the 42 teleprinter

INSTALLATION
& ROUTINE SERVICING

for BUFFERED TABLETOP KSR and ASR Stations

MANUAL 455

Teletype Corporation Product Service and Education Services

On the following page is a list of Teletype Corporation Product Service locations which provide maintenance service and repair on all Teletype Corporation products. For more information call toll free (US 800-323-4226) (IL 800-942-4192) 7:00 A.M. — 4:00 P.M. CST.

In addition, Teletype Corporation provides customer technical training at its headquarters at 5555 W. Touhy Avenue, Skokie, IL in the northwest suburban area of Chicago. The training covers the installation, maintenance and repair of all Teletype Corporation products. Arrangements can also be made for training to be conducted at customer-selected field sites.

For information about class schedules, enrollment, tuition, on-site training or any special training needs, please contact:
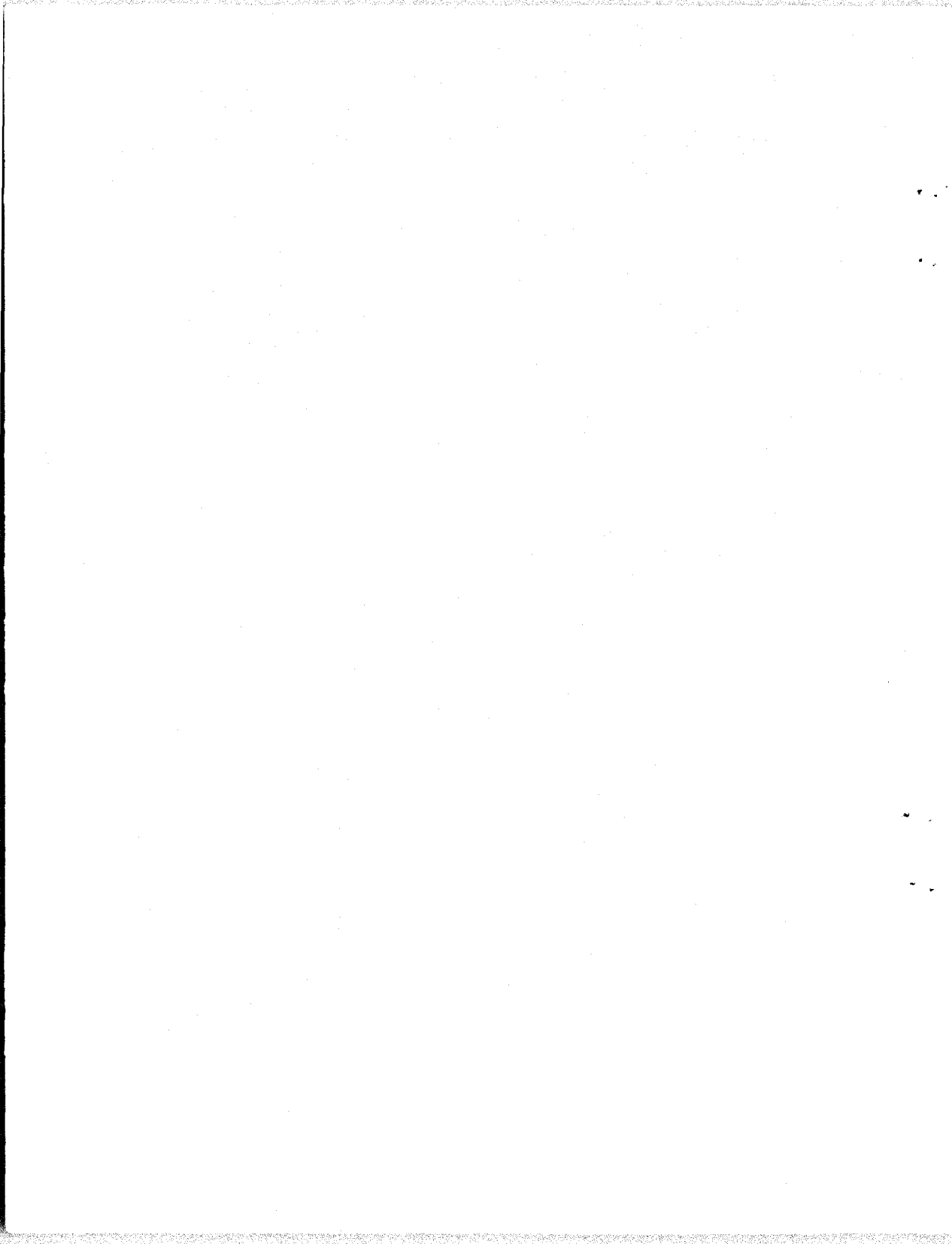
> Education Services
> Teletype Corporation
> 5555 W. Touhy Avenue
> Skokie, Illinois 60077
> Telephone (312) 982-3940
> TLX 25-4051
> TWX 901-223-3611

State	City	Address	Phone
ALABAMA	BIRMINGHAM	230 OXMOOR CIRCLE SUITE 113, HOMEWOOD, AL 35209	(205) 942-2674
	MOBILE		(205) 942-2674
ARIZONA	PHOENIX	2113 S. 48TH ST., SUITE 104, TEMPE, AZ 85282	(602) 804-9891
	TUCSON	2015 N. FORBES BLVD., SUITE 106, TUCSON, AZ 85705	(602) 823-6419
ARKANSAS	LITTLE ROCK	7601 INTERSTATE 30, SUITE 43, LITTLE ROCK, AK 72209	(501) 562-0266
CALIFORNIA	▲ LOS ANGELES	5445 SHEILA, CITY OF COMMERCE, CA 90040	(213) 724-6061
	OAKLAND	7305 EDGEWATER, SUITE C, OAKLAND, CA 94621	(415) 569-9610
	ORANGE COUNTY	11552 KNOT AVE., SUITE 9, GARDEN GROVE, CA 92641	(714) 891-2628
	SACRAMENTO	4221 NORTHGATE BLVD., SACRAMENTO, CA 95834	(918) 924-1933
	SAN DIEGO	7283 ENGINEER RD., SUITE B, SAN DIEGO, CA 92111	(714) 585-4376
	SAN JOSE	3285 KIFER RD., SANTA CLARA, CA 95051	(408) 737-7575
	VENTURA COUNTY	2696 LAVERY COURT, SUITE 1, NEWBURY PARK, CA 91320	(805) 498-9855
COLORADO	COLORADO SPRINGS	905 GARDEN OF THE GODS RD., SUITE B, COLORADO SPRINGS, CO 80907	(303) 593-1222
	▲ DENVER	7100 BROADWAY, BUILDING 3-J, DENVER, CO 80221	(303) 429-9555
CONNECTICUT	HARTFORD	441 GOVENORS HWY., SOUTH WINDSOR, CT 06074	(203) 568-9810
DIST. OF COLUMBIA	▲ LORTON, VA	NORTHERN VA INDUSTRIAL, 9022 TELEGRAPH RD., LORTON, VA 22079	(703) 550-7507
FLORIDA	FT. LAUDERDALE	6858 N.W. 20TH AVE., FT. LAUDERDALE, FL 33309	(305) 974-4660
	JACKSONVILLE	9951 ATLANTIC BLVD., SUITE 424, JACKSONVILLE, FL 32211	(904) 721-1847
	MIAMI	1515 NW 167TH ST., SUITE 137, MIAMI, FL 33189	(305) 944-1329
	ORLANDO	102 LIVE OAKS BLVD., CASSELBERRY, FL 32707	(305) 83 ..?518
	TAMPA	6474 JETPORT INDUSTRIAL BLVD., TAMPA, FL 33614	(813) 886-7413
GEORGIA	▲ ATLANTA	2520 PARK CENTRAL BLVD., DECATUR, GA 30035	(404) 981-7287
ILLINOIS	▲ CHICAGO NORTH	2330 EASTERN AVE., ELK GROVE VILLAGE, IL 60007	(312) 766-2695
	▲ CHICAGO SOUTH	2900 21ST AVE., BROADVIEW, IL 60153	(312) 345-7920
INDIANA	INDIANAPOLIS	6240 LAS PAS TRAIL, INDIANAPOLIS, IN 46268	(312) 297-4149
IOWA	DES MOINES	8345 UNIVERSITY BLVD., DES MOINES, IA 50311	(515) 223-8444
KANSAS	KANSAS CITY	6339 W. 110TH ST., OVERLAND PARK, KS 66211	(913) 383-3370
KENTUCKY	LOUISVILLE	348 JEFFERSON TRADE CENTER, 3800 CHAMBERLAIN, LOUISVILLE, KY 40223	(800) 323-4228
LOUISIANA	NEW ORLEANS	5626 JEFFERSON HWY., HARAHAN, LA 70123	(504) 733-4823
	SHREVEPORT	5150 INTERSTATE DR., SHREVEPORT, LA 71109	(318) 636-7104
MARYLAND	BALTIMORE	8980 ROUTE 108, OAKLAND RIDGE IND. CNTR., COLUMBIA, MD 21045	(301) 706-1166
MASSACHUSETTS	BOSTON	131 FLANDERS RD., P.O. BOX 566, WESTBORO, MA 01581	(617) 366-6881
MICHIGAN	DETROIT	12916 FARMINGTON RD., LIVONIA, MI 48154	(313) 525-5366
	KALAMAZOO	126 E. KILGORE RD., KALAMAZOO, MI 49001	(616) 344-1944
	LANSING	3202 S. PENNSYLVANIA AVE., LANSING, MI 48910	(517) 394-6250
MINNESOTA	DULUTH	HWY 61 & CANOSIA RD., ESKO, MN 55733	(218) 879-1225
	MINNEAPOLIS	8824 SEVENTH AVE., NO., GOLDEN VALLEY, MN 55427	(612) 546-0806
MISSISSIPPI	JACKSON	137 TURN POWE PLAZA, PEARL, MS 39208	(601) 932-1273
MISSOURI	KANSAS CITY	6339 W. 110TH ST., OVERLAND PARK, KS 66211	(913) 383-3370
	ST. LOUIS	11766 W. LINE INDUSTRIAL DR., ST. LOUIS, MO 63141	(314) 567-5910
NEBRASKA	OMAHA	13415 "B" STREET, OMAHA, NE 68144	(402) 330-3006
NEVADA	RENO	23 GLEN CARRAN CIRCLE, SPARKS, NV 89431	(702) 356-8022
NEW HAMPSHIRE	MANCHESTER		(603) 668-5911
NEW JERSEY	▲ FAIRFIELD	90 CLINTON ROAD, FAIRFIELD, NJ 07006	(201) 575-8240
	EDISON	1245 ROUTE 1, EDISON, NJ 08817	(201) 494-8288
NEW MEXICO	ALBUQUERQUE	2820 BROADBENT PKWY., N.E., ALBUQUERQUE, NM 87107	(505) 345-1854
NEW YORK	ALBANY	4 NORMANSKILL BLVD., ELSMERE, NY 12054	(518) 439-7622
	BUFFALO	1505 CLEVELAND DR., CHEEKTOWAGA, NY 14225	(716) 834-7233
	LONG ISLAND	195 PARK AVENUE, BETHPAGE, NY 11714	(516) 822-3633
	MANHATTAN	42 BROADWAY, SUITE E 1833, NEW YORK, NY 10004	(212) 344-3527
	ROCHESTER	115 METRO PARK, ROCHESTER, NY 14823	(716) 475-1740
	SYRACUSE	5 ADLER DR., EAST SYRACUSE, NY 13057	(315) 483-4666
NORTH CAROLINA	CHARLOTTE	11190 DOWNS RD., PINEVILLE, NC 28134	(704) 588-3297
	DURHAM	500 E. WILLIAMS ST., APEX, NC 27502	(919) 362-4469
	GREENSBORO	727 E. MOUNTAIN ST., KERNERSVILLE, NC 27284	(919) 996-4934
OHIO	CINCINNATI	9909-C SPRINGFIELD PIKE, CINCINNATI, OH 45215	(513) 772-6906
	CLEVELAND	5325 NAIMAN PKWY, SUITE F, SOLON, OH 44139	(216) 248-0288
	COLUMBUS	6969 WORTHINGTON, GALENA RD., WORTHINGTON, OH 43085	(614) 436-2065
	TOLEDO	1000 S. REYNOLDS RD., SUITE 1, TOLEDO, OH 43615	(419) 381-9900
OKLAHOMA	OKLAHOMA CITY	1000 CORNELL PKWY., SUITE 700, OKLAHOMA CITY, OK 73108	(405) 947-0969
	TULSA	2002 S. 114TH EAST AVE., TULSA, OK 74128	(918) 437-2010
OREGON	PORTLAND	7950 S. W. CIRRUS DR., BEAVERTON, OR 97005	(503) 641-9575
PENNSYLVANIA	HARRISBURG	3651 MARKET ST., CAMPHILL, PA 17011	(717) 737-0406
	PHILADELPHIA	103 ROCK ROAD, HORSHAM, PA 19044	(215) 874-2181
	PITTSBURGH	780 H PINE VALLEY DR., PITTSBURGH, PA 15239	(412) 325-4403
SOUTH CAROLINA	COLUMBIA	6007 TWO NOTCH RD., COLUMBIA, SC 29204	(803) 786-2927
TENNESSEE	MEMPHIS	2005 NONCONNAH BLVD., SUITE 9, MEMPHIS, TN 38132	(901) 348-8840
	NASHVILLE	220 GREAT CIRCLE RD., SUITE 134, NASHVILLE, TN 37228	(615) 254-0646
TEXAS	▲ DALLAS	222 N. STORY RD., SUITE 126, IRVING, TX 75061	(214) 264-4189
	HOUSTON	4400 S. WAYSIDE, SUITE 105, HOUSTON, TX 77087	(713) 641-3295
	SAN ANTONIO	8807 TRADEWAY, SAN ANTONIO, TX 78217	(512) 824-5553
UTAH	SALT LAKE CITY	3650 W. 2100 SOUTH, SALT LAKE CITY, UT 84120	(801) 972-8332
VIRGINIA	LORTON (DC AREA)	NORTHERN VA INDUSTRIAL PARK, 9022 TELEGRAPH RD., LORTON, VA 22079	(703) 550-7507
	NORFOLK		(804) 262-4062
	RICHMOND	8427 GLAZEBROOK AVE., RICHMOND, VA 23228	(804) 262-4062
WASHINGTON	SEATTLE	635 STRANDER BLVD., KOLL COMMERCE CENTER, SEATTLE, WA 98188	(206) 575-4615
WEST VIRGINIA	CHARLESTON	808 MAIN STREET, NITRO, WEST VIRGINIA 26153	(304) 766-3000
WISCONSIN	APPLETON	324 W. WISCONSIN AVE., SUITE 3, APPLETON, WI 54911	(414) 731-1494
	EAU CLAIRE	1806 WARDEN ST., EAU CLAIRE, WI 54701	(715) 832-4431
	MADISON	3680 KINSMAN BLVD., MADISON, WI 53704	(608) 249-5999
	MILWAUKEE	448 W. RAWSON AVE., OAK CREEK, WI 53154	(414) 764-6600
	WAUSAU	120 E. STEWART AVE., WAUSAU, WI 54401	(715) 845-8688
CANADA	▲ TORONTO	31 KLONDIKE DR., WESTON, ONTARIO, CANADA M9L 1S1	(416) 746-9474

THE 42 TELEPRINTER
TABLETOP BUFFERED KSR AND ASR STATION
INSTALLATION AND ROUTINE SERVICING MANUAL

PART 1 — INTRODUCTION

This manual provides information on the installation and routine servicing of the 42 buffered tabletop Telex KSR and ASR stations. Instructions are provided for service personnel with a minimum of training, tools and spare parts, to enable variable features, connect the proper interface, correct minor troubles and periodically inspect, lubricate, and clean the terminal during extended service intervals.

The buffered Model 42 Telex KSR and ASR teleprinter terminals provide for off-line data preparation (Message Enter, Edit and Store), and batch transmission. The total amount of data that can be stored in the send and receive buffers is 16K minus approximately 600 characters dedicated to the terminal. This dedicated area includes an options store programmable by the user. The 42 Telex ASR also has the capability of preparing punched paper tape off-line or punching paper tape on-line for later transmission from the paper tape reader if the PT unit is installed.

The terminal can operate at 45, 50, 75, 100, 200, or 225 Baud using 7.5 unit code (C.C.I.T.T.) utilizing an EIA, RS232C interface which may be connected to an external current loop or polar interface assembly. Print out is on an 80-column, 10-character-per-inch friction feed printer. The friction feed printer uses 8-1/2 inch wide friction feed paper. A 7 by 9 dot matrix produces character shapes and special symbols for control codes. Transmitted alphabet characters may be printed as lower case characters (4240/BAA) or as small capital letters (4240/BAB) for separation of sent and received data, or as upper case (4240/BAA) or large capital letters (4240/BAB) in both directions. The external interface is provided by a separate unit and may be a Telex neutral current loop or polar interface.

Information on how to change user programmable options, check proper operation, change the ribbon cartridge and install paper or paper tape is included in the How to Operate Manual 454 furnished with each terminal. The battery for the option storage may require up to ten hours of operating time to become fully charged.

Note: When ordering replaceable parts or components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP410055).

Tools and spare parts that may be required are as follows:

DESCRIPTION	TELETYPE CORPORATION PART NO.
3/16" and 1/4" Open-End Wrench	129534
1/4", 6" Blade, Screwdriver	100982
1/16" Allen Wrench	124682
1.0 A SLOW-BLOW Fuse	143306
Lubricants	See Page 3-6

Refer to Manual 421, for the 42/43 Paper Tape Unit installation instructions, if a paper tape unit is used.

In the event that troubles occur that cannot be corrected with the information in this manual, refer to the Service Manual 425, replace the terminal, or contact the nearest Teletype Corporation Product Service Center.

This issue includes the 4240/BAA and 4240/BAB Telex KSR and ASR station arrangement. The ASR arrangement may consist of a 4240/BAA or 4240/BAB KSR, 407494 line cable, 4250/AAA PT unit, 430757 PT cable and an external 403103 isolated current interface, a 420101 neutral/polar interface, or other locally supplied TLA interface. The 407494 line cable, or equivalent, must be used for proper installation. Refer to the following catalog code table.

PART 1 — INTRODUCTION (Cont)

CATALOG CODE							
4240 2ACA	4240 2APA	4240 2ATA	4230 2AOA	4230 2APA	4230 2ATA		
X	X	X	X	X	X		4240 BAA — KSR Set 16K Buffer — Friction
	X	X		X	X		407494 Cable to Line Interface Unit *
			X	X	X		4250 AAA PT Unit
			X	X	X		403757 Cable to PT Unit *
	X				X		420101 Line Interface Unit (Tlx)
	X			X			403103 Line Interface Unit (P.L)

* Not standard EIA configuration. See EIA Interface Signals.

<u>Code Plate Location</u>

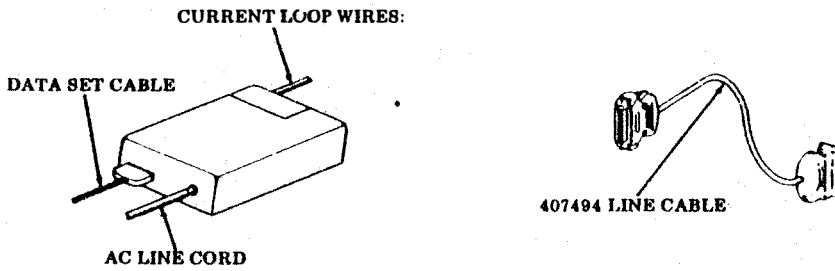INSIDE HOUSING

4240/BAA
OR
4240/BAB

POWER SWITCH

FUSE
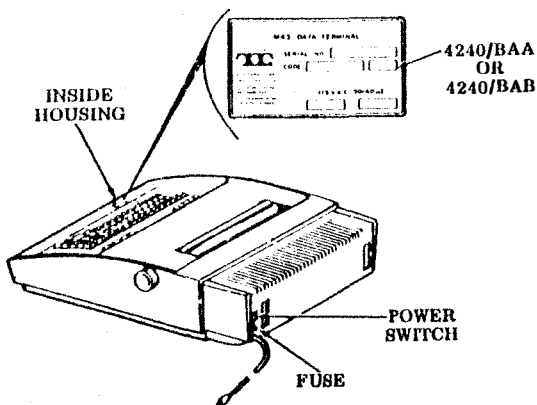
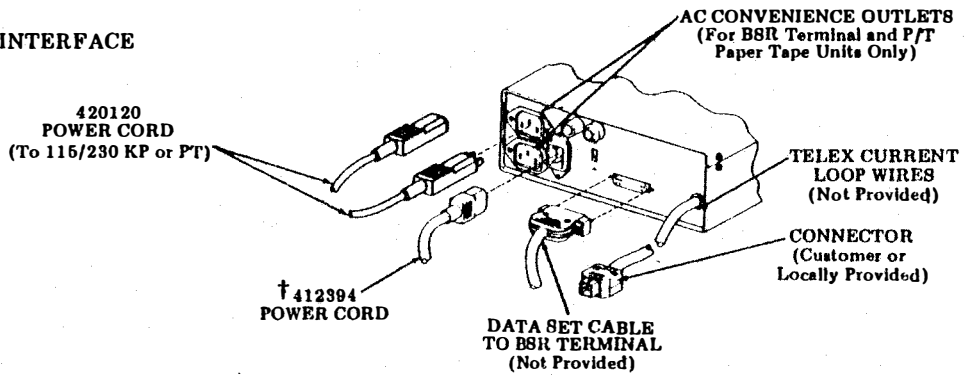4240 TABLETOP TERMINAL

Terminal includes the following:

- 43K202GAD opcon
- 410745 logic card (4240/BAA)
- 410787 logic card (4240/BAB)
- 411904 controller
- 430700 power supply
- Paper supply assembly

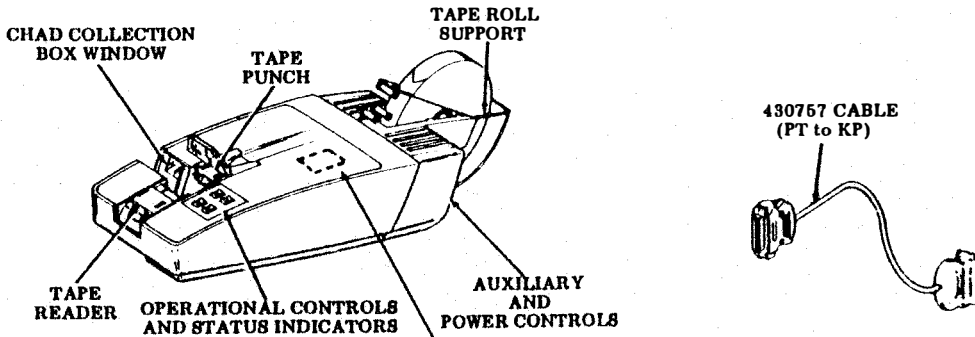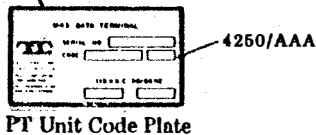See component access for card locations.

403103 INTERFACE

CURRENT LOOP WIRES:

DATA SET CABLE

AC LINE CORD

407494 LINE CABLE

420101 INTERFACE

AC CONVENIENCE OUTLETS
(For BSR Terminal and P/T
Paper Tape Units Only)

420120
POWER CORD
(To 115/230 KP or PT)

†412394
POWER CORD

TELEX CURRENT
LOOP WIRES
(Not Provided)

CONNECTOR
(Customer or
Locally Provided)

DATA SET CABLE
TO BSR TERMINAL
(Not Provided)

4250/AAA PAPER TAPE UNIT

CHAD COLLECTION
BOX WINDOW

TAPE ROLL
SUPPORT

TAPE
PUNCH

430757 CABLE
(PT to KP)

TAPE
READER

OPERATIONAL CONTROLS
AND STATUS INDICATORS

AUXILIARY
AND
POWER CONTROLS

† Ordered separately.

4250/AAA

PT Unit Code Plate
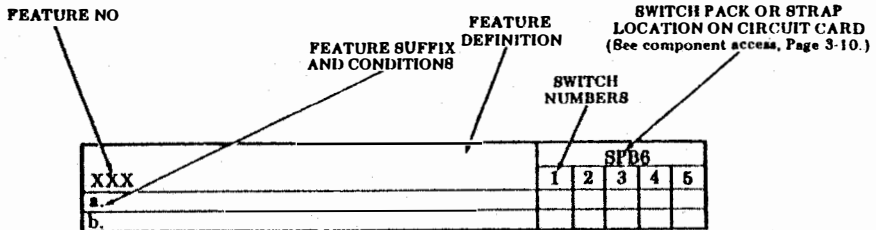
PART 2 — INSTALLATION
A. VARIABLE FEATURES

The following charts describe variable features not programmable by the user and provide information on how to verify or change the setting of these features on the printer logic card, interface unit or in the PT unit.

KP SET OPTIONS (410745 LOGIC CARD) (4240/BAA ONLY)

431.	Type Font Arrangement	SPB6					
		1	2	3	4	5	
a. TV	Narrow Numeric 0 and Wide Alpha 0. Standard ∧ and Underline ___.	●	●	–	–	–	*
b. ME	Slash Numeric Ø and Wide Alpha 0. ∧ Prints as ↑ and ___ Prints as ◄—.	O	●	–	–	–	
c. NU	Slash Alpha Ø and Wide Numeric 0. ∧ Prints as ↑ and ___ Prints as ◄—.	O	O	–	–	–	
d.	Slash Alpha Ø and Wide Numeric 0. Standard ∧ and underline ___.	●	O	–	–	–	
Switches Must be Set as Shown.		–	–	O	O	O	*

Note: The 410787 logic card (42040/BAB) has no font options (SPB6, SW1 and SW2 inoperative). SPB6, SW3, SW4 and SW5 functions same as on 410745 logic card.

KP SET OPTIONS (Controller)

467.	Option Access	SPA7				
		1	2	3	4	
a.	Auto 1 through DbLF	–	–	O	O	*
b.	Auto 1 through EBWrn	–	–	O	●	
c.	All Options	–	–	●	●	
Switches Must be Set as Shown.		●	●	–	–	*

Note: Refer to HTO Manual 454 for keyboard programmable options.

● Indicate toggle or slide position to ON.
O Indicates toggle or slide position to OFF.
– Position of switch does not affect feature.
* Factory furnished state of feature.

A. VARIABLE FEATURES (Cont)

PT UNIT OPTIONS

453.	Function of "Copy" Switch in PTR OFF/LOC Position.	SPA1				ST1	
		1	2	3	4		
a.	Printer Off Operation	—	—	—	O	Strap In	*
b	Local Operation (TTL Pin 17 Open)	—	—	—	●	Strap Out	
c.	Local Operation (TTL Pin 17 ground)	—	—	—	●	Strap In	
d.	Normal	—	—	—	O	Strap Out	

454.	Clear to Send Select	ST2	ST3	
a.	Clear to Send Controls.	Strap In	Strap Removed	
b.	Device Control Controls	Strap Removed	Strap In	
c.	Device Control and Clear to Send Controls.	Strap In	Strap In	*

		Motor Pulley		§
455.	50/60 Hz Operation	Small Side	Large Side	
455a.	60 Hz Operation	Outside	Inside	*
455b.	50 Hz Operation	Inside	Outside	

The following feature is not a customer option and is preset at the factory.

457.	5- or 8-Level Operation	SPA1				
		1	2	3	4	
a.	8-Level	—	O	—	—	†
b.	5-Level	—	●	—	—	‡

● Indicates toggle or slide position to ON.
O Indicates toggle or slide position to OFF.
— Position of switch does not affect feature.
* Factory furnished state of features.
† On 8-level units, SPA1-2 must be position to OFF.
‡ On 5-level units SPA1-2 must be position to ON.
§ Verify motor pulley is aligned with reader pulley and there is some clearance between the motor pulley and the ac power connector bracket.

The following features are not customer options and should only be used when testing or adjusting PT units.

		SPA1			
		1	2	3	4
458.	Punch and Reader Adjust				
a.	Disabled	O	—	—	—	*
b.	Enabled	●	—	—	—

		SPA1			
		1	2	3	4
459.	Self Test Message				
a.	Disabled	—	—	O	—	*
b.	Enabled ¶	—	—	●	—

● Indicates toggle or slide position to ON.
O Indicates toggle or slide position to OFF.
— Position of switch does not affect feature.
✦ Factory furnished state of features.
¶ DELETE/NULL/U/✦ is perforated (8-level).
  LTRS/BLANK/R/Y is perforated (5-level).

403103 INTERFACE OPTIONS

Refer to Specification 509988, 403103 Isolated Current Interface which is shipped with each unit.

402101 INTERFACE OPTIONS

Refer to Specification 510368, Instructions for Installing the 420101 Interface which is shipped with each unit.

B. EIA INTERFACE SIGNALS

1. EIA LINE INTERFACE SIGNALS

The EIA leads that appear at the interface (EIA designations in parenthesis) are defined below in terms of common designations. Solid arrows indicate direction of data flow or control.

Electrical Characteristics

EIA (RS232) Interface	Electrical Characteristics	
	From 43	To 43
State 0 (space) On	+6 to +16 V dc	+6 to +16 V dc
State 1 (mark) Off	-6 to -16 V dc	-6 to -16 V dc

FG — Frame Ground

SD — Send Data. +12 volts indicates a space or break. -12 volts indicates a mark.

RD — Receive Data. +12 volts indicates space or break. -12 volts indicates a mark.

DSR — Data Set Ready. DSR on indicates a remote terminal desires to send a message, or if DTR is on, that a remote terminal is prepared to receive a message.

SG — Signal Ground.

SRSD — Secondary Receive Line Signal Detector. Connected to Receive Data.

DTR — Data Terminal Ready. +12 volts indicates terminal is requesting to transmit, or if DR is on, the terminal is prepared to receive a message on when power is on.

TEST — Provided for possible loopback test.

‡ Extention cable may be added. See Page 2-8.

2. EIA AUXILIARY INTERFACE SIGNALS

The EIA leads that appear at the interface (EIA designations in parenthesis) are defined below in terms of common designations. Solid arrows indicate direction of data flow or control.

430757 Cable
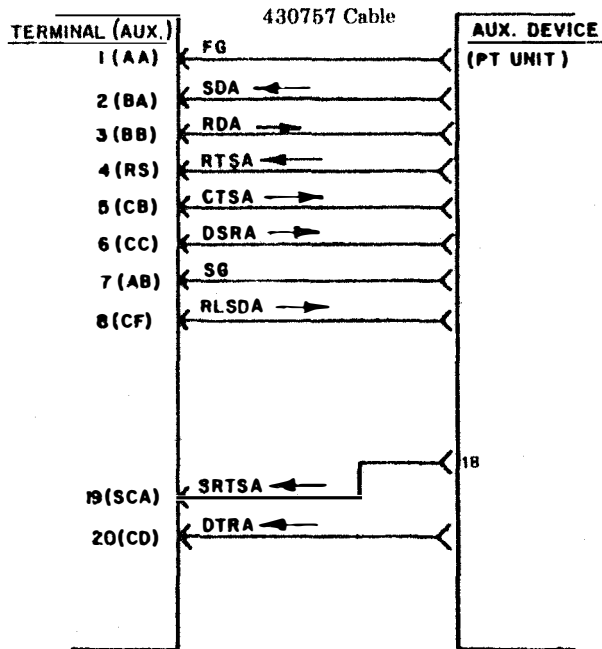
Electrical Characteristics

EIA (RS232) Interface	Electrical Characteristics	
	From 43	To 43
State 0 (space) On	+5 to +15 V dc	+5 to +15 V dc
State 1 (mark) Off	-5 to -15 V dc	-5 to -15 V dc

FG — Frame Ground

SD — Send Data. +12 volts indicates a space or break. -12 volts indicates a mark.

RD — Receive Data. +12 volts indicates a space or break. -12 volts indicates a mark.

RTS — Request To Send. On if character is ready for transmission and DTR and DSR are on.

CTS — Clear to Send. On allows AUX device to send or receive. When off, AUX device can receive but not send.

DSR — Data Set Ready. DSR on when power terminal is on.

SG — Signal Ground

RLSD — Received Line Signal Detector. Output to AUX device.

SRTS — Secondary Request To Send. Input from pin 18 or PT port. (Punch Tape Alarm).

DTR — Data Terminal Ready. On indicates AUX device is ready to send.

C. ASSEMBLY

The buffered Telex KSR terminal, the external interface, the paper tape unit and the cables are furnished in individual cartons.

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.

Disregard assembly or installation instructions for components not used.

1. UNPACKING

KSR Terminal

  a. Unpack the carton referring to instructions on the container.
  b. Remove tape securing the cover to the housing (see below).
  c. Depress the cover locking tabs on the lower front of the cabinet and lift the cover. Remove the packing detail securing the print head (see below).
 d. Verify that the following items are included in the box:

    1 — Set — 43 KP (4240/BAA or 4240/BAB)
    1 — Ribbon
    1 — Manual, Installation and Routine Servicing, 455
    1 — Manual, How to Operate, 454
    1 — Paper Supply Assembly
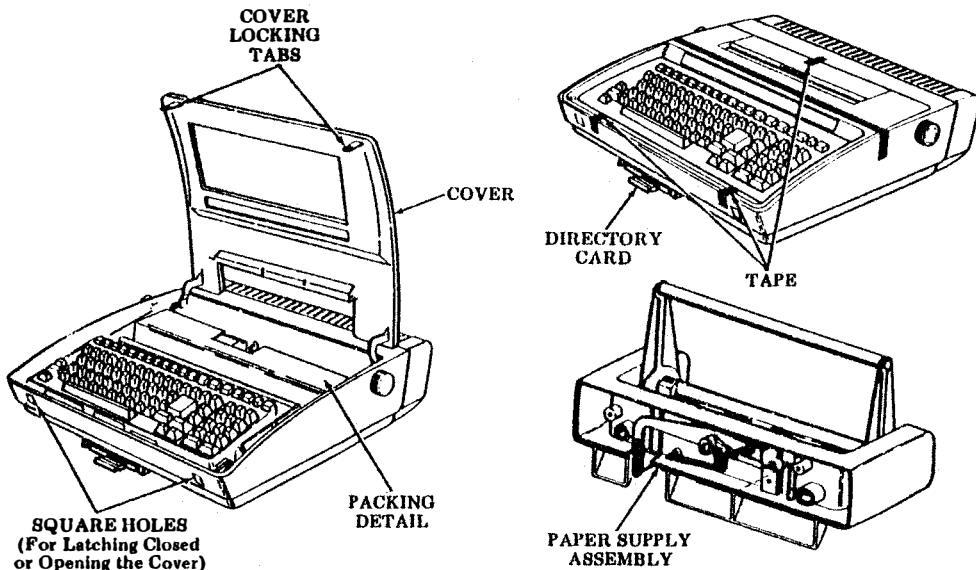
Note 1: 8-1/2 inch wide by 5 inch diameter paper rolls and 11/16 inch wide by 8 inch diameter roll paper tape (ASR) must be obtained locally or ordered separately. Refer to HTO for suppliers.

Paper Tape Unit

    a.   Unpack the carton referring to instructions on the container.

    b.   Verify that the How to Operate Manual 420 and the Installation and Routine Servicing Manual 421 are included in the carton.
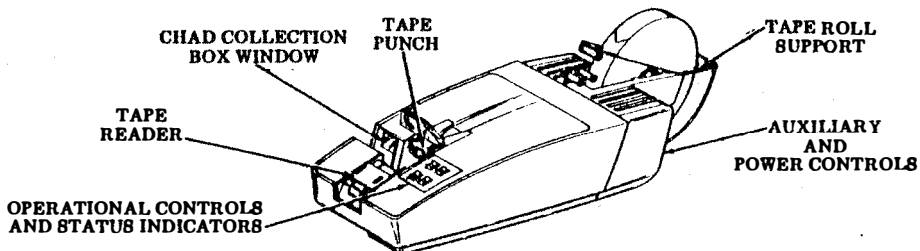
All Cables

   a.   Unpack the carton and remove the cable.

Interface Assembly

    a.   Unpack the carton referring to instructions on the container.

403103 — Refer to Specification 50998S for assembly instructions.

420101 — Refer to Specification 51036S for assembly instructions.

2.   STATION INSTALLATION

The following block diagram shows the possible station arrangements with the protocols and service required with each arrangement.
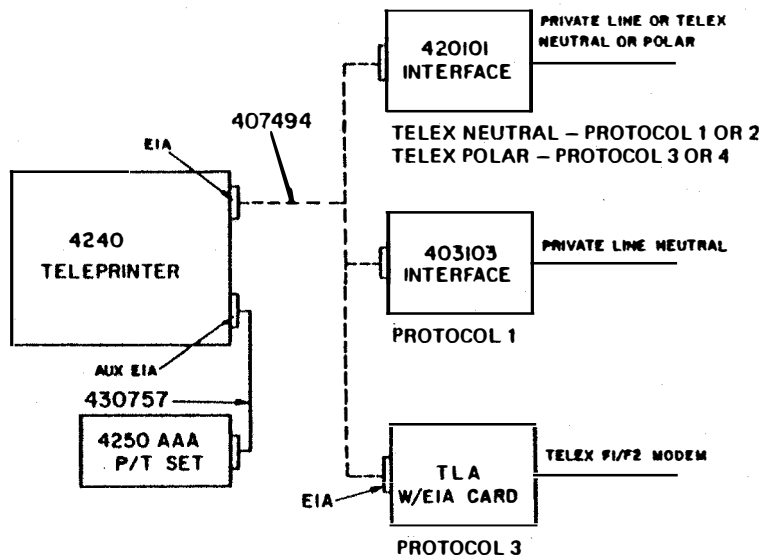
C. ASSEMBLY (Cont)

2. STATION INSTALLATION (Cont)

To Install the Station

In order to install the station properly, the installer must know if the service is Telex or private line, half-duplex or full duplex, two, three or four wire, neutral or polar and the protocol to be used. The installer may then proceed with this brief checklist or a more detailed procedure which follows.
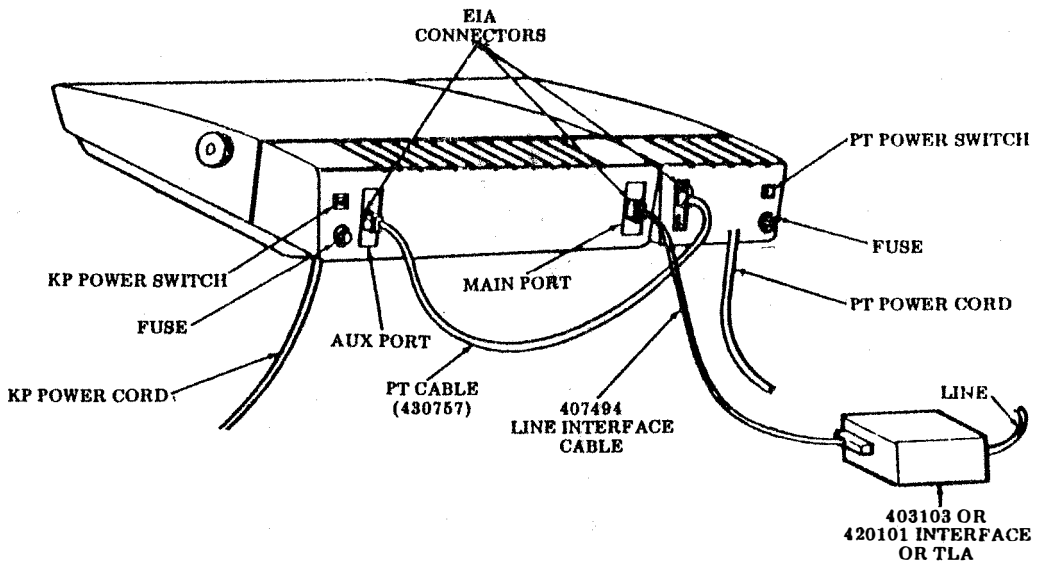
BRIEF CHECKLIST

- Place terminal in position, install paper supply assembly, paper and ribbon.

- Option interface, connect to terminal line port using 407494 cable. Connect interface to line according to your interface terminal block and service provided.

- If used, option PT unit and connect to terminal auxiliary port using 430757 cable.

- Verify the terminal switch programmable options.

- Plug all power cords into properly grounded receptacles.

- Verify all keyboard programmable options. Be sure to select the proper protocol option. It may be necessary to charge the option memory battery. (Terminal on for ten hours for full charge.)

- Properly mark the directory card and, if desired, install Instruction Sheet 488.

- Proceed to station testing.

DETAILED INSTALLATION PROCEDURE

a. Position the terminal in the location specified by the customer. A minimum of 6 inches of space behind the terminal is required for the paper holder.

b. Install the paper supply assembly onto the mounting studs behind the bustle. Lock in position with clips.

c. Install the ribbon and paper. Refer to the How to Operate Manual 454.

d. If used, install the interface referring to the installation documents provided. Check the interface options and reset if required. Refer to illustration on Page 2-10. Install the 407494 interface cable as shown. If the interface is more than 7 feet from the terminal, one of the following cables may be coupled to the 407494 (but cannot replace it without first modifying the cable). The total distance between the terminal and interface should not exceed 50 cable feet. Secure the cables using the connector captive screws.

Cable	Part No.
3 foot length	430569
7 foot length	408065
12 foot length	408066
25 foot length	408067
50 foot length	408068

Note: The above cables, if required, must be ordered separately.

EIA
CONNECTORS

PT POWER SWITCH

KP POWER SWITCH

FUSE

MAIN PORT

PT POWER CORD

FUSE

KP POWER CORD

AUX PORT

PT CABLE
(430757)

407494
LINE INTERFACE
CABLE

LINE

403103 OR
420101 INTERFACE
OR TLA

e. Refer to the line terminal block connections, shown on Page 2-10 of this document, and connect to the line in accordance to the service provided. Refer to the illustration on Page 2-10. Plug the interface ac power cord into a properly grounded ac receptacle.

f. If used install the paper tape unit as shown above. Refer to Manual 421, Installation and Routine Servicing for the paper tape punch and reader. Check the paper tape options and reset if required. Install the 430757 cable as shown above.

g. Check all teleprinter switch programmable options. Reset as required and record on the bottom side of the directory card. Refer to illustration on Page 2-11.

h. Plug the teleprinter and paper tape unit (if used) ac power cord(s) into a properly grounded 115 V ac receptacle.

i. Set any keyboard programmable options requested by the customer (refer to How to Operate Manual 454) and record on the bottom side of the directory card.

Note: Options may revert back to the default values (original state) if power to the controller has been off for approximately 17 days. To charge the option memory battery, turn set on for at least 15 minutes; ten hours required for full charge. The asterisk on directory card options indicates default values.

j. Fill in the installation information on the top side of the directory card.

k. Install the directory card in the holder provided, "Frequently Called Numbers" side up.

l. If the customer should request, install Instruction Sheet 488, on one side of directory card, over the existing label.

m. Test the station.
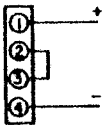
C.   ASSEMBLY (Cont)

2.   STATION INSTALLATION (Cont)

Terminal Block and Option Switches

403103 Terminal Block and Option Switches §
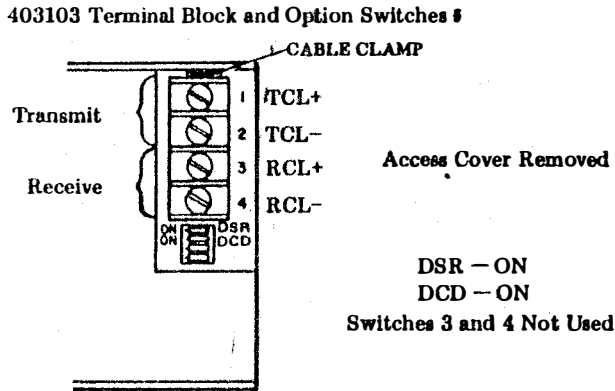
§ The interface does not provide loop power.
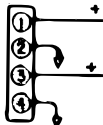
Fig. 1

Private Line — Half-Duplex
Protocol 1 and 2

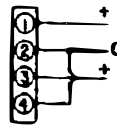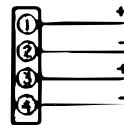Private Line — Full Duplex
Protocol 1, 2, 3 or 4

2—Wire
Neutral

2—Wire
Neutral
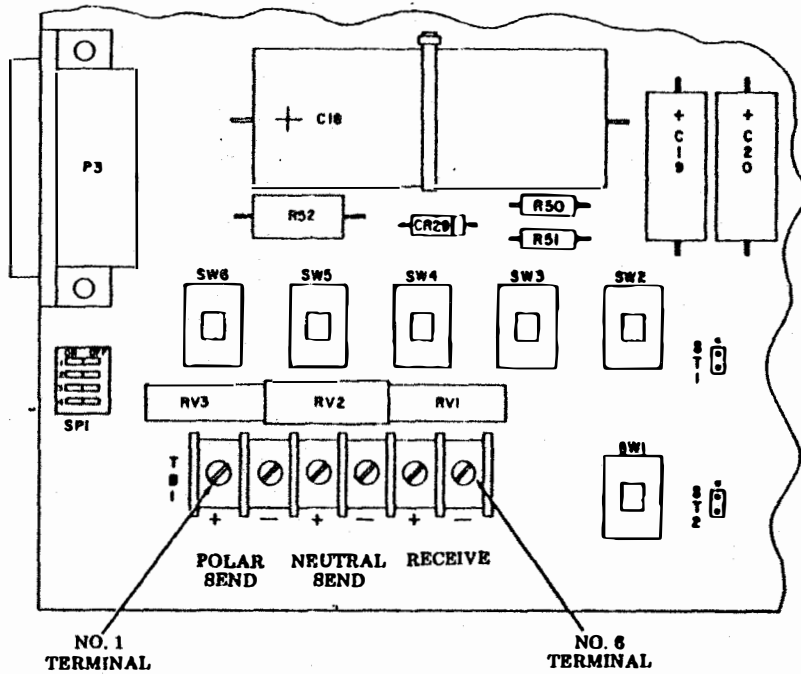
3—Wire
Neutral

4—Wire
Neutral

Half-Duplex — Protocol 1 and 2 — local copy.
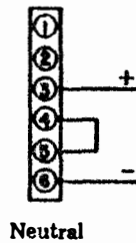
Full Duplex — Protocol 1 and 2 — no local copy.

Full Duplex — Protocol 3 and 4 — local copy.
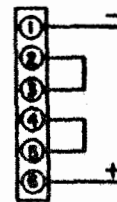
Fig. 2

420101 Terminal Block and Option Switches

NO. 1
TERMINAL

NO. 6
TERMINAL

Private Line — Half-Duplex
2—Wire Configuration — Protocol 1 and 2

Neutral

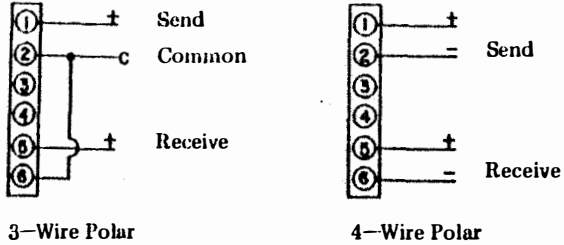Neutral with Battery

PL Option Switch ON
Polar/Neutral Switch ON

Fig. 3

C.   ASSEMBLY (Cont)

2.   STATION INSTALLATION (Cont)

Telex — 420101 Interface

**Full Duplex
Polar
Protocol 3 and 4
Local Copy Only**

3—Wire Polar   4—Wire Polar

PL Option Switch OFF
Polar/Neutral Switch OFF

Fig. 4

**Full Duplex
Protocol 1, 2, 3 or 4**

Neutral   Polar w/Send Battery
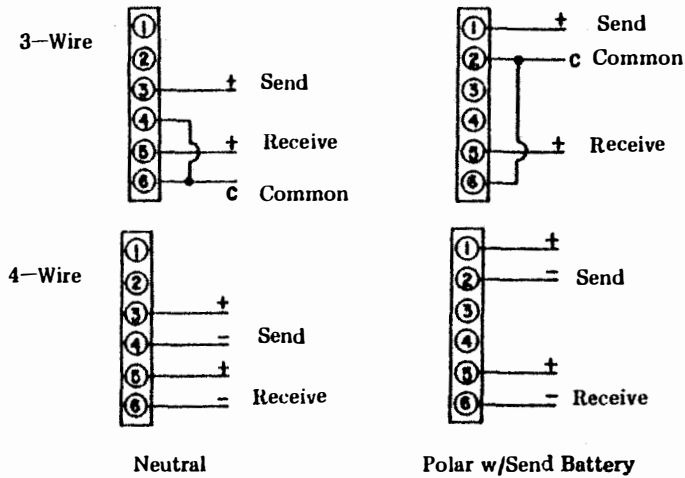
420101   PL Option Switch OFF
Polar/Neutral Switch — Selected

Fig. 5

Bottom Side of Directory Card

Top Side of Directory Card

C. ASSEMBLY (Cont)

3. ACCESSORIES

The following 42 tabletop buffered terminal accessories are available to the customer and may be installed following the Instruction furnished with each accessory.

Accessory	Part No.	Specification No.
KSR Pedestal	430311	51006S
ASR Pedestal	430350	51006S
Line Interface Cable	407494	
PT Cable	430757	
Copyholder	430310 Modification Kit	50994S
Modification Kit to add ac Distribution to KSR Pedestal	430911	50990S
Paper Winder	430400	51035S
Alternate Font Modification Kit	410715	

4. STATION TESTING

A minimum checkout (refer to How to Operate Manual 454) to assure that cables have been properly connected and that the terminal is basically operable should be performed. Connect the terminal, interface and paper tape unit (if used) power cords to a properly polarized and grounded source of 115 V ac power (50 or 60 Hz). Normally the power cords should be connected to unswitched outlets to avoid loss of stored data or call disconnects. Fuse protection should be time delayed and provide for a running current of 0.8 A for the terminal. (1 A slow blow fuse) and 1.0 A for the PT unit.

D. INSTRUCTIONS TO USER

1. Provide the customer with the How to Operate Manual.

2. Advise customer of availability of operator advisor training from Teletype Corporation, to provide training to the operator for operation of the terminal in addition to the How to Operate Manual. Specific instructions on use of the terminal in the system may also be required.

3. Discuss source of replacement ribbons and paper. (See How to Operate Manual.)

4. Inform customer of any keyboard programmable options and other variations that may have been set. Direct attention to the directory card, and that set is a tabletop version of the buffered 42 teleprinter.

5. If continuous unattended operation is intended, a means to accumulate paper should be used.

PART 3 — ROUTINE SERVICING
A. TROUBLE ISOLATION AND CORRECTION

1. TROUBLESHOOTING GUIDE

This paragraph provides troubleshooting information intended to isolate a trouble to the terminal or external communication device. It also provides troubleshooting within the terminal to the extent that correction can be accomplished with minimal training required and using the adjustments provided or parts and tools indicated in this manual. See Manual 425 for the KSR and ASR or Manual 422 for the PT unit for more detailed troubleshooting.

Trouble analysis is presented in the form of a "20 Questions" routine in the following TROUBLE-SHOOTING GUIDE. The guide, with questions and yes or no columns, should be used, always starting with the first question and proceeding according to the "yes" or "no" directive.

	QUESTION	YES	NO
1.	Are any indicators on opcon lit (power available, ac cords plugged in, KP set and PT unit power on, and cover closed)?	Go to 2.	Go to 1a.
1a.	Is there any indication of power in the set? (Opcon lamps flash when KP power is turned on and off, print head indexes to the left, RED lamp on KP power supply lit, etc.)	Go to 1c.	With power off, check KP set F1 fuse. (See Page 3-11.) If fuse is OK, trouble is in terminal. Replace fuse if blown. Go to 1b.
1b.	Do any indicators now light when power is turned on?	Original trouble is corrected.	Trouble is in terminal. Do not replace fuse second time.
1c.	Is RED lamp on KP power supply lit? See Page 3-10 for location.	Check seating of KP power supply output cable. Check opcon cable plug. Trouble is in terminal.	With power off, check F2 fuse on KP power supply (See Page 3-11). If fuse is OK, trouble is in terminal. If fuse is blown, check for foreign objects between circuit lands or terminals and replace fuse. Go to 1d.

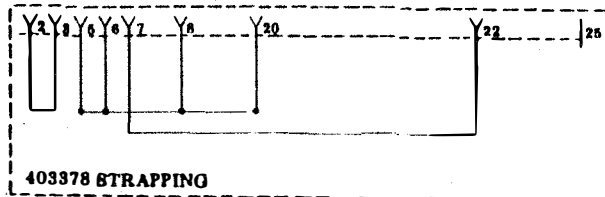## A. TROUBLE ISOLATION AND CORRECTION (Cont)

1. TROUBLESHOOTING GUIDE (Cont)

	QUESTION	YES	NO
1d.	Does RED lamp on power supply now light when power is turned on?	Original trouble is corrected.	Trouble is in terminal. Do not replace fuse second time.
2.	Can any characters be locally generated from the opcon to the printer?	Go to 3. ·	Go to 2a.
2a.	Does printer local self-test pass? (SPA6 — SW4 and SW5 On). See Page 3-5.	Go to 3. (Problem could be the opcon.)	Trouble is in terminal. (Problem could be the printer logic card.)
3.	Does terminal have a paper tape unit?	Go to 4.	Go to 5.
4.	Does problem appear to be in the paper tape unit?	Go to 11.	Go to 5.
5.	Are any of the following characters substituted in the copy? O ∅ ∧ ↑ — ←	Check Page 2-1, A. SWITCH ENABLED OPTIONS, 431. (4240/BAA only)	Go to 6.
6.	Are undesired line lengths set when power is applied?	Option switch SPB6 switches 4 and 5 must be off. (See Page 2-1.) Check keyboard programmable options LfBdy and RtBdy for proper values. (Refer to Manual 454).	Go to 7.
7.	Is print density acceptable (including any carbons)?	Go to 8.	Replace ribbon. Check proper density of multicopy paper.
8.	Can any data be both sent and received on-line?	Go to 9.	Go to 8a.
8a.	Does interface provide analog loopback feature?	Place in test mode and go to 8b.	Remove interface cable and install 403378 interface loopback connector (or equivalent*) in teleprinter line connector, then go to 8c. (option protocol 1).

	QUESTION	YES	NO
8b.	With teleprinter in terminal on-line mode, is sent data received?	Teleprinter and interface are ok.	Remove interface cable and install 403378 interface loopback connector (or equivalent*) in teleprinter line connector, then go to 8c. (option protocol 1).
8c.	With teleprinter in terminal on-line mode, is sent data received?	Trouble is in interface or line.	Trouble is in teleprinter.
9.	Are data messages properly sent and received in terminal on-line mode?	Place in service	Check keyboard program-mable options. Perform opcon self-test — See How to Operate Manual 454. If test fails, trouble is in terminal. If test is OK, perform controller self-test — See Page 3-5. If test fails trouble is in terminal. If self-test is OK, trouble is in external communications device or remote terminal. (If interface loopback test was not performed, the trouble may be in either the teleprinter or external communications device.)

*Go directly to the NO response directive for Step 9 if a loopback arrangement is not available.

403378 INTERFACE LOOPBACK CONNECTOR

403378 STRAPPING

A. TROUBLE ISOLATION AND CORRECTION (Cont)

1. TROUBLESHOOTING GUIDE (Cont)

If paper tape unit is present.

QUESTION	YES	NO
10. Is GREEN indicator lit on PT unit (PT unit power switch on)?	Go to 11.	With power to PT unit off, check PT unit fuse F5. See Page 3. If fuse is OK, trouble is in terminal. Replace fuse, if blown. Go to 10b.
10b. Does GREEN indicator on PT unit now light when power is turned on?	Original trouble is corrected	Trouble is in terminal. Do not replace fuse second time.
11. Can reader locally send characters to the printer?	Go to 12.	Check cable from PT unit to controller. See Page 3-11 AUX EIA cable. Check PTR OFF/LOCAL-NORMAL switch (in NORM position.) See Page 3-12. Trouble is in terminal.
12. Is data from reader to printer garbled?	Check that CPS switch is in 30 position. See Page 3-12. Check Option 455. See Page 2-2. Trouble is in terminal.	Go to 13.
13. Does punch receive errorless data from reader?	Place in service.	Trouble may be in terminal. Refer to Manual 421, Trouble Isolation and Correction.

2. CONTROLLER SELF-TEST

An LED, located under the thirteenth bustle air vent slot from the left, is used to indicate controller operation and the result of the self-test routine. The round, black test switch actuator is located under the seventeenth bustle air vent slot from the left. Refer to C. COMPONENT LOCATION AND ACCESS, Pages 3-10 and 3-11.

To initiate the test, momentarily depress the controller test switch actuator by reaching through the air vent slot with a small, nonmetalic tool such as an orange stick or a plastic rod. The controller LED will flash periodically during the test (approximately 30 seconds) indicating the test is in progress. When the test is concluded (all flashing stops) the LED will go off indicating that the test passed and normal operation may be resumed.

Failure of the controller self-test is indicated if LED is lit after the test period.

Note 1: The controller self-test is Independent of the operator console and the printer.

Note 2: Information stored in the volatile memory will be lost when this test is performed.

Note 3: Ignore any data that may print as a result of this test.

Note 4: If the controller LED continues to flash (approximately every seven seconds), the controller test switch may be in its "locked" position. To release the switch, rotate the actuator 1/8-turn counterclockwise.

3. PRINTER LOCAL TEST

The printer local test may be entered by placing SPB6 — SW4 and SW5 ON. Refer to Component Location and Access. During the test, the first 80 characters of the test message will be printed, the bell will ring 16 times, a carriage return and line feed will occur and the printed line will be printed, etc. The test should consist of at least 16 lines. Return SW4 and SW5 to OFF positions.

Note: Whenever an option switch is changed, power must be turned off.

B. PERIODIC CHECKS, LUBRICATION, AND CLEANING

1. GENERAL

This part provides routine servicing procedures for the 42 Teleprinter Tabletop Buffered KSR and ASR Station.

Routine servicing should be performed, at the convenience of the customer, at least once a year.

Routine servicing consists of visual checks, lubrication, and cleaning. When performed at routine intervals, the possibility of later troubles will be reduced.

Following the routine servicing, a local and on-line installation checkout should be performed.

Refer to the 42/43 Paper Tape Unit Manual 421 for PT unit periodic checks, lubrication and cleaning procedures.

B.   PERIODIC CHECKS, LUBRICATION, AND CLEANING (Cont)

2.   VISUAL CHECKS

The following areas should be checked for mechanical condition:

    a.   Frayed belts on spacing and line feed motors.
    b.   Worn or frayed ribbon.
    c.   All cable connectors fully seated (Pages 2-9, 3-10 and 3-11).
    d.   Print head cover fully seated.

3.   CLEANING AND APPEARANCE

Examine exterior areas for smudges, dust, etc.

Check proper fit of cover. Replace extremely damaged or discolored cover, housing, bustle, etc.

Exterior cleaning should normally be limited to wiping with a soft cloth moistened with a mild detergent. However, in case of ink stained plastic surfaces, a waterless (nonabrasive) hand cleaner or a lather from abrasive bar soap applied with a cloth should be used.

Interior areas should be examined with the cover opened and accumulations of paper dust or ribbon fragments clea ed by carefully brushing loose material onto a cloth. Ink stains or deposits on interior surfaces, ribbon rollers, platen, etc, can be wiped with a cloth dampened in mineral spirits.

Warning: Do not allow mineral spirits or solvents to contact plastic surfaces.

4.   LUBRICATION PROCEDURES

The printer can be lubricated by opening the cabinet cover. Apply lubricant to points as indicated.

On small parts, a minimum amount of lubricant should be applied so that the lubricant remains on the parts and does not run off.

Excessive lubricant should be removed with a dry, lint free cloth. The following areas must be kept dry, free of all lubricant: All electrical components, including terminals. All parts normally touched by the operator, including exposed surfaces in ribbon, pape handling areas, and all large flat areas.

The following symbols indicate the quantity of lubricant to be used in a specified area: Symbols 01, 02, 03, etc, refer to 1, 2, 3, etc, drops of oil.

The following list of symbols applies to the lubrication instructions and the type of lubricant to be used:

    0   Oil 88970 (1 qt), 88971 (1 gal).
    G-A   Apply thin film of 97116 (4 oz) or 88973 (1 lb) grease.
    G-B   Apply thin film of Syn-Tech grease (use 430836 tube with grease and 430838 brush).
    G-C   Fill with Poly Oil grease (use 430837 injector with grease).
    S   Saturate felt oilers, washers, and wicks with oil.
    D   Keep dry, no lubricant permitted.

4. LUBRICATION PROCEDURES (Cont)

Lubrication Check List: (See Pages 3-8 and 3-9)

Lead Screw — Film of grease over entire threaded portion of lead screw.
* Carriage Wicks — Saturate with oil (4 places)
Ribbon Guide Rollers — 2 drops of oil (2 places)
Ribbon Rollers — 2 drops of oil (2 places)
Ribbon Tension Arm Pivot and Spring — 2 drops of oil each (4 places)
* Spacing Tension Arm Pivot, Roller and Spring — 2 drops of oil each (4 places)
Platen Bearing — 5 drops of oil each side (2 places)
Finger Pivots — 2 drops of oil each side (2 places)
Paper-Out Arm Pivot — 2 drops of oil on both pivot points (sprocket feed only).
Lead Screw Pulley Clip — Grease between clip and lead screw shaft.
Pressure Roller Bail Spring — 2 drops of oil each end (2 places — friction feed only).
Platen Tray Shaft — 2 drops of oil each end at the side plates (2 places — friction feed only).
Pressure Roller Bail — 2 drops of oil each end at pivot points on each side of bail (2 places — friction feed only).
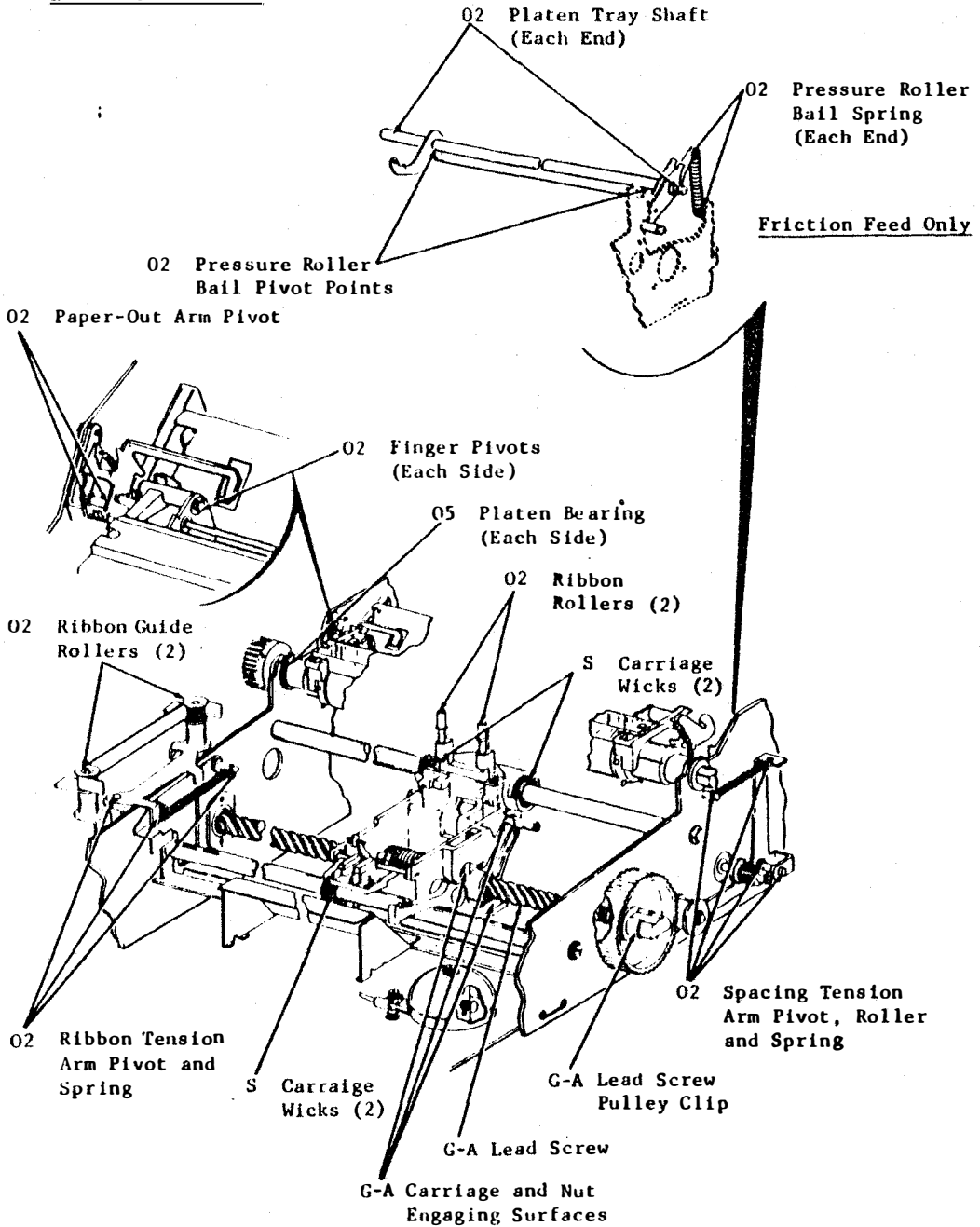

Carriage and Nut Engaging Surfaces:

    a.   Two Nut Drive Arms — Grease four bearing surfaces.
    b.   Nut Keying Arm — Lubricate by packing carriage engaging slot with grease.

Print Head:

    a.   Active Armatures and Outer Pole Plate — Grease at the upper pivot area as well as the lower locator area (9 places).
    b.   Print Wire Well Area — Completely fill with grease.

B. PERIODIC CHECKS, LUBRICATION AND CLEANING (Cont)

5. LUBRICATION POINTS

02 Platen Tray Shaft
(Each End)

02 Pressure Roller
Bail Spring
(Each End)

Friction Feed Only

02 Pressure Roller
Bail Pivot Points

02 Paper-Out Arm Pivot

02 Finger Pivots
(Each Side)

05 Platen Bearing
(Each Side)

02 Ribbon
Rollers (2)

02 Ribbon Guide
Rollers (2)

S Carriage
Wicks (2)

02 Ribbon Tension
Arm Pivot and
Spring

S Carraige
Wicks (2)

02 Spacing Tension
Arm Pivot, Roller
and Spring

G-A Lead Screw
Pulley Clip

G-A Lead Screw

G-A Carriage and Nut
Engaging Surfaces

5. LUBRICATION POINTS (Cont)

G-C Print Head Well Area
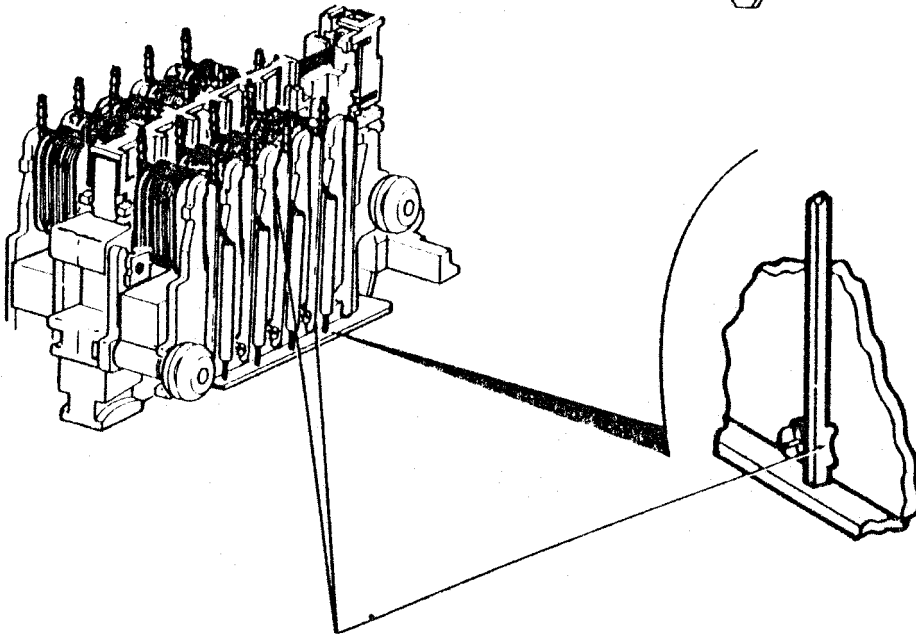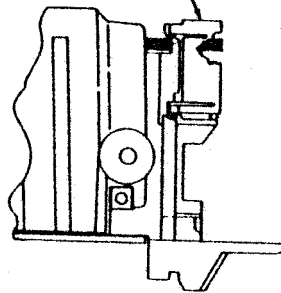
G-B Print Head Active Armatures
and Outer Pole Plates

C. COMPONENT LOCATION AND ACCESS

1. OPERATOR CONSOLE, PRINTER, LOGIC CARD, SWITCHES AND INDICATORS

OPCON CABLE PLUG
PRINT HEAD CABLE
DIRECTORY CARD

POWER SUPPLY LED (Visible Through 6th Slot From Left)

CONTROLLER LED (Visible Through 13th Slot From Left)

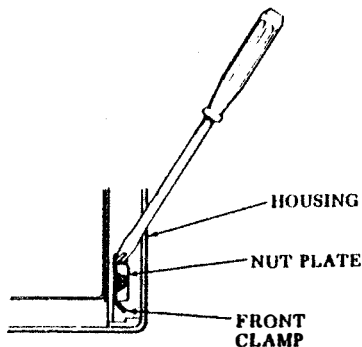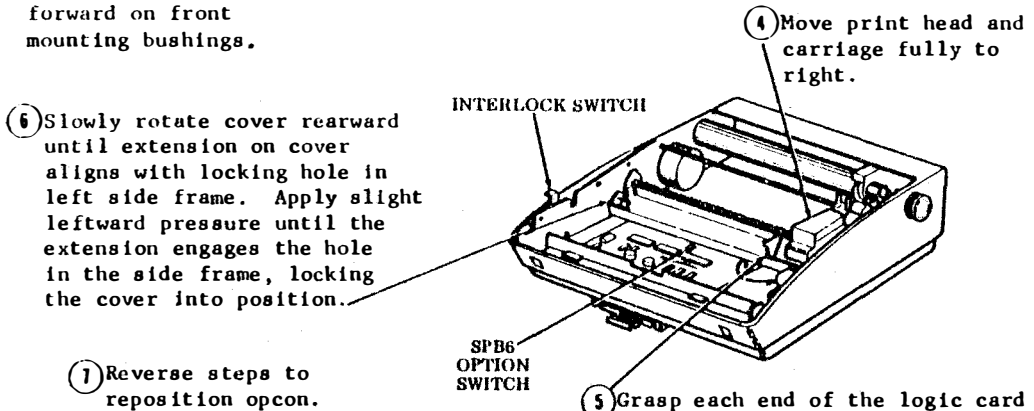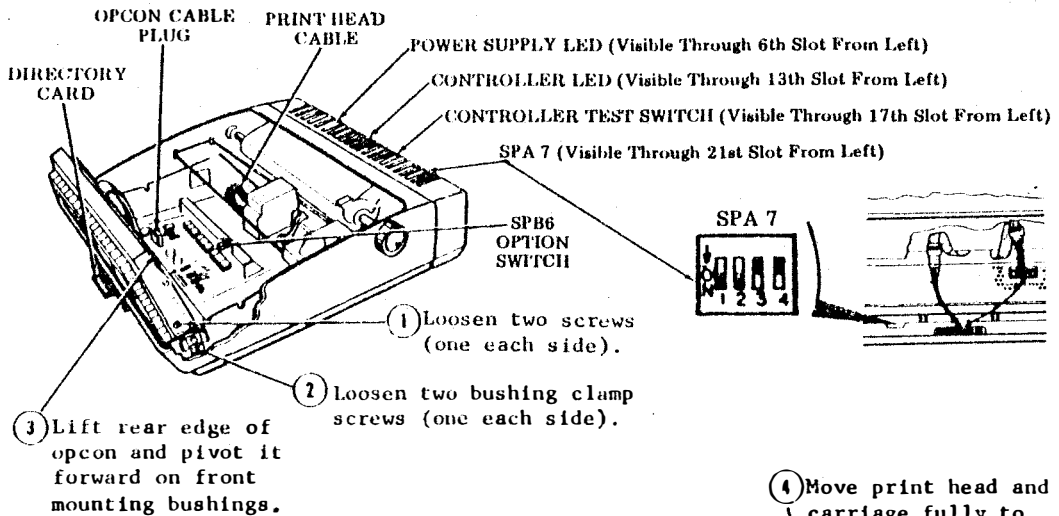CONTROLLER TEST SWITCH (Visible Through 17th Slot From Left)

SPA 7 (Visible Through 21st Slot From Left)

SPB6 OPTION SWITCH

SPA 7

(1) Loosen two screws (one each side).

(2) Loosen two bushing clamp screws (one each side).

(3) Lift rear edge of opcon and pivot it forward on front mounting bushings.

(4) Move print head and carriage fully to right.

INTERLOCK SWITCH

(6) Slowly rotate cover rearward until extension on cover aligns with locking hole in left side frame. Apply slight leftward pressure until the extension engages the hole in the side frame, locking the cover into position.

SPB6 OPTION SWITCH

(7) Reverse steps to reposition opcon.

(5) Grasp each end of the logic card front cover and push outward on the sides until the locking tabs are free of the logic card.
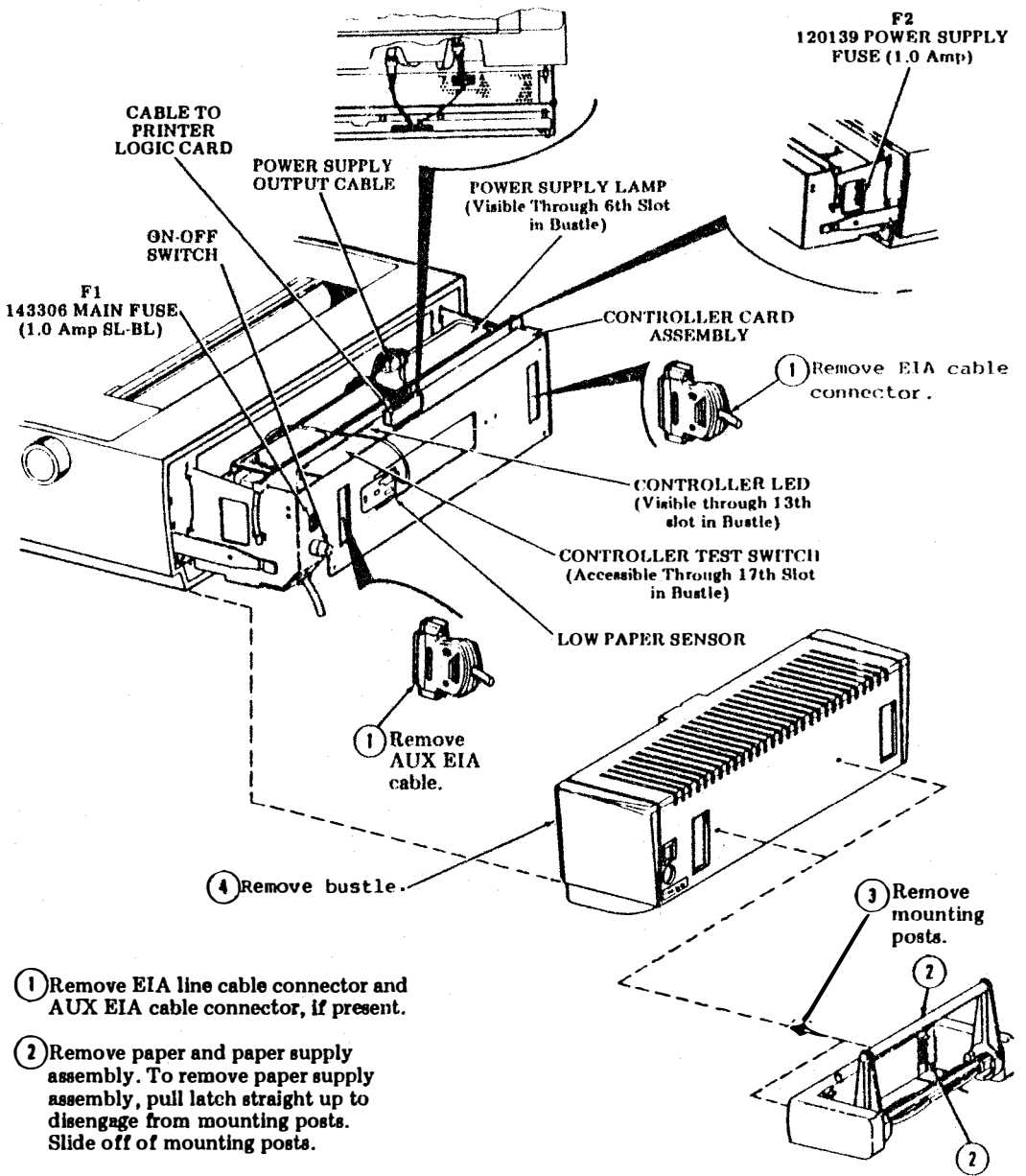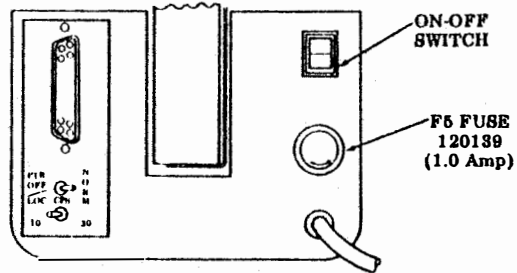
HOUSING

NUT PLATE

FRONT CLAMP

Note: When repositioning opcon, insert a screwdriver into the square hole in the nut plate and gently twist (or pry) the screwdriver with enough force to draw the assembly forward.

*Caution: Do not over twist the screwdriver.*

Tighten the clamp screws.

2. POWER SUPPLY LAMP AND FUSE, CONTROLLER CARD ASSEMBLY CABLE, LAMP AND TEST SWITCH
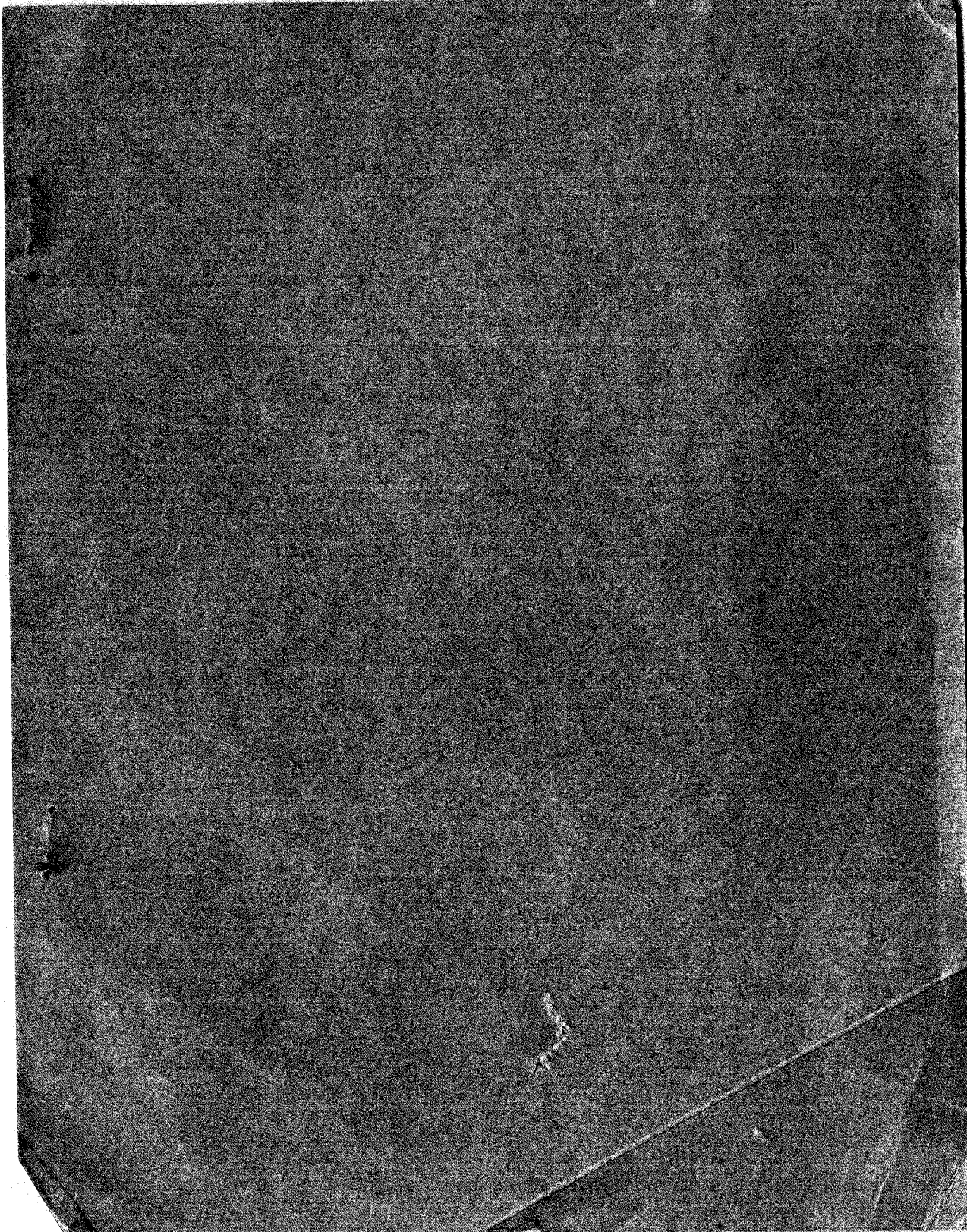
F2
120139 POWER SUPPLY
FUSE (1.0 Amp)

CABLE TO
PRINTER
LOGIC CARD

POWER SUPPLY
OUTPUT CABLE

POWER SUPPLY LAMP
(Visible Through 6th Slot
in Bustle)

ON-OFF
SWITCH

F1
143306 MAIN FUSE
(1.0 Amp SL-BL)

CONTROLLER CARD
ASSEMBLY

(1) Remove EIA cable
connector.

CONTROLLER LED
(Visible through 13th
slot in Bustle)

CONTROLLER TEST SWITCH
(Accessible Through 17th Slot
in Bustle)

LOW PAPER SENSOR

(1) Remove
AUX EIA
cable.

(4) Remove bustle.

(3) Remove
mounting
posts.

(2)

(2)

(2)

(1) Remove EIA line cable connector and
AUX EIA cable connector, if present.

(2) Remove paper and paper supply
assembly. To remove paper supply
assembly, pull latch straight up to
disengage from mounting posts.
Slide off of mounting posts.

C. COMPONENT LOCATION AND ACCESS (Cont)

3. PT UNIT

ON-OFF
SWITCH

F6 FUSE
120139
(1.0 Amp)

D. ADJUSTMENTS

1. PLATEN ENDPLAY

Requirement

Platen Endplay — With the platen biased to the right, there should be
Min Some — Max 0.008 inch
clearance between the left bearing and the platen hub, at the closest point, and
Max 0.030 inch
between the left bearing and the sprocket at the closest point.

Max
0.030"

Some to
0.008"

LEFT FRAME

LINE FEED SPROCKET
SET SCREWS

BEARING

PLATEN
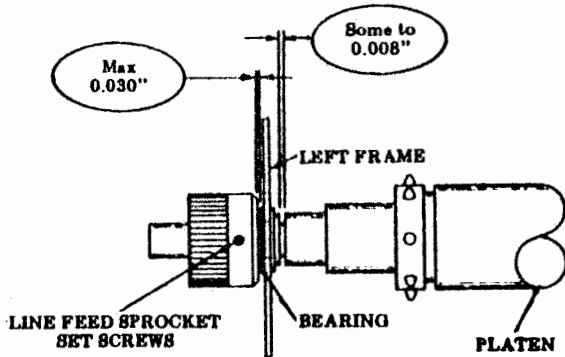
To Adjust

Loosen line feed sprocket set screws and position.