

**LINE CONTROL UNIT (LCU)**  
**DESCRIPTION AND OPERATION**  
**"COMM-STOR\*" II COMMUNICATIONS STORAGE UNIT**

**1. GENERAL**

**1.01** This section provides the description and operation of the line control unit (LCU) of the COMM-STOR II communications storage unit manufactured by Sykes Datatronics, Incorporated. The model is an 8220AC dual-drive unit, hereafter referred to as the LCU.

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

**1.03** Information covering LCU description and operation is contained in the attached reprint

of Section SYKS 578-400-103 prepared by Sykes Datatronics, Incorporated.

**1.04** The LCU provides a dedicated message switching system using asynchronous or isochronous transmission on a private line or dial-up network of up to 50 remote message stations.

**1.05** The LCU consists of a microprocessor with two diskette drive units using flexible (floppy), single-sided, standard density, soft-sector diskettes, each able to store 256,000 characters. In a network, the LCU is connected to a console terminal, a network control station, and a number of remote message stations.

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**Comm-Stor II**  
**LINE CONTROL UNIT**  
**DESCRIPTION AND OPERATION**

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## 1. GENERAL

**1.01** This section discusses the description and operation of the Comm-Stor® II Line Control Unit (LCU), hereafter referred to as the LCU.

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

**1.03** The LCU provides a dedicated message switching system using asynchronous or optionally isochronous transmission on a dial-up or private line network of up to 50 message stations. Optionally, the LCU printer (external) port functions as an interface to an external network.

**1.04** The LCU consists of a microprocessor and two diskette drive units (Figure 1), each operating only with flexible (floppy), single sided, standard density, soft sector diskettes, each able to store 256,000 characters. In a network, the LCU is connected to a Console Terminal, a Network Control Station, a number of message stations, and the necessary modems and communications links.

## 2. DESCRIPTION

**2.01** The LCU is available in one model: Model 8220AC. There are no options.

**2.02** The Front Panel of the LCU (Figure 1) contains six Light Emitting Diodes (LEDs) which indicate various conditions. The READY and BUSY LEDs are duplicated for each drive unit. The function of each indicator (Figure 1) is as follows:

### FRONT PANEL INDICATORS

**RESTART:** A switch/indicator to show when the unit is turned on. It also recycles the system when necessary during operations.

**READY:** An indicator which signifies that a diskette has been properly inserted in the drive.

**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.*

**CARRIER:** An indicator which signifies that the LCU is connected to the network.

**STATUS:** An indicator which signifies that data is being transferred to or from any port.

## PERIPHERAL DEVICE CONNECTIONS

**2.03** Peripheral device connections are made from the LCU to the Console Terminal, the network, and external network, if the external port is activated. The connections are made to the EIA ports on the Back Panel (Figure 2) using RS-232C cables.

**2.04** The cable from the Console 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 external port option, the cable from the external network is connected to the port labeled PRINTER. This cable should have a male plug in accordance with industry standard procedures. If the PRINTER port is installed but the external network is not activated, the port can remain unterminated. The cable connected to the network through the modem is connected to the port labeled MODEM. This cable should have a female plug in accordance with industry standard procedures.

## INTERNAL HARDWARE

### Microprocessor

**2.05** The LCU (Figure 3) is designed around a microprocessor with all operating software contained in ROM (Read Only Memory). In addition to the ROM, four other subsystems are directly accessed by the microprocessor during normal operation: Random Access Memory, configuration memory, diskettes, and the communications interfaces.

**RAM (Random Access Memory)** — RAM provides temporary storage of data received through ports and has storage locations for information required internally by the microprocessor. The LCU contains 40K of RAM. The System diskette is used to assign RAM for buffering.

**Configuration Memory** — Configuration memory is a non-volatile type of RAM which stores user-defined equipment configuration. When the LCU is turned off, the contents of configuration memory are maintained by a 4.5v battery. The current requirement of this memory is so low that battery life is approximately equal to the normal shelf life of one year. All

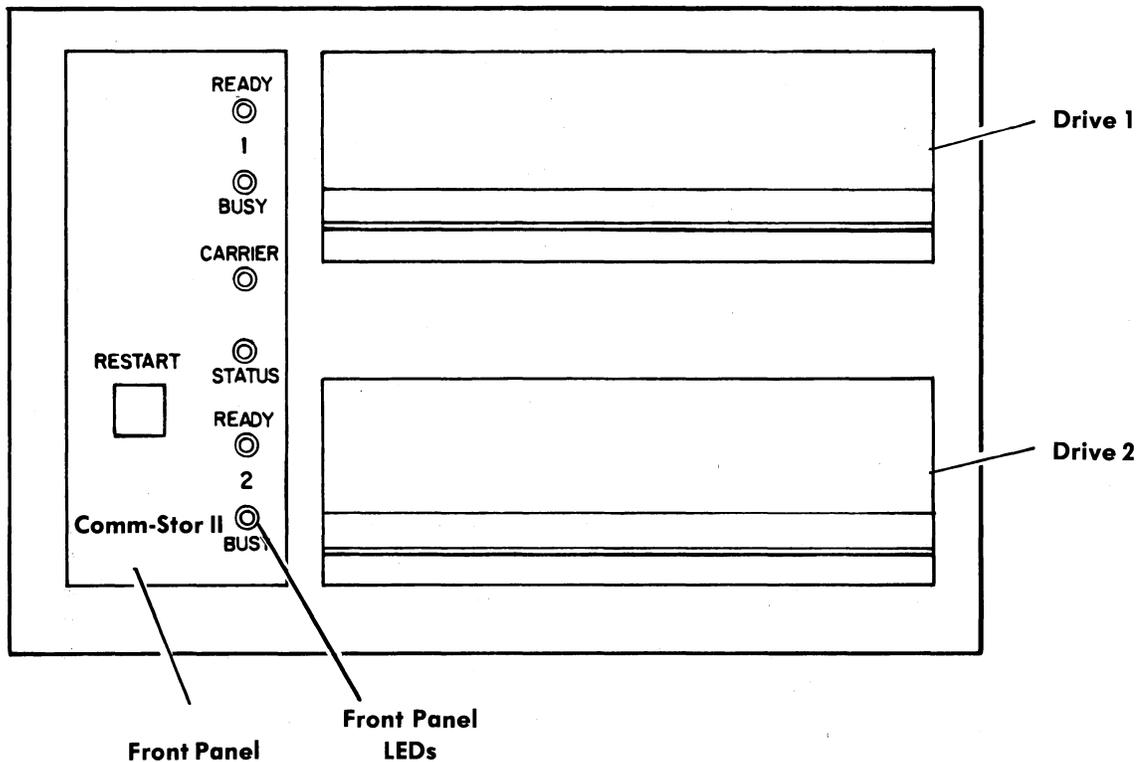


Fig. 1—Front View of the Comm-Stor II Line Control Unit

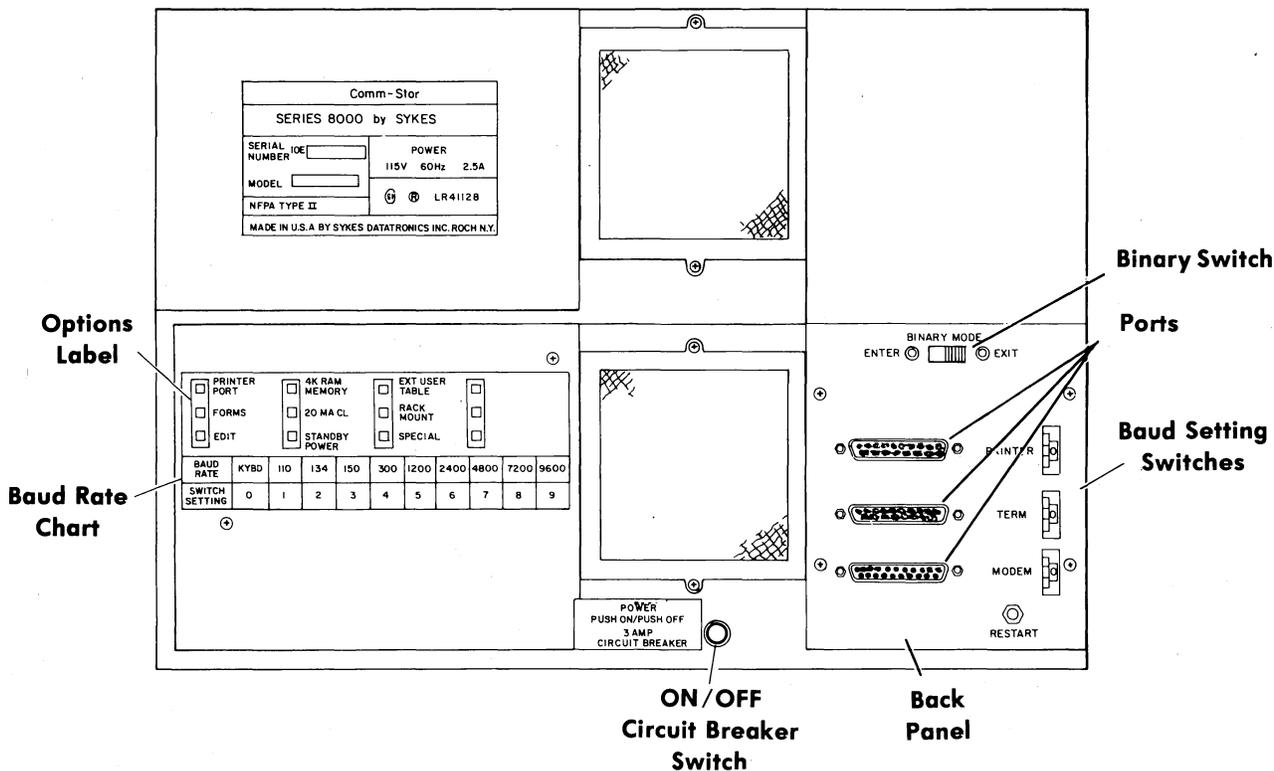
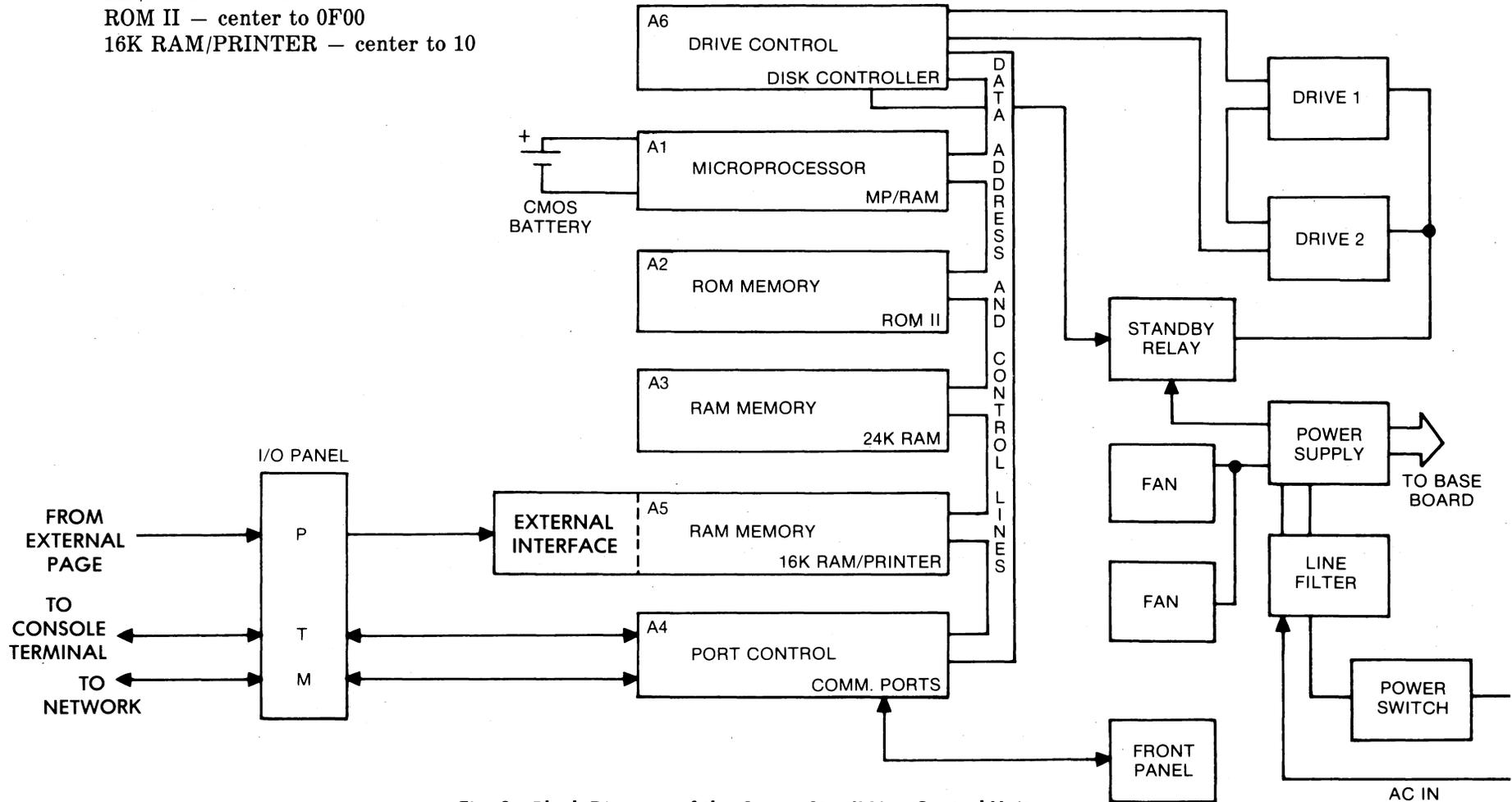


Fig. 2—Rear View of the Comm-Stor II Line Control Unit

**Notes:**

1. The baseboard connectors are numbered A1 through A6. The block diagram indicates in which connector slot the card should go.
2. LCU ADDRESS STRAPS — The following boards have memory address straps which must be set as indicated:

MP/RAM — center to 08  
 ROM II — center to 0F00  
 16K RAM/PRINTER — center to 10



**Fig. 3—Block Diagram of the Comm-Stor II Line Control Unit**

operating parameters such as commands, control codes, communications protocol, answerbacks, and operating modes are stored in configuration memory. The parameters remain in memory as long as the battery is not removed when the unit is turned off. The information stored in configuration memory may be altered by using the Console Terminal keyboard with a System diskette in the drive.

**Diskette Drives** — The microprocessor has direct control of the diskette drives. Data is read from or written to the diskettes as required by the user.

**Communications Interface** — All data transfers through the data communications interfaces occur

through the microprocessor. The microprocessor has the ability to control the outgoing EIA leads and senses the incoming activity and control line transitions at the three ports. The ports are separate from each other and are accessed by specific distinct commands. (Table A)

**2.06** The LCU consists of six printed circuit (PC) cards. These are inserted into a base card assembly and held in place by a wire-form card retainer. The PC cards are: the microprocessor card, communications ports card, ROM card, 24K RAM card, 16K RAM card, diskette interface card, and a card for optional features.

**TABLE A**  
**EIA RS-232C CONNECTIONS**

		TERMINAL PORT		MODEM PORT		PRINTER PORT	
PIN	DESCRIPTION	USED	DIRECTION	USED	DIRECTION	USED	DIRECTION
1	Chassis Ground	X	—	X	—	X	—
2	Transmitted Data	X	in	X	out		
3	Received Data	X	out	X	in	X	out
4	Request to Send	X	in	X	out		
5	Clear to Send	X	out	X	in		
6	Data Set Ready	X	out	X	in	X	out
7	Circuit Ground	X	—	X	—	X	—
8	Carrier Detect	X	out	X	in	X	out
11, 19	Secondary Request to Send	X	in	X	out	X	in
15	Modem Transmit Clock			X	in		
17	Modem Receive Clock			X	in		
12	Secondary Carrier Detect	X	out	X	in		
20	Data Terminal Ready	X	in	X	out	X	in
22	Ring Indicator	X	out	X	in	X	out

**Note:** Direction refers to signal direction with respect to the Comm-Stor II Line Control Unit at each port (e.g. transmitted data is out of the Comm-Stor II Line Control Unit on Pin 2 at the modem port).

### 3. OPERATIONAL FEATURES

#### TRANSMISSION MEDIA

**3.01** The LCU can operate with different types of communications links, data transmission and protocols. A standard network is linked with a multipoint private line. Optionally, the LCU can operate on a dial-up line. The standard transmission of data is an asynchronous character structure. Optionally, the LCU can communicate with a network of stations all using isochronous transmission. Lastly, the standard protocol is 8A1 protocol. Optionally, the LCU can use TTY (XON/XOFF) protocol if the external port is activated.

#### A. Communications Links

##### Private Line

**3.02** The standard data link for the LCU is a multipoint private line which remains intact without dial-up procedures. This interface takes place through the modem ports of the LCU and network stations. It is a four-wire, full duplex circuit that supplies full duplex service for LCU network instructions and half duplex service for station message traffic. The modem port can be connected to 108 and 202T type modems running asynchronously, or 201C, 208A, and 2048A type modems running isochronously.

##### Dial-Up

**3.03** Optionally, the data link for the LCU can be a dial-up connection made with the printer (external) port during external activity. The printer (external) port can be connected to 103- and 212A-type modems.

#### B. Data Transmission

##### Asynchronous

**3.04** The standard data transmission is an asynchronous character structure that consists of one start bit, seven information bits, one even parity bit, and one stop bit, totaling 10 bits. [Two stop bits are used for transmission speeds less than 300 bytes per second (bps).] Neither the bits nor the bytes (characters) are timed. The transmission speed can be 110 bps to 2400 bps.

##### Isochronous

**3.05** Optionally, data transmission can be an isochronous character structure the same as that used for asynchronous transmission: one start bit, seven information bits, one even parity bit, and one stop bit, totaling 10 bits. In isochronous operation, the data being sent into the modem port is clocked using the Serial Clock Transmit (SCT) pin of the modem port and data being received is clocked using the Serial Clock Receive (SCR) pin of the mode. Bits are synchronized to allow increased transmission speed while error checking is maintained. Transmission speed can be 110 bps to 4800 bps.

#### C. Protocol

##### 8A1

**3.06** The 8A1 protocol operates on a private line or a dial-up connection, providing alternate send-receive message transmission along with simultaneous LCU instructions. This protocol can only function with asynchronous data transmission, and at a maximum of 1200 bps.

##### TTY (XON/XOFF)

**3.07** The TTY (XON/XOFF) protocol operates only in an external network, enabling the controller to interface with a higher order controller. Optionally, the user can select line-by-line prompting to provide for improved error checking and the retransmission of messages with too many errors.

#### MESSAGE SWITCHING

**3.08** Message switching is used to transmit contending message traffic throughout the network. Messages are transmitted according to station addresses. This store-and-forward system consists of:

- Station Identification
- Polling, Addressing, and Roll Calling
- Message Storage
- Message Maintenance
- Message Acknowledgment
- Message Delivery Verification

### A. Station Identification

**3.09** Stations have unique station identity codes, polling codes, addressing codes, and answer-back codes. These codes are assigned during network planning and are entered into a Polling Table, which the LCU uses as a guide for the polling, addressing, and roll call cycles. Specially dedicated stations have reserved station identity codes, such as NCS for the Network Control Station.

### B. Polling, Addressing, and Roll Calling

**3.10** Polling and addressing are methods the LCU uses during alternate cycles to transmit messages throughout the network. They are based on the Polling Table. Answerbacks determine which stations are ready to send or receive messages. Polling checks stations for messages to send; addressing checks stations for their ability to receive other messages. When individual stations do not respond correctly to polling, they are polled less frequently until correct responses are received by the LCU. Roll calling is used to verify correct message transmission after a station received a message.

### C. Message Storage

**3.11** During network activity, messages that are picked up by the LCU are stored temporarily on diskette before being sent to destination stations. Messages are put in a queue to await transmission according to a first-in/first-out order. Priority messages are, however, placed at the top of the message queue.

### D. Message Maintenance

**3.12** Messages stored on diskette are accessed by use of Message Diskette Maintenance procedures. The LCU is commanded at the Console Terminal to perform editing procedures on the Message diskette.

### E. Message Acknowledgment

**3.13** When a message is picked up by the LCU, an acknowledgment is returned to the originating station to notify it when the message was accepted and what the LCU-assigned network tracking number is.

### F. Message Delivery Verification

**3.14** The LCU can be configured to inform the originating station when a message has been successfully delivered to the destination station. A Delivery Verification identifies the message, the destination station, and the time and date when the message was DELAYED, INTERCEPTED, or DELIVERED. A message can be delayed in traffic, then delivered. It can also be intercepted by a designated Intercept Station, if the destination station is unable to accept the message; or the Network Control Station, if the Intercept Station cannot receive traffic.

### EXTERNAL PORT

**3.15** The external port provides a link between the LCU network and other computers or intelligent devices. The LCU utilizes the printer (external) port as the external interface in this environment.

**3.16** When activated, the external port functions as a station to the LCU. It is represented in the Polling Table by the Reserved Station Identity Code EXT. To stations external to the LCU network, however, the external port functions as a Line Control Unit. These two networks linked by the LCU external port can be described as master and slave networks.

**3.17** The external port can be accessed in a private line or in a dial-up environment. This optionally provides the LCU with the capability to transfer messages to and from its network to another network.

### CONSOLE TERMINAL

**3.18** Through the use of Console Menu Operations, the Console Terminal must be used to activate the network and can be used during network operations for the logging and maintenance of network activities. It is not a message station.

### A. Console Menu Operations

**3.19** A menu of eleven Console Menu Operations is provided at the Console Terminal. The LCU interrupts network activities when any of the Con-

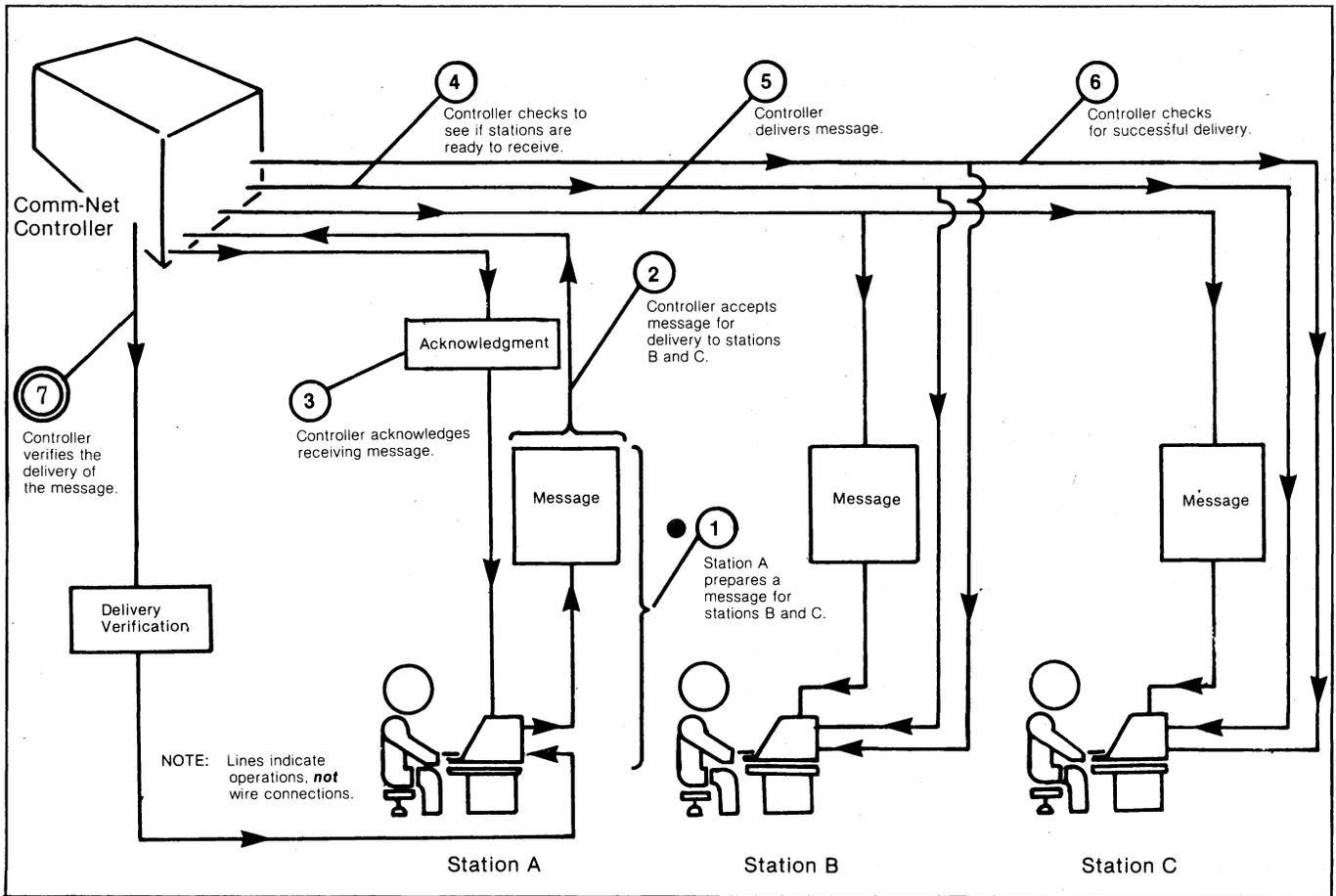


Fig. 4—Typical Message Path

sole Menu Operations are performed. The operations are as follows:

FINISH:

Enter the finish mode to clear the LCU Message diskette.

POLL:

Begin or resume polling and addressing stations.

CHANGE DSK:

Replace the System and/or Message diskettes.

DATE/TIME:

Change the values of the network calendar and/or clock.

EDIT POLLING TABLE:

Call up an editor to list the current Polling Table for further building by use of editing commands.

CONFIGURATION:

Change the values of the configuration parameters and optionally create a Refresh diskette to store all of the values.

SET MODEM BAUD:

Specify isochronous operation or designate a non-standard transmission rate.

NETWORK RECAP:	Display the report which summarizes network operations.
STATION STATUS:	Display the report which lists each station and its status in response to polling, addressing, and roll calling by the LCU.
TEST MESSAGE:	Send a diagnostic message to one, some, or all stations and generate a report of responses.
MESSAGE DISKETTE MAINTENANCE:	Select from five commands to maintain data stored on the LCU Message diskette.

### B. Network Activation

**3.20** The Console Terminal must be connected to the LCU for network installation, described in Section 578-400-203, *Installation Procedures*. It is used during network installation to: set the transmission rate for isochronous operation, configure parameters, create a Refresh diskette, change the Message and System diskettes, test station operations, and build and edit the Polling Table.

### C. Network Logging

**3.21** During network operations, the Console Terminal can display messages that enable the user to monitor and log activities. Service messages which report activities are sent automatically to the Console Terminal. In addition, the Console Terminal, as a hardcopy device, can be used to log message traffic.

### D. Network Maintenance

**3.22** The LCU can be commanded through the Console Terminal to perform network maintenance during network operations. Network maintenance is based on information gained from the logging of network activities.

### LCU DISKETTES

**3.23** The floppy diskette is an important part of the LCU's store-and-forward operations, configuration, and diagnostic testing. Each diskette is composed of 77 tracks. Each track contains 26 sectors.

### A. System Diskette

**3.24** The System diskette contains the system information used to run the LCU. It is placed in drive 1 (top) unless the Refresh or Diagnostic diskettes are used.

### B. Diskette

**3.25** The Message diskette contains messages awaiting delivery by the LCU. It is placed in drive 2 (bottom).

### C. Refresh Diskette

**3.26** The Refresh diskette contains configuration parameter values once it has been made from a blank diskette. This diskette is made to ensure storage of values that can be lost from configuration memory during loss of power. The LCU can be re-configured by inserting the Refresh diskette and depressing the Restart button.

### D. Diagnostic Diskette

**3.27** The Diagnostic diskette contains information used to run the LCU User Diagnostic tests described in Section 578-400-503, *Test and Troubleshooting*. It is placed in drives 1 and 2.

## 4. TECHNICAL DATA

### POWER REQUIREMENTS

**4.01** The standard operating requirements of the LCU are 115v, 60 Hz at 2.5 amps.

### ENVIRONMENTAL REQUIREMENTS

**4.02** The allowable ambient temperature is 40°-95°F, 4°-35°C.

**4.03** The allowable ambient humidity is 20%-80% (non-condensing).

### WEIGHT AND DIMENSIONS

**4.04** Weight and dimensions of the LCU are as follows:

Weight	— 55 lbs., 25 kg.
Height	— 5.25 in., 13.34 cm.
Width	— 13.75 in., 34.93 cm.
Depth	— 20.00 in., 50.80 cm.

**PLACEMENT**

**4.05** The LCU can be positioned at almost any angle and still function satisfactorily. However, the ideal position is right side up on a hard, flat surface.

**4.06** At least four inches of clearance must be allowed behind the unit to allow proper air intake by the cooling fan. The LCU must be clear of any magnetic fields because of the media.

**5. CONFIGURATION PARAMETERS**

**5.01** The following configuration parameters are used for network and external port operation. The default values are included within the slashes.

**5.02** Standard network parameters are used for operation and protocol. Optional external port parameters are used for external port protocol.

**5.03** The parameter values are changed through a Console Menu Operation at the Console Terminal.

**OPERATIONAL CONFIGURATION PARAMETER LISTING**

- 1: RETURN ACKNOWLEDGMENT TO ORIGINATING STATION? /Y/
- 2: APPEND TRAILER TO MESSAGE AT RECEIVED STATION? /Y/
- 3: DELIVERY VERIFICATION OPTION /B/
- 4: DELIMITER TO INDICATE START OF STATION IDENTITY CODES IN HEADER /:/
- 5: DELIMITER TO SEPARATE STATION IDENTITY CODES IN HEADER / /
- 6: DELIMITER TO INDICATE END OF HEADER /\*NONE\*/
- 7: DELIMITER TO INCLUDE HANDLING INFORMATION IN HEADER ///
- 8: SEND SERVICE MESSAGES TO (A) NCS, (B) CONSOLE, OR (C) BOTH /C/
- 9: CONTROLLER TO SEND RECAP TO NCS AT MIDNIGHT? /Y/
- 10: NUMBER OF DELIVERY ATTEMPTS BEFORE MESSAGE IS INTERCEPTED / 3/
- 11: NUMBER OF MINUTES HELD BEFORE MESSAGE IS INTERCEPTED / 10/
- 12: ALLOWABLE NUMBER OF PARITY ERRORS BEFORE REJECTION / 3/

- 13: PASSWORD TO ACCESS CONTROLLER FROM A STATION /PASSWORD/
- 14: CHARACTER TO INDICATE PARITY ERROR FROM STATION TO CONTROLLER /^/
- 15: RETURN TEXT OF UNACCEPTED MESSAGES TO ORIGINATING STATION? /Y/
- 16: CONTROLLER IDENTIFICATION TO BE APPENDED TO TRACKING NUMBER /AA/
- 17: SEND REMOTE MESSAGE NAME? /Y/
- 18: EXTERNAL PORT PROTOCOL / 0/
- 19: STATION TO RECEIVE COPIES OF ALL STATION MESSAGES /\*NONE\*/
- 20: INITIAL CONTROLLER MESSAGE TRACKING NUMBER /00000/

**PROTOCOL CONFIGURATION PARAMETER LISTING**

- 1: SENDER/RECEIVER DESELECT /^D/
- 2: RESTART /^B/
- 3: ALTERNATE RESTART /^A/
- 4: INTERRUPT CODE RECEIVED /^C/
- 5: INTERRUPT CODE SENT /^C/
- 6: SENDER DESELECT, ABORT CHARACTER /^S/
- 7: MESSAGE SEPARATOR FOR BULK TRANSMISSION /^W/
- 8: READY ANSWERBACK / \^F/
- 9: READY ANSWERBACK TYPE /A/
- 10: NOT READY #1 / \ \ /
- 11: NOT READY #1 TYPE /A/
- 12: NOT READY #2 /^X^F/
- 13: NOT READY #2 TYPE /A/
- 14: NOT READY #3 /^X^U/
- 15: NOT READY #3 TYPE /A/
- 16: NOT READY #4 /^U^D/
- 17: NOT READY #4 TYPE /A/
- 18: CHARACTER SEQUENCE PRECEDING MESSAGE RECEPTION /^B^B/
- 19: OPTIONAL CHARACTER TO FOLLOW ADDRESS SEQUENCE /RUB/
- 20: OPTIONAL CHARACTERS TO FOLLOW POLLING SEQUENCE /^B/
- 21: TIME OUT DURING RECEIPT OF ANSWERBACK / 3/
- 22: TIME OUT DURING RECEIPT OF MESSAGE / 10/
- 23: ABORT RECEIVE ON 256 DUPLICATE CHARACTERS /Y/
- 24: CONTINUOUS INCOMING CARRIER /N/
- 25: DELAY CHARACTER #1 /^J/

- 26: DELAY CHARACTER #1 PORT /M/
- 27: DELAY CHARACTER #1 FACTOR / 1/
- 28: DELAY CHARACTER #2 /^M/
- 29: DELAY CHARACTER #2 PORT /\*NONE\*/
- 30: DELAY CHARACTER #2 FACTOR / 1/
- 31: DELAY CHARACTER #3 /^M/
- 32: DELAY CHARACTER #3 PORT /\*NONE\*/
- 33: DELAY CHARACTER #3 FACTOR / 1/
- 34: DELAY CHARACTER #4 /^M/
- 35: DELAY CHARACTER #4 PORT /\*NONE\*/
- 36: DELAY CHARACTER #4 FACTOR / 1/

**8A1 EXTERNAL PORT PROTOCOL PARAMETERS**

- 1: SENDER/RECEIVER DESELECT /^D/
- 2: RESTART /^B/
- 3: ALTERNATE RESTART /^A/
- 4: SENDER DESELECT, X-OFF /^S/
- 5: ALTERNATE SENDER DESELECT /\*NONE\*/
- 6: SENT INTERRUPT /^C/
- 7: ALTERNATE SENT INTERRUPT /^J/
- 8: RECEIVED INTERRUPT /^C/
- 9: POLLING SEQUENCE /\*NONE\*/
- 10: READY ANSWERBACK / \^F/
- 11: NOT READY #1 / \ \ \ /
- 12: NOT READY #2 /^X^F/
- 13: NOT READY #3 /^X^U/
- 14: NOT READY #4 /^U^D/
- 15: ALTERNATE NOT READY #4 /^U^D/
- 16: ADDRESS #1 /\*NONE\*/
- 17: ADDRESS #2 /\*NONE\*/
- 18: ADDRESS #3 /\*NONE\*/
- 19: ADDRESS #4 /\*NONE\*/
- 20: ADDRESS AND POLL OPTIONAL CHARACTER /RUB/
- 21: (A) 2 POLL CHARS (B) 2 POLL CHARS & OPTIONAL CHAR? /A/
- 22: STOP ON; (A) SENT/RCV INTERRUPT (B) RCV INTERRUPT ONLY? /B/
- 23: RTS OFF N CHAR INTERVALS AFTER LAST CHAR (N = 0 - 7) / 0/
- 24: ADDRESS #1; (A) 2 CHARS & OPTIONAL CHAR? /A/
- 25: ANSWERBACK TO ADDRESS #1? /Y/
- 26: ADDRESS #2; (A) 2 CHARS & OPTIONAL CHAR? /A/
- 27: ANSWERBACK TO ADDRESS #2? /Y/
- 28: ADDRESS #3; (A) 2 CHARS & OPTIONAL CHAR? /A/
- 29: ANSWERBACK TO ADDRESS #3? /Y/
- 30: ADDRESS #4; (A) 2 CHARS & OPTIONAL CHAR? /A/
- 31: ANSWERBACK TO ADDRESS #4? /Y/
- 32: ALWAYS ANSWER READY ANSWERBACK? /N/
- 33: BREAK; (A) CONTINUOUS (B) TIMED/NO DESELECT (C) TIMED/DESELECT (D) NONE /D/
- 34: ROLLCALL-ANSWERBACK; (A) NONE (B) -RCV-STATUS (C) -RCV & ERROR-STATUS /C/
- 35: ADDRESS #4: IMMEDIATE RECEIPT OF TRAFFIC-AFTER-READY RESPONSE? /N/
- 36: ALTERNATE END-OF-TEXT CHARACTER /^J/
- 37: SEND BULK TRANSMISSION? /N/
- 38: MESSAGE SEPARATOR FOR BULK TRANSMISSIONS /^W/
- 39: ENABLE REMOTE NAMING OF RECEIVED MESSAGES? /N/
- 40: RETRANSMIT SEQUENCE /^U/
- 41: CHARACTER SEQUENCE SENT BEFORE MESSAGE TRANSMISSION /\*NONE\*/
- 42: STORE ACKNOWLEDGMENT TO SENT MESSAGES? /N/
- 43: UNPOLLED ALARM INTERNAL / 0/
- 44: NUMBER OF HOURS MESSAGES HELD FOR EXTERNAL PORT / 24/
- 45: EXTERNAL PORT DELIVERY ATTEMPTS BEFORE MESSAGE INTERCEPTED / 3/
- 46: SUBSTITUTE CHARACTER FOR PARITY ERRORS /?/
- 47: APPEND TRAILER TO EXTERNAL PORT MESSAGES? /Y/
- 48: EXT PORT PARITY /C/
- 49: CONTROLLER TO LOCALLY DELIVER CROSS-NETWORK MESSAGES? /N/
- 50: UNRECOGNIZED ADDRESSES SENT OUT EXTERNAL PORT? /N/

**TTY (XON/XOFF) EXTERNAL PORT PROTOCOL PARAMETERS**

- 1: CHAR RCV'ED TO START/RESUME SEND /^Q/
- 2: ALT CHAR RCV'ED TO START/RESUME SEND /\*NONE\*/
- 3: NO-TRAFFIC ANSWERBACK WHEN SELECTED-TO-SEND /^D/
- 4: CHAR RCV'ED TO SUSPEND SEND /^S/
- 5: CHAR SENT TO SUSPEND SEND /\*NONE\*/

- 6: CHAR SENT TO EXIT SEND /\*NONE\*/  
7: CHAR SEQ SENT TO PRECEDE TRANSMISSION /\*NONE\*/  
8: CHAR SEQ SENT TO PRECEDE EACH MSG SENT /\*NONE\*/  
9: CHAR SEQ SENT TO FOLLOW EACH MSG SENT /\*NONE\*/  
10: CHAR SEQ SENT TO FOLLOW EACH MSG SENT EXCEPT LAST /\*NONE\*/  
11: CHAR SEQ SENT TO FOLLOW TRANSMISSION /\*NONE\*/  
12: PAUSE AFTER SENDING END-OF-LINE SEQUENCE? /N/  
13: LINE-BREAK WILL (A) ABORT (B) SUSPEND SEND /A/  
14: DELETE CHARACTER /RUB/  
15: RETRANSMIT SEQUENCE /^U/  
16: STORE ACKNOWLEDGMENT TO SENT MESSAGES? /N/  
17: EXTERNAL PORT DELIVERY ATTEMPTS BEFORE MESSAGE INTERCEPTED / 3/  
18: CHAR RCV'ED TO START RCV /^R/  
19: CHAR RCV'ED AT END-OF-MSG BUT NOT END-OF-TRANSMISSION /^S/  
20: CHAR RCV'ED AT END-OF-MSG AND END-OF-TRANSMISSION /^T/  
21: SUBSTITUTE CHARACTER FOR PARITY ERRORS /?/  
22: CHAR SEQ SENT/RCV'ED TO ABORT SEND OR RCV & DISCONNECT /^P^D/  
23: INITIAL CONNECTION: ENTER (A) IDLE (B) SEND (C) RCV (D) SEND/RCV /A/  
24: INITIAL CONNECTION: SEND ANSWERBACK? /N/  
25: DISCONNECT WHILE RCV: (A) KEEP MSG (B) IGNORE MSG /B/  
26: AUTO-QUEUE STATION I.D. /\*NONE\*/  
27: STRIP THE MSG HEADER WHEN SENDING THE MSG? /N/  
28: CHAR RCV'ED TO INITIATE ANSWERBACK /^E/  
29: ANSWERBACK MESSAGE /\*NONE\*/  
30: RTS OFF N CHAR INTERVALS AFTER LAST CHAR (N = 0 - 7) / 0/  
31: UNPOLLED ALARM INTERVAL / 0/  
32: 1ST-CHAR SENT FOLLOWED BY DELETE-CHAR (CONFIGURE NEXT ALSO) /\*NONE\*/  
33: # DELETE-CHARS TO FOLLOW 1ST CHAR / 0/  
34: 2ND-CHAR SENT FOLLOWED BY DELETE-CHAR (CONFIGURE NEXT ALSO) /\*NONE\*/  
35: # DELETE-CHARS TO FOLLOW 2ND CHAR / 0/  
36: 3RD-CHAR SENT FOLLOWED BY DELETE-CHAR (CONFIGURE NEXT ALSO) /\*NONE\*/  
37: # DELETE-CHARS TO FOLLOW 3RD CHAR / 0/  
38: 4TH-CHAR SENT FOLLOWED BY DELETE-CHAR (CONFIGURE NEXT ALSO) /\*NONE\*/  
39: # DELETE-CHARS TO FOLLOW 4TH CHAR / 0/  
40: 5TH-CHAR SENT FOLLOWED BY DELETE-CHAR (CONFIGURE NEXT ALSO) /\*NONE\*/  
41: # DELETE-CHARS TO FOLLOW 5TH CHAR / 0/  
42: 6TH-CHAR SENT FOLLOWED BY DELETE-CHAR (CONFIGURE NEXT ALSO) /\*NONE\*/  
43: # DELETE-CHARS TO FOLLOW 6TH CHAR / 0/  
44: NUMBER OF HOURS MESSAGES HELD FOR EXTERNAL PORT / 24/  
45: CONTROLLER TO LOCALLY DELIVER CROSS-NETWORK MESSAGES? /Y/  
46: UNRECOGNIZED ADDRESSES SENT OUT EXTERNAL PORT? /N/  
47: EXT PORT PARITY /C/  
48: APPEND TRAILER TO EXTERNAL PORT MESSAGES? /N/  
49: RCV-ERR: (A) NO ACTION (B) DISCONNECT (C) TIMED BREAK /C/