



# INSTRUCTIONS

GEK-49263A

# TermiNet<sup>\*</sup> DATA COMMUNICATION PRODUCTS

## INSTALLATION INSTRUCTIONS FOR THE TermiNet 310/320/330/340 LINE PRINTERS

### GENERAL DESCRIPTION

The TermiNet 310/320/330/340 Line Printers (Figure 1) are compact, pedestal-mounted, self-contained units which provide Line Printer functions in Data Systems. The TermiNet Line Printers are capable of printing up to 132 columns of data. The print rate varies with the density of printed characters per line, the Printer model, and the ASCII subset (64 or 96 characters).

The TermiNet Line Printer prints on single or multiple part, continuous pin feed, edge punched paper. The pedestal contains the electronics. The Printer uses a Vertical Format Unit (VFU) to provide automatic vertical line spacing to a predetermined position on a preprinted form. The VFU uses standard one-inch wide (2.54 cm), eight-channel, paper or mylar type with 1/10 inch (0.245 cm) pitch sprocket holes located between channels 3 and 4.

### SIZE AND WEIGHT

	IN.	CM.
Width:	25 3/16	66
Depth (without optional paper shelf):	25	64
Depth (with optional paper shelf):	35 1/2	90
Height (includes paper rack):	37 13/16	96
Weight (approx.):	135 pounds (61.2 kg.)	

### OPERATING AREA PREPARATION

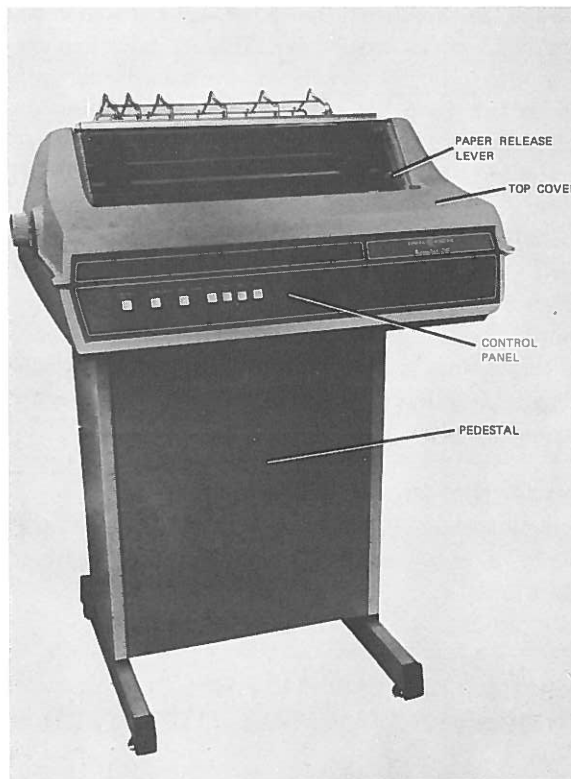
#### FLOOR AREA

Arrange an appropriate location for the Printer in logical conjunction with the total Data System of which it will be a part. The Printer requires a floor area about 4 feet wide and four feet deep to permit cleaning, ventilation, and access to paper handling racks and trays.

\*Trademark, General Electric Company, USA

© Copyright General Electric Company, USA 1976

*These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to General Electric Company.*



PLH-5004

Figure 1. TermiNet Line Printer. (Model 340 Shown).

**CAUTION**

Care should be taken when moving Printer to a new location that interconnection cabling is not damaged.

### POWER SUPPLY

The standard TermiNet Line Printer requires 117 volts ( $\pm 10\%$ ); 50/60 Hz  $\pm 1$ Hz. (The Printer is designed for both 50 and 60 Hz operation.) Nominal power ratings are as follows:

<u>PRINTER MODEL</u>	<u>PRINTING (WATTS)</u>
310	250
320	270
330	325
340	360

Motor On (All Models): 175 WATTS

Standby (All Models): 100 WATTS

An AC power outlet supplying correct voltage, current, and frequency must be available within six feet (1.83 m) of the Printer. This AC power source must be properly grounded in accordance with recognized good safety practices. In addition to personnel safety considerations, an AC power source not grounded in accordance with recognized good safety practices may cause erroneous equipment operation and could result in damage to the equipment. Also avoid using circuits serving other devices which may cause chronic low voltage and introduce "noise" and circuits with heavy equipment whose starting results in voltage fluctuations. This unstable voltage condition may cause the Printer to turn off during operation.

#### ENVIRONMENT

Avoid installing the TermiNet Line Printer in hot, humid, or dusty areas. Environmental specifications are as follows:

#### TEMPERATURE

Operating: +32° (0°C) to +110°F (43.5°C)

Storage: -40°F (-40°C) to +160°F (71°C)

#### RELATIVE HUMIDITY

5% to 95% non-condensing

#### ALTITUDE

Operating: 0 to 12,000 feet (3,660 m)

Non-Operating: 0 to 50,000 feet (15,260)

#### SHIPPING PACKAGE AND INSPECTION

The Printer and Pedestal are boxed in one large shipping carton, together with separately packaged paper rack platen and the optional front paper low switch kit and paper shelf. The Printer is protected against shipping damage by an outer shipping carton, a form-fitting foam cover on top, and a polystyrene base. In addition, the Printer and Pedestal are covered by a polyurethane cover. An instruction package is included for customer use. This package contains manuals pertinent to the Printer.

\*See CAUTION on Page 10.

If any shipping or handling damage is found upon delivery or during unpacking, immediately notify the carrier. If any equipment is missing or incorrect, notify the General Electric Company, Data Communication Products Department, Waynesboro, Virginia 22980 (Telephone (703) 942-8161).

#### UNPACKING

##### NOTE

Retain shipping carton and packing material for use in reshipping Printer.

1. With shipping carton right side up, cut banding straps around outer carton and lift off top end cap of shipping carton.
2. Remove polyurethane cover from top of Printer. The form-fitting foam cover will peel off at the same time.
3. Lift up and remove main body of outer shipping carton. This part of carton will fold flat for easy storage.
4. Remove tape and protective blocks from around Pedestal.
5. Remove all separately packaged items (such as manuals, ribbon cartridge, paper rack, vinyl dust cover\*) from the back of Pedestal.
6. Carefully lift Printer and Pedestal up and away from polystyrene base and bottom cap of shipping carton.

#### WARNING

Complete assembly weighs approximately 135 pounds (61.2 kg).

7. Leveling feet on bottom of Pedestal are preset at factory. However, if floor is uneven at Printer location, adjust leveling feet as necessary to achieve stable support. Locking nuts on leveling feet must be tightened after adjustment is complete.

#### INSTALLATION

With the TermiNet Line Printer removed from its shipping carton, proceeds as follows:

1. Place Printer-Pedestal assembly on firm, flat surface in well-lighted area.
2. Raise Printer hinged top cover. Lift at ridges at sides of top cover (see Figure 2).
3. Make certain that drive belts are in place and routed properly.
4. Check that motor pulley at right rear of Printer is correctly installed for input frequency to be used as shown on Figure 3. (See paragraph entitled REVERSAL OF DRIVE MOTOR PULLEY on page 4.)
5. Make certain that print belt turns freely by hand.
6. Install Platen Assembly as follows:
  - a. Unwrap separately packaged Platen Assembly.
  - b. Open right and left side Platen latches (see Figure 3).
  - c. Install Platen by holding right end of Platen up and carefully sliding left end down and to left while rotating Platen slightly back and forth to mesh gears. (The outer gears will mesh slightly before the inner gears.) Do not force gears together - - they will fit together easily when in alignment.
  - d. Seat right end.
  - e. Close Platen latches.
7. Install Ink Ribbon Cartridge in accordance with paragraph entitled INK RIBBON CARTRIDGE INSTALLATION on page 5. (Observe CAUTION in referenced paragraph.)
8. Close Printer top cover.
9. Install paper rack assembly on top of Printer by hooking the two loops on the rack over the studs located in the top cover flanges as shown in Figure 2.
10. If an international power supply with multi-voltage transformer (44C414423-G03) in the Pedestal is used, proceed as follows (refer to Figure 4):

**WARNING**

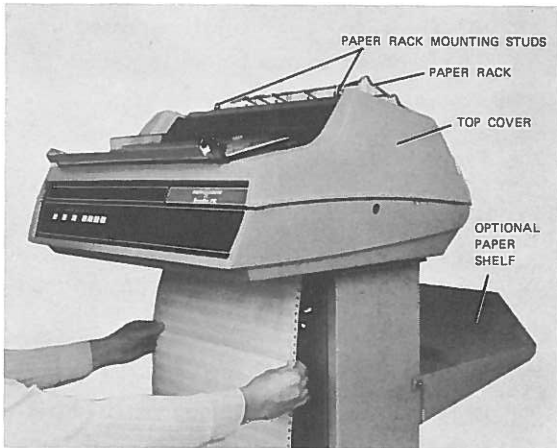
Be sure power line cord is not connected to a local power source before proceeding.

- a. Remove Pedestal Front Panel.
  - b. Remove Warning Plate (secured by two screws) from multivoltage transformer in lower left corner of Pedestal (facing front of Pedestal).
  - c. A small terminal board is now visible. Remove tape from disconnected brown wire and connect to voltage tap on terminal board which matches local supply line voltage (terminals 1-5).
  - d. Where local electrical codes require a neutral fuse, remove jumper from terminal positions 9 and 10. Where neutral fuse is not required, leave jumper in place as shown in Figure 4. Check that line fuse and neutral fuse (where required) are securely installed in fuse holders.
  - e. Replace Warning Plate (removed in step b) and Pedestal Front Panel (removed in step a).
11. Install dummy plug for normal operation. (If required, enable Rear Low Paper switch by leaving dummy plug out of jack.)
  12. If optional Front Paper Low Switch Kit (44C414731-G01) is to be installed, proceed as follows (see Figure 5):

**NOTE**

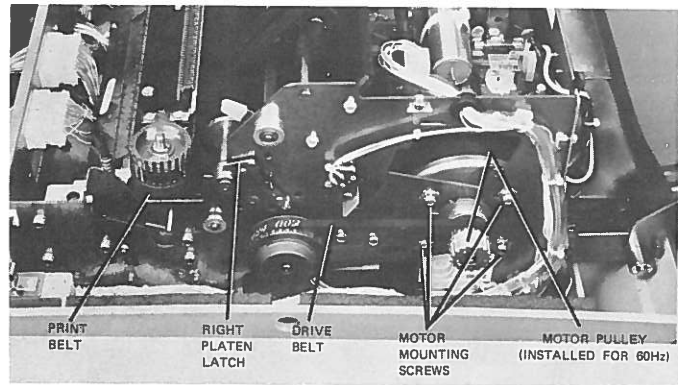
Front paper loading is recommended for multipart forms.

- a. Attach rod to left bracket A and right bracket B at upper bracket holes (see view F) using two No. 8-32 x 1/4" pan head screws. (Bracket angles are at outer sides.)
- b. Using four No. 8-32 x 1/4" pan head screws and four No. 8 flat washers, attach brackets to existing vent slots on external side of front pedestal panel 1.07 inches (2.7 cm) from left side in accordance with Figure 5. Secure bracket A at holes X and bracket B at holes Y. Horizontal levelling is aided by positioning brackets at bottom of vent holes.
- c. Snap Switch and Guide Assembly onto rod.



PLH-5005

Figure 2. TerminoNet Line Printer (Showing Front Paper Loading)



PLH-5006

Figure 3. Right Side of TerminoNet Line Printer.

REVERSAL OF DRIVE MOTOR PULLEY

NOTE

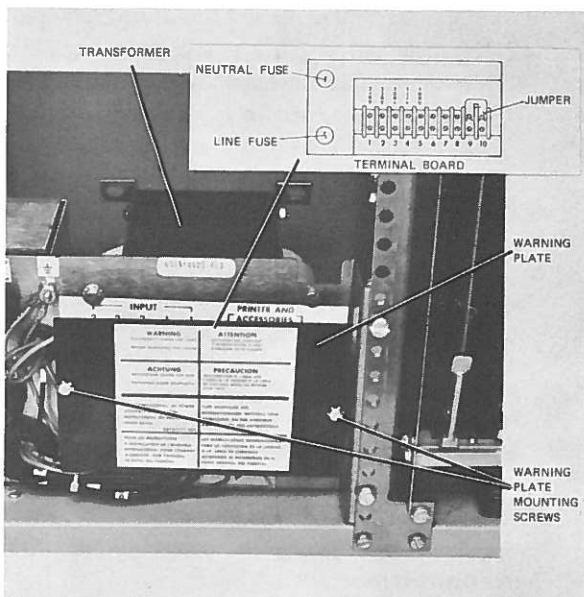
For 60 Hz input power, the smaller diameter side of the pulley must be positioned inboard (next to motor) to drive the belt.

For 50 Hz input power, the larger diameter side of the pulley must be positioned inboard to drive the belt.

If the drive motor pulley reversal is necessary to accommodate local power supply, proceed as follows (see Figure 3 for component locations):

1. Open Printer cover.
2. Loosen the four motor mounting screws.
3. Loosen the two motor pulley set screws and remove pulley from motor shaft.
4. Reverse pulley and reinstall on shaft; tighten the two motor pulley set screws.
5. Slip drive belt over correct diameter motor pulley and position drive belt parallel to side of Printer frame. Adjust for correct belt tension by moving motor toward front or rear of Printer. Tighten motor in place while holding belt tension as follows:

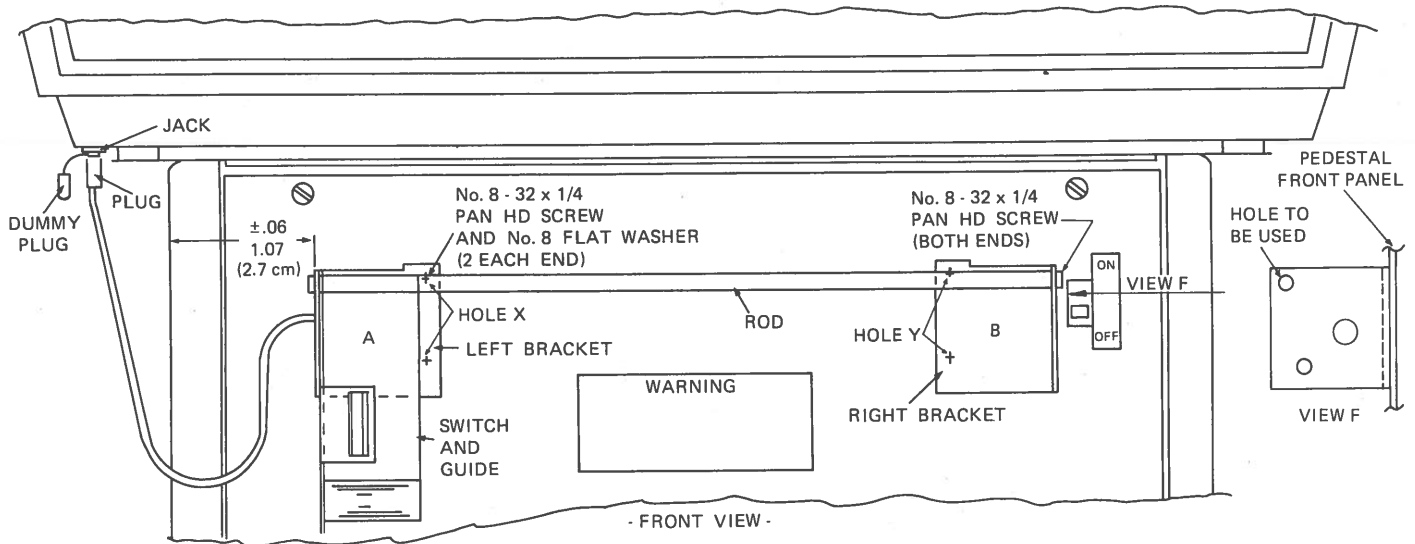
A 4 ounce (114 gm) load deflects belt 0.10 to 0.30 inch (2.5 to 7.6 mm). Load should be applied perpendicular to belt at mid-span.



PLH-5007

Figure 4. Multivoltage Transformer - Front View

- d. Remove dummy plug from jack in left bottom of Printer and plug in jack from front paper low switch. (When plug from front paper low switch is installed in jack, both the front and rear low paper sensing are enabled.) ASSURE THAT PLUG IS SECURELY INSTALLED IN JACK.
13. If applicable, secure optional paper shelf in back of Pedestal by hooking it over studs protruding from sides of Pedestal (see Figure 2), or install optional paper shelf and tray, or tray with front and rear extenders. If applicable, install ground (earth) strip supplied.



PLH-5008

Figure 5. Installation Of Optional Front Paper Low Switch Kit

Tighten all four motor mounting screws evenly, one turn at a time. Do not tighten any one screw completely before tightening the others an equal amount.

**INK RIBBON CARTRIDGE INSTALLATION**

Install Ink Ribbon Cartridge (44A419819-G01) as follows (refer to Figure 6):

**CAUTION**

Do not operate Printer without ink ribbon cartridge installed, as excessive print finger wear may result.

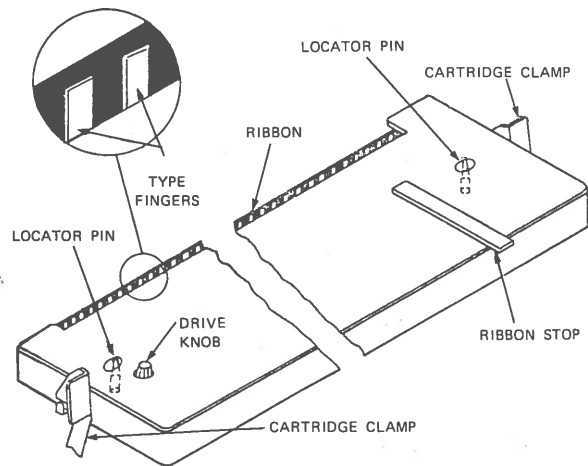
Failure to observe this CAUTION will void Printer warranty.

1. Raise Printer top cover.
2. Place Paper Release Lever in RUN position by pushing up on lever (see Figure 7).
3. Remove ribbon stop from cartridge.
4. Prior to insertion of Ink Ribbon Cartridge, rotate Drive Knob in counterclockwise direction to insure that ribbon is taut.
5. Load cartridge onto the two locator pins and press down on four corners of cartridge until cartridge clamps snap into place.

6. Inspect all type fingers to insure that no fingers are between ribbon and platen.
7. If all type fingers are not on same side, release cartridge clamps, lift off cartridge and repeat steps 4 through 6.

**NOTE**

To remove a used cartridge, release cartridge clamps and lift off used cartridge as in step 7 above.



PLH-5002

Figure 6. Ink Ribbon Cartridge

## PAPER INSTALLATION

The TermiNet Line Printer prints on single or multiple-part (original and five copies maximum), continuous-pin-feed, edge-punched paper. The tractor is variable to handle paper widths from 3 inches (7.6 cm) to 15.00 (38.1 cm). Paper loading may be accomplished from front or rear of Printer, as follows (see Figures 2 and 8):

1. Place paper supply at front or rear of Printer, as applicable. Cut off top of paper box smoothly and slightly below top; also remove side adjacent to Pedestal.
2. Raise clear plastic paper shield and push Paper Loading Lever in and down to LOAD position (see Figure 7).
3. Feed paper into front or rear of Printer. If multiple form sets are used, shiny side of carbon paper should be toward rear for front loading, or up for rear loading.

### NOTE

Be sure paper slides over Paper Out Switch and not beside it, since paper cannot be moved laterally onto the switch.

4. Continue feeding paper until it appears in front of platen. Pull enough paper through to reach beyond tractors as shown in Figure 9. Be sure paper alignment is straight with respect to Printer so that no side pressure or tension is applied to the paper.
5. Release tractors by pushing down on small tractor levers. Slide tractors to left or right as required to align with paper width being used.
6. Install paper on tractor pins, then close tractor covers and lock in place pushing up on small tractor levers as shown in Figure 10.
7. Push up on Paper Loading Lever to RUN position (see Figure 7).
8. Close clear plastic paper shield.
9. Check that paper is in correct alignment with paper rack on top of Printer so that paper can slide smoothly along rack during Printer Operation (see Figure 11).

10. Check out paper flow and stacking to insure no contact with incoming paper.

## PREPARATION FOR USE

1. Check that power switch on Pedestal is OFF, then check the following:
  - a. If other than standard 117V power supply is being used, multivoltage transformer connections have been accomplished in accordance with procedures described under INSTALLATION, step 10.
  - b. Correct diameter side of drive motor pulley is being used for the local supply frequency available.
  - c. Ink Ribbon cartridge is installed. (Observe CAUTION on page 5.)
  - d. Paper is installed.

### NOTE

Since TEST pushbutton operates all 132 columns (see step 3 OPERATIONAL CHECKOUT PROCEDURE), be sure that 132-column width paper is used for checkout.

2. Connect or simulate data source, as required.

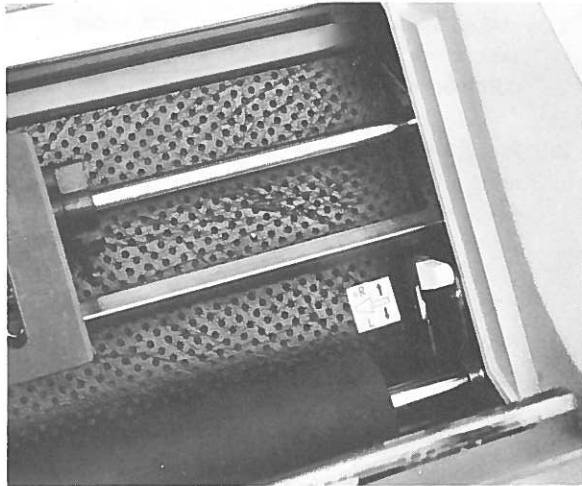
### NOTE

Checkout procedures are provided for applicable interface configurations in the OPERATIONAL CHECKOUT PROCEDURE.

3. 117V AC Local Power Supply:  
Connect male end of power cord to properly grounded 117V AC power source.

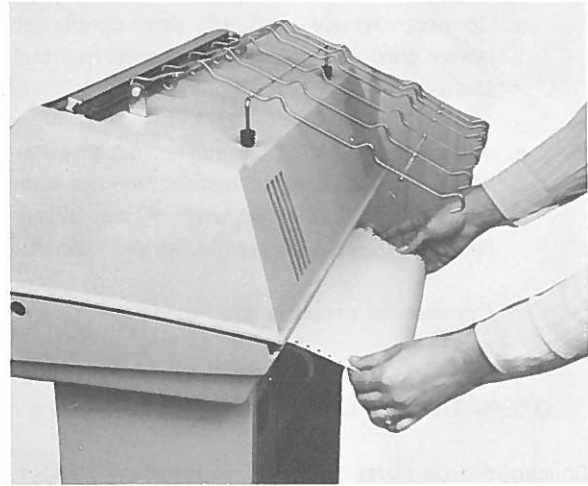
### Other than 117V AC Local Power Supply:

- a. Assure that steps 1a and 1b above have been accomplished.
- b. Then remove rear panel from Pedestal and connect male end of Printer power cord to multivoltage transformer plug as shown in Figure 12.
- c. Replace rear panel of Pedestal.



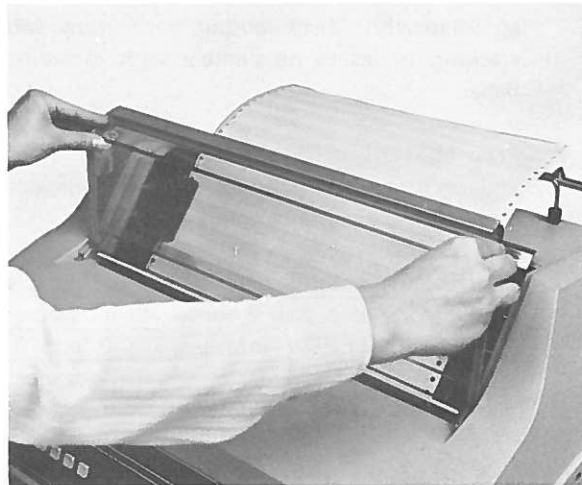
PLH-5012

Figure 7. Paper Loading Lever  
(Shown in RUN (up) Position)



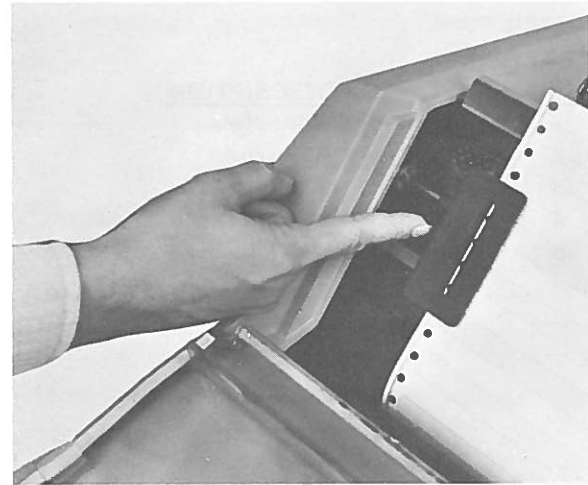
PLH-5009

Figure 8. Rear Paper Loading



PLH-5010

Figure 9. Plastic Paper Shield



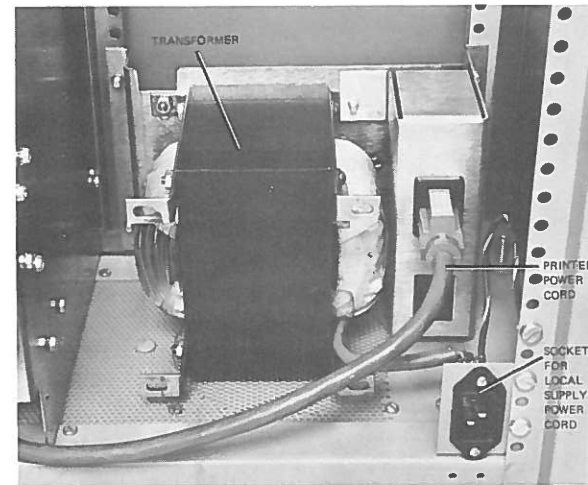
PLH-5011

Figure 10. Tractor Release Lever



PLH-5013

Figure 11. Paper Installed in Printer



PLH-5014

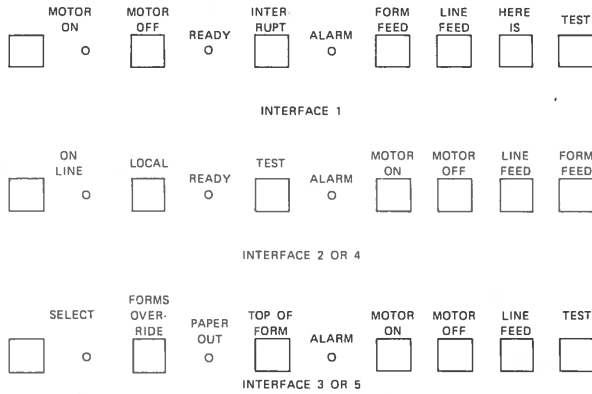
Figure 12. Multivoltage Transformer - Rear View

- d. Connect female end of three-conductor power cord at lower right corner of Pedestal (facing rear of Pedestal).
- e. Attach the three spade connectors at other end of power cord to locally required connector (color code: Brown = Phase, Blue = Neutral, Green with yellow stripe = earth).
- f. Connect to properly grounded local power source.

**OPERATIONAL CHECKOUT PROCEDURE**

Checkout procedures for the five interface arrangements listed below are given in this section. Omit steps not applicable to the interface being simulated. See Figure 13 for Control Panel Configurations.

INTER-FACE NO.	DESCRIPTION
1	Standard Parallel Interface
2	Buffered Parallel Interface
3	Unbuffered Parallel Interface
4	Buffered Closed Loop Serial Interface
5	Unbuffered Closed Loop Serial Interface



PLH-5020

Figure 13. Control Panel Configurations.

1. After completing procedures under PREPARATION FOR USE, press Power switch on front of Pedestal to ON position. Fans begin operating (front of Printer (when included), rear of Printer, bottom of Pedestal).

**NOTE**

Printer will not operate unless top cover is down, RUN/LOAD switch is in RUN position, Paper Out switch is activated,

and drive belt is up to speed and paper tape is in VFU mechanism if VT or FF commands will be used.

2. Press MOTOR ON pushbutton. Motor starts and, on Interface 1 only, MOTOR ON indicator lights.

**NOTE**

Since TEST pushbutton operates all 132 columns, be sure that 132-column width paper is used for checkout.

3. Press TEST pushbutton for approximately 5 seconds. Alphabet, numerals, and symbols test series is printed out in sequential counting order of the ASCII code as long as TEST pushbutton is pressed down. Line feed operates automatically. Check output paper flow and stacking to insure no contact with incoming paper.
4. Press MOTOR OFF pushbutton. Motor stops and, on Interface 1 only, MOTOR ON indicator goes out. Fans continue to operate.
5. Interfaces 1, 3, and 5 only: Press MOTOR ON pushbutton, as in step 2 above. All interfaces: Press LINE FEED. On Interfaces 2 and 4, motor starts. On all interfaces, paper advances one line each time the pushbutton is pressed.
6. Tear off paper entering Printer at paper perforation nearest point of entry. Use LINE FEED pushbutton to advance paper until low paper condition is sensed. The result of this action varies with the interface arrangement, as follows:

- a. Interface 1: The LFPF signal is switched high at the interface to the Data Source. No direct action is taken by the Printer and printing may continue until the paper-out sensor is activated.
- b. Interfaces 2 and 4: Paper out alarm is activated, lighting the ALARM indicator.
- c. Interfaces 3 and 5: PAPER OUT indicator is lit and BUSY signal indicates data cannot be received. Now press FORMS OVERRIDE pushbutton. Paper may be advanced until paper out sensor (below print hammers) is



activated. Busy signal indicates data may be received as long as FORMS OVERRIDE pushbutton is pressed. This allows the in-process form to be completed.

7. Reinstall paper in Printer (ref. PAPER INSTALLATION on page 6). Press MOTOR ON pushbutton. ALARM indicator or PAPER OUT indicator goes out, as applicable. Then press LINE FEED pushbutton several times. Paper advances one line at a time, as at the end of step 5 above.
8. Interfaces 2 and 4 only: Press ON LINE pushbutton. ON LINE indicator lights and Printer goes into an On-Line condition, ready to accept data from source.
9. Interfaces 2 and 4 only: Press LOCAL pushbutton. ON LINE indicator goes out and Printer goes into a local condition, unable to accept data from data source (for standard strapping).
10. Interfaces 3 and 5 only: Press SELECT pushbutton several times. This alternately sets and resets a flip-flop controlling the SLCT signal. When in the set condition (signal at high level, Printer in selected or ready condition), SELECT indicator is lit. When in the reset condition (signal at low level, Printer unable to receive data), SELECT indicator goes out.

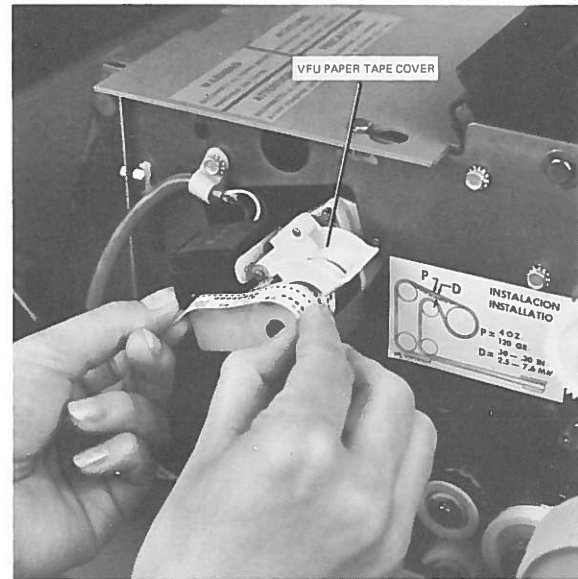
#### VFU TEST

11. Install supply of user's forms in Printer (refer to paragraph entitled PAPER INSTALLATION on page 6).
12. Lift Printer top cover. Then lift VFU Paper Tape cover on left side of Printer and install a prepared tape in the VFU mechanism (Figure 14). Close VFU Paper Tape cover and Printer top cover.

#### NOTE

For tape preparation instructions, see TermiNet Line Printer Operator's Manual, GEK-49264.

13. For Interfaces 1, 3, and 5 Only: Press MOTOR ON pushbutton. Motor starts and, on Interface 1 only, MOTOR ON indicator lights.



PLH-5015

Figure 14. VFU Paper Tape Installation

14. Press FORM FEED pushbutton (Interfaces 1, 2, and 4) or TOP OF FORM pushbutton (Interfaces 3 and 5). This advances paper to next hole punched in Channel 1 of the VFU paper tape (loop (i.e., top next user's form). Interfaces 2 and 4 automatically turn on motor.

#### NOTE

Steps 15-20 require that Customer's data source be included (i.e., not simulated) in system.

15. Using appropriately punched VFU paper tape (installed in step 12) and input data from user's data source, print out information on forms. Data should print out correctly. (If form aligns incorrectly with data, inspect punched paper tape for error.)
16. For Interface 3 and 5 only: Tear off form entering Printer at form perforation nearest point of entry. Press TOP OF FORM pushbutton. Form advances only until it reaches appropriate (i.e., front or rear) low paper sensor. Press FORMS OVERRIDE pushbutton momentarily. Paper feed operation will continue while pushbutton is pressed.
17. Repeat Step 7.

## ADDITIONAL OPERATIONAL CHECKOUT INFORMATION

18. Interfaces 1, 2, and 4 Only: READY indicator is lit by data source as required to signal the operator. For Interface 1, the READY indicator is lit when the RTP signal is held at a high level; for Interfaces 2 and 4, the READY indicator is lit when the RTP signal is held at a low level.
19. Interface 1 only: INTERRUPT pushbutton, when pressed, provides a high level signal at the interface to the data source. The Printer logic does not respond to this pushbutton.
20. Interface 1 Only: HERE IS pushbutton, when pressed, provides a high level signal at the interface to the data source. The Printer logic does not respond to this pushbutton.
21. All Interfaces: Turn power switch on front of Pedestal to OFF position. Motor and all fans cease operation. Printer is inoperative.

**WARNING**

Always disconnect main power cord from local supply before removing Pedestal panels.

**CAUTION**

Vinyl dust cover should be placed on Printer whenever Printer will not be in use for an extended period of time or if environment becomes abnormally dusty. DO NOT MAINTAIN POWER ON PRINTER WITH DUST COVER IN PLACE.

**CUSTOMER INSTRUCTION**

Instruct customer in the following:

1. Use of Control Panel pushbuttons.
2. Changing of paper and ribbon cartridge.
3. Use of VFU for printing forms, including preparation of VFU tapes.
4. Procedures for replacing print fingers.

---

Data Communications Products Department General Electric Company  
Waynesboro, Virginia 22980 USA