"COMM-STOR*" II COMMUNICATIONS STORAGE UNIT
DESCRIPTION AND OPERATION

1. GENERAL

1.01 This section provides descriptive and operational information for the COMM-STOR II Communications Storage Unit (hereafter referred to as the COMM-STOR II unit) manufactured by Sykes Datatronics, Incorporated. This information is contained in the attached reprint of practice SYKS 578-400-100, Issue 2, prepared by Sykes Datatronics.

1.02 This section is reissued for the following reasons:

(a) General revision

(b) Support of the DATASPEED†-40 receive-only (RO) printer

(c) Support of the arithmetic feature of the extended forms option

(d) Support of the extended editor option.

1.03 The Comm-Stor II unit has been designed to perform five functions:

- Data entry
- Data storage
- Data retrieval
- Data editing
- Data communications.

A description of each function is provided in the attached practice.

1.04 This section does not apply to the following Comm-Stor II units or optional features:

(a) 8A1/8B1 Protocol

(b) Comm-Stor II Station Message Detail Recording (SMDR) unit

(c) Comm-Stor II Call Rating System (CRS) unit

(d) Comm-Stor II Line Control Unit (LCU)

(e) Comm-Stor II Performance Analysis System (PAS) unit.

1.05 For a description of the above units, refer to the following practices. (Check Divisional Index 578 for availability.)

SECTION	UNIT
578-400-101	8A1/8B1 Protocol
578-400-102	Comm-Stor II/SMDR unit
578-400-103	Comm-Stor II/LCU unit
578-400-105	Comm-Stor II/CRS unit
578-400-106	Comm-Stor II/PAS unit.

1.06 The Comm-Stor II unit provides full automatic sending and receiving (ASR) capabilities to DATASPEED-40 RO printer, 40/1 and 40/2 terminal sets, and 43 teleprinters and other asynchronous terminals with Electronic Industries Association (EIA) interfaces.

1.07 The Comm-Stor II unit consists of a microprocessor-based controller as well as one or two flexible diskette drives. Each drive is able to store 256,000 characters on each single-sided, standard density, soft-sectored diskette.

* Registered trademark of Sykes Datatronics, Inc.
† Registered trademark of AT&T.

Comm-Stor* II

COMMUNICATIONS STORAGE UNIT

DESCRIPTION AND OPERATION

CONTENTS PAGE

*Comm-Stor is a registered trademark of Sykes Datatronics, Inc.

CONTENTS PAGE

1. GENERAL

1.01 This section covers the decription and operation of the Comm-Stor II Communications Storage Unit, hereafter referred to as the Comm-Stor II unit.

1.02 This section has been reissued to include:

- General revision
- Support ot the DATASPEED* 40 RO Printer
- Support of the arithmetic feature of the extended forms option
- Support of the extended editor option.

1.03 The Comm-Stor II unit has been designed to perform five functions:

- Data entry
- Data storage
- Data retrieval
- Data editing
- Data communications.

A description of each function is provided in part 3 of this practice.

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- 8A1/8B1 Protocol
- Comm-Stor II/SMDR unit
- Comm-Stor II/CRS unit
- Comm-Stor II/LCU unit
- Comm-Stor II/PAS unit.

1.05 For a description of the above units, refer to the following practices:

UNIT	SECTION
8A1/8B1 Protocol	578-400-101
Comm-Stor II/SMDR unit	578-400-102
Comm-Stor II/CRS unit	578-400-105
Comm-Stor II/LCU unit	578-400-103
Comm-Stor II/PAS unit	578-400-106

1.06 The Comm-Stor II unit provides full automatic sending and receiving (ASR) capabilities to DATASPEED 40 RO, 40/1, 40/2, 43 Teleprinters, and other asynchronous terminals with Electronic Industries Association (EIA) interfaces.

1.07 The Comm-Stor II unit consists of a microprocessor-based controller as well as one or two flexible diskette drives. Each drive is able to store 256,000 characters on each single-sided, standard density, soft-sectored diskette.

1.08 In a station arrangement, the Comm-Stor II unit is positioned between the data set and the terminal (and optionally, a printer). Refer to Fig. 1 for an illustration of a typical station arrangement.

1.09 The terms baud and baud rate, as used throughout this practice, refer to data transmission and are considered equivalent to "bits per second."

2. DESCRIPTION

A. General

2.01 The Comm-Stor II unit is available in two models: Model 8120A (Single

*DATASPEED is a registered trademark of AT&T Company.

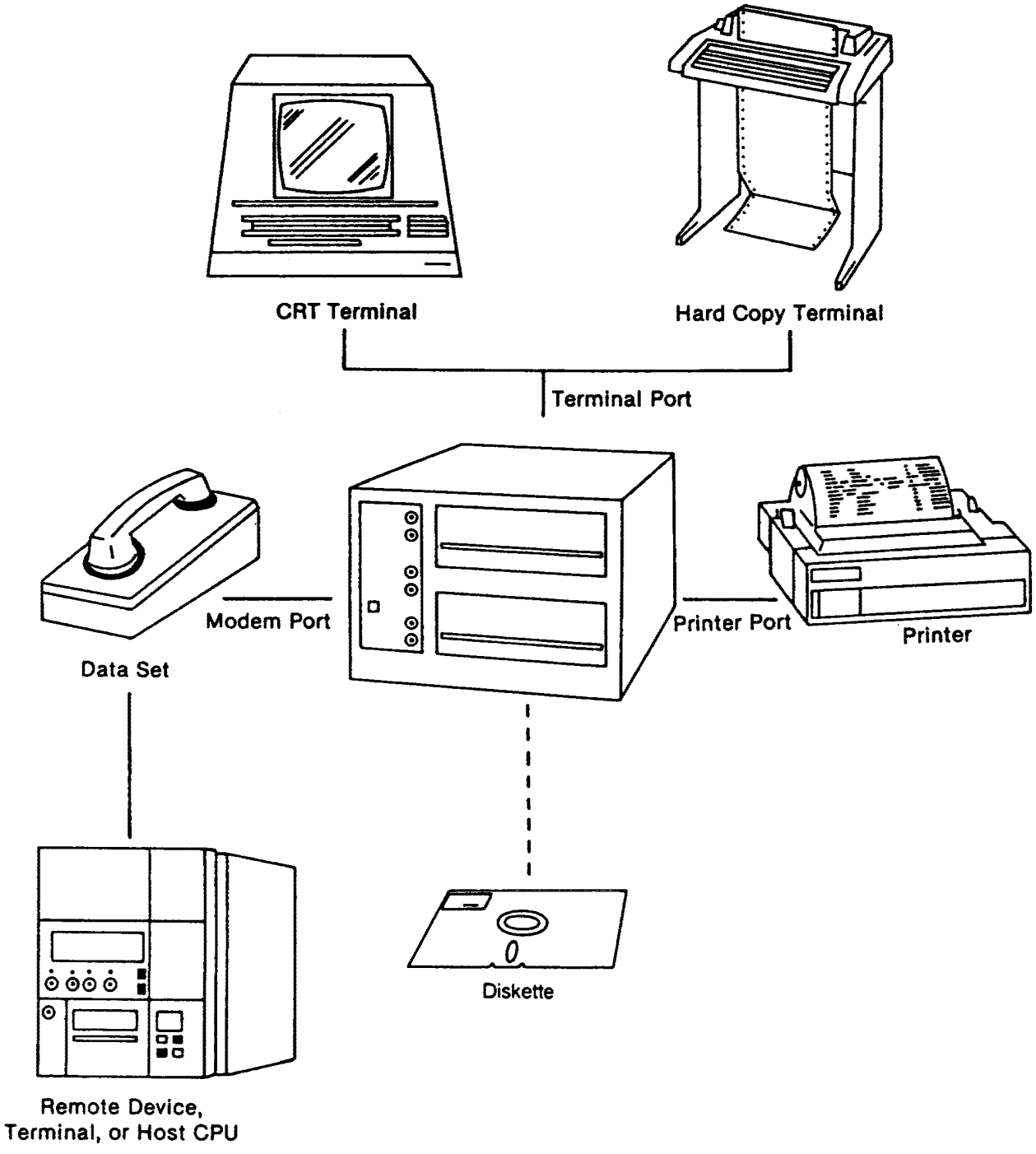


Fig. 1 - Typical Station Arrangement

Drive) and Model 8220A (Dual Drive). Edit, standby disk power, variable baud rate settings, isochronous interface, and the Extended User Command Table are standard features in both models. Available options include:

- Printer Port
- Extended Editor
- Standard Forms
- Extended Forms
- RAM Expansion
- 3740 Format Conversion.

A description of each option is found in Part 3 of this practice.

2.02 The option label on the rear panel of the Comm-Stor II unit indicates the options included at the time of manufacturing (Fig. 2).

B. Switches and Indicators

2.03 The front panel of the Comm-Stor II unit has several indicators to assist the user. The function of each indicator (Fig. 3) is as follows:

Front Panel Indicators

(a) RESTART - A switch/indicator to show when the unit power is on. It also recycles the unit when necessary during system operations. Do not press this switch during normal system operations unless instructed to do so in the documentation.

(b) READY - An indicator which signifies that a diskette has been properly inserted into the drive, that the drive door is closed (when not in Standby mode) and that the diskette is spinning properly. This indicator is duplicated in a dual drive unit to provide information about each drive.

(c) 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 as the diskette could be damaged and data could be lost. The user should wait until the BUSY indicator extinguishes before removing the diskette from the drive.

(d) CARRIER - Indicates the presence of a carrier detect signal from the data set. When the data set is in the Full Duplex mode, the CARRIER indicator should remain illuminated.

(e) STATUS - This indicator has four functions:

(1) The STATUS indicator flickers at half brilliance when data is being transferred to or from any port.

(2) The STATUS indicator indicates the presence of a parity error by lighting at full brilliance after completion of the data transfer. Enter a Reset command to extinguish the indicator after a parity error.

(3) The STATUS indicator flashes at full brilliance if the wrong System diskette has been inserted into the drive for a particular system operation.

(4) The STATUS indicator lights at full brilliance upon power up if the contents of configuration memory have been altered or destroyed. This may occur if the unit has been stored for longer than one year in a powered down condition.

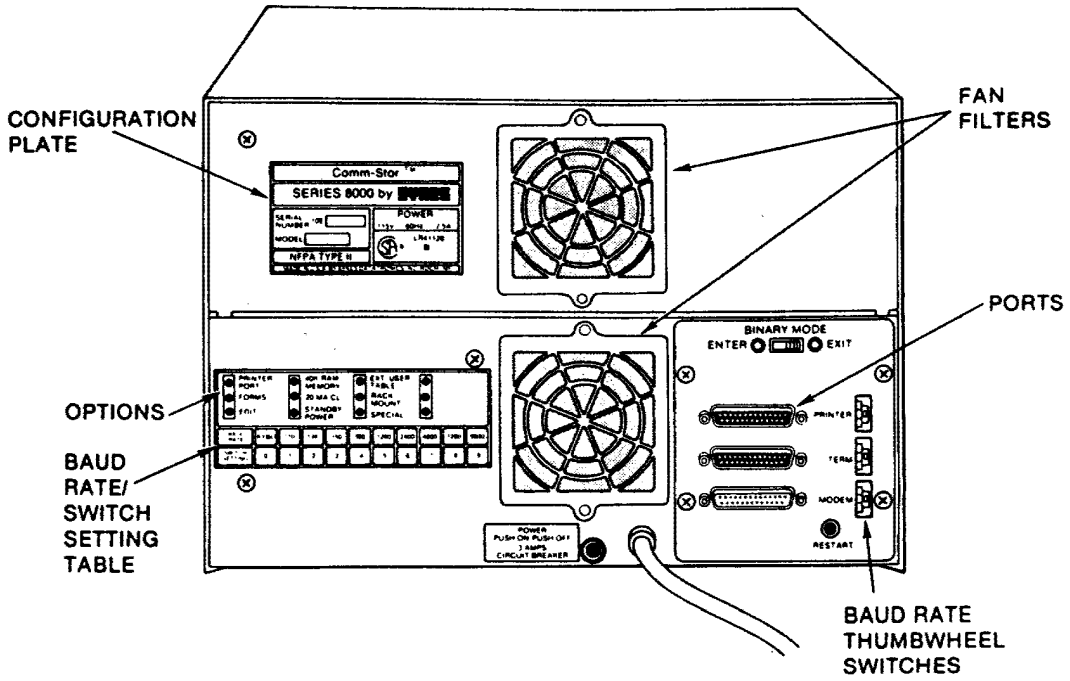


Fig. 2 - Rear View of the Comm-Stor II Unit

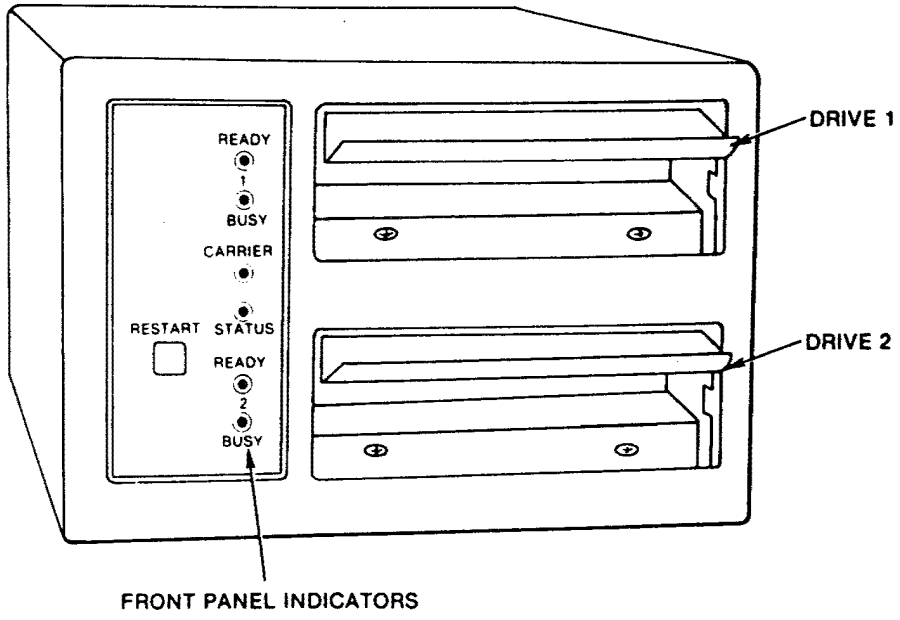


Fig. 3 - Front View of the Comm-Stor II Unit

Rear Panel Switches and Indicators

(a) BINARY - When this slide switch is in the ENTER position, the unit will receive all data without attempting to interpret it as ASCII characters. In the EXIT position, the unit will accept and respond to ASCII information. The EXIT position is used during normal system operations.

(b) POWER - This is a locking pushbutton switch which powers the unit on and off. This switch also contains a 3-amp circuit breaker which is reset by pressing this switch.

(c) THUMBWHEEL SWITCHES - A thumbwheel switch is provided for each of the Comm-Stor II unit ports (printer, terminal, and modem). These are used to set the baud rate for each respective port. Each of the nine positions corresponds with a baud rate as listed on the rear panel. These correspondences are listed in Table A.

Note: Six additional baud rates (50, 75, 600, 1800, 2000, and 3600 bps) may be obtained via keyboard entry. Refer to paragraph 3.10 of this documentation for additional information.

(d) RESTART - This is a momentary pushbutton switch. Its function is the same as the front panel Restart switch, except that it does not illuminate to indicate power on. Do not press this switch during normal system operations unless you are instructed to do so in this documentation.

C. Peripheral Device Connections

2.04 The Comm-Stor II unit contains up to three RS-232C compatible communications ports:

- Terminal port
- Modem port
- Printer port (optional).

Pin assignments for these ports are given in Table B.

2.05 A terminal, printer, and data set may be connected to the Comm-Stor II unit through industry standard ports on the rear panel of the unit (Fig. 2). No special wiring of the cables is necessary and all leads are wired pin-for-pin. Consult the manufacturer of peripheral equipment for any nonstandard pin assignments.

2.06 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. If the user has the printer port option, the cable from the printer is connected to the port labeled PRINTER. This cable should also have a male plug in accordance with industry standard procedures. If the printer port is installed but not presently in use, the connector may be left unterminated. The cable from the data set is connected to the port labeled MODEM. This cable should have a female plug in accordance with industry standard procedures.

D. Internal Hardware

2.07 The Comm-Stor II unit is a microprocessor-based system which consists of the following components (Fig. 4):

- Mother (Base) board
- MP/RAM board
- ROM II board
- Printer Port/Expanded RAM board
- Communications Ports board
- Disk Interface board
- Diskette drive (one or two)
- Interface Panel
- Power supply.

TABLE A

SWITCH SETTINGS AND BAUD RATES

Switch Setting	0	1	2	3	4	5	6	7	8	9
Baud Rate	KYBD	110	134	150	300	1200	2400	4800	7200	9600

TABLE B

EIA RS-232C INTERFACE 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	X	in
5	Clear to Send (CS)	X	out	X	in	X	out
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	X	out
20	Data Terminal Ready (DTR)	X	in	X	out	X	in
22	Ring Indicator (RI)	X	out	X	in	X	out

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

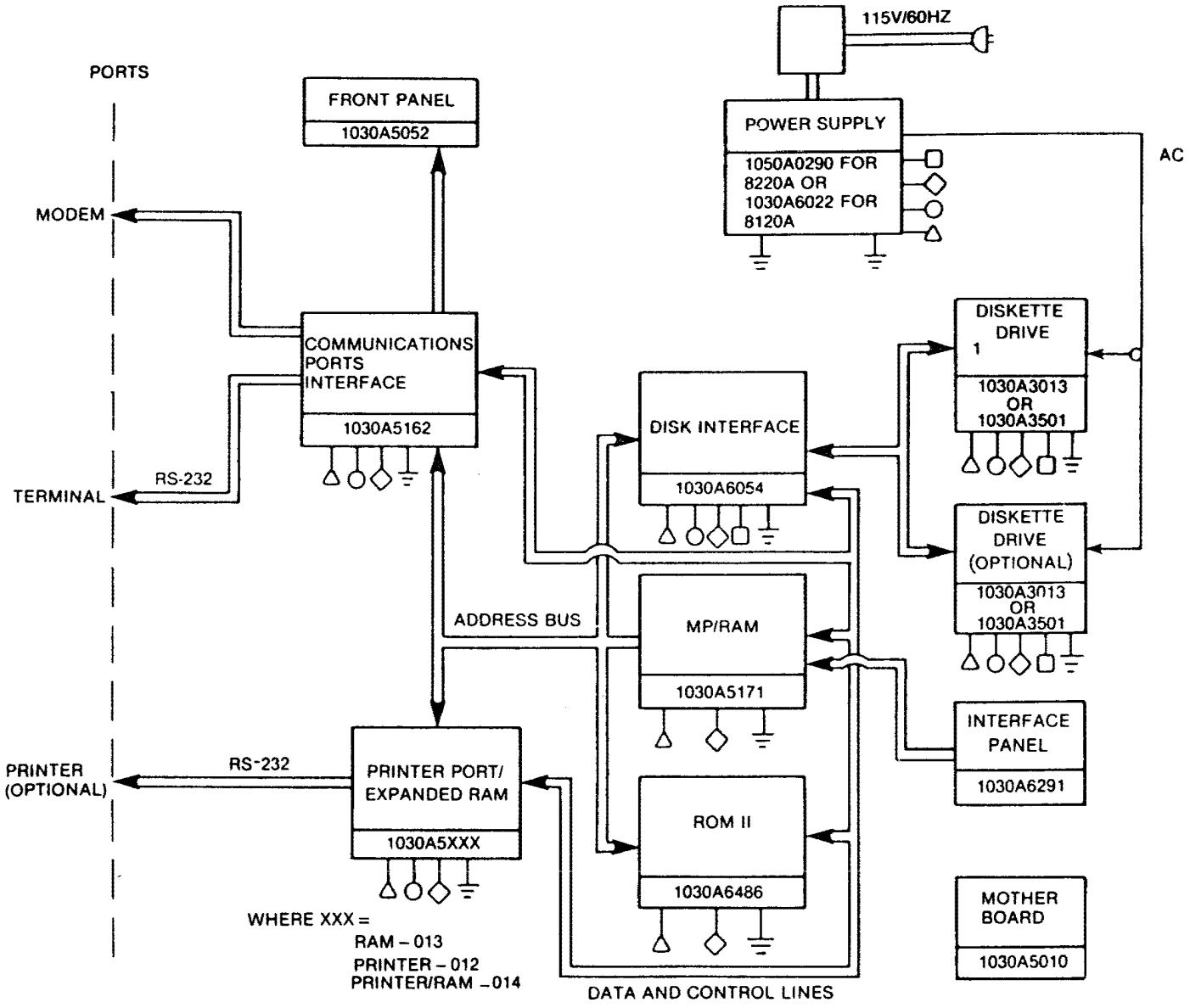


Fig. 4 - Comm-Stor II Unit Block Diagram

Each component is described separately below.

Mother (Base) Board (1030A5010)

2.08 The Mother (Base) board contains receptacles for six printed circuit boards, a back plane containing a 100-pin bus, and a power connector.

MP/RAM Board (1030A5171)

2.09 The MP/RAM board contains the following logic:

(a) The Microprocessor (MP) and supporting logic;

(b) Random Accces Memory (RAM) for microprocessor data buffering;

(c) Complementary Metal Oxide Semiconductor (CMOS) memory for storing configuration parameters; and

(d) Thumbwheel switches for baud rate selection.

ROM II Board (1030A6486)

2.10 The ROM II board consists of a series of Read Only Memory (ROM) devices which contain the operating system for the Comm-Stor II unit.

Printer Port/Expanded RAM Board (1030A-5012, 1030A5013, or 1030A5014)

2.11 This board is optional in the Comm-Stor II unit and is only required when the system is equipped with additional hardware options (e.g. printer port, standard or extended forms, or extended editor).* This board can hold up to 16K of RAM, which is available in 4K increments through an option update kit. The amount of memory installed is listed on the rear panel of the Comm-Stor II unit under the option label heading, "RAM."

Communications Ports Board (1030A5162)

2.12 The Communications Ports board contains the logic to control the terminal and modem port functions. It interfaces with the I/O Panel through a 50-pin ribbon cable. Further, this board connects to the front panel indicators via a cable.

Disk Interface Board (1030A6054)

2.13 The Disk Interface board contains circuitry to control the operations of the floppy diskette drive, a CRC generator/checker for error control, and a 32-byte First In First Out (FIFO) memory to buffer diskette read/write data.

Diskette Drive (1030A3013 or 1030A3501)

2.14 The diskette drives in the Comm-Stor II unit contain the basic circuitry required to interface with the Disk Interface board.

Interface Panel (1030A6291)

2.15 The Interface panel is located at the rear of the Comm-Stor II unit. It contains three DB-25 connectors for the terminal, modem, and printer ports.

Power Supply (1050A0290 or 1030A6022)

2.16 The Comm-Stor II unit uses a multiple voltage power supply to provide the following regulated voltages:

+24 VDC at 2.4 A
+12 VDC at 400 mA
+ 5 VDC at 6.0 A (single drive units only)
+ 5 VDC at 9.0 A (dual drive units only)
-12 VDC at 650 mA

*Refer to paragraph 7.04 of this practice for option requirements.

3. OPERATIONAL FEATURES

A. System Operations

Data Entry

3.01 The Comm-Stor II unit has the ability to store data files on diskette. The Enter (.E) or Enter Automatic (.EA) command prepares the Comm-Stor II unit to receive data files from the terminal; the Receive (.R) or Receive Automatic (.RA) command prepares the Comm-Stor II unit to accept data entered through the modem port.

Data Storage

3.02 The Comm-Stor II unit uses internal memory as well as IBM-compatible flexible diskettes for storing data. The diskette allows data, stored as files, to be placed in a directory for later recall. The Comm-Stor II unit's internal memory is comprised of four parts:

(a) System memory (ROM) for storing the operating system;

(b) Configuration memory (CMOS-RAM) for storing user-defined configuration parameters;

(c) User Command Table (CMOS-RAM) for storing user-defined command sequences. These sequences may be executed automatically by a single keystroke; and

(d) Buffer memory (RAM) for storing data received through any of the ports on a temporary basis until the data is required by the microprocessor.

Data Retrieval

3.03 The operator assigns each file a file name as it is entered. This file name is automatically stored on diskette in a directory. This directory may be displayed on the terminal, printed on a printer, or sent to a remote device via the modem port upon command from the operator. All or portions of the directory may be listed sequentially or alphanumerically.

3.04 A single file or a group of files may also be displayed, printed, or sent in sequential or alphanumeric order upon operator request.

File Editing

3.05 The Comm-Stor II unit has the ability to edit an entire file as well as a single line. Further, the edit feature provides character string search and replacement as well as "line-oriented" editing capabilities.

3.06 A file to be edited is stored in a temporary work area on diskette (or in RAM with the extended editor option). After the file is edited, it is placed in permanent storage on diskette. The file may be recalled from the work area at any time for additional editing. The size of the work area is specified when the User diskette is created and may contain a maximum of 254 lines of text at any one time.

> Note: The extended editor option enhances standard editing operations. Refer to paragraph 3.19 of this practice for more details.

Data Communications

3.07 Data files may be transmitted to a remote device (e.g. a computer, a terminal, or another Comm-Stor II unit). Further, data files may be sent to a local system terminal or a printer.

B. Configuration

3.08 The user will need to change the hardware operating (configuration) parameters of the Comm-Stor II unit to accommodate the requirements of all the peripheral devices in the system. These

parameters are not changed on a day-to-day basis, but are a part of system operations. Refer to Section 999-302-150, How to Configure...Comm-Stor II Unit for configuration procedures.

C. Standard Features

3.09 Standard features of the Comm-Stor II unit include:

- Variable baud rate settings
- Extended User Command Table
- Standby disk power
- Isochronous interface
- Standard editor.

Variable Baud Rate Settings

3.10 Users who frequently change the baud rate settings at different ports (via baud rate switches), may do so via commands from the terminal or remote device. Any one of 15 baud rate settings listed in Table C may be selected.

TABLE C

AVAILABLE BAUD RATES

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

*This baud rate can be set via keyboard entry only.

†All Comm-Stor II unit ports are limited to 4800 bps batch input. However, they can output and receive conversationally at 7200 bps or 9600 bps.

Extended User Command Table

3.11 The Extended User Command Table is a portion of internal memory in which the user may store a list of frequently used Comm-Stor II commands. Each series of commands is separated by an End of Line character and may be preceded by an optional identification (trigger) character. The purpose of the Extended User Command Table is to cause a specified series of Comm-Stor II commands to be executed automatically as the result of inputting a single character from the terminal or modem port.

3.12 When the trigger character (usually a control code) is entered, the Comm-Stor II unit searches the Extended User Command Table and selects that series of commands associated with that character; the operation is then executed automatically.

3.13 Each series of commands, and its respective trigger character (optional), is stored in the Comm-Stor II unit's configuration memory during the configuration process (Parameter #140). If the Comm-Stor II unit is configured to "self-start" upon power up or auto answer (Parameters #141 and #147), the unit will automatically execute commands stored in the Extended User Command Table whenever it is powered on or restarted.

Caution: Do not store trigger characters in the Extended User Command Table if the Comm-Stor II unit is configured to "self-start" as unpredictable results may occur.

Standby Disk Power

3.14 Standby disk power allows the operator to power off the disk drive motors if the Comm-Stor II unit is to be idle for an extended period of time. This is useful when the unit is unattended and is used only when a remote device calls for a data transfer. When the Comm-Stor II unit performs the auto-answer operation, it automatically starts

the disk drive motors. The diskette is up to speed in two seconds and ready before the line connection sequence is completed.

Isochronous Interface

3.15 Isochronous operation allows transmission and reception of ten bits, including Start/Stop data characters, through Bell System 201, 2024, 2048 and 208 data sets. This provides an asynchronous character structure through synchronous hardware. The start of each character is arbitrarily relative to the character preceding it and following it. The ten bits of the character are synchronized to the data set clock. This mode of transmission is considered to be "bit synchronous/character asynchronous."

3.16 In isochronous operation, there is one master clock (the transmitting data set clock) and all other clocks are synchronized with it. The Comm-Stor II unit transmits its clock signals to the data set via Pin 15 and receives its clock signals from the data set via Pin 17 of the cable. Pin 2 transmits data to the data set while Pin 3 receives data from the data set. Fig. 5 provides an illustration of the clock and data signal flow between two Comm-Stor II units with the unit on the left transmitting data to the unit on the right.

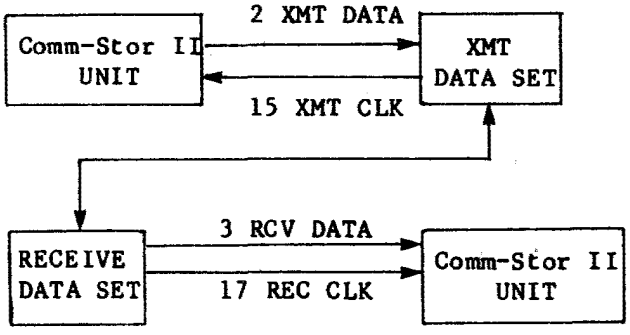


Fig. 5 - Clock and Data Signal Flow

Standard Editor

3.17 The standard editor feature provides character string search and replacement. A string of up to 20 characters in length may be searched globally or locally then replaced with a string of up to 40 characters in length. Further, the standard editor feature allows the user to insert, delete, replace, or append words, phrases, or lines of data. Auto-numbering allows direct access to individual lines of a file for recall and editing. Finally, the standard editor feature allows the user to merge multiple data files.

D. Options

Printer Port

3.18 An optional printer port is available to users with CRT displays who wish to have hardcopy printouts of their files. This option is also useful to those who have printing terminals but would prefer to use high speed line printers for permanent records. An independent baud rate switch is provided for the printer port.

Extended Editor*

3.19 The extended editor option employs all the features of the standard editor plus the ability to handle larger files (up to the size of a diskette). Additionally, this option offers text editing features not available in the standard editor. The file is read, in sections, into RAM. The user can insert single characters or multiple lines of information, or reformat individual paragraphs by setting new left and right margins. Search and replace operations as well as tab functions are supported.

> Note: The standard editor feature and the extended editor option are mutually exclusive, with the extended editor option prevailing if both are installed.

*This option is not compatible with the 8A1/8B1 Protocol.

Standard Forms

3.20 The standard forms option provides the Comm-Stor II unit with a forms fill-in capability. Forms, consisting of fixed information fields and variable information fields, are created by the user and stored on diskette. Once the operator enters the variable information, the Comm-Stor II unit displays any fixed information up to the next variable field. When the form is completed, the variable information is stored as a separate file on the diskette. The file, consisting of only variable information, can be sent to a remote device. This results in a cost savings by reducing transmission time. If desired, however, the Comm-Stor II unit is able to merge the variable information with the fixed information and transmit a completed form. Each standard form is limited to one page in length.

Extended Forms Option

3.21 The extended forms option employs all the features of the standard forms option plus the ability to:

(a) Enter multiple page forms (up to 99 pages in length).

(b) Validate the accuracy of the operator's input.

(c) Insert data into fields automatically without keystroking (e.g., constant data fields, field duplication, field substitution).

(d) Perform four function arithmetic (i.e., addition, subtraction, multiplication, and division).

(e) Display, print, or send only fixed fields of a form.

(f) Select a page, range of pages, or a range of files for display, print, or send operations.

RAM Expansion

3.22 This option is available in 4K increments (maximum of 12K) through an option update kit. Each RAM package is placed on the Expanded RAM board (1030A5013) or on the Printer Port/ Expanded RAM board (1030A5014). The amount of memory installed is listed on the rear panel of the Comm-Stor II unit under the option label heading, "RAM."

This option is required with the following options:

Option	Amount Required
3740 Format*	at least 4K
Extended Forms	at least 4K
Extended Editor*	at least 4K
8A1/8B1 Protocol	8K (dedicated)

Note: The extended editor option may share the same 4K increment with the extended forms or 3740 format options.

3.23 Up to 4K of RAM may be allocated by the user for terminal or modem input buffering. A description of buffering is provided in Section 999-302-150, How to Configure...Comm-Stor II Unit.

3740 Format Option*

3.24 The 3740 Format option provides the user with complete compatibility between Comm-Stor II unit formatted diskettes and IBM formatted diskettes. The user may write, cancel, or display IBM data set labels; convert Comm-Stor II unit files from ASCII to EBCDIC, and from EBCDIC to ASCII.

Note: This option requires a dual drive unit.

*This option is not compatible with 8A1/ 8B1 Protocol.

E. Diskettes

3.25 The Comm-Stor II unit stores information on eight-inch flexible diskettes. A description of each diskette type follows.

Configuration Diskette

3.26 The Configuration diskette (Configurator) allows the user to:

(a) Create User diskettes

(b) Create Refresh diskettes

(c) Change or display configuration parameters (refer to Part 6)

(d) Generate forms (with the extended forms option).

Refresh Diskette

3.27 The Refresh diskette stores the contents of configuration memory (CMOS-RAM). This diskette is created after the Comm-Stor II unit has been configured for a particular installation arrangement. If the contents of CMOS-RAM are altered or destroyed, the unit may be reconfigured by loading the values stored on this diskette into CMOS-RAM. This alleviates the need for going through the configuration process to return the unit to its proper configuration.

User Diskette

3.28 The User diskette contains a directory and is used for all data storage operations. This diskette is created with the Configuration diskette and is initialized with parameters such as the maximum number of characters in the file name and the maximum file length.

F. Diagnostic Kit

3.29 The Comm-Stor II Unit Diagnostic Kit (P/N 1030A5191) consists of a Diagnostic diskette and a three-port test plug. The Diagnostic diskette is used with the test plug to analyze the unit's hardware and to assist the technician in isolating operational problems. The procedures for using this kit are available in Section 578-400-500, Comm-Stor II Unit Test and Troubleshooting Procedures.

G. Control Codes

3.30 Table D lists the most frequently used special characters and control codes. These codes are entered at the terminal or received through the modem port.

H. Comm-Stor II Unit Commands

3.31 The following commands are available on the standard Comm-Stor II unit.

.E **Enter File.** Prepares the unit to accept a file from the terminal. As the file is entered the current line being input may be edited using the standard editing characters. The file is terminated with the ETX character.

.R **Receive File.** Prepares the unit to receive a file at the modem port. The file name must be included in the command string. Any attached instruction will be sent out the modem port after the Comm-Stor II unit is ready to receive file data.

.EA **Enter Automatic.** Same as the .E command, except that the unit automatically assigns the current value of the auto-name feature (see .LI) as the file name. The auto-name feature is then internally incremented.

.RA **Receive Automatic.** Same as the .R command, except that the unit automatically assigns the current value of the auto-name feature (see .LI) as the file name. The auto-name feature is then internally incremented.

TABLE D

CONTROL CODES

CHARACTER/CODE	FUNCTION	DESCRIPTION
RUBOUT	Character Delete	Deletes characters in reverse order, starting from the last character entered, one character for each depression of the RUBOUT key. On various terminals, this key may be called DEL, BS, or RUB.
RETURN	Carriage Return	Returns the terminal's cursor/printhead to the left margin.
^X	Line Cancel	Cancels the entry of the current line.
^C	End of Text	Terminates the Enter and Receive modes (unless in the Binary mode, which uses the binary switch). A ^C code is also used to close a "Forms" file on diskette.
^S	Hold	Stops execution of the current operation. Execution is resumed by using the Resume code, ^Q, or canceled by using the Reset code, ^T.
^Q	Resume	Used after the Hold code to resume execution of the current operation.
^T	Reset	Cancels the current operation.

.LI **Load Initial Name.** Loads the initial value of the auto-name feature. The auto-name feature is automatically assigned to files when using the .EA and .RA commands. The bracketed portion will be incremented after each assignment.

.LE **Load Extension.** Loads an extension into the Comm-Stor II unit. New files will be assigned this extension. If this command is entered without an extension, the last extension loaded into the Comm-Stor II unit will be cleared.

.WP **Write-Protect.** Magnetically marks files or the entire diskette as write-protected. Write-protected diskettes cannot be canceled; write-protected diskettes cannot be written on.

.WE **Write-Enable.** Removes write-protection from either files or the diskette.

.CN **Cancel File.** Cancels (deletes) selected files from the diskette. If a range of files is specified, the word "-SURE?" is displayed before the function is performed.

Type "Y" (yes) to start the function, or any other character to void it.

.AM **Alpha Mode.** Causes files and file names to be acted on in alphanumeric order when using .D, .S, .P, .DD, .SD, .PD, .C, and .CN (also see .SM) commands.

.SM **Sequential Mode.** In this mode, files and file names are handled in sequential order (the order in which they are listed in the diskette directory when using .D, .S, .P, .DD, .SD, .PD, .C, and .CN (also see .AM) commands.

.D **Display File.** Displays on the terminal one or more files in either alphanumeric or sequential order, depending on the current mode.

.S **Send Files.** Sends one or more files out the modem port.

.P **Print File.** Displays one or more files on the printer. Similar to the .D command.

.DD **Display Directory.** Displays (on the terminal) part or all of the directory in either alphanumeric or sequential order, depending on the current mode (see .AM and .SM).

.SD **Send Directory.** Sends a part or all of the directory out the modem port. Similar to the .DD command.

.PD **Print Directory.** Displays the directory on the printer. Similar to the .DD command.

.DS **Display System Status.** Displays the status of the Comm-Stor II unit on the terminal. If a diskette is loaded, certain diskette parameters will also be displayed (Fig. 6).

.DS S **Display Directory Status (Short).** Displays the size of the largest free space and total free space of the diskette directory. The output may be directed to the printer by specifying .DS S/P.

.DS L **Display Directory Status (Long).** Displays the contents of the directory sequentially; indicating the character size and the required diskette space of each file. The character size of the largest space and the total free space on the diskette are also displayed.

.SS **Send System Status.** Sends the Comm-Stor II unit status out the modem port. If a User diskette is loaded, certain diskette parameters will also be displayed.

.SS S **Send Directory Status (Short).** Sends the size of the largest free space and total free space of the diskette directory. Similar to the .DS S command.

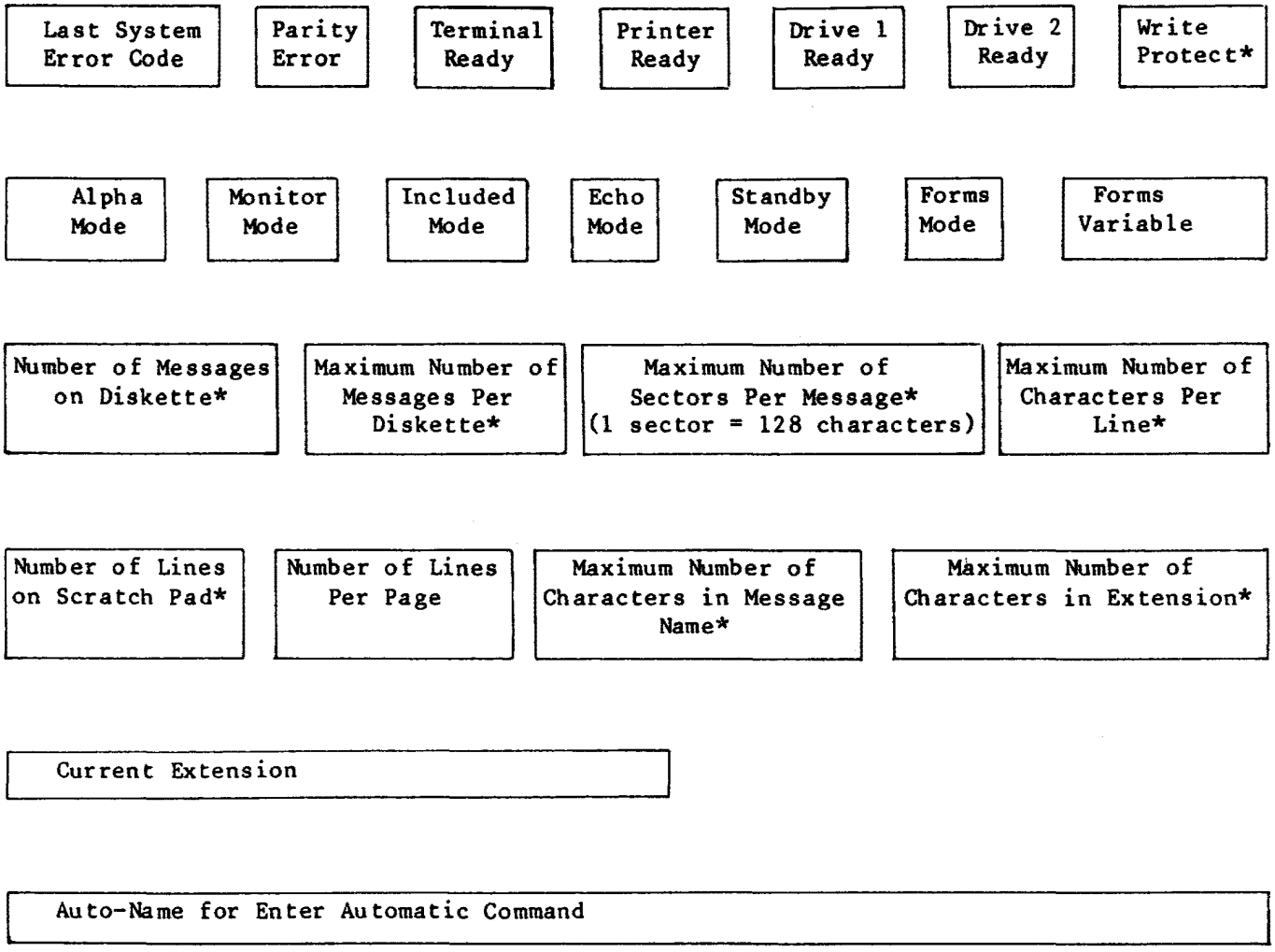
.SS L **Send Directory Status (Long).** Sends the directory contents sequentially, indicating the character size of the largest space and the total free space on the diskette.

.BM	**Baud Rate Modem**	Used to set baud rates from the keyboard when the baud rate switch is set to position 0.
.BP	**Baud Rate Printer**	
.BT	**Baud Rate Terminal**	

.BM I **Isochronous Command.** Baud rate at the modem port will be controlled by the data set. The modem baud rate switch must be set to position 0.

.EM/.EX Echo Mode/Echo Mode Exit. This mode causes data sent from the terminal to a remote unit (via the modem port) to be displayed (echoed) on the terminal.

STATUS DISPLAY FORMAT
(For Both Send Status and Display Status)



*These items are controlled by the User diskette in use.

Fig. 6 - Status Display Format

.MM/.MX Monitor Mode/Monitor Mode Exit. This mode causes all data sent from diskette or received onto diskette through the modem port to be displayed on the local terminal. This mode may also be enabled at the printer port.

.IM/.IX Included Mode/Included Mode Exit. This mode causes the file name to become the initial text of the file when using .E or .EA commands.

.SB Standby Mode. Entering this mode removes power from the drive motor(s). Power is restored when:

- A character is input from the local terminal, or
- An incoming telephone call is detected when the data set is in the Auto Answer mode.

.RE Restore. If a file name and/or extension is not specified, this command is interpreted as a Restore command. It is used to combine all of the free space on a diskette into one contiguous area following the last file.

.RE Rename. If a file name and/or extension is specified, the .RE is interpreted as a Rename command. It is used to modify the name and/or extension of an existing file.

.C Copy. Copy one or more files from drive 1 to drive 2 either sequentially or alphanumerically, depending on the current mode.

4. TECHNICAL DATA

A. Power Requirements

4.01 Power requirements of the Comm-Stor II unit are shown in Table E. The standard unit requires 60 ± 1 Hz power.

TABLE E

POWER REQUIREMENTS

MODEL	VOLTAGE	CURRENT
8120A	115 VAC 230 VAC	2.5 amp 1.8 amp
8220A	115 VAC 230 VAC	2.5 amp 1.8 amp

B. Environmental Requirements

4.02 The diskette media requires an allowable ambient temperature of 40.25°F to 95.25°F (or 4.25°C to 35.25°C).

4.03 The allowable ambient humidity is 20% to 80% relative humidity.

C. Weights and Dimensions

4.04 Weights and dimensions of the Comm-Stor II unit are shown in Table F.

D. Placement Requirements

4.05 The Comm-Stor II unit must be positioned right side up on a table, desk top, or any other hard, flat surface.

4.06 The Comm-Stor II unit must be located in a position that allows at least six inches of clearance behind the back panel for cooling purposes. This location must also be free of magnetic fields. Finally, it is recommended that the unit be placed in the cleanest environment possible (relative to its surroundings). Units not meeting these requirements are susceptable to reduced air flow and excessive dirt build-up in the air filters leading to eventual component failure and diskette damage.

TABLE F

WEIGHTS AND DIMENSIONS

MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
8120A	5.25 in. 13.34 cm.	13.75 in. 34.93 cm.	20 in. 50.80 cm.	35 lbs. 16 kg.
8220A	9.6 in. 24.38 cm.	13.75 in. 34.93 cm.	20 in. 50.80 cm.	55 lbs. 25 kg.

Note: Air filters need to be cleaned or replaced periodically, depending upon the type being used. Refer to section 578-400-750, Routine Maintenance for the procedures.

5. ERROR MESSAGES

5.01 Table G lists the most common error messages for the Comm-Stor II unit.

6. CONFIGURATION PARAMETERS

6.01 The following parameters are configurable in Comm-Stor II units using the Configuration diskette (1030A5186). The default values are given in parentheses. For further information refer to section 999-302-150, How to Configure...Comm-Stor II Unit.

1: ASCII DATA? (YES)
2: SEND EOT AFTER EACH MODEM REQUEST? (NO)
3: END OF LINE CHARACTER ([CR])
4: SYSTEM TO ADD LINE FEED AFTER CARRIAGE RETURN? (YES)
5: LINE FEED CHARACTER ([LF])
6: CARRIAGE RETURN CHARACTER FOR SYSTEM MESSAGES ([CR])
7: LINE FEED CHARACTER FOR SYSTEM MESSAGES ([LF])
8: END OF TEXT CHARACTER ([ETX])
9: TRANSMIT "END OF TEXT" CHARACTER? (NO)
10: TRANSMIT "END OF TRANSMISSION" CHARACTER? (NO)
11: "END OF TRANSMISSION" CHARACTER ([^D])
12: "RESET" CHARACTER ([^T])
13: SPACE CHARACTER FOR SYSTEM MESSAGES ( )
14: FIRST CHARACTER OF ESCAPE SEQUENCE ([ESC])
15: PARITY ERROR SYMBOL (?)
16: "STOP SEND/START SEND" OPTION (0)
17: "STOP SEND" CHARACTER (TO COMPUTER) ([^S])
18: "START SEND" CHARACTER (TO COMPUTER) ([^Q])
19: "HOLD" CHARACTER (FROM COMPUTER/ TERMINAL ([^S])
20: "RESUME" CHARACTER (FROM COMPUTER/ TERMINAL) ([^Q])
21: OUTPUT NUMERICAL ERROR MESSAGES? (NO)
22: SEND ERROR MESSAGES TO MODEM? (NO)
23: SPECIAL OUTPUT CHARACTER #1 ([CR]) PORTS (NONE) DELAY FACTOR/ SUBSTITUTION (1)
24: SPECIAL OUTPUT CHARACTER #2 ([CR]) PORTS (NONE) DELAY FACTOR/ SUBSTITUTION (1)
25: SPECIAL OUTPUT CHARACTER #3 ([CR]) PORTS (NONE) DELAY FACTOR/ SUBSTITUTION (1)
26: SPECIAL OUTPUT CHARACTER #4 ([CR]) PORTS (NONE) DELAY FACTOR/ SUBSTITUTION (1)
27: "DELETE" CHARACTER ENTERED ([RUB])
28: "DELETE" CHARACTER ECHOED ([BS])
29: "LINE CANCEL" CHARACTER ([^X])

30: NUMBER OF LINES ON PAGE (23)
31: STOP DISPLAY AFTER EACH PAGE? (NO)
32: SUBSTITUTE TERMINAL PARITY ERRORS WITH ERROR SYMBOL? (YES)
33: MODEM OFF-LINE ALERT CHARACTER ([^G])
34: INHIBIT ECHO TO TERMINAL? (NO)
35: IGNORE "NULL" CHARACTER FROM TERMINAL? (YES)
36: TERMINAL "NULL" CHARACTER ([NULL])
37: NORMAL TERMINAL DATA PARITY - EVEN/ODD/NONE (NONE) NUMBER OF DATA BITS INCLUDING FIXED BITS (IF ANY) (8) EIGHTH DATA BIT (0)
38: BINARY TERMINAL DATA PARITY - EVEN/ODD/NONE (NONE) NUMBER OF DATA BITS INCLUDING FIXED BITS (IF ANY) (8)
39: TERMINAL INTERFACE CONTROL (11110) 40/1 TERMINAL? (NO)
40: DOES TERMINAL PROVIDE "DATA TERM READY"? (NO)
41: HALF DUPLEX MODEM? (NO)
42: **FOR HDX ONLY** TURN AROUND LINE AFTER EVERY CHARACTER? (YES)
43: **FOR HDX ONLY** MODEM TURNAROUND CHARACTER ([CR])
44: **FOR HDX ONLY** SECONDARY (SUPERVISORY) CHANNEL AVAILABLE? (NO)
45: **FOR HDX ONLY** "REQUEST TO SEND" TIMEOUT [MILLISECONDS] (200)
46: **FOR HDX ONLY** "SECONDARY CARRIER DROPPED" OPTION (0)
47: WAIT AFTER EOL FOR PROMPT OR AFTER ETX FOR ACK? (NO)
48: CHARACTER TO INITIATE WAIT PERIOD ([ETX])
49: WAIT FOR PROMPT BEFORE STARTING TRANSMISSION? (NO)
50: "PROMPT" OR "ACKNOWLEDGE" CHARACTER ([^F])
51: "RETRANSMIT FILE" CHARACTER ([^U])
52: IGNORE "NULL" CHARACTER FROM MODEM? (YES)
53: MODEM "NULL" CHARACTER ([NULL])
54: IS ATTACHED INSTRUCTION ECHOED? (NO)
55: SUBSTITUTE MODEM PARITY ERRORS WITH ERROR SYMBOL? (YES)
56: CHECK FOR MODEM FRAMING ERRORS? (NO)
57: INACTIVITY TIMEOUT(SECONDS) (INACTIVE)
58: NORMAL MODEM DATA PARITY - EVEN/ODD/NONE (NONE) NUMBER OF DATA BITS INCLUDING FIXED BITS (IF ANY) (8) EIGHTH DATA BIT (0)
59: BINARY MODEM DATA PARITY - EVEN/ODD/NONE (NONE) NUMBER OF DATA BITS INCLUDING FIXED BITS (IF ANY) (8)
60: DOES MODEM PROVIDE "DATA SET READY"? (YES)
61: PRINTER PORT INSTALLED? (YES)
62: PRINTER DATA PARITY - EVEN/ODD/NONE (NONE) NUMBER OF DATA BITS INCLUDING FIXED BITS (IF ANY) (8) EIGHTH DATA BIT (0)
63: PRINTER INTERFACE CONTROL (11110)
64: DOES PRINTER PROVIDE "DATA TERM READY"? (NO)
65: DOES PRINTER PROVIDE "SEC. REQUEST TO SEND"? (NO)
"SECONDARY REQUEST TO SEND" OPTION TO STOP TRANSMISSION? (1)
66: DOES PRINTER REQUIRE "LINE FEED" AFTER "CARRIAGE RETURN"? (YES)
67: CHARACTER TO SEPARATE COMMAND AND ARGUMENT ( )
68: CHARACTER TO SEPARATE FILE NAMES (/)
69: CHARACTER TO START "ENTER AUTOMATIC" INCREMENTING FIELD (<)
70: CHARACTER TO END "ENTER AUTOMATIC" INCREMENTING FIELD (>)
71: CHARACTER TO SEPARATE FILE NAME AND EXTENSION (+)
72: CHARACTER TO SEPARATE COMMAND AND ATTACHED INSTRUCTION (#)
73: DIRECTORY BOUNDARY SPECIFICATION CHARACTER (*)
74: "DON'T CARE" CHARACTER FOR EXTENSION (?)
75: **UNUSED**
76: USER RESPONSE TO "--SURE?" MESSAGE (Y)
77: SYSTEM COMMAND CHARACTER - TERMINAL AND MODEM (.)
78: SYSTEM COMMAND CHARACTER - MODEM ONLY (,)
79: "SELECT DRIVE 1" CHARACTER (1)
80: "SELECT DRIVE 2" CHARACTER (2)
81: "BAUD MODEM" COMMAND (BM)
82: "BAUD PRINTER" COMMAND (BP)
83: "BAUD TERMINAL" COMMAND (BT)
84: "COPY" COMMAND (C)
85: "CANCEL" COMMAND (CN)
86: "DISPLAY" COMMAND (D)
87: "DISPLAY DIRECTORY" COMMAND (DD)

88: "DISPLAY STATUS" COMMAND (DS)
89: "ENTER" COMMAND (E)
90: "ENTER AUTOMATIC" COMMAND (EA)
91: "ECHO MODE" COMMAND (EM)
92: "ECHO EXIT" COMMAND (EX)
93: "INCLUDE MODE" COMMAND (IM)
94: "INCLUDE MODE EXIT" COMMAND (IX)
95: "LOAD EXTENSION" COMMAND (LE)
96: "LOAD INITIAL VALUE" COMMAND (LI)
97: "MONITOR MODE" COMMAND (MM)
98: "MONITOR MODE EXIT" COMMAND (MX)
99: "PRINT" COMMAND (P)
100: "PRINT DIRECTORY" COMMAND (PD)
101: "RECEIVE" COMMAND (R)
102: "RECEIVE AUTOMATIC" COMMAND (RA)
"RENAME" COMMAND (RE)
103: "SEND" COMMAND (S)
104: "SEND DIRECTORY" COMMAND (SD)
105: "SEND STATUS" COMMAND (SS)
106: "SEQUENTIAL MODE" COMMAND (SM)
107: "ALPHA MODE" COMMAND (AM)
108: "STANDBY MODE" COMMAND (SB)
109: "WRITE-ENABLE" COMMAND (WE)
110: "WRITE-PROTECT" COMMAND (WP)
111: EDIT OPTION INSTALLED? (YES)
112: EDITOR LINE NUMBER SEPARATOR (,)
113: EDITOR CHARACTER STRING DELIMITER (/)
114: EDIT COMMAND CHARACTER (;)
115: PREPARE TO "EDIT" COMMAND (ED)
116: "SAVE FILE" COMMAND (SV)
117: EDITOR "APPEND" COMMAND (A)
118: EDITOR "DELETE" COMMAND (D)
119: EDITOR "INSERT" COMMAND (I)
120: EDITOR "LINE COUNT" COMMAND (=)
121: EDITOR "CLEAR" COMMAND (Q)
122: EDITOR "LIST" COMMAND (L)
123: EDITOR "LIST-NUMBERED" COMMAND (N)
124: EDITOR "REPLACE" COMMAND (R)
125: EDITOR "SEARCH" COMMAND (S)
126: FORMS OPTION INSTALLED? (YES)
127: CHARACTER TO START FORMS VARIABLE FIELD ([)
128: CHARACTER TO END FORMS VARIABLE FIELD (])
129: "FORMS COMPLETE" COMMAND (FC)
130: "FORMS VARIABLE" COMMAND (FV)
131: "FORMS EXIT" COMMAND (FX)
132: FORMS MODE STRING SEARCH CHARACTER ([^Y])
133: FORMS MODE-UTILITY CHARACTER ([^L])
134: FORMS "LINE RE-ENTER" CHARACTER ([^Z])
135: FORMS MODE - FILL IN FROM DRIVE 1 ([^0])
136: FORMS MODE - FILL IN FROM DRIVE 2 ([^N])
137: FORMS "TAB" CHARACTER ([CR])
138: ANSWERBACK MESSAGE (**NONE**)
139: CHARACTER TO INITIATE ANSWERBACK MESSAGE ([^E])
140: USER COMMAND TABLE (**NONE**)
141: SELF-START ON POWER-UP OR RESTART? (NO)
142: SEND ANSWER BACK MESSAGE AFTER INITIAL CONNECTION? (NO)
143: INHIBIT AUTO LINE FEED TO MODEM PORT? (NO)
144: TERMINAL/MODEM BUFFER SIZES (00)
145: LOWER DSR DURING STANDBY? (NO)
146: USE EIA LINES TO CLOSE FILES? (NO)
147: SELF-START ON AUTO-ANSWER? (NO)
148: INHIBIT MONITOR MODE ON SEND? (NO)
ENABLE MONITOR MODE AT PRINTER PORT? (NO)
149: RAISE RTS AFTER RECEIVING EOT? (NO)
150: "FORMS COMPLETE" COMMAND (SAME AS #129) (FC)
151: "FORMS VARIABLE" COMMAND (SAME AS #130) (FV)
152: "FORMS EXIT" COMMAND (SAME AS #131) (FX)
153: AUTO LOAD FEATURE ENABLED? (NO)
154: DOES TERMINAL HAVE CURSOR CONTROL? (NO)
155: PREPRINT PAGE? (NO)
156: PREPRINT LINE? (NO)
157: SKIP INTERMEDIATE LINES? (NO)
158: "SKIPPED LINE" CHARACTER (-)
159: ENABLE REDISPLAY? (NO)
160: "GO TO TOP OF PAGE" CHARACTER #1 ([^A]) CHARACTER #2 ([^A])
161: "CLEAR AND RESTART PAGE" CHARACTER ([^L])
162: "BACKFIELD" CHARACTER #1 ([^B]) CHARACTER #2 ([^B])
163: "CLOSE FIELD" CHARACTER #1 ([CR]) CHARACTER #2 ([CR])
164: "TAB" CHARACTER #1 ([TAB]) "TAB" CHARACTER #2 ([TAB])
165: "AUTO TAB" CHARACTER ([^Z])
166: "ERROR OVER-RIDE" CHARACTER ([^K])
167: "CLOSE PAGE" CHARACTER ([^P])
168: "VERIFY PAGE" CHARACTER ([^V])
169: "VERIFY BYPASS" CHARACTER ([^Y])

170: "CLOSE FORM" CHARACTER (SAME AS #8) ([ETX])
171: FILL IN FROM DRIVE 1 CHARACTER (SAME AS #135) ([^O])
172: FILL IN FROM DRIVE 2 CHARACTER (SAME AS #136) ([^N])
173: CURSOR RIGHT CHARACTER ENTERED #1 ([^R]) CHARACTER ENTERED #2 ([^R])
174: CURSOR LEFT CHARACTER ENTERED (SAME AS #27) ([RUB])
175: CURSOR LEFT OUTPUT CHARACTER (\)
176: CURSOR RIGHT OUTPUT CHARACTER ( )
177: CURSOR UP OUTPUT CHARACTER ([^K])
178: CURSOR DOWN OUTPUT CHARACTER ([LF])
179: CARRIAGE RETURN OUTPUT CHARACTER ([CR])
180: CURSOR HOME OUTPUT CHARACTER ([^^])
181: CLEAR SCREEN OUTPUT CHARACTER ([^Z])
182: LITERAL FIELD FRAMING CHARACTER ([^W])
183: SECURITY FIELD FILL CHARACTER (*)
184: DECIMAL POINT CHARACTER (.)
185: PLUS SIGN CHARACTER (**NONE**)
186: MINUS SIGN CHARACTER (-)
187: FIELD MISMATCH ERROR CHARACTER (?)
188: NUMERIC ERROR CHARACTER (#)
189: EMPTY FIELD FILL CHARACTER ( )
190: OUTPUT FIXED LENGTH FIELDS? (NO)
191: OUTPUT WITH DELIMITERS? (YES)
192: MID-LINE OUTPUT DELIMITER ([CR])
193: END-OF-LINE OUTPUT DELIMITER ([CR])
194: SUBSTITUTION TABLE MINOR DELIMITER (,)
195: SUBSTITUTION TABLE AND ALLOWABLE ENTRY TABLE MAJOR DELIMITER (;)
196: END OF PAGE INDICATION OPTION (0, 1, 2, OR 3) (2)
197: VARIABLE FIELD INDICATOR CHARACTER #1 (<) CHARACTER #2 (>)
198: INHIBIT OUTPUT OF SKIPPED PAGES? (NO)
199: ***UNUSED***
200: ***UNUSED***
201: ***UNUSED***
202: ***UNUSED***
203: ***UNUSED***
204: ***UNUSED***
205: EXT. EDITOR "PROMPT" AND "RENAMED FILE" CHARACTER (;)
206: EXT. EDITOR CHARACTER STRING DELIMITER (/)
207: EXT. EDITOR TOP/BOTTOM MARGINS SEPARATOR CHARACTER (,)
208: EXT. EDITOR "PREPARE TO EDIT" COMMAND (ED)
209: EXT. EDITOR "APPEND" COMMAND (A)
210: EXT. EDITOR "DELETE" COMMAND (D)
211: EXT. EDITOR "INSERT" COMMAND (I)
212: EXT. EDITOR "LIST" COMMAND (L)
213: EXT. EDITOR "REPLACE" COMMAND (R)
214: EXT. EDITOR "SEARCH" COMMAND (S)
215: EXT. EDITOR "QUIT" COMMAND (Q)
216: EXT. EDITOR "NEW-FILE" COMMAND (N)
217: EXT. EDITOR "BEGIN" COMMAND (B)
218: EXT. EDITOR "OPEN" COMMAND (O)
219: EXT. EDITOR "TOP OF WINDOW" COMMAND (ALSO 1ST CHAR OF "TABS/MARGINS" COMMAND) (T)
220: EXT. EDITOR "MARGINS" COMMAND (ALSO 2ND CHAR OF "TABS/MARGINS" COMMAND) (M)
221: EXT. EDITOR "FORMAT" COMMAND (F)
222: EXT. EDITOR "BACK UP LINE" CHARACTER (ALSO CHARACTER TO ADVANCE THROUGH OPEN LINE) ([ESC])
223: EXT. EDITOR TAB CHARACTER ([TAB])
224: EXT. EDITOR REDISPLAY LINE CHARACTER ([^Z])
225: EXT. EDITOR TOTAL NUMBER OF LINES FOR PRINTED PAGE (66)
226: TOP/BOTTOM MARGINS:
(A) DISABLED
(B) ENABLED: ALL LF'S DELETED
(C) ENABLED: KEEP 1 LF AFTER CR
ENTER SELECTION: (B)

7. REVISION LEVELS AND COMPATIBILITY

7.01 Table H explains the revision level and compatability between revision levels of the Diagnostic diskette.

7.02 Table I explains the revision level enhancements of the Configuraton diskette.

7.03 Table J provides a list of revision levels for available Patch PROM kits along with a description of their major enhancements.

7.04 Table K lists the available option kits along with any system or operational requirements.

TABLE G
ERROR MESSAGES

NUMBER	MESSAGE	DESCRIPTION
1	NOT RDY	Indicates an attempt to access a drive when a diskette was either not inserted or improperly inserted; or an attempt to access drive 2 in a single drive system.
2	DISKETTE	Indicates the system was unable to locate the proper location on a diskette where a file is stored or will be stored. The probable cause of this error is a bad diskette.
3	BAD READ	Indicates a file or part of a file could not be read without CRC errors in twelve attempts to read the file.
4	PROTECT	Indicates an attempt to write on a protected diskette or cancel a protected file.
5	WRONG DSK	Indicates the diskette is not a User diskette or it is a bad User diskette.
6	PREP SYS	Indicates that the baud rate switch was not set to KYBD position when a baud rate command was input, or A form was not properly loaded by the operator prior to using Forms operations.
7	FULL DSK	Indicates the directory is full. Either a file must be canceled from the diskette before entering a new file or a new diskette must be used.
8	NO FIND	Indicates a requested file does not exist in the directory. Check to see that the file name and extension completely agree with the directory entry. or A search string was not found in the Forms or Extended Edit mode.
9	ILLEGAL	An illegal operation has been attempted. Examples: a) Editing (.ED) a binary file. b) When in the Forms mode, attempting to Enter a non-forms file. c) Requesting an Edit or Forms operation without the proper option installed. d) Don't Care or Reject character used in Alpha mode. e) An Enter Automatic command was issued without an Auto-Name (.LI command) loaded.

TABLE G (Cont)

NUMBER	MESSAGE	DESCRIPTION
		f) Attempting to rename a file to a name currently on diskette.
10	BAD SIZE	In Edit mode: An attempt to Save a file with no data. In Forms mode: The number of entries in the data file exceeds the number of variable fields in the form. The wrong form was probably loaded into the forms buffer, or The form is too big for the buffer.
11	USR TABL	Indicates the system detected an improper command from the User Command Table. The User Command Table must be corrected using the Configuration diskette.
12	MODEM	Indicates an improper condition has been detected at the modem interface. One of the following conditions exists: a) The Clear To Send signal was not asserted within 400 ms after the Request to Send signal was asserted, b) The Data Set Ready signal was not asserted when attempting to perform a Send, Send Directory, or Send Status command.
13	NO ROOM	Indicates a file being Edited or Saved from the work area is larger than the configured maximum file length, or An attempt was made to exceed the capacity of the work area with an Edit, Insert, Replace or Append command, or When merging a file in the Forms mode, the forms data field is too small for the forms data, or An attempt was made to Edit a file on a diskette which was not configured to have a work area, or A Search/Replace operation results in a line length exceeding the configured value.
14	OVERRUN	Input data in either the Enter or Receive mode has exceeded the input rate or file capacity of the system and data is lost, or The modem or terminal buffer has been filled beyond its configured capacity, or An illegal buffer configuration exists.

TABLE G (Cont)

NUMBER	MESSAGE	DESCRIPTION
0	SYSTEM	Indicates that the system had detected an equipment problem, or a diskette with a bad directory. If the error occurs when another diskette is used, the operator should note the conditions which created the error and contact maintenance personnel.
—	?	Indicates an improper command has been entered. Example: .CM was entered instead of .CN. or A variable length file command is entered for a fixed length file diskette.
BELL		A character was entered at the terminal and sent to the modem port when the Data Set Ready signal was not present. This error usually occurs when the operator forgets to enter a period to symbolize the start of a command. Note: The terminal bell signal is also used to indicate the completion of an Enter or Enter Automatic operation or to alert the operator that a line is to be continued on the next display line.
15		Reserved for future expansion.
-	SYS DSK	Indicates an attempt to write on a System diskette.

TABLE H

DIAGNOSTIC DISKETTE

Note: Both Revision A and Revision B of the Diagnostic diskette (1030A5191) are compatible on all Comm-Stor II units.

REVISION LEVEL	ENHANCEMENTS
A	Consists of nine tests that are executed via the modem baud rate switch.
B	Consists of the nine tests noted in Revision A, plus terminal assisted tests.

TABLE I

CONFIGURATION DISKETTE (1030A5186)

REVISION LEVEL	ENHANCEMENTS
A	Added the forms generator program for the extended forms option.
B	Improved interface to 43 Teleprinters, and enhanced memory restructure capability during the forms generation process.
C	Added parameters for the extended editor option (Parameters #205-226), and for enabling monitor mode at the printer port (Parameter #148); also added warning message to indicate when the end of the User Command Table has been reached.
D	Added error messages, remote configuration, non-destructive branching in the forms generator, "No Copy" diskette function and improved interface to DATASPEED equipment.

TABLE J

PATCH PROM ENHANCEMENTS

Note: All Patch PROMs on the ROM II board must be of the same revision level in order for the Comm-Stor II unit to operate properly.

REVISION	ENHANCEMENTS
AT.05*	- Improved interface to DATASPEED equipment - Non-destructive branching - Remote configuration
AT.04	- Enhanced self-starting system - Increased head load time to 50 msec. - Reset character will terminate current Extended Editor command and return the editor to the command prompt
AT.03	- Receiving characters in response to a Receive (.R) command will permit closing of the file with a Control C code from the terminal or by the EIA lines
AT.02	- Enhancements to data communication functions - Enhancements to file management - Enhancements to both the standard and extended forms options - Enhancements to the standard and extended editor options
AT.01	- New Parameter #148 - Inhibit Monitor mode on Send - New Parameter #149 - Raise RTS After Receiving EOT - Support selective page retrieval in the extended forms option - Support for the DATASPEED 40/1 terminal (Parameter #139) - Miscellaneous enhancements to data communications, extended forms option, extended editor option, and the User Command Table

*Revision D of the Configuration diskette (1030A5186) must accompany this Patch PROM kit in order for the Comm-Stor II unit to operate properly.

TABLE K

OPTION REQUIREMENTS

KIT #	OPTION	REQUIREMENTS
1	Printer Port	-Option Kit #1030A5012
2	Expanded RAM	-Option Kit #1030A5013
3	Printer Port/Expanded RAM	-Option Kit #1030A5014
4	Standard Forms	-Option Kit #1030A5114 -Parameter #21 should be configured N(NO)
5	Extended Forms	-Option Kit #1030A5198 -At least 4K of RAM -Revision B or higher of the Configuration diskette (1030A5186) -AT.02 or higher patch PROM set -Parameter #21 should be configured N(NO)
6	8A1/8B1 Protocol	-Option Kit #1009A0500 -Communications Ports board (1030A5162) -8K of dedicated RAM; 12K or 16K of RAM if the extended forms option is installed -Extended editor option is not compatible with this option -3740 format option is not compatible with this option
7	8A1/8B1 Protocol with ROM board	-Option Kit #1009A0518 -Communications Ports board (1030A5162) -8K of dedicated RAM; 12K or 16K of RAM if the extended forms option is installed -Extended editor option is not compatible with this option
8	4K Incremental RAM	-Option Kit #1009A0501 -Option Kit #1030A5013 or 1030A5014
9	4K Low Power Incremental RAM	-Option Kit #1009A05019 -Comm-Stor II/SMDR units only
10	Patch PROM Set	-Option Kit #1030A5206
11	Reserved	Reserved

TABLE K (Cont)

KIT #	OPTION	REQUIREMENTS
12	Extended Editor	-Option Kit #1009A0506 -AT.02 or higher patch PROM set -Revision C or higher of the Configuration diskette (1030A5186) -At least 4K of RAM -Revision B or higher User Practice diskette -Decreases the maximum size of the Extended User Command Table by 12 characters -Will not function with ESS/RCMOS, SCC, or 8A1/8B1 protocol -Units with only 4K of RAM should not be configured for more than 2K of terminal buffering
13	Arithmetic Operations	-Option Kit #1009A0523 -Revision C of the extended forms option installed
14	3740 Format	-Installed at time of manufacture -At least 4K of RAM -Will not function with 8A1/8B1 protocol -Parameter #144 must not be configured for buffering