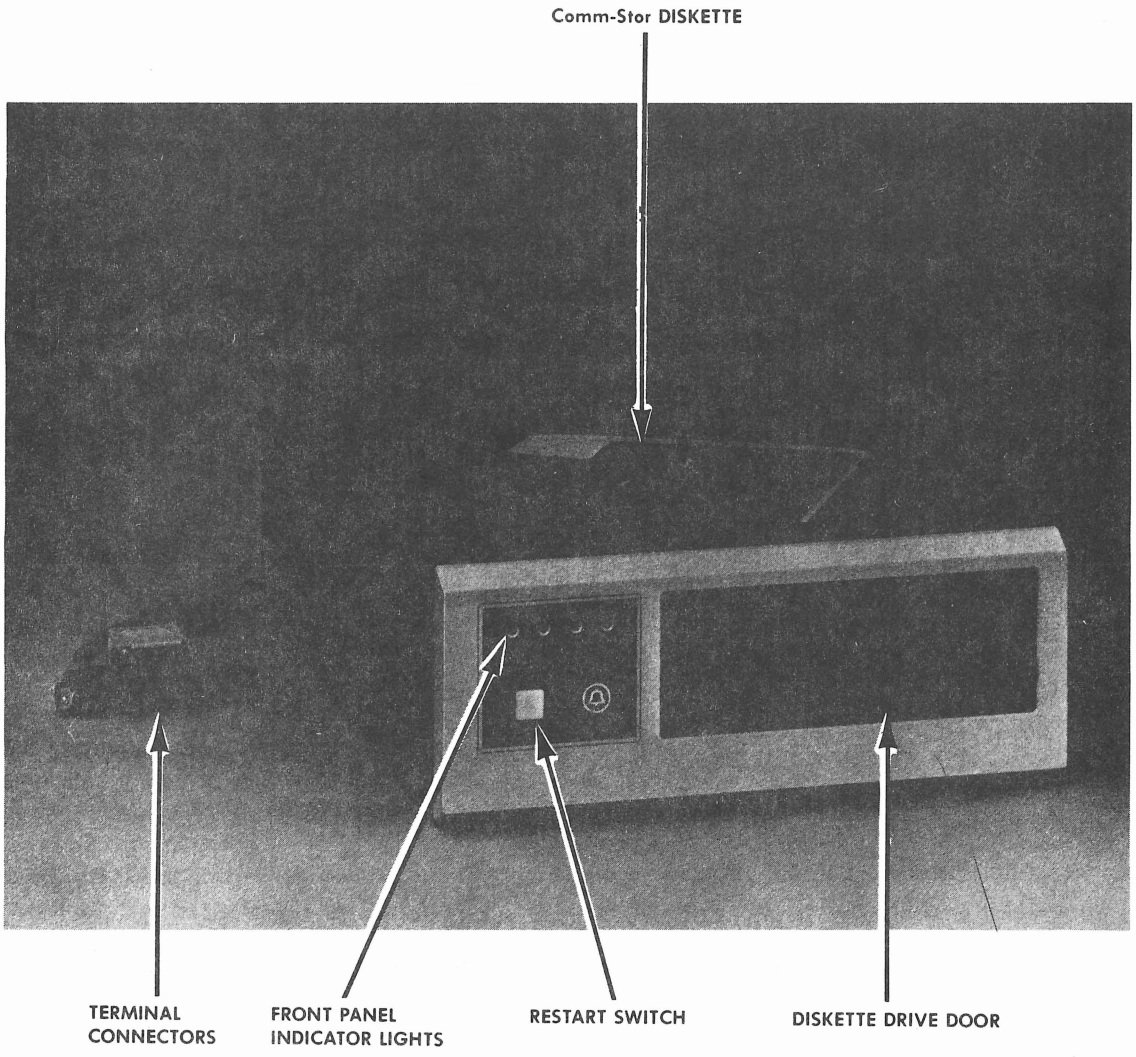


Fig. 3—Front View of Comm-Stor Unit

INSERTING AND REMOVING THE DISKETTE

6.08 The drive doors (Fig. 3) of all Comm-Stor units are equipped with an interlock which prevents them from closing unless a diskette is fully inserted.

6.09 To insert the diskette:

(a) Power up the Comm-Stor unit.

(b) Grasp the diskette between the thumb and index finger. The label should be face up and toward the operator (Fig. 5).

(c) Slide the diskette into the drive.

(d) Exert a slight inward pressure with the index finger and *gently* pull the drive door down with the thumb. ***Do not force the door closed!*** A gentle horizontal pressure on the diskette is sufficient to release the interlock. When the door closes, the READY light on the front panel will illuminate, indicating that the respective drive is ready for use.

Warning: It is important that diskettes be inserted only with power on as spindle rotation aligns the diskette. A diskette need not be reinserted if power is turned off and on again, provided the door of the drive has not been disturbed.

If Comm-Stor is turned off while a diskette is in drive, opening and reclosing the door may cause mechanical deterioration of the diskette.

6.10 To remove the diskette:

(a) Gently lift the drive door until it is fully open.

(b) Slide the diskette out of the drive.

DISKETTE CARE

6.11 A diskette must be handled with care. Improper treatment or carelessness may result in loss of data, and possibly, many hours of work. Observe the following warnings:

Warning 1: Never touch the exposed diskette surface. Handle the diskette only near the label.

Warning 2: Do not write on the diskette cover; write only on the label. If possible, write on the label before placing it on the diskette.

Warning 3: Do not attempt to clean a dirty or dusty diskette; such a diskette should be discarded.

Warning 4: Keep the diskette away from metals or other potentially magnetic materials or magnetic sources (unshielded power supplies, CRT monitors).

Warning 5: Do not bend the diskette.

Warning 6: Do not expose the diskette to extremes of heat or cold.

Warning 7: Keep the diskette in its protective cover when not in use. Dust and liquid can damage the exposed diskette surface.

Warning 8: Store diskettes vertically in boxes when not in use.

7. DIAGNOSTIC TESTS

7.01 This part describes the procedure for running each of the Comm-Stor User Diagnostic tests and for recognizing if and where a faulty area exists. ***If an error occurs at any time during the tests, the unit should be replaced.***

7.02 A technical interpretation of the test results is found in Section 578-400-500 "Test and Troubleshooting". This information is required by communications technicians in order to pinpoint the fault and repair the Comm-Stor unit. This section should be consulted any time a diagnostic or system fault occurs.

7.03 In addition to the diagnostic fault tables accompanying each test, two system faults may occur. Each is recognized by the blinking of a front panel light. The READY light will blink if a Comm-Stor malfunction prevents reading of the User Diagnostic diskette. In certain cases when the incorrect test sequence is used or the switch settings are incorrect, the STATUS light will blink.

DEFINITION OF TERMS

7.04

Diagnostic Test Plug—the diagnostic test plug

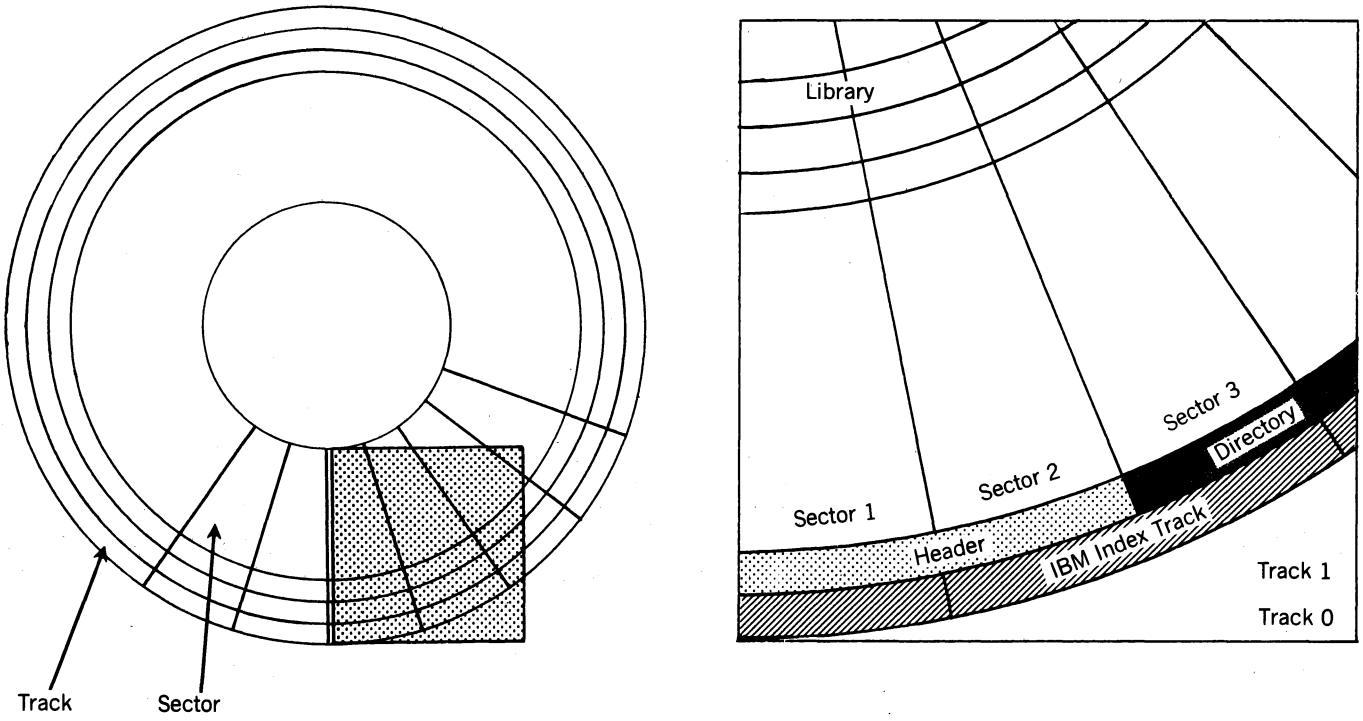


Fig. 4—Diskette Layout

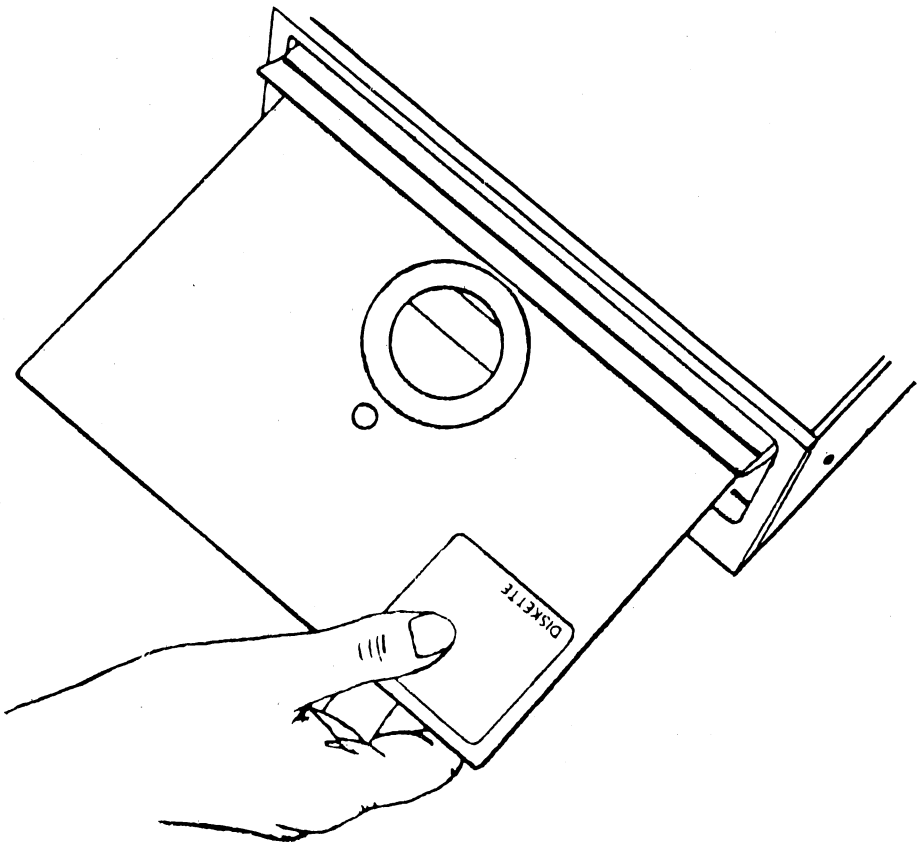


Fig. 5—Inserting the Diskette

(Fig. 6) is a three part EIA connector which has two switches, numbered "1" and "2", for simulating the peripheral cabling. When mounted on Comm-Stor, it covers all three ports. The plug is part of the User Diagnostic Kit Option (SYKES Part #1030A5191).

Drive (1)—refers to the upper drive of an 8220A System; or the single drive of an 8120A System.

Drive(2)—refers to the lower drive of an 8220A System.

LED—Light Emitting Diodes: the type of front panel light (STATUS, CARRIER, etc.) used with Comm-Stor.

Test A—LED/Switch Test

7.05

(a) Power OFF the Comm-Stor unit.

(b) Open drive (1) door.

(c) Power ON Comm-Stor unit.

(d) Insert a REFRESH diskette with the standard factory configuration into drive (1); close the drive door. Depress the RESTART button. Remove the REFRESH diskette.

(e) Insert the User Diagnostic diskette into drive (1); close the drive door. Depress the RESTART button.

(f) LED Test: The following pattern/information is displayed immediately.

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

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

Requirement 3: Walking lights: each LED is lit independently and sequentially (1 second each).

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

Requirement 1: Set the bit rate switches to zero, and set the BINARY MODE switch to EXIT. At this time, the LED lights should be off (not lit).

Requirement 2: When the BINARY MODE switch is moved to ENTER, the STATUS light should be lit; when set to EXIT, it should be off (not lit).

Requirement 3: Set the MODEM and PRINTER switches to zero. Move the TERMINAL bit rate switch through its setting of zero to nine. Examine the LEDs at each setting and compare the values displayed with Table A. (Each baud switch value should generate a corresponding LED display.) Return TERMINAL switch to zero and follow the same procedure for the MODEM and PRINTER (if PRINTER option is installed) bit rate switches.

Test B—Internal Tests: Memory/Disk

7.06

(a) Set the MODEM switch to indicate whether the system has the 4K Expanded RAM option (refer to Table B).

(b) Open and close drive (1) door. Test B will begin.

Requirement: Wait for Test B to be completed: all the LED lights will blink in unison.

Note: Dual Drive 8220A System only: Upon completion of the Disk Test for drive (1), the READY(1) and BUSY(1) lights will blink in unison. Remove the User Diagnostic diskette from drive (1); insert it into drive (2) and close the drive door. The requirement stated above also applies to drive (2).

(c) The test results are now available by opening and closing the drive (1) door (or drive (2) door in a Dual Drive System).

Requirement 1: The first set of results, displayed in the LED lights, corresponds with Table C.

Requirement 2: When the door is opened and closed a second time, the LED light display corresponds with Table D.

Requirement 3: Repeat the open-and-close door procedure to obtain the results of Tables E, F, and G.

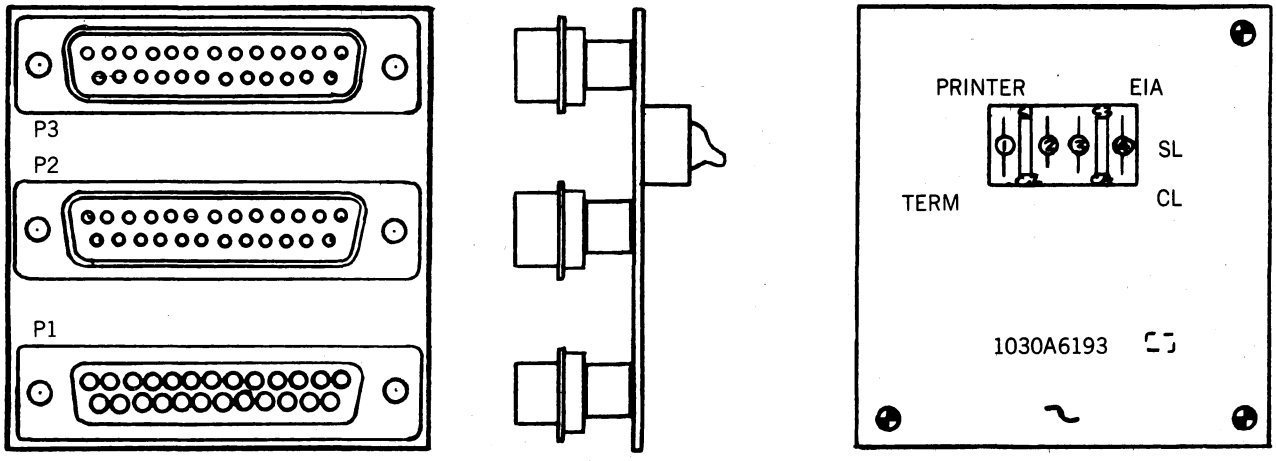


Fig. 6—Diagnostic Test Plug

TABLE A

LED DISPLAY

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.

Requirement 4: Finally, open and close the door to end the test, obtaining a unison blinking of all the LED lights.

(d) If at any time no further fault conditions exist for displaying, the test will terminate with the LED lights blinking in unison. Those fault tables by-passed by the Diagnostic Procedure contain no reportable results.

TABLE B

SPECIFYING EXPANDED RAM

4K EXPANDED RAM OPTION INSTALLED?	MODEM SWITCH SETTING
NO	5
YES	6

TABLE C

RAM FAULTS

LIGHT	INTERPRETATION
READY	The main memory is faulty. Replace the Comm-Stor unit.
BUSY	The forms memory is faulty. Replace the Comm-Stor unit.
CARRIER or STATUS	The Extended Forms memory is faulty. Replace the Comm-Stor unit.

TABLE D

CMOS FAULTS

LIGHT	INTERPRETATION
READY	The main memory is faulty. Replace the Comm-Stor unit.
BUSY	The Extended Command Table is faulty. Replace the Comm-Stor unit.

TABLE E

ROM FAULTS

LIGHT	INTERPRETATION
READY	The main memory is faulty. Replace the Comm-Stor unit.

TABLE F

DRIVE 1 FAULTS

LIGHT	INTERPRETATION
READY or BUSY	Disk Drive 1 cannot read properly. Replace the Comm-Stor unit.
CARRIER or STATUS	Disk Drive 1 cannot write properly. Replace the Comm-Stor unit.

TABLE G

DRIVE 2 FAULTS

LIGHT	INTERPRETATION
READY or BUSY	Disk Drive 2 cannot read properly. Replace the Comm-Stor unit.
CARRIER or STATUS	Disk Drive 2 cannot write properly. Replace the Comm-Stor unit.

Test C—Terminal or Modem Ports Test

7.07

(a) Mount the diagnostic test plug on the rear panel. Set switch 1 up (EIA) and switch 2 down (TERM). Depress the RESTART switch.

(b) Set the TERM and MODEM bit rate switches, referring to Tables H and I, and set the PRINTER switch, if the option is installed, to zero.

(c) Open and close the drive (1) door. Test C will begin.

(d) Wait for the test to be completed.

Requirement: All the LED lights will blink in unison.

(e) The test results are now available by opening and closing the drive (1) door.

Requirement 1: The first set of results displayed in the LED lights correspond with Table J.

Requirement 2: When the door is opened and closed a second time, the LED light display corresponds with Table K.

Requirement 3: Repeat the open-and-close door procedure to obtain the results of Tables L and M.

Requirement 4: Finally, open and close the door to end the test, obtaining a unison blinking of all the LED lights.

(f) If at any point no further fault conditions exist, the test will terminate with all the LED lights blinking in unison. Those fault tables by-passed by the Diagnostic Procedure contained no reportable results.

TABLE H

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	SWITCH SETTING
110	1
134	2
150	3
300	4
1200	5
2400	6
4800	7
7200	8
9600	9

TABLE I

CHARACTER STRUCTURE SPECIFICATION

DESIRED CHARACTER STRUCTURE	MODEM PORT SWITCH SETTING
7 Bits + Even Parity	0
7 Bits + Odd Parity	1
7 Bits Without Parity	2
8 Bits + Even Parity	3
8 Bits + Odd Parity	4
8 Bits Without Parity	5

TABLE J

TERMINAL RECEIVE/TRANSMIT FAULTS

LIGHT	INTERPRETATION
READY or BUSY	The terminal port cannot receive and/or transmit characters properly. Replace the Comm-Stor unit.
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 Comm-Stor unit.
STATUS	The status light is not used.

TABLE K

TERMINAL EIA CONTROL FAULTS

LIGHT	INTERPRETATION
READY BUSY CARRIER or STATUS	The terminal port is faulty. Replace the Comm-Stor unit.

TABLE L

MODEM RECEIVE/TRANSMIT FAULTS

LIGHT	INTERPRETATION
READY or BUSY	The modem port cannot receive and/or transmit characters properly. Replace the Comm-Stor unit.
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 modem. 2. The modem port cannot send a break to the modem. 3. A modem parity error indication may be falsely given. Replace the Comm-Stor unit.
STATUS	Under certain conditions, transmission from the modem to the terminal may be faulty. Replace the Comm-Stor unit.

TABLE M

MODEM EIA CONTROL FAULTS

LIGHT	INTERPRETATION
READY BUSY CARRIER or STATUS	The modem port is faulty. Replace the Comm-Stor unit.

Test D—Printer Port Test (if option installed)

7.08

(a) Set both switches 1 and 2 of the diagnostic test plug UP (EIA and PRINTER). Depress the RESTART button.

(b) Set the TERM and MODEM switches, referring to Table H. Set the PRINTER switch to one.

(c) Open and close the drive (1) door. Test D will begin.

(d) Wait for Test E to be completed.

Requirement: All the LED lights will blink in unison.

(e) The test results are now available by opening and closing the drive (1) door.

Requirement 1: The first set of results, displayed in the LED lights, corresponds with Table N.

Requirement 2: When the door is opened and closed a second time, the LED light display corresponds with Table O.

Requirement 3: Finally, open and close the door to end the test, obtaining a unison blinking of all the LED lights.

(f) If at any point no further fault conditions exist, the test will terminate with all the LED lights blinking in unison. These fault tables bypassed by the Diagnostic Procedure contained no reportable results.

(g) Remove Diagnostic diskette.

TABLE N

PRINTER RECEIVE/TRANSMIT FAULTS

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

TABLE O

PRINTER EIA CONTROL FAULTS

LIGHT	INTERPRETATION
READY BUSY CARRIER or STATUS	The printer port is faulty. Replace the Comm-Stor unit.

TABLE P

EIA RS-232C CONNECTIONS

PIN	DESCRIPTION	TERMINAL PORT		MODEM PORT		PRINTER PORT	
		USED	DIRECTION	USED	DIRECTION	USED	DIRECTION
1	Chassis Ground(FG)	X	—	X	—	X	—
2	Transmitted Data(SD)	X	in	X	out		
3	Received Data(RD)	X	out	X	in	X	out
4	Request to Send(RS)	X	in	X	out		
5	Clear to Send (CS)	X	out	X	in		
6	Data Set Ready(DR)	X	out	X	in	X	out
7	Circuit Ground(SG)	X	—	X	—	X	—
8	Carrier Detect(CD)	X	out	X	in	X	out
11	Secondary Request to Send(SRS)	X	in	X	out	X	in
12	Secondary Carrier Detect(SCD)	X	out	X	in		
20	Data Terminal Ready(DTR)	X	in	X	out	X	in
22	Ring Indicator(RI)	X	out	X	in		

Note: Direction refers to signal direction with respect to Comm-Stor at each port, e.g., transmitted data is out of Comm-Stor on Pin 2 at the modem port.

8. CABLE INSTALLATION

GENERAL

8.01 A terminal, printer, and modem can be connected to Comm-Stor via industry standard connectors on the rear of the unit (Fig. 1). These connectors, commonly called "ports", conform to the Electronic Industries Association (EIA) specification RS-232C.

8.02 Device cables connect to the ports on the rear of Comm-Stor. No special wiring of the cables is necessary and all leads should be wired pin-for-pin.

8.03 Table P shows the EIA interface signal connectors for the terminal, modem, and printer ports. These ports are also described in paragraphs 8.04 to 8.08.

TERMINAL PORT

8.04 The cable from the terminal is connected to the port labeled TERM. This cable should have a male plug in accordance with industry standard procedures.

8.05 The user must place the terminal in the full duplex mode for all operations. The terminal must remain in this mode for both full and half duplex modem connections.

PRINTER PORT

8.06 If the user has the Printer Port option, the cable from the printer is connected to the port labeled PRINTER. This cable should have a male plug in accordance with industry standard procedures.

8.07 If the Printer Port is installed but the user does not wish to use it at this time, the connector may be left unterminated.

MODEM PORT

8.08 The cable from the modem is connected to the port labeled MODEM. This cable should have a female plug in accordance with industry standard procedures.

9. SETTING TRANSMISSION RATES

GENERAL

9.01 A terminal generally should not have a lower transmission rate than the modem.

9.02 Transmission rates may be set from the thumbwheel switches on the back of the Comm-Stor unit or from the terminal keyboard. Each port on the rear of Comm-Stor has a corres-

ponding thumb-wheel switch which sets the transmission rate for that port. The switches contain the numbers 1 through 9 which relate to a particular bit rate in accordance with the table on the rear of the unit. To set the bit rate, rotate the thumbwheel switch until the proper number appears. The RESTART switch must be depressed after changing any of the bit rate switches as Comm-Stor will not recognize the new bit rate setting until this is done.

9.03 Switch setting 0 is called the KYBD rate. In this setting, the operator may enter the different transmission rates from the terminal keyboard.

SETTING TRANSMISSION RATES FROM THE KEYBOARD

9.04 The transmission rates of the terminal, modem, and printer can be changed by entering commands at the terminal. In order to use this feature, the bit rate switch on the rear of the unit for the respective port is set to 0, the KYBD position. The operator may now select any of the following transmission rates:

TABLE Q

AVAILABLE BIT RATES

50*	150	1800*	4800
75*	300	2000*	7200
110	600*	2400	9600
134	1200	3600*	

*Transmission rate may be obtained ***only*** by keyboard entry.

9.05 The terminal and modem do not need to have equal transmission rate settings, even when on-line operations are desired. It is preferred that the terminal be operated at a higher bit rate than the modem. In those cases where batch transmission from the terminal to a remote station is made, the transmission rates must be set equal unless terminal input buffering has been implemented in Comm-Stor. Examples of batch transmission equipment are the paper tape reader on a hardcopy or a CRT terminal in the page-transmit mode.

Note: The RESTART switch (Figs. 1 and 3) must be depressed after changing any of the baud setting switches as Comm-Stor will not recognize the new bit rate setting until this is done.

9.06 The following commands illustrate setting the bit rate for each port:

.BT 4800[CR]
.BM 300[CR]
.BP 300[CR]

9.07 The first example may be used to set a Dataspeed 40/2 terminal transmission rate to 4800. The second example may be used to set a Dataset 212AR modem rate to 300. The third example may be used to set a Model 43 Teleprinter baud rate to 300.

9.08 Entering the transmission rate when the respective bit rate switch is not on the KYBD position will result in an error message printed at the terminal. Similarly, entering an illegal number will also result in an error message.

9.09 Setting the bit rate switches to any position other than KYBD and pressing the RESTART switch cancels the last KYBD command. It will be necessary, therefore, when going back to the KYBD command to re-enter the transmission rate at the terminal.

10. CONFIGURATION PROCEDURES

10.01 Be sure that the terminal is placed in the on-line condition. All conversation with Comm-Stor takes place with the terminal on-line. Before proceeding, be certain that Comm-Stor is powered on.

Warning: Never insert diskettes when Comm-Stor is powered off or in standby mode!

10.02 Place the Configuration diskette in Drive 1 (upper drive on Model 8220A), close the door, and depress the RESTART switch. If either the terminal or modem bit rate setting switch is incorrectly set, meaningless characters will probably be displayed at the terminal. The operator should recheck the position of the baud setting switches and consult the terminal manual to determine what these settings should be.

10.03 If the switches are correctly set and the terminal is functioning correctly, the Configurator will display an identification message, followed by:

PLEASE TYPE FRAMING CHARACTER:

10.04 If this message is not obtained, a malfunction of either Comm-Stor or the terminal is probable. Recheck the terminal to be sure it is in the on-line mode. Comm-Stor will output this message

whether or not the terminal is ready. Therefore, to receive the message, the terminal must be in the on-line or S/R mode.

10.05 After the Configurator's identification message and the request for framing character appear, the operator enters a single character. This character is used before and after operator responses to configuration questions and precisely defines where the response begins and ends. Any character is acceptable; however, the character which is chosen cannot be part of any operator reply during the configuration process. The customary selection at this point is the slash (/), which means that no system command may be defined which contains a slash. For example: (.DD) may not be reconfigured to (/DD). If the selected framing character conflicts with a system command, depress the RESTART switch to restart the Configuration process and select another framing character.

CONFIGURATION COMMANDS

10.06 When the framing character is entered, the Configurator sends a period prompt to the terminal. Respond by entering one of the available commands listed in Table R, depending on which operation the Configurator is to perform. Either upper or lower case letters may be entered. The first five commands require an End of Line character [EOL] (this may be a Return, Line Feed, New Line, Escape, or any control code) before the command is sensed by Comm-Stor. The rest of the commands are sensed immediately after the key is struck at the terminal. The underlined portion of each command indicates entries made by the operator; the leading period is a prompt from Comm-Stor.

TABLE R

CONFIGURATION COMMANDS

.C[CR]	CONFIGURE ALL PARAMETERS
.D[CR]	DISPLAY ALL PARAMETERS
.Cnnn[CR]	CONFIGURE PARAMETER nnn
.Dnnn[CR]	DISPLAY PARAMETER nnn
.[CR]	CONFIGURE/DISPLAY NEXT PARAMETER
.:	CONFIGURE/DISPLAY SAME PARAMETER
.B	BUILD USER DISKETTES
.W	WRITE SYSTEM REFRESH DISKETTE
.R	STANDARD FACTORY REFRESH
.[^T]	TERMINATE CURRENT OPERATION;RETURN TO PERIOD PROMPT

TABLE R (Cont)

CONFIGURATION COMMANDS

10.07 When configuring or displaying parameters, Comm-Stor displays the following information:

nnn:parameter title (current value)

where nnn is the number of the particular parameter (001 or #01, or just 1). If a .C command is entered, Comm-Stor will pause after typing the current parameter value. To change the parameter value, type the framing character, the new value, and then the framing character again. To accept the command as is, type any character, usually a space bar. The next parameter will then be displayed. Note that the framing character itself may not be used as part of a configurable parameter since the Configurator will interpret it incorrectly.

10.08 There are several types of parameters, most falling into two groups: YES/NO parameters concerned with the availability and use of certain features, and single character parameters. When displaying or configuring a YES/NO parameter, the current value is displayed as YES or NO. To change the value, the new value is entered as a Y or N placed between framing characters. Comm-Stor will accept an upper or lower case entry for Y or N responses.

Example:

/Y/ ***Do not*** enter the full words YES or NO!

10.09 When configuring or displaying a parameter which is printable, Comm-Stor displays the current value of the parameter as the character itself. In the case of nonprintable characters, the current value is shown in an interpretive mode. For example:

Control G = ([^G])
Carriage Return = ([CR])

10.10 Note that the interpretive representation is used only by Comm-Stor as a means of printing a nonprinting character. Always strike the single key corresponding to the desired character.

10.11 To configure a single character parameter to a character that is unavailable on the keyboard (perhaps a lower case letter on an upper case only keyboard), the character may be entered using the Binary Data feature as follows:

(a) Enter the command .Cnnn. Comm-Stor will type the parameter's title and correct value.

(b) Set the BINARY DATA switch to the ENTER position.

(c) Type the framing character.

(d) Type one to eight binary digits (1's and 0's); typing most significant bit first (Fig. 7).

(e) Type the framing character.

(f) Set the BINARY DATA switch to the EXIT position.

10.12 Comm-Stor will echo the entered information both in binary (as entered) and as an interpreted ASCII character as described above.

10.13 Some of the configuration parameters require ***special responses*** from the operator. These responses are discussed as they are encountered in the parameter explanations.

10.14 All commands used to display and configure parameters pause after displaying the current value to allow an operator response. The only exception to this is the .D command, which causes all parameters to be displayed sequentially with no pauses. This command is intended mainly to list all configurable parameters to determine the number of a desired parameter. The .B, .R and .W commands do not apply to the standard configuration process.

10.15 Except where specifically noted, all responses to questions asked by the Configurator are assumed to be standard ASCII characters. Printable characters will be represented in the text by the actual letters enclosed within quotes or parentheses.

EQUIPMENT SET UP PROCEDURE

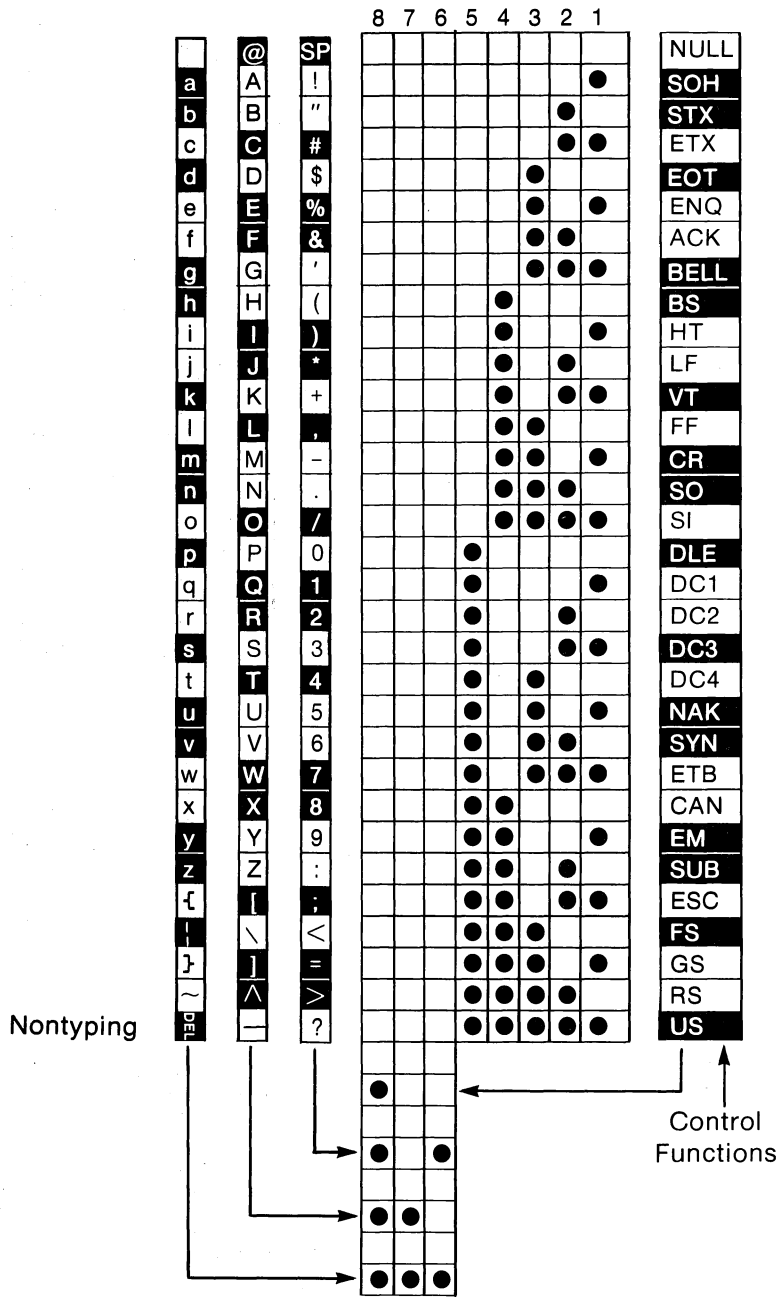
10.16 Modem and terminal options may need to be configured at this time. Refer to the appropriate BSP for the equipment in use for the procedure. Also, see Part 13 in this manual.

10.17 Comm-Stor operations require a terminal capable of operating in the Full Duplex mode to be connected to the terminal connector (port) on the rear panel of Comm-Stor*. The terminal must be capable of operating at one of the transmission bit rates shown in the table on the rear panel of Comm-Stor. Set the terminal port bit rate setting switch to the proper position for the transmission rate of the particular terminal in use. Several other transmission rates are selectable only through keyboard commands (see Part 9) and are not shown on the BAUD RATE label. Note that the Configurator will not function properly if the terminal bit rate setting switch is in position 0 (KYBD position).

10.18 The Configurator determines character length and parity convention by examining the modem bit rate setting switch on the rear panel of Comm-Stor. The operator sets the ***modem transmission rate*** switch as shown below to match the characteristics of the ***terminal*** in use:

Position 0	7 bits + even parity
Position 1	7 bits + odd parity
Position 2	7 bits without parity
Position 3	8 bits + even parity
Position 4	8 bits + odd parity
Position 5	8 bits without parity
Position 6 or higher	invalid

*The Half Duplex 40/1 terminal may be supported. Refer to "How to Configure . . . Comm-Stor II", Bell System Practice 999-302-150.



Space: electrical positive, logical 0

Mark: electrical negative, logical 1

Note: To obtain even parity, the characters and functions shown with shaded backgrounds have 8th bit marking.

Fig. 7—American Standard Code for Information Interchange

10.19 If positions 2 or 5 are selected, Comm-Stor ignores the parity bit on incoming data from the terminal and sets the parity bit to zero for outgoing data to the terminal. If position 6 or higher is selected, the front panel lights will flash randomly.

BUILDING A USER DISKETTE

10.20 Create a User Diskette following the procedure below:

(a) Place the Configuration diskette in the drive (Drive 1 of a dual drive unit). Close the drive door. Depress the RESTART button.

(b) Comm-Stor will display:

PLEASE TYPE FRAMING CHARACTER.

Enter the required character from the terminal.

(c) Comm-Stor now displays a period (.) prompt. Type "B" to begin the BUILD process.

(d) Comm-Stor will ask:

DUP OLD DISK?

Enter an "N" (for no) from the terminal.

(e) Comm-Stor will now ask a series of questions relating to the format of the User diskette. Respond as indicated by the underlined portion of text:

FIXED LENGTH FILES? N

MAXIMUM NUMBER OF FILE SLOTS PER DISKETTE? 100
NUMBER OF LINES ON SCRATCH PAD? 254
MAXIMUM NUMBER OF CHARACTERS PER LINE? 80
MAXIMUM NUMBER OF CHARACTERS PER FILE NAME? 20
MAXIMUM NUMBER OF CHARACTERS IN EXTENSION? 12
USE IBM SPARE TRACKS? N

(f) Comm-Stor will now display:

DIRECTORY REQUIRES 2 TRACKS; 100 FILE SLOTS AVAILABLE.
AVERAGE FILE SIZE IS 15 SECTORS

followed by:

BUILD DISK(S)? Y

(g) Comm-Stor is ready to Build the User diskette. Follow the instructions displayed on the terminal.

10.21 If an error occurs in reading from or writing to the diskette at any time during the configuration or diskette creation process, Comm-Stor will display an appropriate error message and halt. To continue in any form, depress the RESTART button and proceed normally from the beginning of the Configurator.

10.22 If errors persist, refer to "Test and Troubleshooting" Manual, Bell System Practice 578-400-500.

11. LOCAL TERMINAL TESTS

11.01 The terminal tests consist of the following:

1. ENTER File Test
2. DISPLAY File Test
3. Move File to Scratch Pad
4. List Scratch Pad
5. SEARCH/REPLACE
6. SAVE File (same location)
7. ENTER Form File (optional)
8. LOAD Form File
9. ENTER Test File
10. DISPLAY Test File
11. PRINT File (optional)

TERMINAL TESTS

Note: If failure occurs, refer to Table S. Locate the step in which the failure occurred and follow the indicated action.

(a) Place terminal in the On-Line mode.

(b) Insert the User diskette into the drive; close the drive door.

(c) Depress the RESTART button. Comm-Stor will respond by displaying an asterisk (*). If this does not happen, check to see that the diskette is inserted properly (the Ready light

should be on) and that the unit is properly configured*.

(d) Enter the following command string:

.E TEST [CR]

The unit should respond by illuminating the BUSY lamp and returning the cursor/printhead to the left margin.

(e) Enter the following data:

THIS IS A TEST OF THE COMM-STOR SYSTEM.[CR]
ABCDEFGHIJKMLMNOPRSTUVWXYZ[CR]
0123456789 [CR]
LOCAL TEST [CR]

(f) ENTER the configured "End of Text" character (*Parameter #8—usually a Control C [ETX]).

Comm-Stor should respond by turning off the BUSY lamp.

(g) Enter the following command:

.D TEST [CR]

Comm-Stor should respond by sending the data entered in Step (e) to the terminal. Verify data.

(h) Enter the following command:

.ED TEST [CR]

Comm-Stor should respond by returning the cursor/printhead to the left margin after a short delay.

(i) Enter the following command:

;L [CR]

Comm-Stor should respond by displaying the data entered in Step (e). Verify data.

(j) Enter the following command:

;S/LOCAL TEST/TEST OK/[CR]

Comm-Stor should respond by displaying:

TEST OK

at the terminal.

*Refer to the "How to Configure . . . Comm-Stor II", manual, Section 999-302-150.

(k) Enter the following command:

.SV TEST [CR]

Comm-Stor should respond by displaying:

SURE?

at the terminal.

(l) Enter a Y at the terminal.

Comm-Stor should respond by returning the cursor/printhead to the left margin.

(m) Enter the following command:

.D TEST [CR]

Comm-Stor should respond by displaying:

THIS IS A TEST OF THE COMM-STOR SYSTEM.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789
TEST OK

(n) If the Comm-Stor has the Forms option, enter the following command, or proceed to Step (v):

.E TESTFORM [CR]

Comm-Stor should respond by illuminating the BUSY lamp and returning the cursor/printhead to the extreme left margin.

(o) Enter the following data:

NAME [ ][CR]

ADDRESS [ ][CR]

(p) Enter the configured "End of Text" character.

Comm-Stor should respond by turning off the BUSY lamp.

(q) Enter the following command:

.FC TESTFORM [CR]

Comm-Stor should respond by returning the cursor/printhead to the left margin.

TABLE S

TERMINAL TESTS ERROR ANALYSIS

TEST STEP	ACTION
c	(1) Check User Diskette (2) Check Configuration Parameter #89 (ENTER Command)
e	Check Configuration Parameter #8 (End of Text Character)
f	Check Configuration Parameter #86 (DISPLAY Command)
g	(1) Check Configuration Parameter #115 (EDIT Command) (2) Check User Diskette (Scratch Pad)
h	Check User Diskette Parameter #122 (LIST Command)
i	Check Configuration Parameter #125 (SEARCH Command)
j	Check Configuration Parameter #116 (SAVE Command)
q	Check Configuration Parameter #129 (FORMS COMPLETE Command)
r	Check Configuration Parameters #126-#137 (FORMS Commands)
v	Check Configuration Parameters #61-#66 (PRINTER Commands)

(r) Enter the following command:

.E FILE1 [CR]

Comm-Stor should respond by displaying the following data at the terminal:

NAME [

(s) Enter the following data:

JAMES SMITH [CR]

Comm-Stor should respond by displaying the following data at the terminal:

ADDRESS [

(t) Enter the following data:

ANYWHERE, USA [CR]

Comm-Stor should respond by returning the cursor/printhead to the left margin and turning off the BUSY lamp.

(u) Enter the following command:

.D FILE1 [CR]

Comm-Stor should respond by displaying the following data at the terminal:

NAME [JAMES SMITH]
ADDRESS [ANYWHERE, USA]

(v) If the Comm-Stor has a Printer Port, enter the following command:

.P TEST [CR]

Comm-Stor should respond by displaying the following data at the PRINTER:

THIS IS A TEST OF THE COMM-STOR SYSTEM.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789
TEST OK

This concludes local testing.

12. OPERATIONAL CHECKOUT (ON-LINE TESTS)

12.01 An operational checkout should be performed after installation or when troubleshooting. Procedures for checkout and correction of operational difficulties are provided in Bell System Practice 578-400-500. "Test and Troubleshooting Procedures".

13. TYPICAL MODEM/PRINTER/TERMINAL OPTIONS

13.01 This part describes some of the peripheral devices that can be interfaced with Comm-Stor. Table T lists these devices and the procedure required for interfacing each. Although configuration information is given, the installer should not attempt to reconfigure the system. When required, the appropriate REFRESH diskette will be supplied by the user.

TABLE T

MODEM/TERMINAL/PRINTER INTERFACE PROCEDURES

DEVICE	INTERFACE PROCEDURE
Dataset 113CR, 103JR	(a) Connect EIA cable: female to Comm-Stor's modem port, male to data set. (b) Set Comm-Stor's modem bit rate switch to 4 (300 bits). (c) Be sure Comm-Stor Configuration Parameters are set to factory standard values.
Dataset 212AR	(a) Connect EIA cable: female to Comm-Stor's modem port, male to data set. (b) Set Comm-Stor's modem bit rate switch to: 4 (300 bits)—for low speed operation 5 (1200 bits)—for high speed operation 0—permits bit rate selection from terminal keyboard
Dataset 202SR	(a) Connect EIA cable: female to Comm-Stor's modem port, male to data set. (b) Configure Parameter #44 (Half Duplex Modem): YES (c) Configure Parameters #42 and #43 (Line Turnaround characters): Check remote terminal or computer. (d) Configure Parameter #45 (Request to Send Timeout): 200 msec (factory standard value). (e) Configure Parameter #46 (Secondary Dropped Option): Check remote terminal or computer. (f) Set dataset for "Soft Turnoff on RTS" *Note:* This also provides recommended Received Data Squelch of 156 msec (Pub. 41212—Technical Reference). (g) If Reverse Channel option is installed, configure Parameter #44 (Secondary (Supervisory) Channel Available): YES (h) When Comm-Stor's Echo Mode feature is used, data set should not provide local copy of primary channel. (i) Set Comm-Stor's modem bit rate switch to 5 (1200 bits). (j) Those parameters not specified should remain at factory standard values.
43 Teleprinter (43 KSR or RO)	(a) Connect EIA cable: female to Teleprinter, male to Comm-Stor's terminal port.

TABLE T (Cont)

MODEM/TERMINAL/PRINTER INTERFACE PROCEDURES

DEVICE	INTERFACE PROCEDURE
	(b) Set Comm-Stor's terminal baud rate switch to: 4 (300 bits)—for 30 CPS operation 1 (110 bits)—for 10 CPS operation 0—permits bit rate selection from terminal keyboard. (c) Set terminal for Full Duplex operation. (d) Enable or disable Parity Detection. If Parity Detection is ***enabled,*** configure Parameter #37: Even Parity 7 Data Bits If Parity Detection is ***disabled,*** configure Parameter #37 to factory standard values: No Parity 8 Data Bits 8th Bit Deasserted (e) Configure the parameters listed in Table U as indicated. (f) Those parameters not specified above or in Table U should remain at factory standard values. (g) If a terminal and modem are used together, set modem bit rate switch to 300 or less. To operate modem at a higher bit rate than the terminal: (1) Configure Parameter #144 (Modem Buffer) to a size capable of handling the longest continuous transmission from the communications line, through Comm-Stor, to the terminal. (2) Be sure Comm-Stor is ***not in Monitor Mode;*** enter .MX[CR] from the terminal. (3) Set terminal for Full Duplex operation.
Dataspeed 40/2 Terminals	(a) Connect EIA cable: female to terminal, male to Comm-Stor's terminal port. (b) The following terminal options must be selected for compatible operation:

TABLE T (Cont)

MODEM/TERMINAL/PRINTER INTERFACE PROCEDURES

<table>
<tr><th>DEVICE</th><th>INTERFACE PROCEDURE</th></tr>
<tr><td></td><td>
Option 10A Line Ending Sequence = [CR] [LF]
Option 11b Receive After Send
Option 40b Do Not Go Receive on Sending[CR]
Option 41b Full Duplex
Option 44a Enable EIA Interface
Option 45b Disable Current Loop Interface
Option 46a 103-Type Data Set Interface
Option 47b Disable Printer Interface
Option 49b Disable Interrupt Feature for KD Stations
Option 50a Go Local and Hold Upon Printer's SSI Loss

The following 40/2 terminal options and Comm-Stor II parameters must be set functionally equal:

<table>
<tr><td>40/2:</td><td>3</td><td>4</td><td>8</td><td>42</td></tr>
<tr><td>Comm-Stor II:</td><td>Set Baud on Rear Panel or Keyboard</td><td>39</td><td>8</td><td>37, 38</td></tr>
</table>
All other terminal options may be left at the factory standard setting.

(c) Configure Parameters #41-#56, 148, 149 to match the requirements of the communications system in use.

(d) Configure the parameters listed in Table U as indicated.

(e) If the Extended Forms is installed, configure Parameter #33 (Modem Off-Line Alert character): NULL

(f) If a terminal and modem are used together, set Comm-Stor's terminal bit rate switch equal to or greater than the modem bit rate.

(g) Place the terminal in the Send/Receive mode.

(h) Those parameters not specified above or in Table V should remain at factory standard values.
</td></tr>
<tr><td>Dataspeed 40/1 Terminals</td><td>
(a) Follow steps (a) through (g) described for the Dataspeed 40/2 terminal.

(b) Configure Parameter #39 (40/1 Terminal): YES.

(c) Those parameters not specified above or in Table V should remain at factory standard values.
</td></tr>
</table>

TABLE U

Comm-Stor CONFIGURATION FOR MODEL 43 TELEPRINTERS

PARAMETER NUMBER	DESCRIPTION	REQUIRED VALUE
27	Delete Character Entered	BS
37,38	Terminal Parity*	Even, 7 bits
58,59	Modem Parity*	Even, 7 bits
153	Auto Load Enabled	YES
156	Preprint Line	YES
196	End of Page Indication Option	3

*It is recommended that this parameter be set to the value required by the communications system in use.

TABLE V

Comm-Stor CONFIGURATION FOR DATASPEED 40/1, 40/2 TERMINALS

PARAMETER NUMBER	DESCRIPTION	REQUIRED VALUE
27	Delete character entered	BS
36	Terminal Null Character	LF
37,38	Terminal Parity*	Even, 7 bits
58,59	Modem Parity*	Even, 7 bits
134	Line Re-enter Character	NULL
144	Buffer Sizes	/10/
145	Lower DSR during Standby	YES
153	Auto Load Enabled	YES
154	Does Terminal Have Cursor Control	YES
155	Preprint Page	YES
159	Enable Re-display	YES
165	Auto Tab Character	NULL
168	Verify Page Character	DEL (RUB)
174	Cursor Left Character Entered	BS
176	Cursor Right Output Character	ESC C
177	Cursor Up Output Character	ESC 7
178	Cursor Down Output Character	ESC B
179	Carriage Return Output Character	ESC G
180	Cursor Home Output Character	ESC H
181	Clear Screen Output Character	ESC R
196	End of Page Indication Option	1

*It is recommended that this parameter be set to the value required by the communications system in use.

14. INSTRUCTIONS FOR INSTALLATION OF RACK MOUNTED 8120A OR 8220A SYSTEMS

14.01 To install the 19 inch flush rack mount and slides, proceed as follows (refer to Figs. 8-10):

(a) Attach inner extensions of the three section slides to the support struts as shown (Fig. 8), using four #10-32 x ¼ screws. Note that each end of the support struts has two threaded inserts for this purpose. When rack mounting a single disk drive unit, use only the lower inserts for attaching the slide extensions. When mounting a dual disk drive unit, only the upper ones are used.

(b) Attach the two locking bars in position using four #8-32 x ⅜ screws.

(c) The bezel can now be mounted to the 8000 chassis assembly. Remove the four mounting screws from the bottom of the cover on the underside of the unit and slide the cover off from the rear of the unit.

Slide the bezel over the chassis from the rear of the unit until it mates with the recessed perimeter on the back of the front panel. Replace the top cover and four mounting screws.

Note the bezel has two small holes on its face. When installing a single drive bezel, these holes must be toward the top, i.e., above the center line of the bezel. On the other hand, when installing a dual drive bezel, these holes must be toward the bottom.

(d) Install the two outer telescoping sections of the three section slides in the rack cabinet as shown (Fig. 9 or 10), using two #10-32 x ⅜ screws to secure each of the front brackets, and #10-32 x ⅜ screws and nut plates to secure the rear portions of the slides to the rack.

(e) Fasten the receivers using two #10-32 x ⅜ screws for each as shown. Observe diagram carefully; the mounting dimensions are very important. It is suggested that the locating dimensions are followed to insure proper operation of the slide mechanism and latches. Note that the receivers have a five-hole pattern for mounting. The receivers on single drive units use a different mounting pattern than those on dual drive units. Note also that the receivers have an offset with a large single hole. This offset must be outermost when mounted to the rack.

(f) The slide rack assembly may now be inserted into the cabinet. At this time the alignment of the entire slide assembly can be checked to insure proper operation from the collapsed position to the fully extended position. Make any necessary adjustments to the slide assembly and tighten all the screws.

(g) Remove slide assembly and attach to the bottom of the chassis/bezel assembly by aligning the chassis mounting holes with the support strut mounting holes. Note that each of the support struts has three mounting holes for this purpose. On the front support strut use only the two outermost holes. On the rear strut use only the center hole. Secure the chassis with three #8-32 x ⅝ flat head screws.

(h) Insert the threaded portion of a latch through one of the small holes on the face of the bezel and the locking bar behind it. Place the rubber bushing on the threaded portion of the latch behind the locking bar and install the special plastic nut finger tight only against the rubber bushing. When doing so, be certain the latch is in a released position, i.e., the latch is protruding away from the bezel face in a horizontal position.

Install the other latch assembly in the same manner.

(i) Insert rack-slide/chassis-bezel assembly into the cabinet. (Do not push outer portions of bezel since permanent damage may result. The latches or adjacent areas are better suited for this.)

The rubber bushings of the latch assemblies should engage with holes in the receivers. When the bezel is seated firmly against the rack, the unit is secured by firmly pressing down on the latches until they are resting against the face of the bezel.

(j) When it is desired to open the unit, grasp the latches between the thumb and forefinger and lift upwards and away from the bezel face until both are released. The latches are then used as handles to pull unit out to the fully extended position.

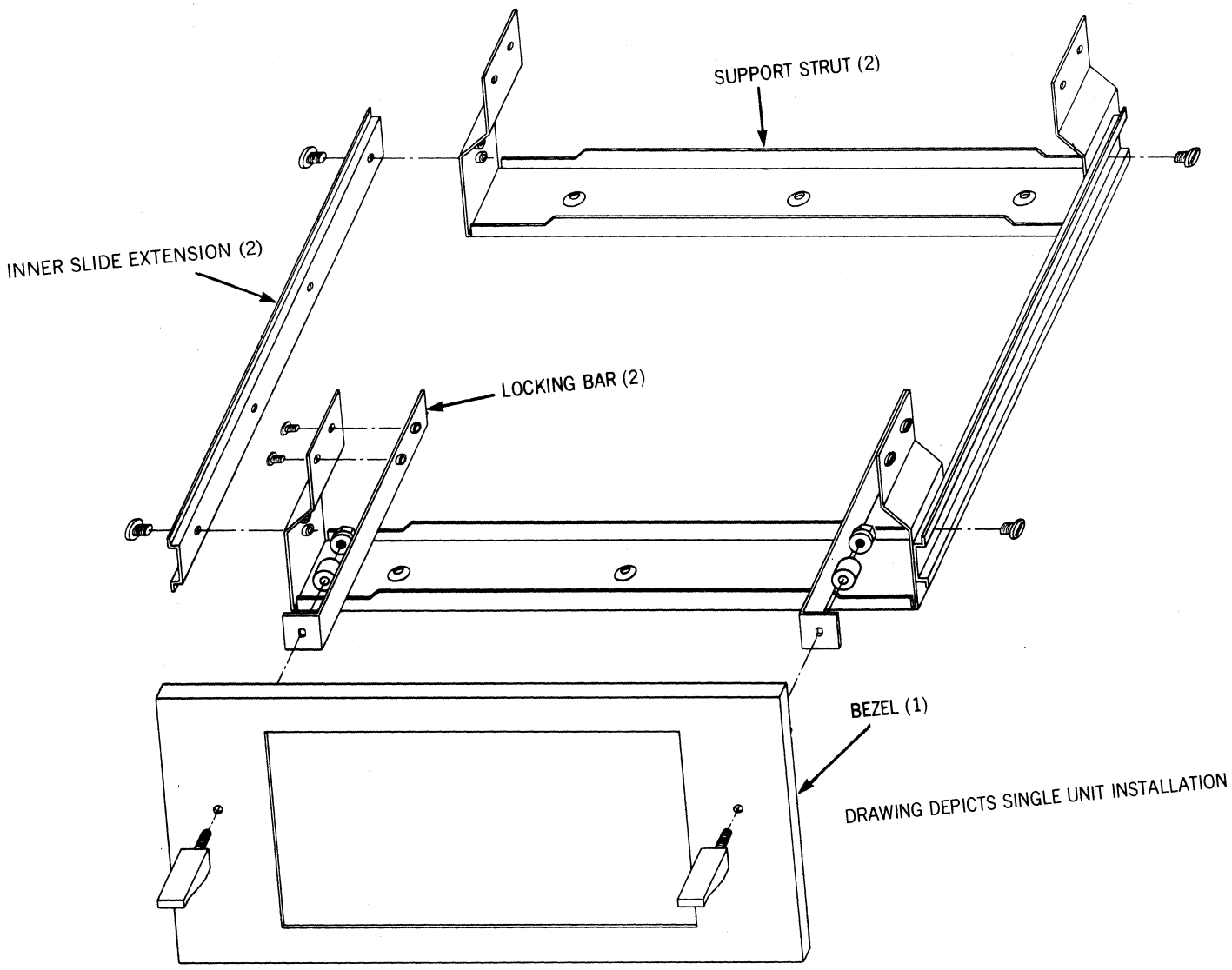


Fig. 8—Rack Slide Assembly Installation Components for Comm-Stor Unit

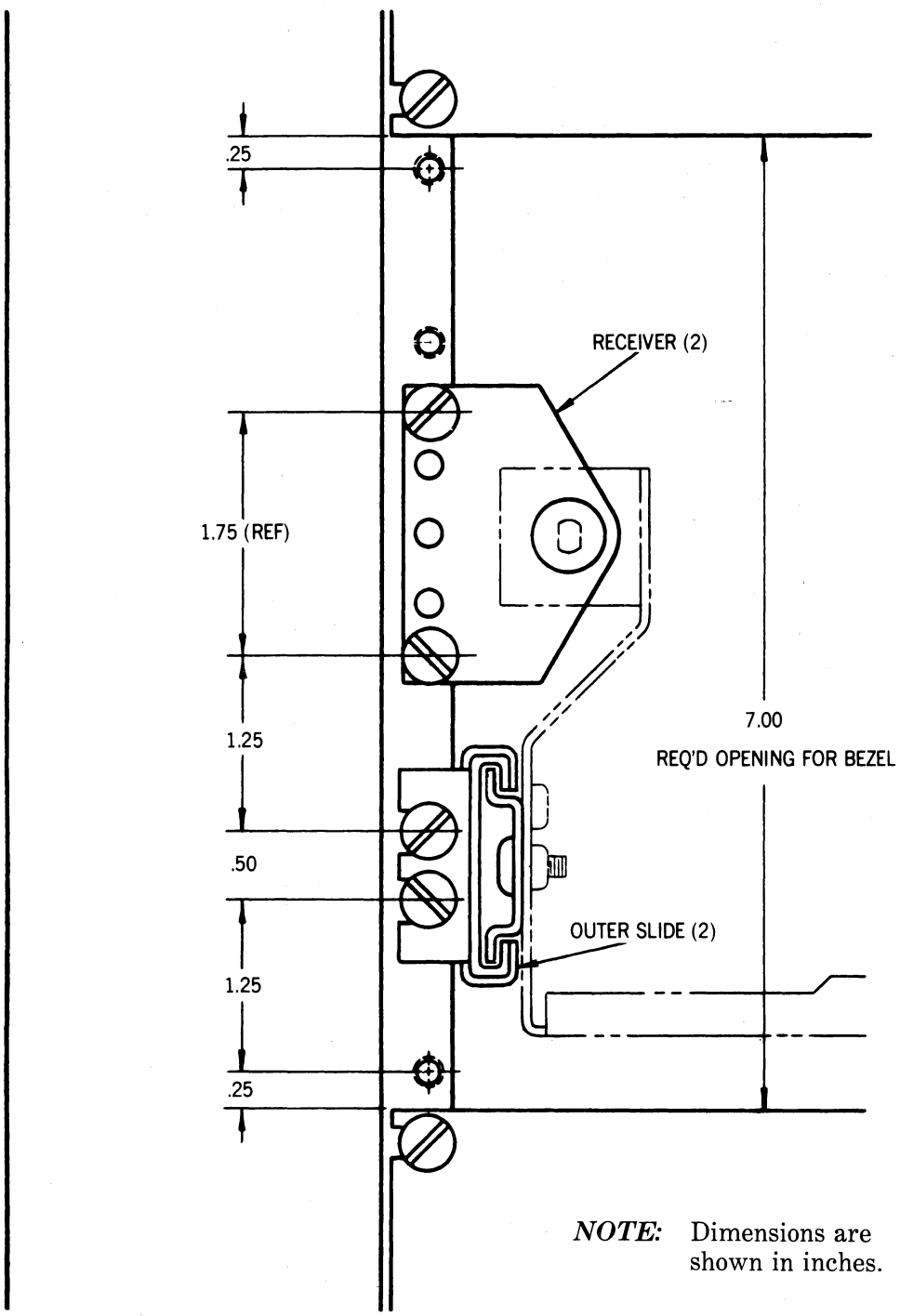


Fig. 9—Rack Slide Receiver Installation for Model 8120A

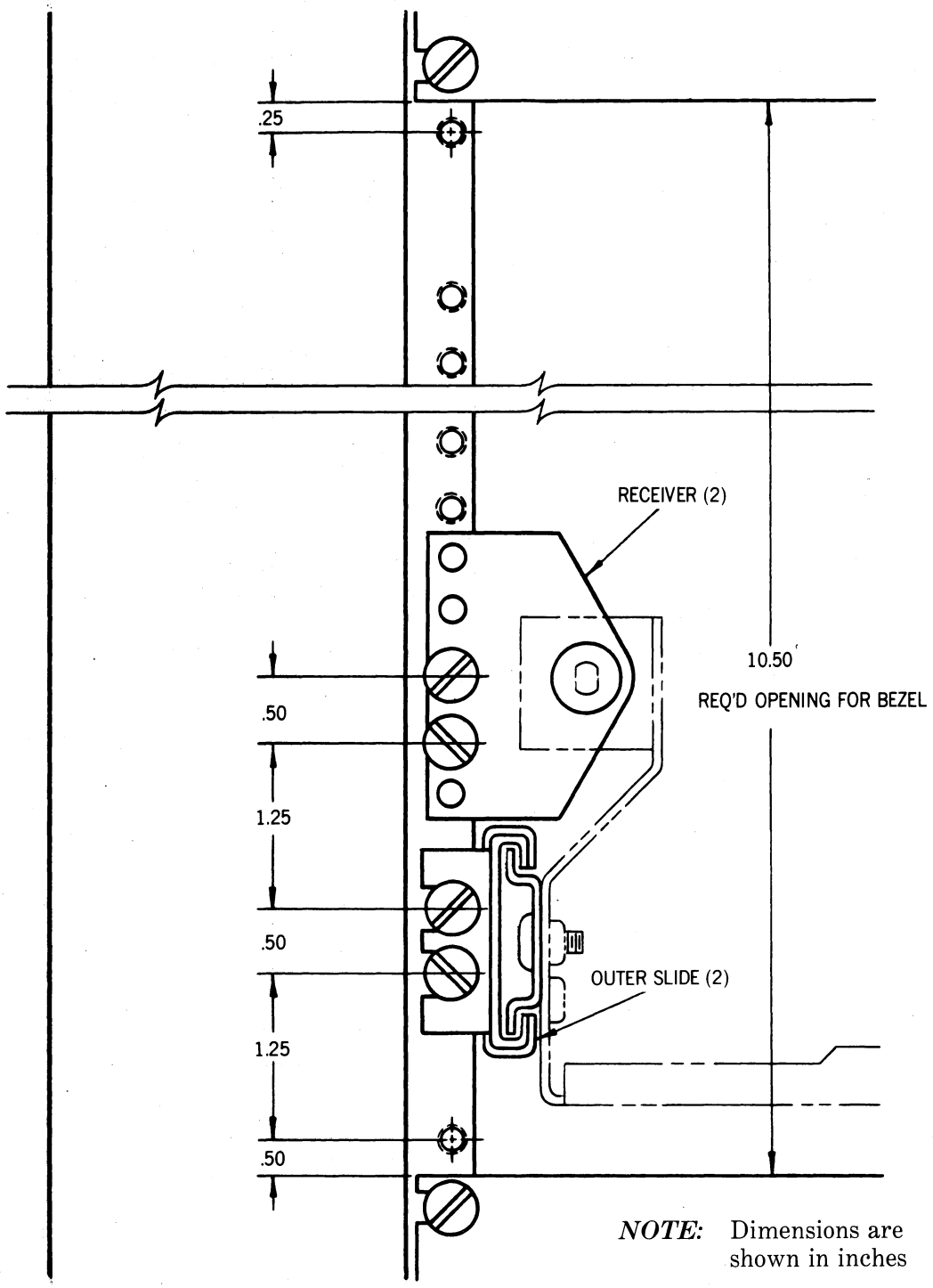


Fig. 10—Rack Slide Receiver Installation for Model 8220A

(k) The BINARY MODE switch on the rear panel of the unit must be placed in the EXIT position and remain as such since the front switch will now override it.

15. TOOLS, SUPPLIES, AND DISKETTES

15.01 The following tools and supplies may be required for installing or servicing Comm-Stor. Most of these items should normally be present in standard maintenance tool kits.

TOOLS

Nut Driver, 1/4"

Nut Driver 11/32"

Wrench, Hex Key 3/32"

Wrench, Hex Key 1/16"

Wrench, Hex Key 5/64"

Subminiature Long Nose Pliers

Flat Needle File or Fine Emery Board

Screwdriver, Phillips 1/4", 4" blade, 2 point size

Screwdriver, Phillips 1/8", 2" blade, 0 point size

Screwdriver, Slotted 1/4", 4" blade

Screwdriver, Slotted 1/8", 2" blade

Tweezers

Static Ground Strap (Simco Neutrostat, 3M Velostat, or equivalent)

IC Removal & Insertion Tool (Jensen #331B202 and #331B102)

SUPPLIES

Head Cleaner Solution (Miller Stephenson—MS200 or Isopropyl Alcohol)

Soft Wiping Cloth (Lint-free)

Contact Cleaner (Miller Stephenson—MS230)

Fan Filter Spray Super Filter Coat #1, Research Products Corp.

Conductive Foam Blocks (for holding IC's)

DISKETTES

15.02 The following diskettes are required for installing or servicing Comm-Stor:

User Diagnostic Diskette
(contained in Kit #1030A5191; comprising diskette and test plug)

Standard Factory Refresh Diskette
(locally supplied)

Configuration Diskette (SYKES part #1030A5186)

Data Diskettes (SYKES part #1030A5185)