43 TELEPRINTER 8-LEVEL BUFFERED SELECTIVE CALLING (BSC) STATION

INSTALLATION AND REMOVAL

CONTENTS PAGE

1. GENERAL

1.01 This section provides installation and removal information for fully assembled, friction feed or tractor feed, 43 Teleprinter 8-Level Buffered Selective Calling (BSC) Station. The feature group and keytop kit, which determines the operating characteristics of the teleprinter, may be furnished separately for terminals without a feature group. Specification 51055S is furnished with these partially assembled terminals to provide instructions necessary to configure and assemble the teleprinter in accordance with USOC arrangements.

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

1.03 Installation should be performed under the direction of a service order indicating USOC codes, options, date, materials required and location.

1.04 For additional information, refer to Section 574-500-503, 43 8-Level BSC Teleprinter, Testing and Section 574-500-210, engineering options.

1.05 Before starting the installation procedure, verify that paper, all cables, data set and auxiliary printer, if required, in addition to the 43 8-Level BSC are present at the installation location.

1.06 Some or all station removal and installation procedures may be used for local station relocation.

Prepared for American Telephone and Telegraph Company by Teletype Corporation

1.07 Reference in the procedures to left or right, up or down, and top or bottom, etc, refer to the teleprinter in its normal operating position as viewed by the operator.

1.08 When ordering replaceable components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP430202).

2. TOOLS REQUIRED

2.01 A 100982 screwdriver, 1/4-inch, 6-inch blade, is required to secure the data set cable to the data set and, if present, connect the EIA cable to the auxiliary printer.

3. INSTALLATION PROCEDURE

A. Unpacking (unless already done as part of pre-installation assembly at the installation site).

3.01 Select an area to unpack the carton so that damage to the terminal will not occur.

3.02 When unpacking, be sure to wear approved safety glasses.

Caution: To avoid condensation on the electrical components, the terminal should be allowed to assume room temperature before unpacking, for example, when brought into a warm humid room from outside subzero temperatures.

3.03 The 43 BSC Teleprinter, tractor or friction, is furnished in a single carton.

3.04 Unpack the carton referring to instructions on the container. Remove tape securing the cover and paper separator to the housing (Fig.1). If tractor feed, remove tape from tractor mechanism and roller bail.

Note: Observe all "Caution" notes printed on the carton.

3.05 Depress the cover locking tabs on the lower front of the cabinet and lift the cover. Remove the packing detail securing the print head and the ribbon in place (Fig. 1).

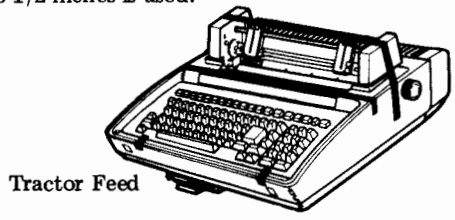
3.06 The containers and other packing details should be retained and reused by field locations to facilitate movement of stations.

3.07 Verify that the following items are included in the box:

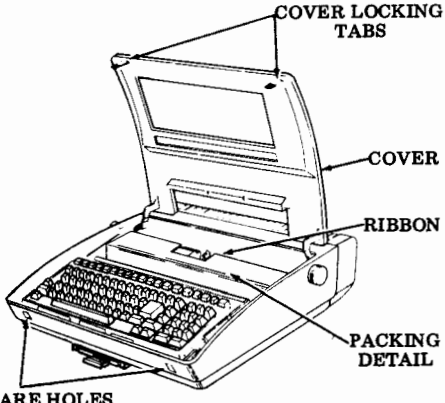
1—Teleprinter Set, 8-Level BSC
1—Ribbon
1—Practice, Installation and Removal (Section 574-500-202)
1—Manual, How To Operate 999-300-137
1—Manual, Optioning, 999-302-137
1—Paper Supply Assembly (Friction Feed) or Paper Holder (Tractor Feed)

B. Assembly

3.08 Position the terminal on a table, suitable stand or pedestal, in the location specified by the customer. A minimum of 6 inches of space behind the terminal is required when the paper holder (tractor or friction) is used to feed the paper and 9 inches of space is required when sprocket feed paper is fed from a box behind the terminal on the floor. Additional space is required if paper with folded form lengths greater than 8-1/2 inches is used.



Tractor Feed



Friction Feed

Fig. 1—Packing Detail

3.09 Assemble the paper holder or paper supply assembly as shown in Fig. 2.

(a) Tractor Feed: Attach the paper holder to the bustle cover by sliding down over the bushings.

(b) Friction Feed: Pull the latches straight up and slide the paper supply assembly fully onto the mounting posts located at the rear of the bustle cover. Push down on the latches until they are secured over the mounting posts.

3.10 With ac power to the data set turned off, connect the EIA data set cable to the terminal as shown in Fig. 3.

Secure by using two captive screws on plug. To accomodate distances up to 50 feet, the following shielded EIA cables are available from Teletype Corporation:

3 Ft. Length — 430569 (Not used with isochronous data sets.)
7 Ft. Length — 408065
12 Ft. Length — 408066
25 Ft. Length — 408067
50 Ft. Length — 408068

Note: Data set must be located within 50 cable feet from the terminal.

See Page 4 for EIA Interface Leads and the Descriptions for the line port.

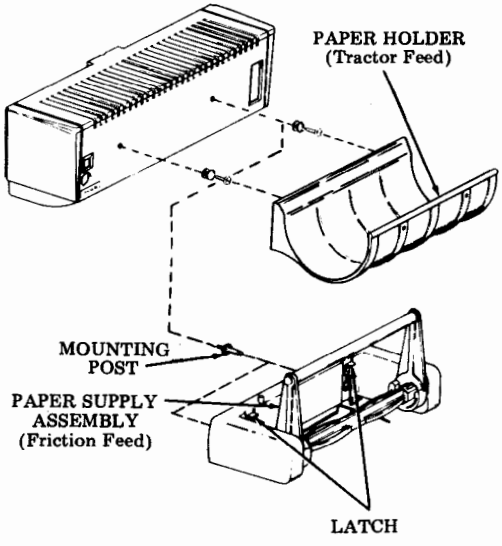
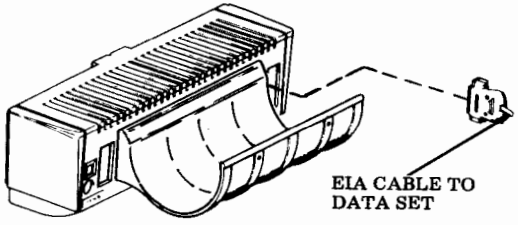
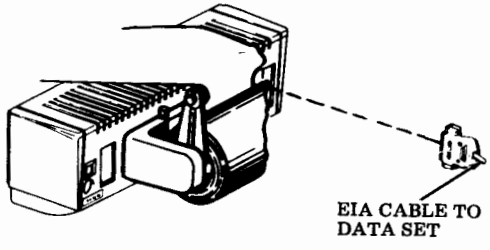


Fig. 2



Tractor Feed (Rear View)

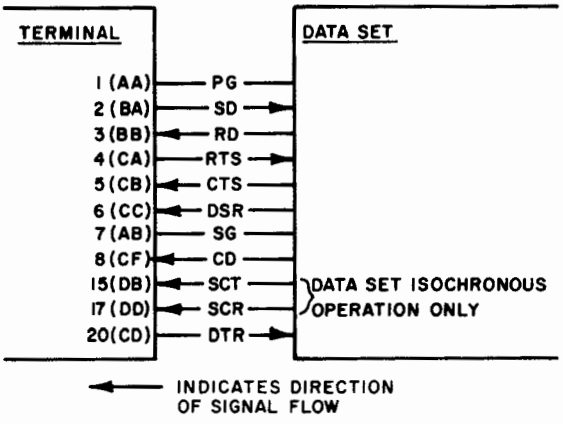


Friction Feed (Rear View)

Fig. 3

1. Line Port

EIA INTERFACE SIGNALS



Electrical Characteristics

EIA (RS232) Interface	Electrical Characteristics	
	From 43	To 43
ON (Space)	+3 to +25 Vdc	+3 to +25 Vdc
OFF (Mark)	-3 to -25 Vdc	-3 to -25 Vdc

Note: A lead not connected appears as an OFF or Mark to the 43 BSC Teleprinter.

PG — Protective Ground.

SD — Send Data. Mark in all modes varies when on-line and sending data.

RD — Receive Data. In state supplied by Data Set.

RTS — Request to Send — On when terminal is sending response or messages.

CTS — Clear to Send — On allows teleprinter to send and receive, off allows teleprinter to receive but not send.

DSR — Data Set Ready — On puts terminal in on-line mode. Off causes TERM ON LINE lamp to flash (unless in term local mode) and terminal cannot send or receive.

SG — Signal ground.

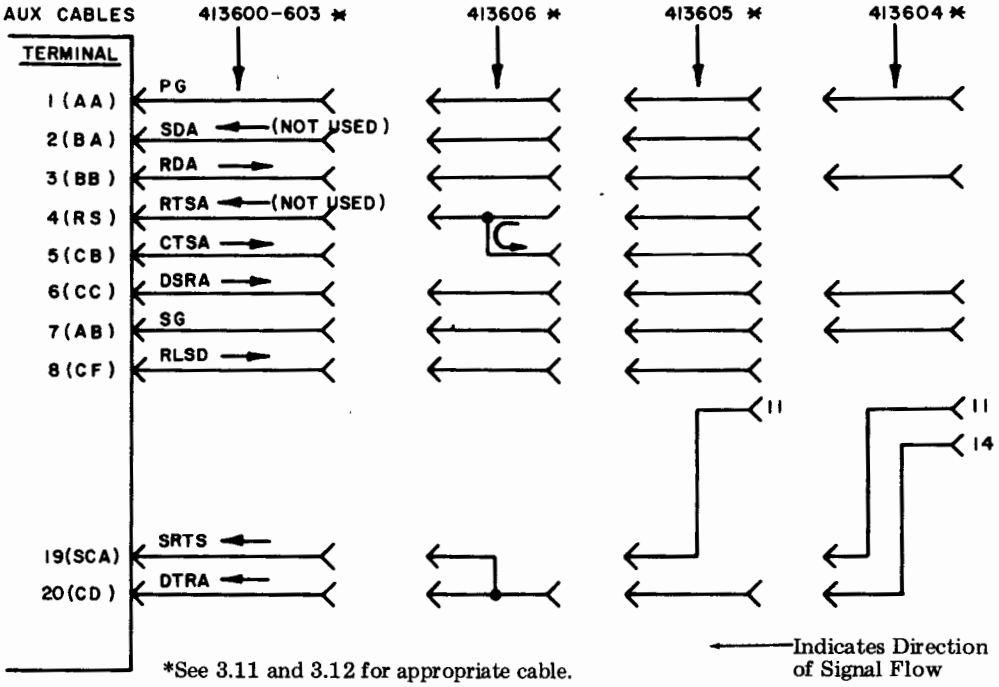
CD — Carrier Detect — On allows teleprinter to send or receive if DSR and CTS are on. If off while sending, data continues to be sent.

SCT — Serial Clock Transmitter — Clock signal used for send data synchronization.

SCR — Serial Clock Receiver — Clock signal used for receive data synchronization.

DTR — Data Terminal Ready — On whenever power to the terminal is on and not in TERM LOCAL.

2. Auxiliary Port



Electrical Characteristics

EIA (RS232) Interface	Electrical Characteristics	
	From 43	To 43
ON (Space)	+3 to +25 Vdc	+3 to +25 Vdc
OFF (Mark)	-3 to -25 Vdc	-3 to -25 Vdc

Note: A lead not connected appears as an OFF to the 43 BSC Teleprinter.

PG — Protective Ground.
SDA — Send Data Aux — Not used.
RDA — Receive Data Aux — Sends data to auxiliary printer. Mark hold until varied when sending.
RTSA — Request To Send Aux — Not used.
CTSA — Clear To Send Aux — Always off.
DSRA — Data Set Ready Aux — Off after power on reset. Turns on just prior to sending first character out on pin 3. Turns off after message ending character for 250 milliseconds. If SRTS and DTR on, it turns back on, otherwise pulses on and off every 250 milliseconds.
SG — Signal ground.
RLSD — Receive Line Signal Detector — Turns on just prior to sending first character out on pin 3. Turns off after message ending character.
SRTS — Secondary Request To Send — If off, will not send data on pin 3 to auxiliary printer. If on and DTR on data can be sent to auxiliary printer on pin 3.
DTRA — Data Terminal Ready Aux — If off, will not send data on pin 3 to auxiliary printer. If on and SRTS on, data can be sent to auxiliary printer on pin 3.

3.11 If an optional auxiliary printer is to be installed, turn off power to the auxiliary printer. See below for recommeded printers and interface cables available from Teletype Corporation. Other printers may operate properly as an auxiliary printer, however, it may be necessary to locally provide an interface cable. Connect the recommended cable to the auxiliary port of the 43 BSC and the EIA port of the auxiliary printer. Secure using two captive screws on each plug.

See Page 5 for EIA Interface Leads and Descriptions for the auxiliary port.

	CODE	USOC	CABLE	CABLE PART NO.
	4310AAC or AAG	43LYS	7 Foot Length	413606
	4310AAD or AAH	43LYF	7 Foot Length	413606
*	4010BD/001/AR	400 (4, 5 or 6) (A or F)	7 Foot Length	413605
*	4010CJ/002/AM	40P (4, 5 or 6) (A or F)	7 Foot Length	413605
*	4010CQ/003/AP	40EQ (4, 5 or 6) (A or F)	7 Foot Length	413605
*	4010CP/002/AN	4OR (4, 5 or 6) (A or P)	7 Foot Length	413605
	40P102/ZZ† and 40CAB371/AC	4QCJ (A or F)	7 Foot Length	413604
*	40P154/ZZ and 40CAB351/AD	4RCJ (A or F)	7 Foot Length	413604
*	40P253/ZZ and 40CAB302/AC	4EJJ (A or F)	7 Foot Length	413604
*	40P202/ZZ and 40CAB353/AC	4STJ (A or F)	7 Foot Length	413604
	43 8-Level BSC Friction ‡	4BF + 4BU	7 Foot Length	413600
	43 8-Level BSC Tractor ‡	4BG + 4BU	12 Foot Length	413601
			25 Foot Length	413602
			50 Foot Length	413603

* Do not include type carriers.
† 346745 Kit (Baud Card) also required.
‡ Optioned as an auxiliary terminal.

3.12 The length of cables 413604, 413605, and 413606 can be effectively increased by connecting to one of the cables 413600, 413601, 413602, or 413603. In station arrangements which require such a provision, the 413600-603 cable should be connected to the 43 BSC teleprinter and the 413604-606 cable should be connected to the auxiliary printer. Do not exceed 50 feet from the 43 BSC teleprinter to the auxilairy printer.

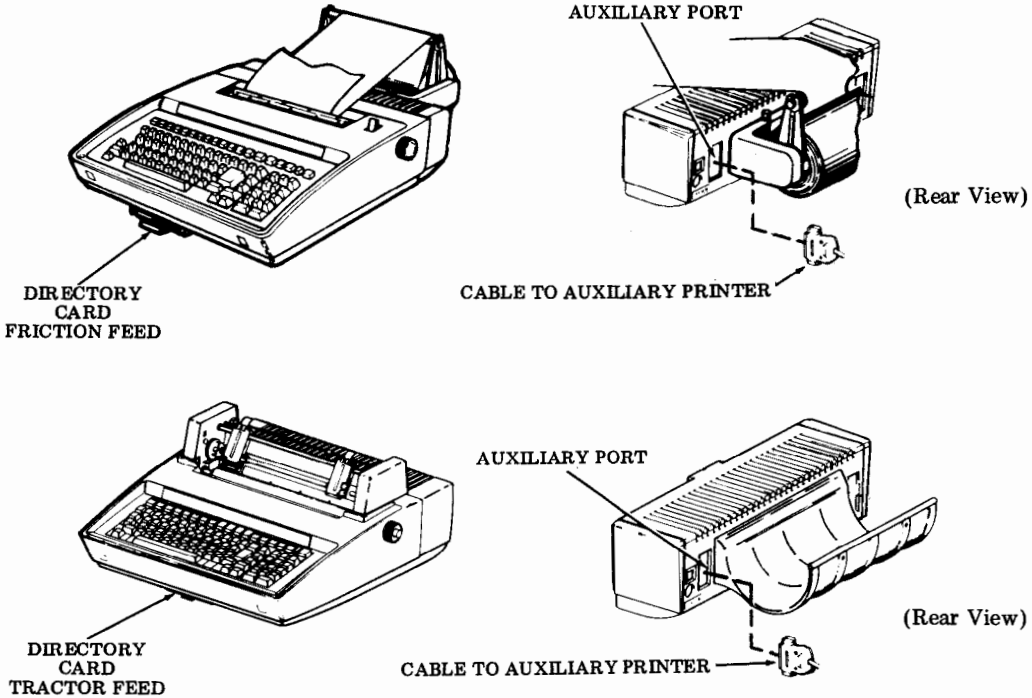


Fig. 4

C. Ribbon and Paper Installation

3.13 Install the ribbon and paper. Refer to the How to Operate Manual 999-300-137. If an auxiliary printer is present refer to the How to Operate Manual associated with that printer.

D. Options

3.14 Install any engineering options required. Refer to Engineering Options, Section 574-500-210.

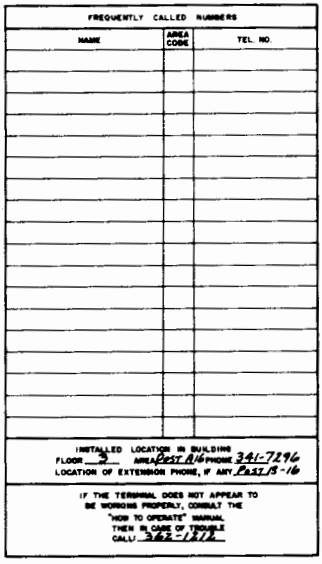
3.15 Install programmable options (See 4. PROGRAMMABLE OPTIONS).

E. Directory Card

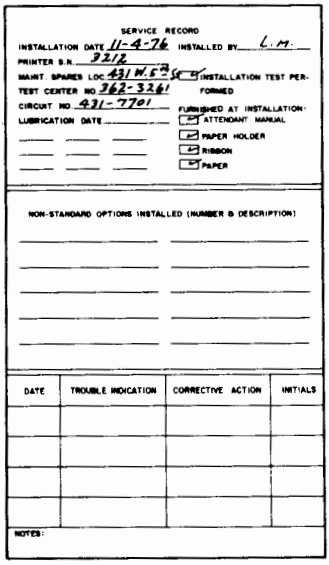
3.16 Fill in the installation information on the directory card as shown below. See Page 7 for location of directory card.

3.17 Install the directory card in the holder provided, "frequently called numbers" side up.

TOP SIDE



BOTTOM SIDE



F. Accessories

3.18 The following tabletop 43 Buffered Terminal Accessories are available to the customer.

Accessory	Part No.	Specification No.
Copyholder	430310 Modification Kit	50994S
Paper Winder (Friction Feed)	430400	51035S

The above parts may be installed following the instruction furnished with each accessory.

G. Checkout Procedure

3.19 Connect the data set, 43 BSC Teleprinter and Auxiliary Printer (if present) power cords to a properly polarized and grounded source of 115 Vac power (50 or 60 hertz). Normally the power cords should be connected to unswitched outlets to avoid loss of stored data. Fuse protection should be time delayed and provide for a running current of 0.8 amp for the teleprinter plus the running current of the data set and auxiliary printer, if present.

3.20 Perform the teleprinter installation checkout procedures found in 43 Teleprinter 8-Level Buffered Selective Calling (BSC) Station, Testing, Section 574-500-503.

3.21 Clean up the unpacking area. Wipe off any fingerprints or smudges on the Teleprinter.

H. Initiate Service

3.22 Turn the 43 BSC Teleprinter over to the subscriber.

3.23 Fill out the OPERATOR AFFECTING OPTIONS page in the How To Operate manual. If this information is not available, ask the station manager to fill out that page.

3.24 Inform the station manager that ordinarily the programmable options in the 43 BSC terminals are system dependent and after installation do not require any changes. However, if changes are anticipated the Bell Telephone Company service advisor will provide the necessary training.

3.25 Provide the customer with the How To Operate Manual 999-300-137, and the Optioning Manual 999-302-137. Advise the customer to order spare ribbons and paper as soon as possible (quantities depending on expected usage).

3.26 Advise the customer that the power to the 43 BSC should remain on for at least 10 hours. This will charge the controller battery used to retain the programmable options when power to the teleprinter is turned off.

3.27 Advise the customer of the "Trouble Number" location on the directory card.

3.28 Properly dispose of the shipping container according to local practices.

4. PROGRAMMABLE OPTIONS

4.01 The programmable options in this terminal are not programmable by the user unless Option 468.a. was requested. See Engineering Options, Section 574-500-210.

4.02 To change these options place controller switch pack SPA7-2 (switch 2) in the ON position (factory furnished ON). See Engineering Options, Section 574-500-210 for location of switch pack.

4.03 There are two ways to load programmable options into the terminal:

(a) To receive the options on-line as a message and load the options.
(b) To manually enter the value for the options and then load the options.

If the options are to be received as a message and loaded, go to A. Options Program Received On-Line.

If the options are to be manually programmed go to B. Manual Programming of Options (From Keyboard).

Note: If power to the terminal has been off for several days (ie, during shipping, unopened on customer premise, etc.) leave power to the terminal on for at least 10 hours. This will fully charge the internal battery used to retain the programmable options for at least 17 days when power is turned off.

A. Options Program Received On-Line

4.04 Some options may have to be manually programmed in order for the terminal to be able to receive the options program on-line (ie, LinSpd (Line Speed), PAddr1 (Primary Address 1), Aux Trm (Auxiliary Terminal, etc). If this is the case, go to B. Manual Programming of Options (From Keyboard) to enable the necessary options, then return to this paragraph.

- Depress 

key if not lit. Lamp lights. If lamp flashes, data set ready is not being provided by the data set to the terminal.
- Depress 

key if not lit. Lamp lights.

When the options list is sent to the terminal it will print on the printer. The list is a series of hexadecimal codes (numbers 0 through 9 and letters A through F).

Note: The entire list of options must be received not just the desired changes.

- After the list has printed, depress [TERM LOCAL] key. Lamp lights and [TERM ON LINE] goes out.
- Depress [BUFFER ENTER] key. Lamp lights and [PRINT REC MSG] goes out.
- Depress [MSG CLEAR] key, several times if necessary until bell rings.
- Depress [STRING ENTER] key. Lamp lights.
- Type the first five characters of the option list as printed when received.
- Depress [0 RETRV REC] key. Option list is now in the edit buffer.
- If desired depress [7 PRINT EDBUF] key. Options print out.
- Hold [CTRL] key depressed and depress [] +] (options load) key. The terminal is now optioned with all the programmable options.

Note: If the bell rings when attempting to load the options, make sure the [TERM LOCAL] and the [BUFFER ENTER] keys are lit. If the bell still rings when attempting to load options, data to be printed is in the receive ([REC MSG WTG] key lit) or auxiliary receive buffers. If the [REC MSG WTG] lamp is lit, depress [PRINT REC MSG] key to print data in the receive buffer.

Otherwise, place the auxiliary printer in the print mode (see How To Operate Manual associated with auxiliary printer) to print data in the auxiliary buffer. If an error message prints out, one or more of the hexadecimal values is incorrect. Example, ERR: prints out. The 18 is a hexadecimal value that ENTRY 18H must be converted to a decimal value to determine which pair of entries is incorrect. Refer to Table B (Decimal To Hexadecimal Number Conversion). Find the number 18 in the hex column. It is equal to decimal value 24. Therefore, the 24th pair of entries in the options list is invalid. If the error is in the second pair of digits defining line speed or auxiliary speed, the error indication will be for the first pair. Also, if the sum of options Sum Length, Prime Receive Buffer Size and Auxiliary Receive Buffer Size exceeds 14430 the error indication will be for the Sum Length pair.

Place Controller switch pack SPA7-2 (switch 2) in the OFF position unless Option 468.a. was requested. Depress [TERM ON LINE] key. Lamp lights. Terminal is now optioned and functional on line.

B. Manual Programming of Options (From Keyboard)

4.05 To Manually program the options from the keyboard:

- Depress [TERM LOCAL] key if not lit. Lamp lights.
- Depress [PRINT REC MSG] key if lit. Lamp goes out.
- Depress and hold [REPT] key and spacebar down until the print head is fully to the right and bell rings continually.
- Depress [BACK SPACE] key 10 times.
- Hold [CTRL] key depressed and depress [8 7] key (set left margin).
- Depress [BUFFER ENTER] key. Lamp lights.
- Depress [MSG CLEAR] key, several times if necessary until bell rings.
- Depress [PRINT REC MSG] key. Lamp lights and [BUFFER ENTER] goes out.
- Hold [CTRL] key depressed and depress [—] key (options prep).

OPTIONS IN EDIT BUFFER — Prints on printer and [BUFFER ENTER] lamp lights.

- Depress [7 PRINT EDBUF] key. Option list (in hexadecimal values) prints out in a column of ten. This list corresponds to J. OPTION MAP, Page 25.

To change the value of these options, refer to C. ALPHABETICAL LISTING OF OPTIONS, Page 14. This listing will refer you to the appropriate section for calculating the hexadecimal value of the options that require changes. Once the values are calculated, the options list must be modified with these new values.

- To modify the options list, depress [5 HOME] key.
- Depress [7 PRINT EDBUF] key. Options start to print. When the list approaches the value to be changed, depress the [7 PRINT EDBUF] key again and printing will stop.

- Position the print head marker over the value to be changed using the edit controls (ie ←,→ etc) and type the new value. If an error is made in typing, just back space the print head using the [←] key and retype the new value.

Once all the new values have been entered into the option list, it is necessary to load the new option list.

- Hold [CTRL] key depressed and depress [ ] +] (options load) key. The terminal is now optioned with all the programmable options.

Note: If the bell rings when attempting to load the options, make sure the [TERM LOCAL] and the [BUFFER ENTER] keys are lit. If the bell still rings when attempting to load options, data to be printed is in the receive ([REC MSG WTG] key lit) or auxiliary receive buffers. If the [REC MSG WTG] lamp is lit, depress [PRINT REC MSG] key to print data in the receive buffer.

Otherwise, place the auxiliary printer in the print mode (see How To Operate Manual associated with auxiliary printer) to print data in the auxiliary buffer. If an error message prints out, one or more of the hexadecimal values is incorrect. Example, ERR: prints out. The 18 is a hexadecimal value that

ENTRY 18H

must be converted to a decimal value to determine which pair of entries is incorrect. Refer to Table B (Decimal To Hexadecimal Number Conversion). Find the number 18 in the hex column. It is equal to decimal value 24. Therefore, the 24th pair of entries in the options list is invalid. If the error is in the second pair of digits defining line speed or auxiliary speed, the error indication will be for the first pair. Also, if the sum of options Sum Length, Prime Receive Buffer Size and Auxiliary Receive Buffer Size exceeds 14430 the error indication will be for the Sum Length pair.

Place Controller switch pack SPA7-2 (switch 2) in the OFF position unless Option 468.a. was requested. Depress [TERM ON LINE] key. Lamp lights. Terminal is now optioned and functional on line.

C. Alphabetical Listing of Options

4.06 Find the options that require value changes in the alphabetical listing of options below. Read the note associated with the options and proceed to the page referenced for the calculation of the value of the option to be entered in the option list.

OPTION/MAP NAME/ORDER		NOTE	OPTION/MAP NAME/ORDER		NOTE	OPTION/MAP NAME/ORDER		NOTE	OPTION/MAP NAME/ORDER		NOTE
AAddr1	(77)	3	Dbl_LF	(23)	2	PE_Rdy	(92)	3	RTSDly	(37)	5
AAddr2	(79)	3	DelErr	(19)	2	PNNRdy	(90)	3	SmlKey	(42)	3
AAddr3	(81)	3	EditLw	(35)	4	Poll#1	(59)	3	Sumry1	(55)	3
AAddr4	(83)	3	1stSnt	(75)	3	PreTab	(96)	3	Sumry2	(56)	3
ACBRdy	(87)	3	FmOut1	(46)	3	Ptr_NL	(22)	2	Sumry3	(57)	3
AChBfs	(13)	2	FmOut2	(47)	3	PRcvLw	(33)	4	Sumry4	(58)	3
AENRdy	(95)	3	FormLg	(39)	4	PRcvSz	(31)	4	SndBrk	(26)	2
AE_Rdy	(93)	3	HorTab	(20)	2	P2Rply	(6)	2	SSDsℓ1	(62)	3
ANNRdy	(91)	3	HTabMap	(98)	6	P3Rply	(7)	2	SSDsℓ2	(63)	3
A_NRdy	(89)	3	IdleLn	(38)	5	P4Rply	(8)	2	SSInt1	(71)	3
Append	(48)	3	LfBdry	(28)	4	P_NRdy	(88)	3	SSInt2	(72)	3
ARcvLw	(34)	4	LinSpd	(1)	1	P*_Rdy	(84)	3	Start1	(69)	3
ARcvSz	(32)	4	LRC_Ck	(15)	2	RBfOff	(68)	3	Start2	(70)	3
AudAlm	(24)	2	LrgKey	(41)	3	RBf_On	(67)	3	Store1	(49)	3
AuxSpd	(2)	1	MsgGen	(97)	3	ReRcv1	(51)	3	Store2	(50)	3
AuxTrm	(17)	2	NTNRdy	(61)	3	ReRcv2	(52)	3	StrKey	(40)	1
A2Rply	(9)	2	NT_Rdy	(60)	3	ReRcv3	(53)	3	StSend	(44)	3
A3Rply	(10)	2	PAddr1	(76)	3	ReRcv4	(54)	3	SubChr	(43)	3
A4Rply	(11)	2	PAddr2	(78)	3	Resend	(45)	3	SumLgt	(30)	4
A*_Rdy	(85)	3	PAddr3	(80)	3	RRDsℓ1	(65)	3	System	(5)	2
BROSta	(16)	2	PAddr4	(82)	3	RRDsℓ2	(66)	3	TransCk	(14)	2
Conten	(25)	2	Parity	(3)	1	RRInt_	(73)	3	Trans_	(4)	1
CpyRes	(27)	2	PCBRdy	(86)	3	RSDsl_	(64)	3	VerTab	(21)	2
CpySnt	(18)	2	PChBfs	(12)	2	RSInt_	(74)	3	VTabMap	(99)	6
CTSDly	(36)	5	PENRdy	(94)	3	RtBdry	(29)	4			

Note 1: Go to D. Options Requiring Specific Entries, Page 15.

Note 2: Go to E. Options Requiring y (yes) or n (no) Values, Page 16.

Note 3: Go to F. Options Requiring ASCII Character Values, Page 17.

Note 4: Go to G. Options Requiring Numeric (Decimal) Values, Page 20.

Note 5: Go to H. Timer Options, Page 21.

Note 6: Go to I. Horizontal and Vertical Preset Tab Stop Chart, Page 24.

D. Options Requiring Specific Entries

4.07 These options require specific predetermined values. The options and allowable values are listed below. The values shown are hexadecimal values equivalent to the desired option description. Example, desired line speed is 1200 baud, 10 bit code, asynchronous transmission. The value for that option is the hexadecimal value 1584. 1584 is the value to be entered for line speed option. Refer to the option list printout to determine the current value of the option. Refer to J. Option Map, Page 25 to determine the location within the options list to make the entry.

OPTION NAME	MAP ORDER	CHOICES	ENTRIES REQUIRED
LinSpd (Line Port Speed)	(1)	110 Baud, 11 Bit, Asychronous	E58C
		150 Baud, 10 Bit, Asychronous	54C4
		300 Baud, 10 Bit, Asychronous	2AC4
		600 Baud, 10 Bit, Asychronous	15C4
		1200 Baud, 10 Bit, Asychronous	1584
		1800 Baud, 10 Bit, Asychronous	07C4
		0-2400 Baud, 10 Bit, Isochronous	1504
		2400 Baud, 10 Bit, Asychronous	1544
AuxSpd (Auxiliary Port Speed)	(2)	No Device	8080
		110 Baud, 11 Bit, Asychronous	E58C
		300 Baud, 10 Bit, Asychronous	2AC4
		1200 Baud, 11 Bit, Asychronous	1584
		2400 Baud, 10 Bit, Asychronous	1544
Parity	(3)	Even Vertical Parity	43
		Odd Vertical Parity	41
		8th Bit Marking	E0
		8th Bit Spacing	C0
Trans (Asychronous/ Isochronous Transmission)	(4)	Asychronous	0C
		Isychronous	08
StrKey (Store Key Function)	(40)	Buffer Enter	E0
		Print One Message	E1
		Print Receive Buffer	E2

E. Options Requiring y (yes) or n (no) Values

4.08 The options listed below require y (yes) or n (no) values. Refer to the option list printout to determine the current values. If a different value is required enter a 79 for a yes or a 6E for a no. Refer to J. Option Map, Page 25 to determine the location within the options list to make the entry.

OPTION NAME	MAP ORDER	
System	(5)	(Half-Duplex)
P2Rply	(6)	(Prime Address 2 Reply)
P3Rply	(7)	(Prime Address 3 Reply)
P4Rply	(8)	(Prime Address 4 Reply)
A2Rply	(9)	(Aux Address 2 Reply)
A3Rply	(10)	(Aux Address 3 Reply)
A4Rply	(11)	(Aux Address 4 Reply)
PChBfs	(12)	(Prime Receiver Remains Terminated Following Reply, Character In Buffer)
AChBfs	(13)	(Aux Receiver Remains Terminated Following Replay, Character In Buffer)
Tran_Ck	(14)	(Transmission Parity Check)
LRC_Ck	(15)	(Longitudinal Redundancy Check)
BROSta	(16)	(Buffered Receive Only Station)
AuxTrm	(17)	(Auxiliary Terminal)
CpySnt	(18)	(Copy Sent Data)
DelErr	(19)	(Delete Errored Messages)
HorTab	(20)	(Enable Horizontal Tab)
VerTab	(21)	(Enable Vertical Tab)
Ptr_NL	(22)	(Printer New Line For Line Feed)
Dbl_LF	(23)	(Double Line Feed)
AudAlm	(24)	(Audible Alarm For Message Waiting)
Conten	(25)	(Non-Centralized Contention Operation)
SndBrk	(26)	(Send Break While Receiving And Buffer Becomes Low)
CpyRes	(27)	(Copy Host Response In Send Interrupt State)

F. Options Requiring ASCII Character Values

4.09 The options listed below require ASCII character values. All ASCII character values have to be converted and entered as hexadecimal digits. See Table A, ASCII to hexadecimal conversion. Example, if the option requires the character A (upper case), refer to Table A. An upper case A is hexadecimal 41. A 41 would be entered for that option. Unused ASCII values must have the hexadecimal value 80. Options that allow for more than one ASCII character (2 hexadecimal digits) must have the desired values poitioned in front of any unused positions. Example, value for LrgKey 0D 80 80. The desired value is 0D which precedes the unused positions of 80 80. Refer to the option list printout to determine the current value of the option. Refer to J. Option Map, Page 25 to determine the location within the options list to make the entry.

	MAP ORDER	OPTION NAME
LrgKey	(41)	(Large Key Character Sequence - Return)
SmlKey	(42)	(Small Key Character - Line Feed)
SubChr	(43)	(Substitute Character For Parity Error)
StSend	(44)	(Received Start Send Character)
Resend	(45)	(Received Resend Character)
FmOut1	(46)	(Form Out Character #1)
FmOut2	(47)	(Form Out Character #2)
Append	(48)	(First Character Appended For Storing)
Store1	(49)	(Message Store Ending Character #1)
Store2	(50)	(Message Store Ending Character #2)
ReRcv1	(51)	(Retrieve Receive Message Ending Character #1)
ReRcv2	(52)	(Retrieve Receive Message Ending Character #2)
ReRcv3	(53)	(Retrieve Receive Message Ending Character #3)
ReRcv4	(54)	(Retrieve Receive Message Ending Character #4)
Smmry1	(55)	(Received Message Summary Start Character #1)
Smmry2	(56)	(Received Message Summary Start Character #2)
Smmry3	(57)	(Received Message Summary Start Character #3)
Smmry4	(58)	(Received Message Summary Start Character #4)
Poll#1	(59)	(Polling Sequence #1)
NT_Rdy	(60)	(No Traffic to Send and Ready to Receive Reply Sequence)
NTNRdy	(61)	(No Traffic to Send and Not Ready to Receive Reply Sequence)
SSDs&1	(62)	(Sent Sender Deselect Character #1)
SSDs&2	(63)	(Sent Sender Deselect Character #2)
RSDs&_	(64)	(Received Sender Deselect Character)
RRDs&1	(65)	(Received Receiver Deselect Character #1)
RRDS&2	(66)	(Received Receiver Deselect Character #2)
RBf_On	(67)	(Primary or Aux Receive Buffer Turn-On Character)
RBfOff	(68)	(Primary or Aux Receive Buffer Turn-Off Character)
Start1	(69)	(Received Start Sending or Receiving Character #1)
Start2	(70)	(Received Start Sending or Receiving Character #2)
SSInt1	(71)	(Sent Sender Interrupt Character #1)
SSInt2	(72)	(Sent Sender Interrupt Character #2)
RRInt_	(73)	(Received Receiver Interrupt Character)
RSInt_	(74)	(Received Sender Interrupt Character)
1stSnt	(75)	(Character Automatically Sent Before Text)
PAddr1	(76)	(Primary Receive Address Sequence #1)
AAddr1	(77)	(Auxiliary Receive Address Sequence #1)
PAddr2	(78)	(Primary Receive Address Sequence #2)
AAddr2	(79)	(Auxiliary Receive Address Sequence #2)

	MAP ORDER	
PAddr3	(80)	(Primary Receive Address Sequence #3)
AAddr3	(81)	(Auxiliary Receive Address Sequence #3)
PAddr4	(82)	(Primary Receive Address Sequence #4)
AAddr4	(83)	(Auxiliary Receive Address Sequence #4)
P*_Rdy	(84)	(Primary Receiver Ready No Errors Reply Sequence)
A*_Rdy	(85)	(Auxiliary Receiver Ready No Errors Reply Sequence)
PCBRdy	(86)	(Primary Receiver Ready, Character in Buffer Reply Sequence)
ACBRdy	(87)	(Auxiliary Receiver Ready, Character in Buffer Reply Sequence)
P_NRdy	(88)	(Primary Receiver Not Ready Reply Sequence)
A_NRdy	(89)	(Auxiliary Receiver Not Ready Reply Sequence)
PNNRdy	(90)	(Primary Received No Error, Not Ready Response)
ANNRdy	(91)	(Auxiliary Received No Error, Not Ready Response)
PE_Rdy	(92)	(Primary Received Error, Ready Response)
AE_Rdy	(93)	(Auxiliary Received Error, Ready Response)
PENRdy	(94)	(Primary Received Error, Not Ready Response)
AENRdy	(95)	(Auxiliary Received Error, Not Ready Response)
PreTab	(96)	(Restore Preset Tab Stops Character)
MsgGen	(97)	(Stored Message Generator)

TABLE A

ASCII Code to Hexadecimal Number Conversion

ASCII	Hex	ASCII	Hex	ASCII	Hex	ASCII	Hex
NUL	00	SP	20	@	40	`	60
SOH	01	!	21	A	41	a	61
STX	02	"	22	B	42	b	62
ETX	03	#	23	C	43	c	63
EOT	04	$	24	D	44	d	64
ENQ	05	%	25	E	45	e	65
ACK	06	&	26	F	46	f	66
BEL	07	'	27	G	47	g	67
BS	08	(	28	H	48	h	68
HT	09	)	29	I	49	i	69
NL	0A	*	2A	J	4A	j	6A
VT	0B	+	2B	K	4B	k	6B
FF	0C	,	2C	L	4C	l	6C
CR	0D	-	2D	M	4D	m	6D
SO	0E	.	2E	N	4E	n	6E
SI	0F	/	2F	O	4F	o	6F
DLE	10	0	30	P	50	p	70
DC1	11	1	31	Q	51	q	71
DC2	12	2	32	R	52	r	72
DC3	13	3	33	S	53	s	73
DC4	14	4	34	T	54	t	74
NAK	15	5	35	U	55	u	75
SYN	16	6	36	V	56	v	76
ETB	17	7	37	W	57	w	77
CAN	18	8	38	X	58	x	78
EM	19	9	39	Y	59	y	79
SUB	1A	:	3A	Z	5A	z	7A
ESC	1B	;	3B	[	5B	{	7B
FS	1C	<	3C	\	5C	¦	7C
GS	1D	=	3D	]	5D	}	7D
RS	1E	>	3E	^	5E	~	7E
US	1F	?	3F	_	5F	DEL	7F

G. Options Requiring Numeric (Decimal) Values

4.10 The options listed below require numeric (decimal) values. All decimal values have to be converted and entered in the options list as hexadecimal digits. See Table B decimal to hexadecimal number conversion. Example, if the option requires the decimal number 132 refer to Table B. The decimal number 132 hexadecimal 84. An 84 would be entered for that option. In numeric options the least significant number is located to the right. Thus, if an option allowed for more than one pair of hexadecimal digits and the value entered had only one pair of hexadecimal digits the value would be entered into the right pair. Example, the option has a current value of 00 00 Hex. The desired value is 84 Hex (132 decimal). Enter the value into the right pair of hex numbers. This would result in the option having the value 00 84. Refer to the option list print out to determine the current value of the option. Refer to J. Option Map Page 25 to determine the location within the options list to make the entry.

OPTION NAME

LfBdry (28) (Left Boundary Setting) - Must be less than 80 decimal.
RtBdry (29) (Right Boundary Setting) - Must be greater than LfBdry and equal to or less than 132 decimal for sprocket, 100 decimal for Tractor or 80 Decimal for Friction Feed.
†SumLgt (30) (Message Summary And String Buffer Length)
†PRcvSz (31) (Prime Receive Buffer Size)
†ARcvSz (32) (Auxiliary Receive Buffer Size)
PRcvLw (33) (Prime Receive Buffer Low Setting) - Must be less than PRcvSz.
ARcvLw (34) (Auxiliary Receive Buffer Low Setting) - Must be less than ARcvSz.
†EditLw (35) (Edit Buffer Low Setting)
FormLg (39) (Form Length In Lines) - Must be equal to or less than 132 decimal.

†14984 (Total Buffer Available) minus the sum of PRcvSz, ARcvSz and SumLgt equals the size of the edit buffer. The edit buffer must be at least 554 positions. EditLw must be less than the edit buffer size, PRcvLw must be less than the PRcvSz and ARcvLw must be less than the ARcvSz.

H. Timer Options

4.11 The options listed below are timer options expressed in milliseconds using hexadecimal equivalent of the decimal value. An entry of all zeros disables the particular timer. The timer consists of 16 millisecond steps (ie 16, 32, 48 etc). The timer can be equal to or less than the value set by up to 16 milliseconds depending on when the timer is activated. Thus, a timer set for 32 milliseconds can vary from 17 through 32 milliseconds. To insure a minimum of 32 milliseconds for a timer it is necessary to enter a value one increment (16 milliseconds) greater than the required value. Example, enter a value of 48 milliseconds. Now the timer can vary 33 through 48 milliseconds. Remember the timer is based on 16 milliseconds steps. Therefore, entering a value anywhere between 16 through 31 milliseconds makes no difference to the timer. It views that entry as one step (16 milliseconds). Once the time in milliseconds has been established, refer to Table B to convert from a decimal value (time in milliseconds) to the hexadecimal value to be entered in the option list. Refer to the option list print out to determine the current value of the option. Refer to J. Option Map Page 25 to determine the location within the option list to make an entry.

	MAP ORDER	
CTSDly	(36)	(Clear to Send Recognition Delay)
RTSDly	(37)	(Request to Send Turn-Off Delay)
IdleLn	(38)	(Idle Line Time Out and Deselect)

NOTE: The time in milliseconds for the RTSDly option must be the desired value plus the time for two characters at the optioned LinSpd.

Example: Desired value 300 milliseconds
LinSpd = 1200 Baud = 8.3 ms/character
Two Characters = 8.3x2 = 16.6 ms
Value to be used = 300 + 16.6 = 317 ms (Rounded up)

SPEED (Baud)	TIME PER ONE CHARACTER
110	100 ms
150	66.6 ms
300	33.3 ms
600	16.6 ms
1200	8.3 ms
1800	5.5 ms
2400	4.2 ms

TABLE B

Decimal to Hexadecimal Number Conversion

Dec-imal	Hex	Dec-imal	Hex	Dec-imal	Hex	Dec-imal	Hex
00	00	32	20	64	40	96	60
01	01	33	21	65	41	97	61
02	02	34	22	66	42	98	62
03	03	35	23	67	43	99	63
04	04	36	24	68	44	100	64
05	05	37	25	69	45	101	65
06	06	38	26	70	46	102	66
07	07	39	27	71	47	103	67
08	08	40	28	72	48	104	68
09	09	41	29	73	49	105	69
10	0A	42	2A	74	4A	106	6A
11	0B	43	2B	75	4B	107	6B
12	0C	44	2C	76	4C	108	6C
13	0D	45	2D	77	4D	109	6D
14	0E	46	2E	78	4E	110	6E
15	0F	47	2F	79	4F	111	6F
16	10	48	30	80	50	112	70
17	11	49	31	81	51	113	71
18	12	50	32	82	52	114	72
19	13	51	33	83	53	115	73
20	14	52	34	84	54	116	74
21	15	53	35	85	55	117	75
22	16	54	36	86	56	118	76
23	17	55	37	87	57	119	77
24	18	56	38	88	58	120	78
25	19	57	39	89	59	121	79
26	1A	58	3A	90	5A	122	7A
27	1B	59	3B	91	5B	123	7B
28	1C	60	3C	92	5C	124	7C
29	1D	61	3D	93	5D	125	7D
30	1E	62	3E	94	5E	126	7E
31	1F	63	3F	95	5F	127	7F

TABLE B (Contd)

Decimal to Hexadecimal Number Conversion (Contd)

Dec-imal	Hex	Dec-imal	Hex	Dec-imal	Hex	Dec-imal	Hex
128	80	160	A0	192	C0	224	E0
129	81	161	A1	193	C1	225	E1
130	82	162	A2	194	C2	226	E2
131	83	163	A3	195	C3	227	E3
132	84	164	A4	196	C4	228	E4
133	85	165	A5	197	C5	229	E5
134	86	166	A6	198	C6	230	E6
135	87	167	A7	199	C7	231	E7
136	88	168	A8	200	C8	232	E8
137	89	169	A9	201	C9	233	E9
138	8A	170	AA	202	CA	234	EA
139	8B	171	AB	203	CB	235	EB
140	8C	172	AC	204	CC	236	EC
141	8D	173	AD	205	CD	237	ED
142	8E	174	AE	206	CE	238	EE
143	8F	175	AF	207	CF	239	EF
144	90	176	B0	208	D0	240	F0
145	91	177	B1	209	D1	241	F1
146	92	178	B2	210	D2	242	F2
147	93	179	B3	211	D3	243	F3
148	94	180	B4	212	D4	244	F4
149	95	181	B5	213	D5	245	F5
150	96	182	B6	214	D6	246	F6
151	97	183	B7	215	D7	247	F7
152	98	184	B8	216	D8	248	F8
153	99	185	B9	217	D9	249	F9
154	9A	186	BA	218	DA	250	FA
155	9B	187	BB	219	DB	251	FB
156	9C	188	BC	220	DC	252	FC
157	9D	189	BD	221	DD	253	FD
158	9E	190	BE	222	DE	254	FE
159	9F	191	BF	223	DF	255	FF

Note: For a decimal number equal to or greater than 256, divide the number by 256. The quotient becomes the first decimal number requiring conversion to hex and the remainder becomes the second number requiring conversion to hex. Example, value to be entered is 500 (decimal). 500 ÷ 256 = 1 (quotient) with a remainder of 244. Look up number 1 on this table and convert to hex 01. This hex number becomes the first pair in the hex entry value. Look up number 244 on this table and convert to hex F4. This hex number becomes the second pair in the hex entry value. Thus a decimal number 500 is equal to hex value 01 F4.

I. Horizontal and Vertical Preset Tab Stop Chart

Map order (98) and (99)

4.12 Refer to this chart for the hexadecimal entry numbers required for the desired preset tab stops. Each hexadecimal number represents tab stops for four sequential columns (horizontal) or lines (vertical). Refer to the option list print out to determine the current value of the option. Refer to J. Option Map, Page 25 for the location within the option list to enter the hexadecimal numbers.

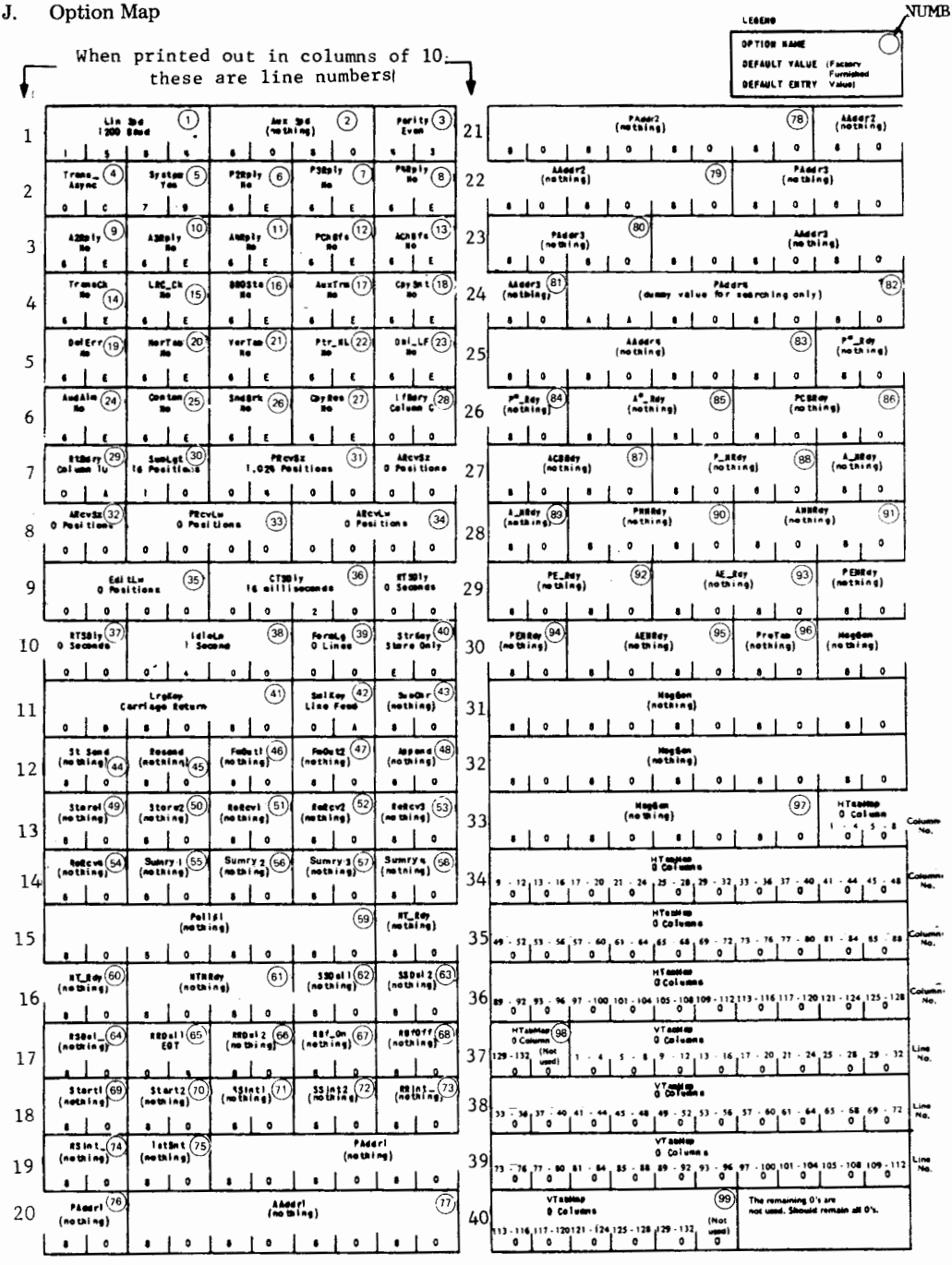
Example, preset tab stop desired only in Column 15. Referring to this chart a hexadecimal 4 value is to be entered in the option list.

Referring to J. Option Map the 4 would be entered at option HTabMap Column No. 13-16.

Hex Entry For Groups Of Four Columns Or Lines	Column Or Line No. Group Of Four			
	1	2	3	4
	5	6	7	8
	9	10	11	12
	13	14	15	16
	17	18	19	20
	21	22	23	24
	25	26	27	28
	29	30	31	32
	33	34	35	36
	37	38	39	40
	41	42	43	44
	45	46	47	48
	49	50	51	52
	53	54	55	56
	57	58	59	60
	61	62	63	64
	65	66	67	68
	69	70	71	72
	73	74	75	76
	77	78	79	80
	81	82	83	84
	85	86	87	88
	89	90	91	92
	93	94	95	96
	97	98	99	100
	101	102	103	104
	105	106	107	108
	109	110	111	112
	113	114	115	116
	117	118	119	120
	121	122	123	124
	125	126	127	128
	129	130	131	132
0				
1	X			
2		X		
3	X	X		
4			X	
5	X		X	
6		X	X	
7	X	X	X	
8				X
9	X			X
A		X		X
B	X	X		X
C			X	X
D	X		X	X
E		X	X	X
F	X	X	X	X

X Denotes Tab Column Stops

J. Option Map


MAP ORDER NUMBER
LEGEND
OPTION NAME
DEFAULT VALUE (Factory Furnished)
DEFAULT ENTRY Value)
When printed out in columns of 10, these are line numbers!
Lin Spd 1200 Baud (1)
Aux Spd (nothing) (2)
Parity Even (3)
Trans_ Async (4)
System Yes (5)
P2Rply No (6)
P3Rply No (7)
P4Rply No (8)
A2Rply No (9)
A3Rply No (10)
A4Rply No (11)
PCRBfs No (12)
ACRBfs No (13)
TransCh No (14)
LRC_Ch No (15)
BBOSte No (16)
AuxTrm No (17)
CpyInt No (18)
DelErr No (19)
NorTab No (20)
VerTab No (21)
Ptr_RL No (22)
Del_LF No (23)
AudAlm No (24)
CpsTam No (25)
SndBrk No (26)
CpyRes No (27)
LfMrg Column C (28)
RtSMrg Column 10 (29)
SumLgt 16 Positions (30)
PRcvSz 1.026 Positions (31)
ARcvSz 0 Positions (32)
PRcvLn 0 Positions (33)
ARcvLn 0 Positions (34)
EdiTLn 0 Positions (35)
CTSDly 16 milliseconds (36)
RTSDly 0 Seconds (37)
RTSDly 0 Seconds
IdleLn 1 Second (38)
FormLg 0 Lines (39)
StrKey Store Only (40)
LrgKey Carriage Return (41)
SmlKey Line Feed (42)
SwtChr (nothing) (43)
St Send (nothing) (44)
Resend (nothing) (45)
FnOut1 (nothing) (46)
FnOut2 (nothing) (47)
Append (nothing) (48)
Store1 (nothing) (49)
Store2 (nothing) (50)
RstCv1 (nothing) (51)
RstCv2 (nothing) (52)
RstCv3 (nothing) (53)
RstCv4 (nothing) (54)
Sumry1 (nothing) (55)
Sumry2 (nothing) (56)
Sumry3 (nothing) (57)
Sumry4 (nothing) (58)
PollSl (nothing) (59)
HT_Rdy (nothing)
HT_Rdy (nothing) (60)
HTNRdy (nothing) (61)
SSDal1 (nothing) (62)
SSDal2 (nothing) (63)
RSDal_ (nothing) (64)
RRDal1 EOT (65)
RRDal2 (nothing) (66)
RRf_On (nothing) (67)
RRPOff (68)
Start1 (nothing) (69)
Start2 (nothing) (70)
RSInt1 (nothing) (71)
SSInt2 (nothing) (72)
RRInt_ (nothing) (73)
RSInt_ (nothing) (74)
IstSnt (nothing) (75)
PAddr1 (nothing)
PAddr1 (nothing) (76)
AAddr1 (nothing) (77)
PAddr2 (nothing) (78)
AAddr2 (nothing)
AAddr2 (nothing) (79)
PAddr3 (nothing)
PAddr3 (nothing) (80)
AAddr3 (nothing)
AAddr3 (nothing) (81)
PAddrs (dummy value for searching only) (82)
AAddrs (nothing) (83)
P*_Rdy (nothing)
P*_Rdy (nothing) (84)
A*_Rdy (nothing) (85)
PCBRdy (nothing) (86)
ACBRdy (nothing) (87)
P_RRdy (nothing) (88)
A_RRdy (nothing)
A_RRdy (nothing) (89)
PRNRdy (nothing) (90)
ARNRdy (nothing) (91)
PE_Rdy (nothing) (92)
AE_Rdy (nothing) (93)
PERRdy (nothing)
PERRdy (nothing) (94)
AERRdy (nothing) (95)
PreTab (nothing) (96)
MapGen (nothing)
MapGen (nothing)
MapGen (nothing)
MapGen (nothing)
MapGen (nothing) (97)
HTabMap 0 Column
HTabMap 0 Columns
HTabMap 0 Columns
HTabMap 0 Columns
HTabMap 0 Columns
HTabMap 0 Columns (98)
VTabMap 0 Columns
VTabMap 0 Columns
VTabMap 0 Columns
VTabMap 0 Columns
VTabMap 0 Columns (99)
The remaining 0's are not used. Should remain all 0's.
Column No.
Line No.

5. STATION REMOVAL

5.01 Reverse the procedures in 3. INSTALLATION PROCEDURE to remove the teleprinter from service.

5.02 Before repacking the teleprinter, move the print head to the center of the printer and insert the packing detail and new ribbon removed in paragraph 3.05.

5.03 Tape the units as shown in Fig. 5.

5.04 Using the proper containers and packing detail, pack the 43 teleprinter as shown in Fig. 5.

5.05 Close and seal the carton flaps with three strips of tape, apply one strip to each of the seam ends and one strip the length of the carton.

5.06 Mark the outside of the carton with the teleprinter description (ie, 43 Teleprinter 8-Level Buffered Selective Calling (BSC) Station.

5.07 If the station qualifies as a "Working Station" candidate, mark the return material ticket in the appropriate block.

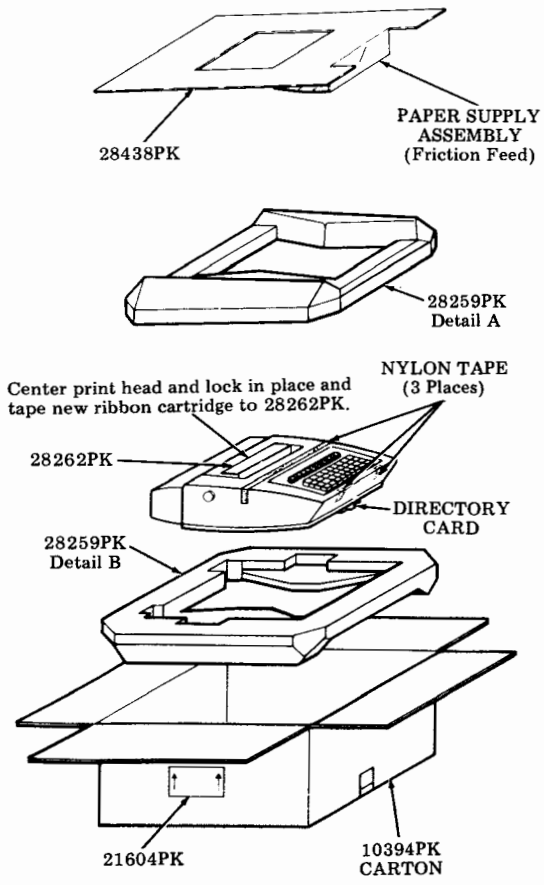


Fig. 5