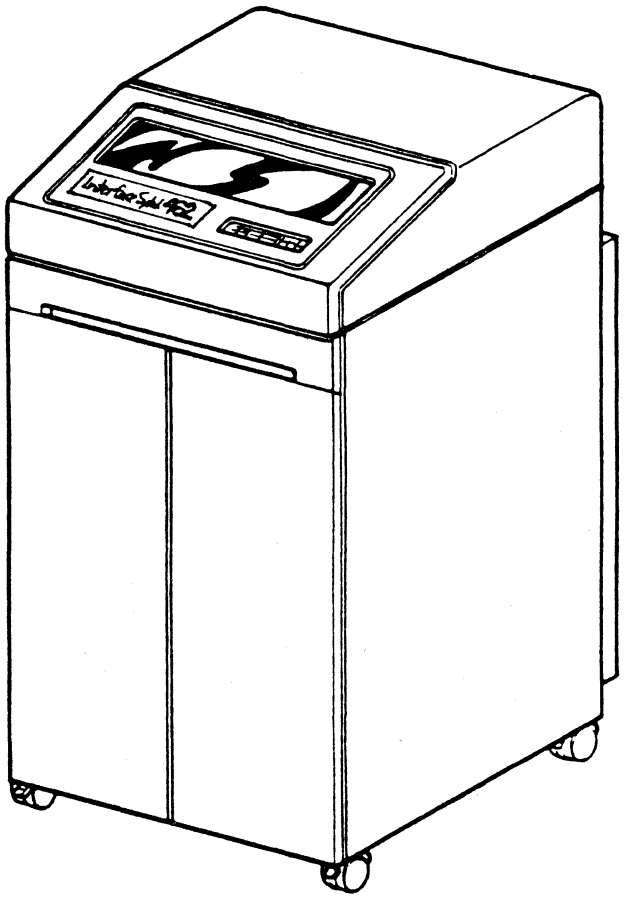
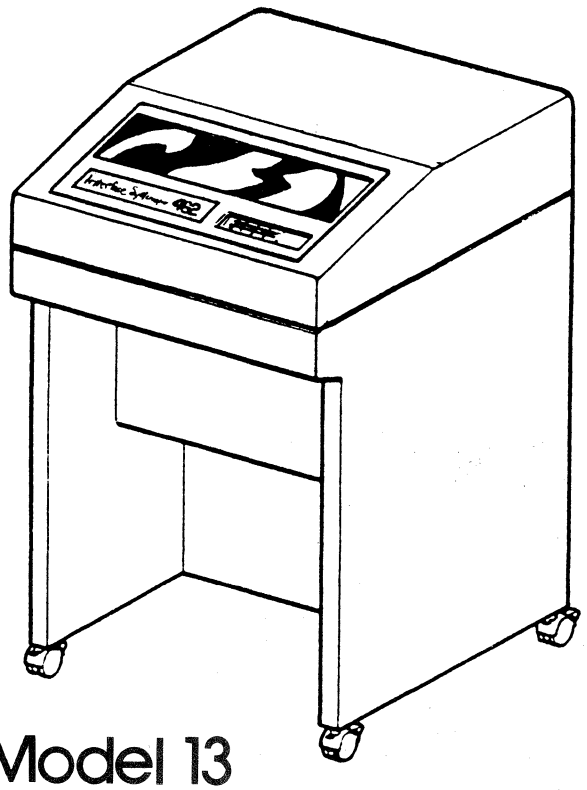
# 462 operator's guide



Model 3



Model 13

Interface Systems, Inc.
5855 Interface Dr., Ann Arbor, MI 48103

# ISI 462 Models 3 and 13

# Operator's Guide

March 1986

## HOW TO USE THIS MANUAL

This manual will guide you through all the procedures you'll need to set up and operate the ISI Model 462 Model 3 and 13 line printers, also known as the 462. The Model 3 is a 600 line printer with acoustic covers, and Model 13 is a 300 line printer with an acoustic cover option. If you are setting up your printer for the first time, be sure to read the sections in order. To help you find the information you need quickly and easily this manual has been divided into four sections:

Section 2

How To Operate the 462- is a detailed version which will tell you more about the keys, lights, and switches on your printer. It also tells you what to do if you have any problems with your printer.

Section 3

Appendix Section- is the section which will tell you paper specifications, options, and things that you won't need for every day use such as the care and cleaning of the 462.



Now, let's get started!

Federal Communications Commission

Radio Frequency Interference

Statement

This equipment generates and uses radio frequency energy and if not used properly, i.e., in strict accordance with its operating instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when Class A equipment is operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to correct the interference.

## 0.1 INTRODUCTION

First, we would like to tell you a little about your 462 line printer. There are two models available: the Model 13 line printer which prints 400 lines per minute and has optional acoustic covers, and the Model 3 line printer which comes with acoustic covers and prints 600 lines per minute.

The ISI 462 is a high speed line printer that can be used in place of the IBM 3262 Model 3, and is compatible with the 3270 family. It can be connected via coaxial "Type A" interface to a variety of units. The 462 can also be connected to an IBM PC or equivalent unit via the printer parallel interface.

### 0.1.1 Standard Features

The standard features listed below give you an idea of what each printer can do.

Model 13:

- 225 LPM solid character printing at 10 CPI (96 character set)
- 300 LPM throughput with 64 character EBCDIC band
- Continous forms handling up to six parts
- Optional 48 and 96 character bands
- Exceptionally quiet (62/db) operation
- Direct compatibility with IBM 3274, 3276, and 4331 systems
- Easy to remember codes for identifying printer errors
- IBM 3262 character set
- Optional foreign character bands
- Convenient casters and paper basket

Model 3:

- All standard features offered by Model 13, plus
- Standard 55 dbA quietized cabinet

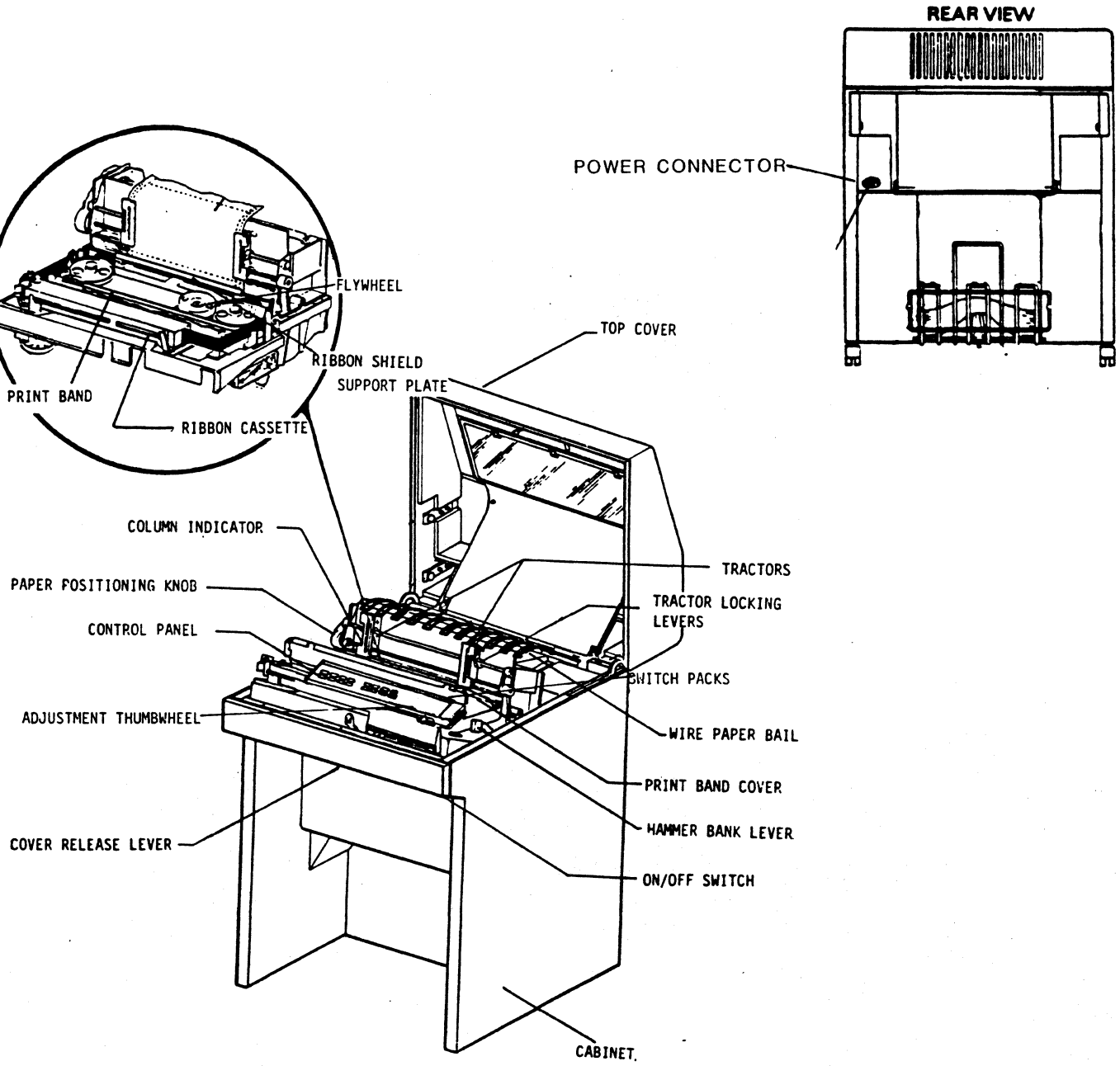
- 440 LPM solid character printing at 10 CPI (96 character set)
- 600 LPM throughput with 64 character EBCDIC band

### 0.1.2 Parts Identification

The following illustrations show where the parts are located on your printer. Please refer to the correct model when identifying parts.

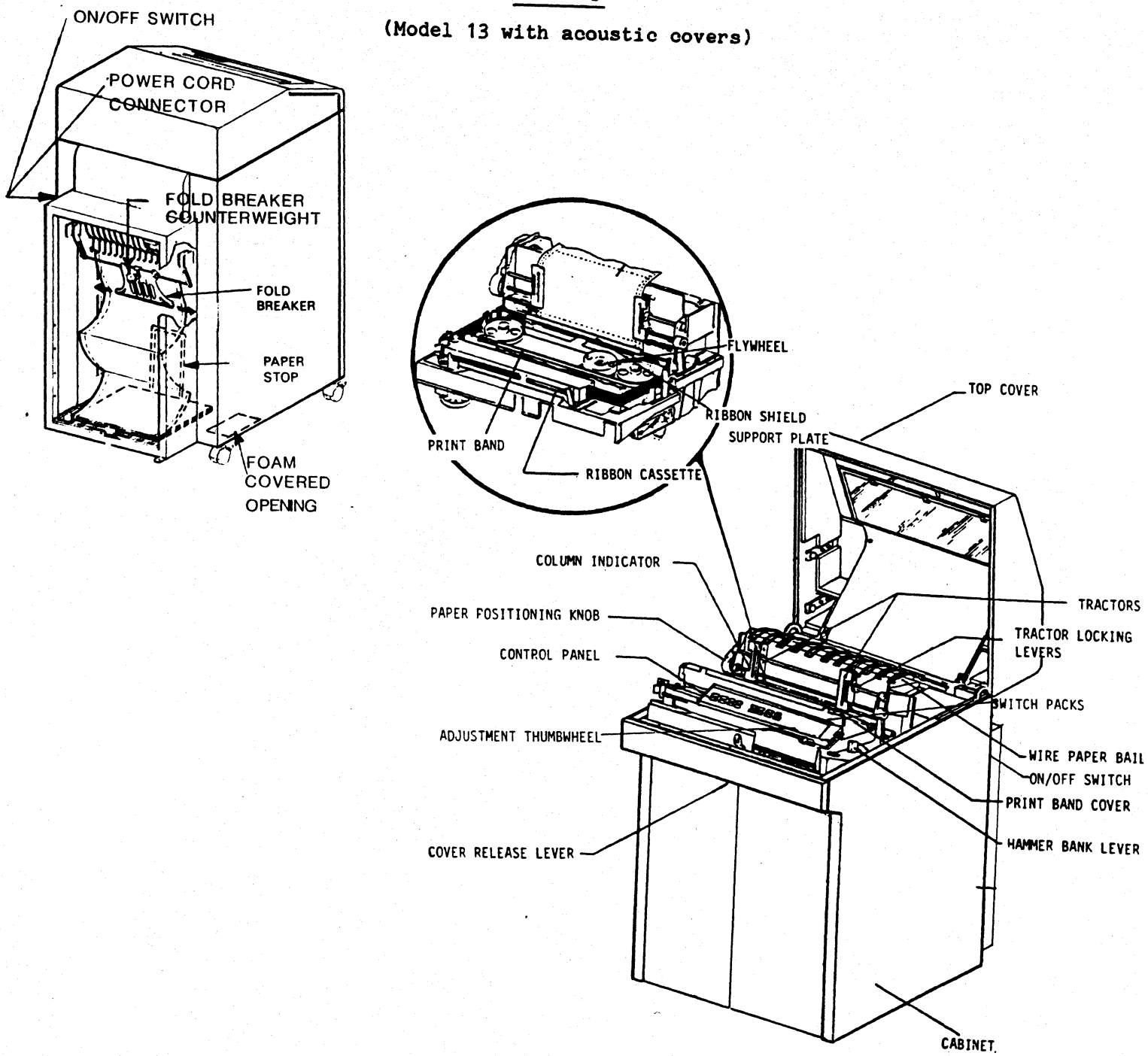
Model 13

(without acoustic covers)



## Model 3

(Model 13 with acoustic covers)




*Any differences between the two printers are noted in the instructions and illustrations throughout the manual.

Use these illustrations when identifying parts throughout the manual.

# Chapter 1

# GETTING STARTED

## 1.1 First, Unpack Your Printer and Check for Damage

After you have carefully followed the "Unpacking Instructions" attached to your 462, take one extra look to be sure all packaging materials such as foam inserts, corrugated inserts, and hammer bank bolts have been removed. Operating the printer with these restraints intact, may damage the printer.

Next, inspect your printer for shipping damage. Look for things like dents, scratches, cracks, broken switches, and other broken parts. You should also listen for unusual rattling noises. If you find any damage, notify the delivery company immediately!

---

WARNING

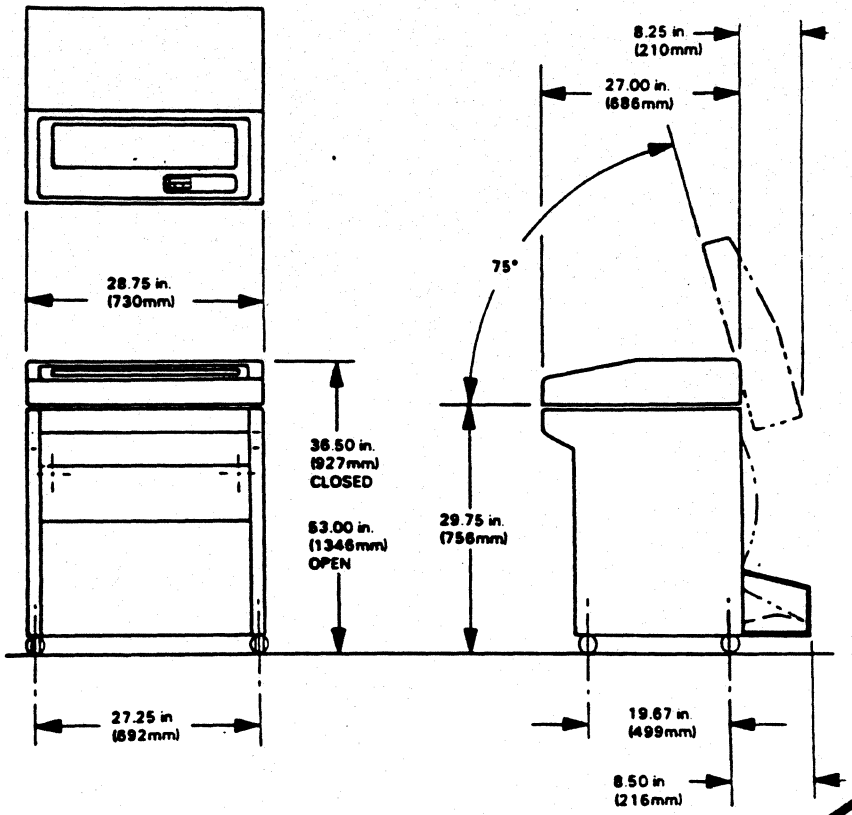
DO NOT operate a damaged printer. It may cause further damage and can void the warranty.

---

## 1.2 Find a Good Place for Your 462

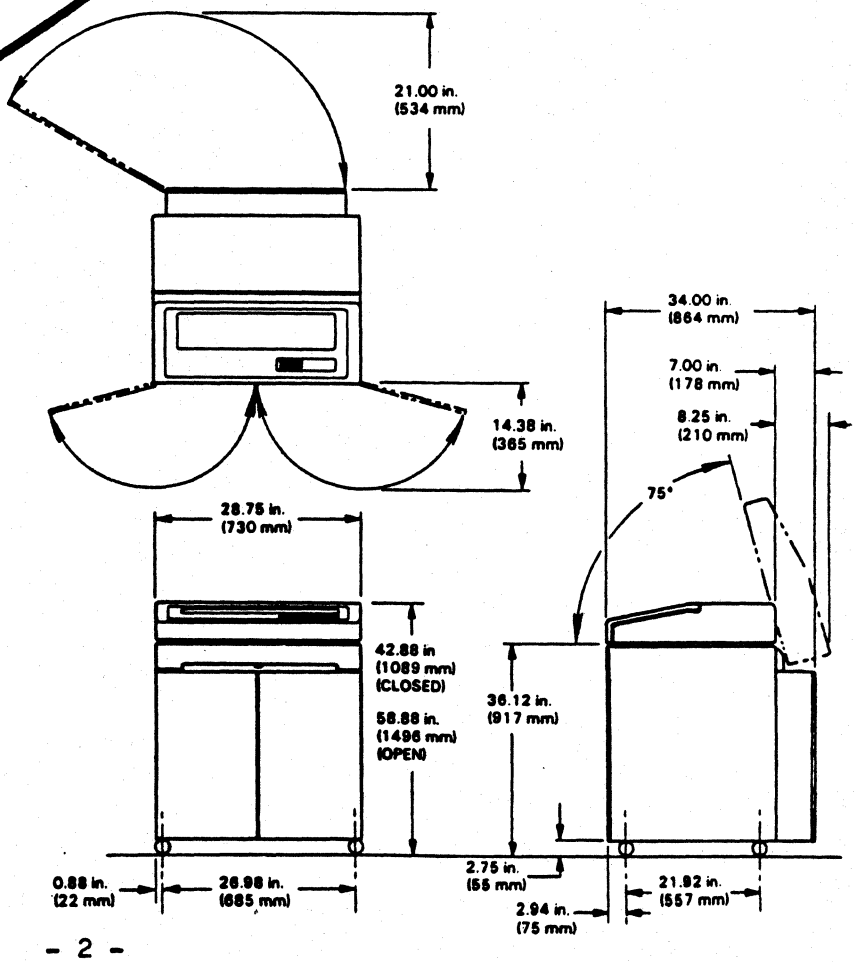
Roll the printer to an area with:

- a computer room environment (these are ideal conditions).
- clearance for service.(See Figure 1-1a and 1-1b for clearance specifications.)
- enough room for ventilation, hookup of the cables, a user work area, and any additional equipment you may want.




Model 462
Without Covers

Figure 1-1a




Model 462
With Covers

Figure 1-1b

## 1.3 Do You Have the Right Equipment?

Once you have chosen an appropriate spot for your printer, check to see if you have:

1. One standard three-prong grounded power outlet per printer.

2. One coaxial cable with a BNC coaxial connector. The length should not exceed 1500 meters (4920 feet).

3. If you are connecting to an IBM PC or equivalent unit, you need one standard 36 pin Centronix parallel type connector. The maximum length of the connector varies with each system.

## 1.4 Install Your Paper Output Receptacle

If your printer does not have acoustic covers, you will be installing a paper basket. Refer to section 1.4.1 for details. If your printer is equipped with acoustic covers, you will need to install a paper platform. Refer to section 1.4.2 for details.

### 1.4.1 Install Your Paper Basket-(For Printers Without Covers)

The paper basket mounts on the back of the printer. Refer to Figure 1-2 and do the following. If you have the optional acoustic covers installed on your printer, see Appendix C for instructions on paper platform installation.

1. Face the back of your printer.

2. Loosen the thumb screw on each mounting bracket.

3. Slip the mounting hook on the basket into the hole in the top of the mounting bracket.

4. Tighten the thumb screws on both mounting brackets to secure the paper basket and you're done.

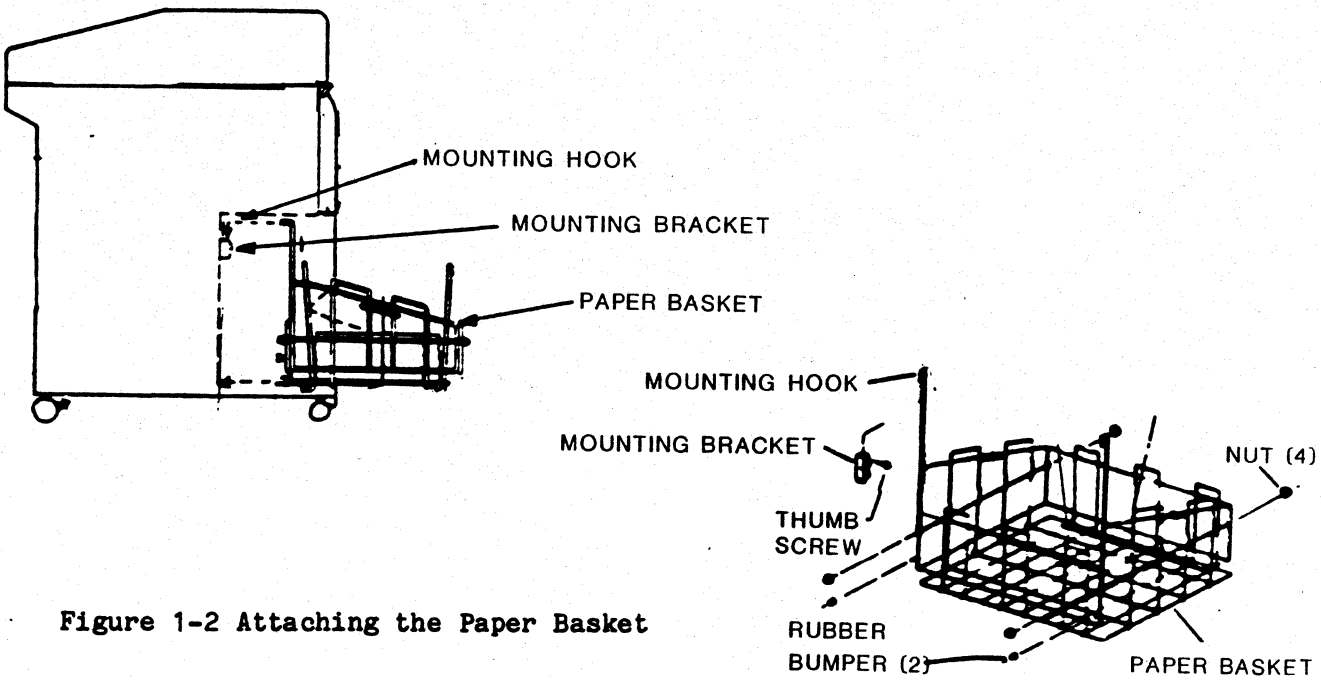



Figure 1-2 Attaching the Paper Basket

1.4.2 Install the Paper Platform-(For Printers With Covers)

The paper platform mounts on the back of the printer. Refer to the Figures below and do the following.

1. Face the back of your printer and open the rear acoustic door.

2. Attach the paper stops to each end of platform as shown. These can be moved forward or backward depending on the size of the form.

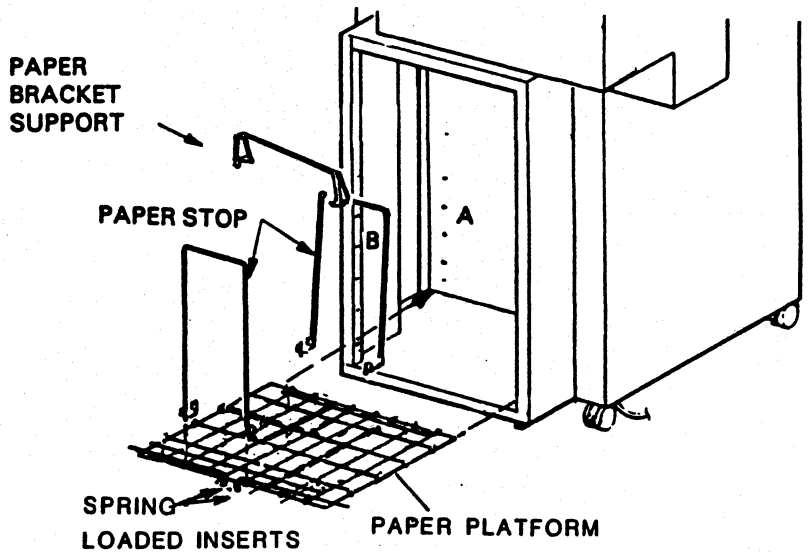



Figure 1-3 Attaching the Paper Platform

3. Mount the paper bracket support on the bottom center of the platform so it is parallel to the paper stops as shown. To mount, first attach the end nearest you. Next, pull the bracket toward you so the opposite end can be easily attached.

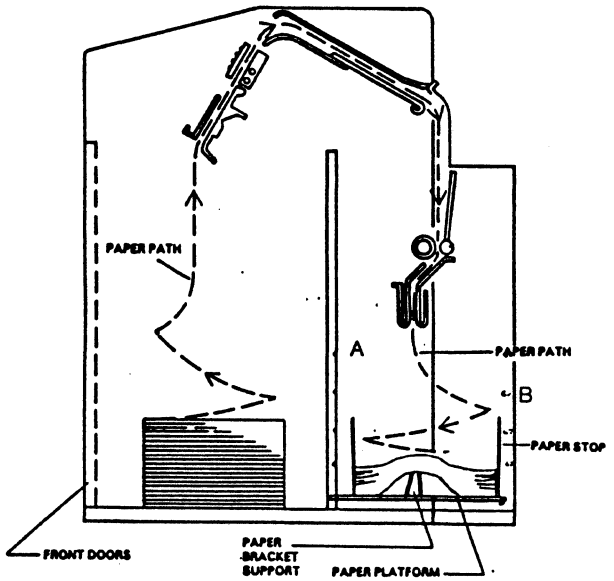



Figure 1-4 Attaching the Paper Bracket Support

4. Insert the prongs at the desired height in areas A and B. Attaching A first followed by B. Prongs at B are spring loaded; to insert, simply pull toward center and release into the mounting holes making sure the platform is at a 90 degree angle to the printer.

Once the platform is attached it can be raised or lowered as necessary by repeating the above procedure.

## 1.5 Load the Ribbon

Please use the ribbon cassette supplied by Interface Systems, Inc. or you may void the warranty. Open the top cover by pulling the cover release lever toward you and follow the steps below.

1. Lift hammer bank lever (1).
2. Lift the control panel so the ribbon cassette is easier to access.
3. Swing out part (2) as shown in Figure 1-6.
4. Open ribbon shield support plate (5).

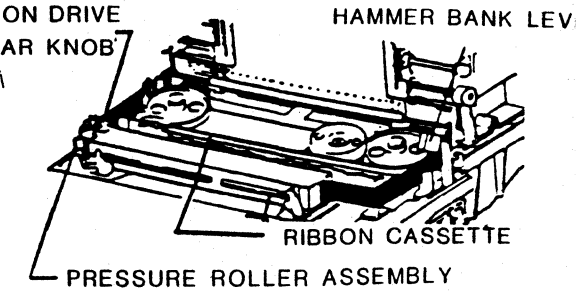



Figure 1-5

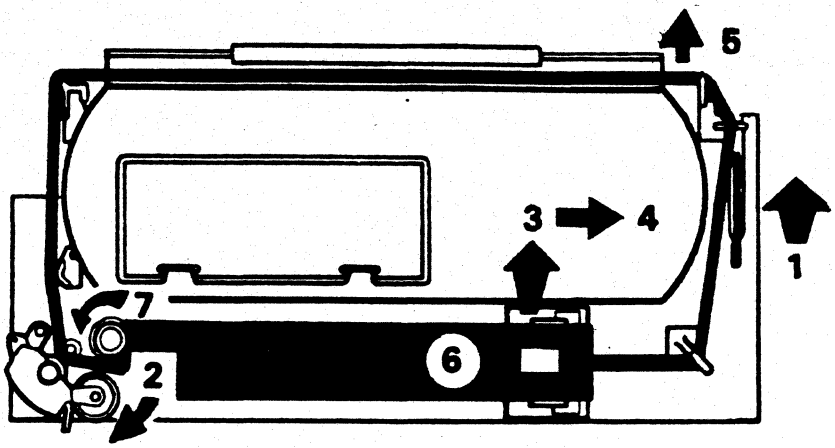



Figure 1-6 Loading the Ribbon

5. Install new cassette with label side up and slide it to the left as far as it will go, but don't force it. Then, route the ribbon as shown.

6. Swing part 2 back in place.

7. Turn (7) counter clockwise to take up slack.

## 1.6 Install the Print Band

The print band will not be installed when you receive your 462. It will be in a separate box that is packed with your printer. Remove it from this box and do the following:

1. Lift the hammer bank lever to open paper throat.

2. Open ribbon shield support as shown in Figure 1-7.

3. Open band cover.

4. Locate the lever (4) in the right side of the band compartment. Lift this lever to relieve band tension. CAUTION - DO NOT lift lever in center of compartment.

5. Install new band around pulleys between ribbon and platen under band guides. A.) Center band on pulleys. Apply partial band tension with lever 4 and B.) rotate flywheel clockwise while increasing band tension until lever is all the way down.

6. Close band cover and paper throat.

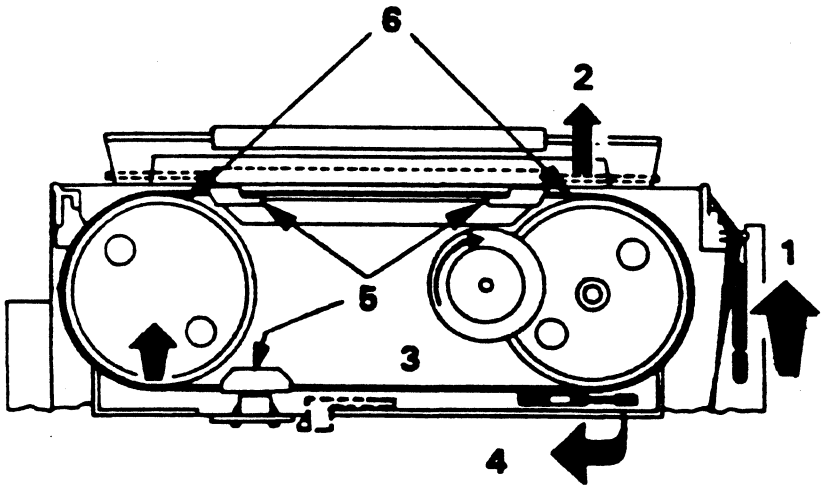



Figure 1-7 Installing the Print Band

7. Adjust the printer as necessary using the print head adjustment thumbwheel on the bottom edge of the control panel. (See 2.6.2 "Adjusting For Forms Thickness.)

## 1.7 Turn the Power On and Test the Printer

After you have the ribbon and print band installed you can power (turn) on your printer. To power on, follow the steps below.

1. Plug the power cord into the power cord connector and into the power outlet.

2. Press the ON end of the POWER ON/OFF switch.

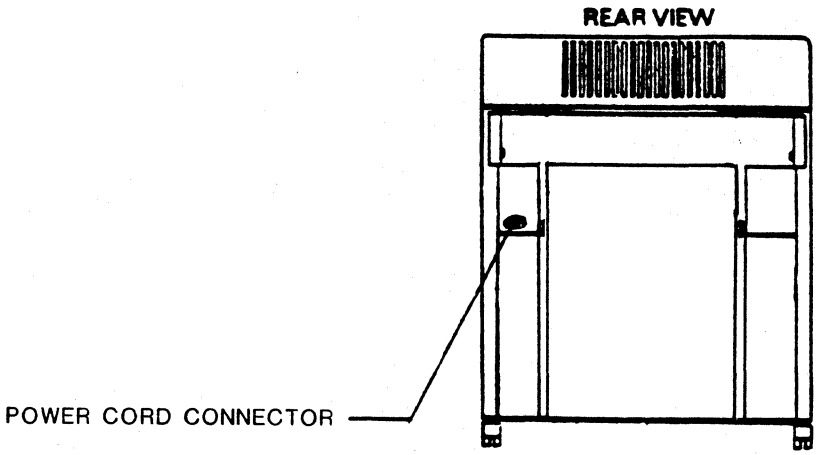



Figure 1-8 Attaching the Power Cord

After you power on the 462 it will do this:

- The status indicator will display "******".
- All the lights that display the current status of the print functions will go on and then go off. (If you have already changed the settings, the appropriate indicators will remain lit.)
- The alarm will sound and a "01" will be displayed to indicate the paper out condition. Press HOLD PRINT to silence the alarm.
- Any other errors will also be displayed now. Operator correctable errors will display as ISI error codes (i.e. ribbon jam, band jam, or gate open). Other errors will display as Centronix error codes listed in the instruction cards and the 462 Technical Manual.

If no power goes on at all, check the power outlet you are using. If you are still having problems after you have consulted Section 2 "What to Do if You Have a Printer Problem," contact your service representative immediately or call our qualified service personnel at Interface Systems, Inc. The number is (313) 769-5900.

## 1.8 Connect the 462 to a Controller

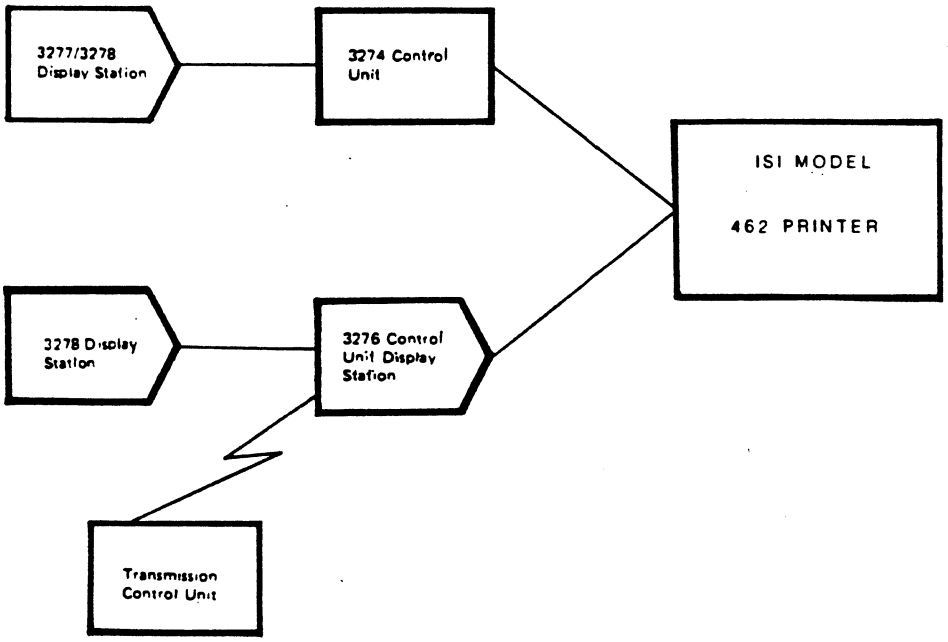
Since you are in the area, now is a good time to connect the 462 to a controller.

The 462 is only one part of your computer system. In order for your printer to receive data to print, it must be connected to a control unit. The connection is made by attaching a coaxial cable from the control unit to the printer.

Your 462 can be attached to any of the following equipment:

- IBM 3274 Control Unit
- IBM 3276 Control Unit/Display Station
- IBM 3601 (Model 3 only)/3602 and 4701 (Model 3 only) Finance Communication Controller
- IBM Personal Computer(through parallel connector)
- IBM 3694 Document Processor

To attach the coaxial cable, follow the steps listed below.




1. Push the OFF end of the ON/OFF switch.

2. Bring the coaxial cable to your printer.

3. Locate the coaxial connector on the back of the printer as shown in the appropriate Figure (1-9a for printers without covers and 1-9b for printers with covers).

4. PRINTERS WITH COVERS ONLY: Feed the cable up through the foam covered opening on the right rear of the printer. Bring the cord up to the connector.

5. Push and lock (twisting clockwise) the cable connector into the printer.

## 1.9 Connect the 462 to a Parallel Port

The 462 can also be connected to an IBM Personal Computer (PC) or equivalent unit, via the printer parallel interface. This connection is made by attaching a standard 36 pin parallel connector from the PC to the printer. The connection process is easy, just:

1. Push the OFF end of the ON/OFF switch.

2. Bring the cable to your printer.

3. Locate the connector on the back of the printer as shown in Figure 1-9a and b.

4. PRINTERS WITH COVERS ONLY: Feed the cable up through the foam covered opening located on the right rear of the printer. Bring the cord up to the connector.

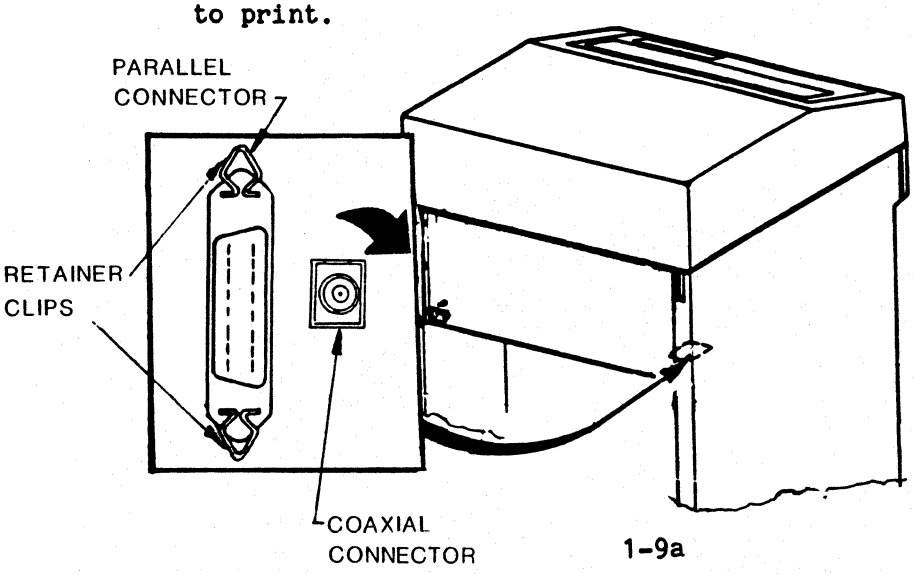
5. Plug the cable connector into the printer making sure it is secure.

6. Fasten the retainer clips to the cable connector.

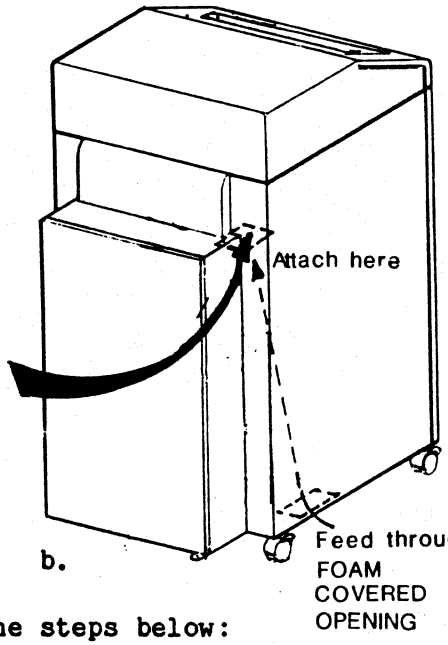
7. Push the ON end of the ON/OFF switch.

8. When the READY light is on, press HOLD PRINT, SECOND FUNCTION, and CHANGE HOST.

9. The READY, and ALT HOST indicators will light, and the 462 is ready to print.




1-9a




b.

## 1.10 Load the Paper

To load the fanfold forms into the printer follow the steps below:

1. First, make sure your printer is off.

2. Then open the top cover by pulling the top cover release lever toward you.

3. Open the paper throat by raising the hammer bank lever.

4. Open the tractor flaps.

5. Feed paper up through the paper throat, behind the ribbon shield support plate, and onto the paper feed tractor pins. (See Figure 1-12 for paper path.)

6. Make sure the tractors are adjusted to the size of your forms. The paper should be taut and the holes centered on the pins or your paper may jam. (If the tractors are adjusted correctly, skip next step.)

7. To adjust tractors, press down on the left and right lock tabs to loosen. Then, slide the tractors into place. When they are adjusted, lift the lock tabs to tighten.

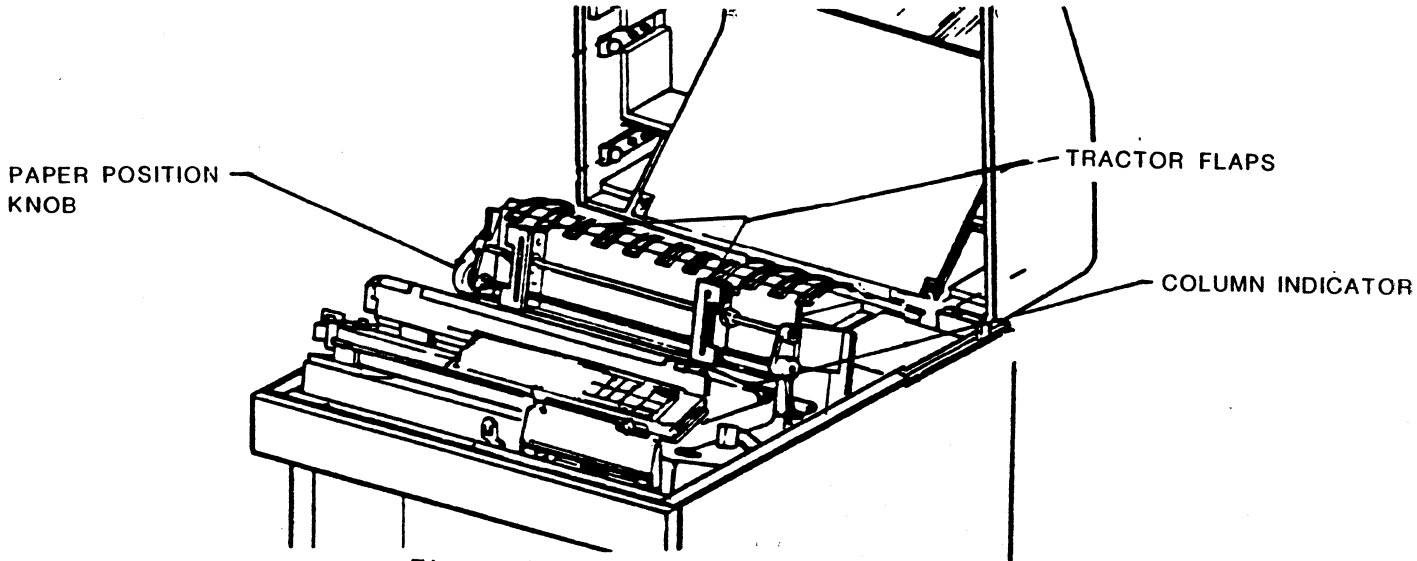



Figure 1-10 Adjusting the Tractor Flaps

8. Advance and align the paper by rotating the vertical position knob located on the left end of tractor shaft as shown.

9. PAPER ALIGNMENT: Position the first line of print on the zero index mark. 6 LPI index marks are on the left side of the paper throat. 8 LPI marks are on the right side. An alternate method of setting up the first line of print can be used by lining up the notch in each tractor flap with a particular area of the form. These notches are a fixed distance from the first line of print. Once the form is set up, reference can be made to the notches in relation to the form being used.

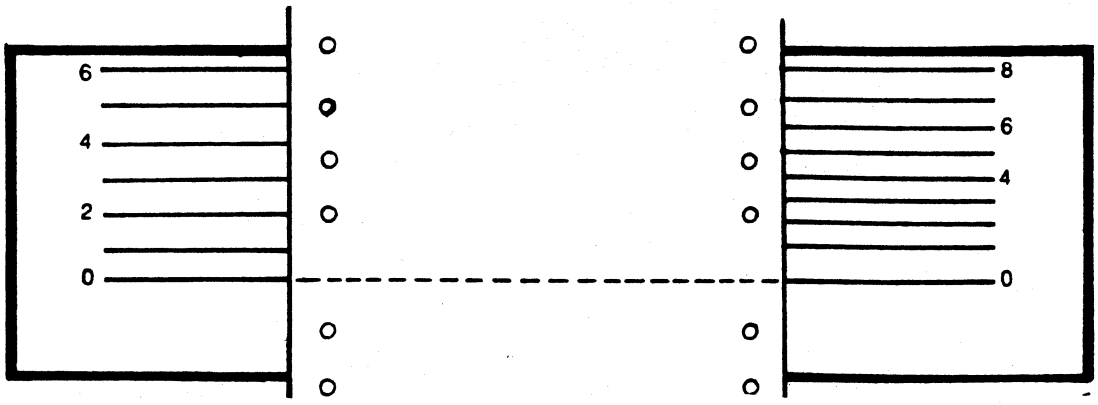



Figure 1-11 Aligning Forms

12. For fine vertical alignment of paper press HOLD PRINT (the READY light not lit) and close the paper throat (hammer bank lever down). Press INDEX to advance the paper one line. To advance the paper continuously, just hold the key down. Paper motion will stop when the key is released.

---

NOTE

The control panel functions cannot be used when the paper throat is open.

---

13. Press FORM FEED while in HOLD PRINT to advance the paper and check that it is being delivered smoothly.

14. Drape the paper over the wire bail and down into the wire bail below as shown in Figure 1-12. Open the back door and check to be sure paper is feeding properly. Close door when finished.

Paper Path

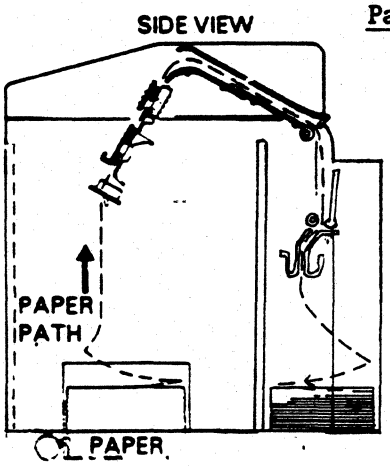



Figure 1-12a
(With Covers)

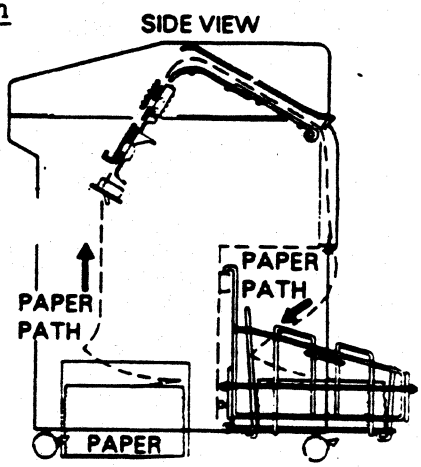



Figure 1-12b
(Without Covers)

15. Press ENABLE PRINT. The READY indicator will light and the printer can respond to the data source if no faults exist. If the indicator does not light, check the display for a fault code. If codes remain displayed on the Status Indicator, press the RESET key. If the code still remains, refer to "Section 2 - What To Do if You Have a Printer Problem".

16. If the length of your form is different than what the printer is set for, printing will occur on the perforation. See Card 2, or Operator's Guide "SET FL" and "SET MPP" key descriptions for setting up form length.

17. Press the HOLD PRINT key again to extinguish the HOLD PRINT indicator.

### 1.10.1 Adjusting For Forms Thickness

When you change forms thickness or the print band some adjustment is needed. To adjust, simply turn the thumbwheel located under the control panel. The thumbwheel should be adjusted for the best possible print quality. The actual setting will depend on the type and thickness of the forms.

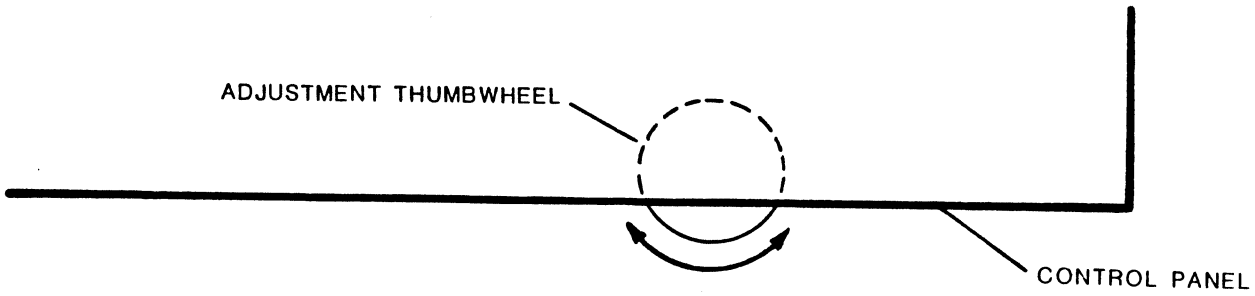



Figure 1-13 Forms Thickness Adjustment

Turning the wheel clockwise will cause the characters to fade on the right. Counterclockwise rotations will cause characters to fade on the left. To make sure that you have adjusted the wheel correctly, check your print out. (i.e. the copy should not be light on the ends and dark in the middle.)

Examine the printout to make sure that you have adjusted the wheel correctly. If some characters are being clipped on the side or are too dark or light, move the print head adjustment thumbwheel on the control panel until you get the desired results.

## 1.11 Forms Stacking Adjustment (For Printers With Covers)

The forms stacking adjustment described below must be done for printers with acoustic covers when you change the size or weight of the forms being used. To adjust:

1. Center the fold breaker on the forms by sliding it from side to side on the pivot shaft (A).

2. Position the fold breaker counterweight to cause the forms to fold consistently at the perforation by moving it closer to the pivot shaft for lighter forms and away for heavier forms (B).

3. Position the paper stop to almost touch the forms stack [within 1/2 inch or 1 cm of the folded edge (C)].

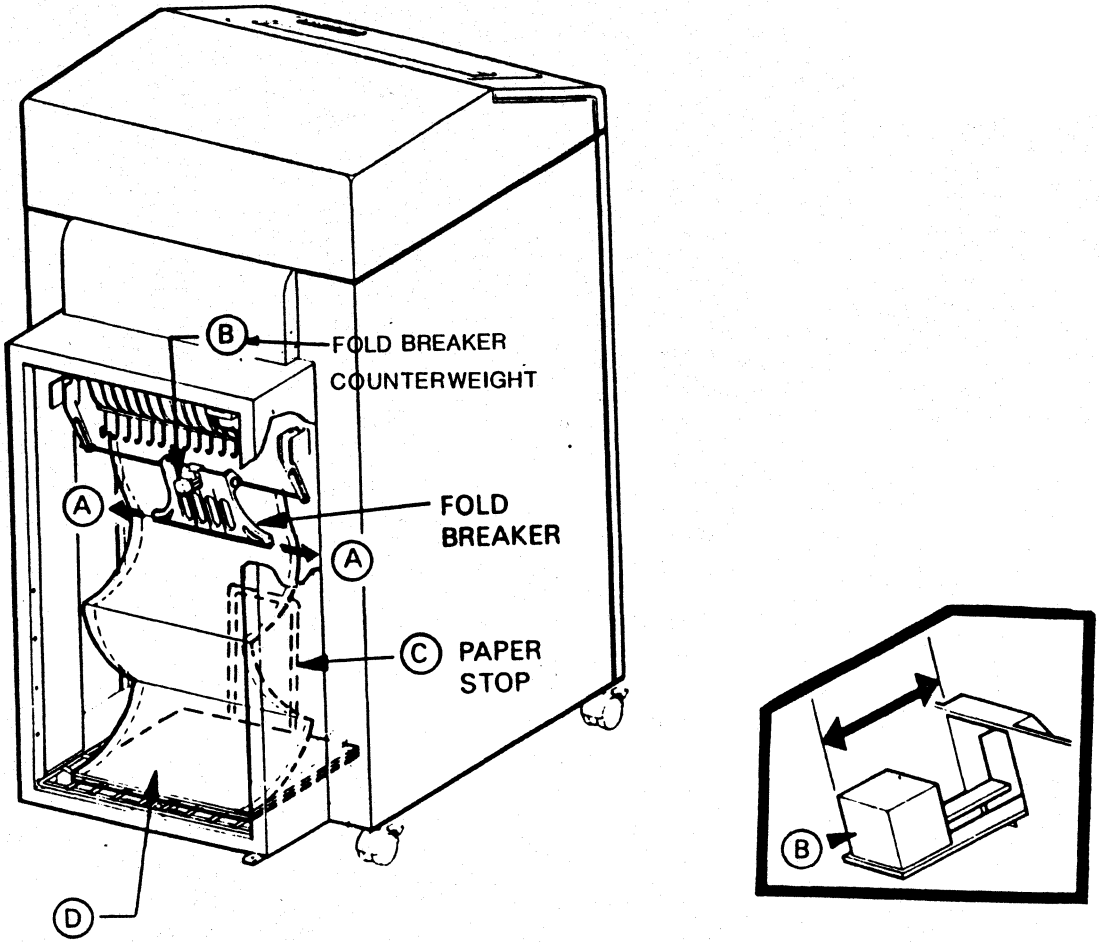



Figure 1-14 Forms Stacking Adjustment

4. To assure proper refolding, manually refold a few forms at the beginning of the stack in the same direction as they were in the input box (D).

## 1.12 How to Operate Your Printer

There are a number of keys and switches on the front panel that allow you to control the printing process. The keys that you'll use most to control the operation of the 462 are accessible when the top cover is closed. In the upper right corner you will find the status indicator and the lights that display the current status of the print functions. The keys with both primary (in white) and secondary functions (in orange) are accessible only when the top cover is open. These keys are used to change things such as forms length and maximum presentation position.

The keys you will use the most are: HOLD PRINT and ENABLE PRINT.

To stop printing press HOLD PRINT.

To start printing again press ENABLE PRINT.

Other keys that are helpful are: INDEX, and FORM FEED.

To advance the paper one line press HOLD PRINT and INDEX. To advance the paper continuously, just hold the INDEX key down.

To advance the paper to the top of forms (TOF) press HOLD PRINT and FORM FEED.

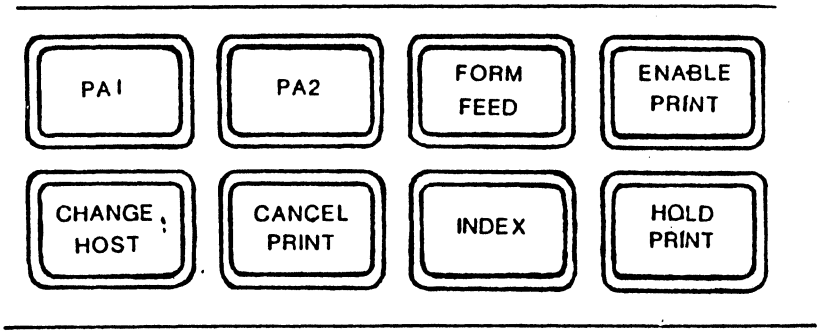



Figure 1-15

The use of these keys should be enough to get you started. For details on the other keys, refer to Section 2 "Operations You Can Control".

When your printer is powered on, it is already set to do certain things. These things are:

- Print in upper and lower case.
- Print with single spacing between lines.
- Print six lines per inch.
- Print 132 characters per line.
- Print with the 96 character set band.
- Print 66 lines per page (for standard 11 inch form.)

If you want to change any of these settings, or want to learn more about these keys and others, turn to Section 2 "Operations You Can Control".

## 1.13 User Selectable Switches

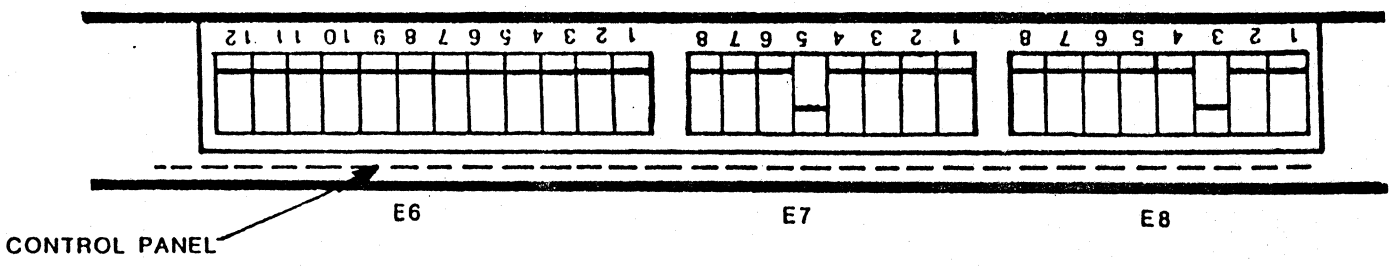
There are three switch packs located on the top edge of the control panel; two with 8 switches and one with 12 that must be set when changing the print band to another character set. These switches, like the front panel keys, are also at specific default settings as they leave the factory. The printer will recognize changes in switch settings only at power on.

These things are:

| SWITCH | FUNCTION |
|---|---|
| E8 (Right) | |
| 1-3 | IBM Model |
| 4-8 | Language - English, U.S. |
| E7 (Middle) | |
| 1 | Selects "standard" settings (listed in Section 2 - "Default Settings") at power up. |
| 2 | Alarm Disable |
| 3 | Automatic line feed after CR. |
| 4 | Print null lines. (Same as IBM RPQ MM4370, SC0004. |
| 5 | Print form feed on local copy.) |
| 6 | IBM Model 3262 I.D. |
| 7,8 | IBM 3287 STANDARD. A form feed terminating a non-SCS print will advance the printer to the first print position of the second line of the following form. |
| E6 (Left) | |
| 1 | Function at MPP +1 (Same as IBM RPQ MM4370, SC0000, SC0001) |
| 2 | Automatic form feed at end of print. (Same as IBM RPQ MM4370, SC0006). |

To change these settings or learn more about them, see Section 2 "User Selectable Features".

Standard Printer Configuration as Shipped From Factory




(FRONT OF PRINTER)

## 1.14 Check These Things Before You Start Printing

You are almost ready to start printing, but first go over this list of questions to make sure you haven't forgotten to do something.

| | YES | NO |
|---|---|---|
| 1. Is the printer power cord plugged securely into a well grounded power outlet? (pg.7) | _____ | _____ |
| 2. Is the coaxial cable securely connected to the printer? (applies to control unit hookup) (pgs.8,9) | _____ | _____ |
| 3. Is the parallel cable securely connected to the printer (applies to parallel port hookup). (pgs. 9,10) | _____ | _____ |
| 4. Is a good ribbon installed? (pg. 6) | _____ | _____ |
| 5. Is the paper loaded properly? (pgs. 10-12) | _____ | _____ |
| 6. Do you have enough paper? | _____ | _____ |
| 7. Is the printer set to the desired parameters? (pgs. 15, 16) | _____ | _____ |
| 8. Is the power ON/OFF switch ON? (pgs. VI, VII) | _____ | _____ |

If you answered no to any one of the questions, go back to the section that has the instructions you need and follow them carefully. If you answered yes to all the questions, you're all set. Now go ahead and send it a print.

## 1.15 What To Do If You Have a Printer Problem

First, refer to Section 2, "What To Do If You Have a Printer Problem" for details. Then, if you are still having problems call our qualified service personnel at Interface Systems, Inc. The number is (313) 769-5900.

---

**NOTE**

Since this is only a brief introduction to your 462 printer, which only begins to explain its many functions, ISI recommends that you continue on to Section 2 for all the details. We don't want you to miss a thing!

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# Section 2: The Detailed Version

## Chapter 2

## THE DETAILED VERSION

### 2.1 Features You Can Control

Now that you are familiar with the set up procedures and basic controls you are ready to learn "the other stuff", and do a little experimenting with the other keys and switches.

The following includes a description of the standard features that allow you to control the printing process and to set and change various format parameters. Format parameters are the different features which determine the way your documents are printed. Below are the many printer functions you can control with the switch packs on top of the control panel or the keys on the control panel. Details on how to use all the control features described below are in "Operations You Can Control".

| | |
|---|---|
| Forms Length (Lines Per Page) | When you turn the printer on it is automatically set to 66 lines per page. This is standard for 11 inch paper at 6 lines per vertical inch. You can select a three digit page length of 001 to 99 lines. Refer to the SET FL key description for details. |
| Maximum Presentation Position(Line Length) | The line length is currently set at 132 character positions (including spaces) for 10 CPI. Refer to the SET MPP key description for details. |
| Lines Per Inch | The printer is automatically set at 6 lines per inch (LPI), single spaced. You can choose 6 or 8 as the number of lines to be printed per inch. And, because you can also select single or double spacing, you can vary the number of lines per inch to be 3 (select 6 lines per inch, double spaced) or 4 (select 8 lines per inch double spaced). Refer to the CHANGE LPI and CHANGE SPACE key descriptions for details. |
| Form Feed and Index (Forms Alignment) | While the printer is in HOLD PRINT, you can advance the paper to the next top of form by using the FORM FEED key. You can also advance the form by one line by using the INDEX key. See FORM FEED and INDEX keys for details. |

| | |
|---|---|
| Stop/Start Printing | You can stop printing in process with the HOLD PRINT key and restart it with the ENABLE PRINT key. See HOLD PRINT and ENABLE PRINT for details. |
| Printing Speed | You can determine the print quality of the 462 by changing the bands. The 462 Model 13 can deliver 225 LPM solid character printing at 10 CPI (96 character set), 300 LPM throughput with 64 character EBCDIC band, or 360 LPM throughput with the 48 character EBCDIC band. The 462 Model 3 can deliver 440 LPM solid character printing at 10 CPI (96 character set), or 600 LPM throughput with 64 character EBCDIC band. |
| Language Select | The 462 has the capability to print a variety of international character sets which you can select by changing the print band and selecting the appropriate switches in switch pack E8. (A standard EBCDIC band is currently available.) Refer to the "User Selectable Switches" section for details on specific settings. |
| IBM Model Select | The switch packs on top of the control panel allow you to select various IBM model numbers (buffer sizes), for copy support by the 462. See the "User Selectable Switches." |
| Change Host | You can set the printer to work with your control unit or with a display unit such as an IBM PC. It cannot work with both simultaneously. See the "CHANGE HOST" key description for details. |

## 2.2 Changing the Ribbon

After you have had your printer for a while you will have to change the ribbon. The ISI 462 uses a convenient long-life ribbon cassette. Please use the ribbon cassette supplied by Interface Systems, Inc. Though other manufacturers offer "similar" ribbons, they are not recommended and may cause serious problems. To order ribbon cassettes from Interface Systems, Inc., please refer to the following part number #44688116.

If your printer is printing when you need to change the ribbon, press HOLD PRINT to interrupt the printing. If printing is not in progress, press the OFF end of the power ON/OFF switch.

To remove the ribbon cassette open the top cover and follow this procedure:

1. Lift hammer bank lever.

2. Swing out.

3. Lift this end of cassette.

4. Slide to right and lift off ribbon.

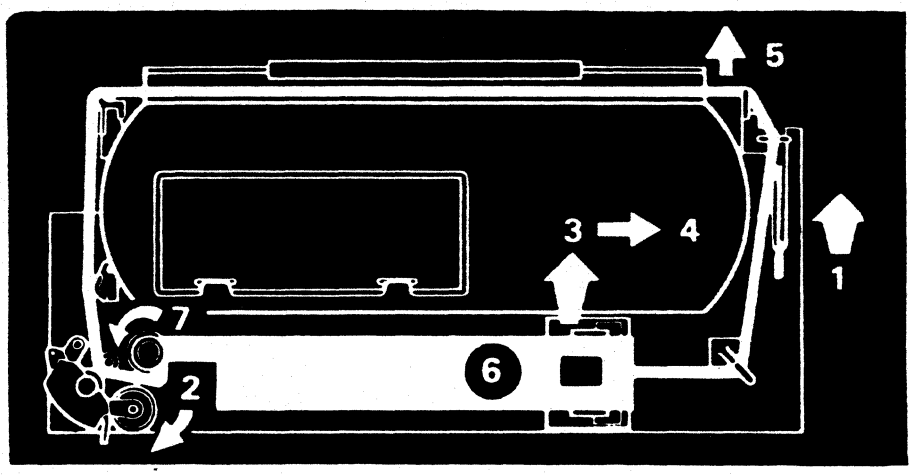



Figure 2-1 Changing the Ribbon

5. Open ribbon shield support plate.

6. Install new cassette with label side up and route the ribbon as shown.

7. Swing (2) in.

8. Turn (7) counter clockwise to take up slack.

## 2.3 Replacing the Ribbon Shield

There are two ribbon shields in the 462. One is plastic and one is metal. The directions below describe how to replace the metal shield. The shield should be changed when it wears out and starts to cause poor print quality and/or shred the ribbon.

1. Open paper throat by lifting the lever behind the control panel.

2. Push the ribbon shield support plate away from the print throat.

3. Open print band cover.

4. Locate the lever in center of band compartment and in front of the band. Lift lever to open the ribbon shield clamp at bottom of paper throat.

5. Close the ribbon shield support plate.

6. First notice the position of the old ribbon shield to aid in installing a new shield. Then pick shield up out of paper throat to remove it from clamp.

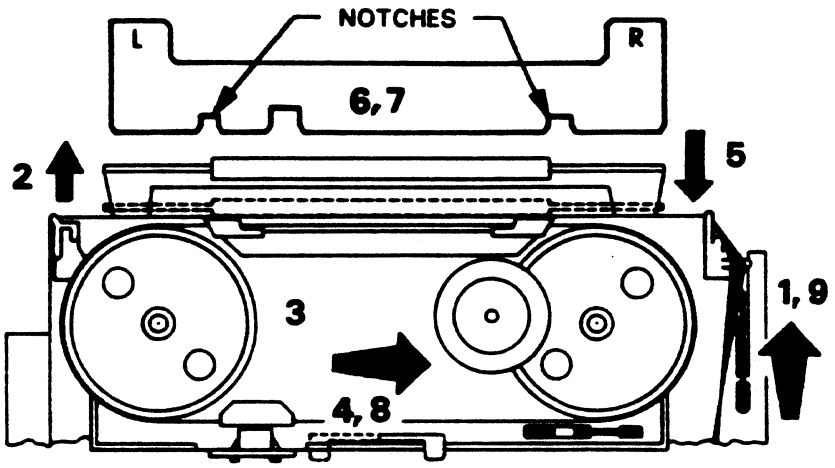



Figure 2-2 Replacing the Ribbon Shield

7. Insert new ribbon shield in the open clamp. Jiggle shield sideways to feel that the two notches are aligned in the guides in the clamp.

8. Make sure ribbon shield is installed behind the ribbon shield support plate and is seated in bottom of clamp, then close clamp by pushing lever down. Visually check to be sure the ribbon shield is not bowed in the paper clamp.

9. Close the ribbon shield support plate, close band cover and paper throat.

---

NOTE

If characters fail to print or are being partially clipped off, ribbon shield is not properly aligned.

---

## 2.4 Changing the Ribbon Roller

To replace the ribbon roller, do the following:

1. Swing open

2. Lift this end of ribbon cassette

3. Slide to right

4. Unscrew and remove knobs

5. Remove cap

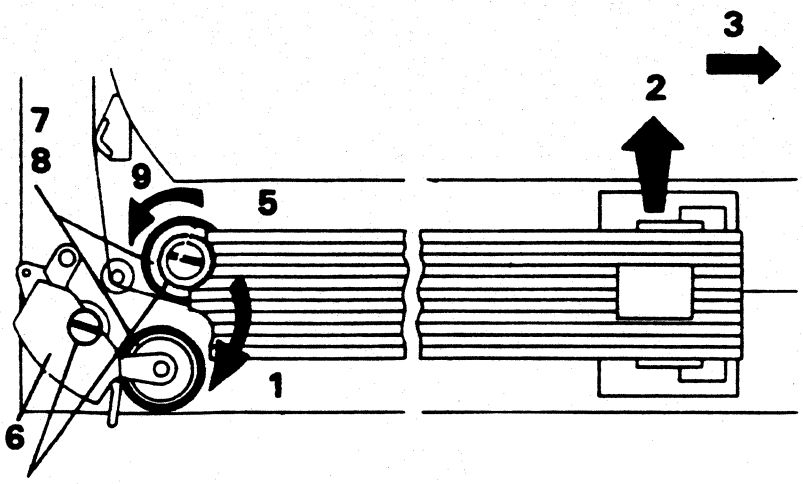



Figure 2-3 Changing the Ribbon Roller

6. Remove shaft support

7. Remove old rollers, clean roller area and install new rollers. Note- rollers, shaft and cap are keyed. Make sure keys engage in keyways.

8. Reassemble in reverse order-steps 6 through 1. Fully tighten caps with a coin.

9. Turn counter clockwise to take up slack.

## 2.5 Reloading Paper

You are out of paper when:

1. Printing stops.

2. The CHECK indicator lights up.

3. The audible alarm sounds.

4. The status indicator displays a 01.

The 462 prints until the last continuous form passes through the paper empty switch on the left pin feed tractor. To reload continuous forms, do the following:

1. Press HOLD PRINT to silence the alarm and interrupt printing.

CAUTION

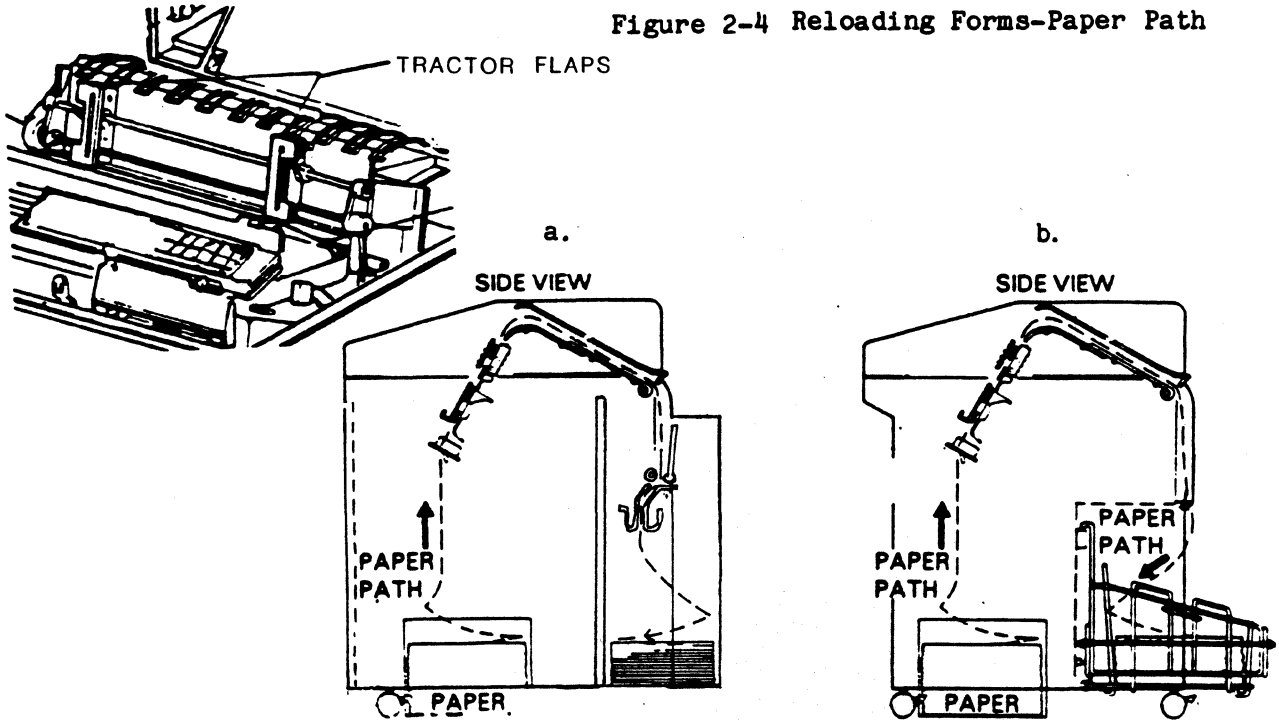
Whenever the printer runs out of paper while printing, Press HOLD PRINT to interrupt printing and ensure that the printer does not start printing while you are loading the paper.

2. Open the top cover.

3. Then, open the paper throat by raising the hammer bank lever as shown in Figure 2-4A.

4. Open the tractor flaps.

Figure 2-4 Reloading Forms-Paper Path




5. Feed paper up through the paper throat, behind the ribbon shield support plate, and onto the paper feed tractor pins. (See Figure 2-4B.)

6. Make sure the tractors are adjusted to the size of your forms. The paper should be taut and the holes centered on the pins or your paper may jam. (If they are adjusted correctly, skip the next step.)

7. To adjust tractors, press down on the left and right lock tabs to loosen, and slide the tractors into place. When they are adjusted, lift the lock tabs to tighten.

8. Advance and align the paper by rotating the vertical position knob located on the left end of the tractor shaft as shown.

9. PAPER ALIGNMENT: Positions the first line of print on the zero index mark. 6 LPI index marks are on the left side of the paper throat. 8 LPI marks are on the right side.

10. For fine vertical alignment of paper press HOLD PRINT (the READY light not lit) and close the paper throat (hammer bank lever down). Press INDEX once to clear the paper out message and then once more to advance the paper one line. To advance the paper continuously, just hold the key down. Paper motion will stop when the key is released.

---

NOTE

The control panel functions cannot be used when the paper throat is open.

---

11. Press FORM FEED while in HOLD PRINT to advance the paper and check that it is being delivered smoothly.

12. Drape the paper over the wire bail.

13. Press ENABLE PRINT. The READY indicator will light and you are ready to print if no faults exist. If the indicator does not light, check the display for a fault code. If codes remain displayed on the Status Indicator, press the RESET key. If the code still remains, refer to "What to Do if You Have a Printer Problem".

14. Examine the printout. If some characters are being clipped on the side or are too dark or light, turn the print head adjustment thumbwheel under the control panel for the desired results. Changing forms thickness and/or print band requires adjustment of the thumbwheel. See Section 1, "Adjusting for Forms Thickness".

15. If the length of your form is different than what the printer is set for, printing will occur on the perforation. See "SET FL" or "SET MPP" for setting up form length.

16. Press the ENABLE PRINT key to resume printing.

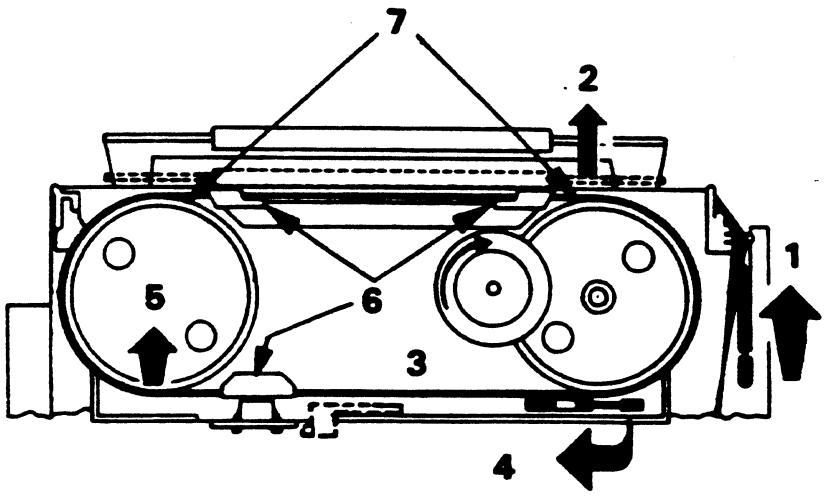
## 2.6 Changing the Print Band

1. Lift hammer bank lever to open paper throat.

2. Open ribbon shield support.

3. Open band cover.

4. Locate the lever in the right side of the band compartment. Lift this lever to relieve band tension. CAUTION - DO NOT lift lever in center of compartment.




5. Lift off band.

6. Install new band around pulleys between ribbon and platen under band guides.

7. Center band on pulleys. Apply partial band tension with lever 4 and rotate flywheel clockwise while increasing band tension until lever is all the way down.

8. Close band cover and paper throat.

9. Adjust the printer as necessary using the print head adjustment thumbwheel under the control panel.

## 2.7 Operations You Can Control

The keys that you'll use to control the operation of the 462 are located on the operator control panel on the front of the printer. With the cover closed, you will find the four keys which control movement and four keys which control special tests and functions accessible with the top cover closed. With the top cover open you will find the keys with primary functions (in white) and secondary functions (in orange). These keys let you set printing specifications and format parameters such as forms length and maximum presentation position, or direct the printer to run certain tests.

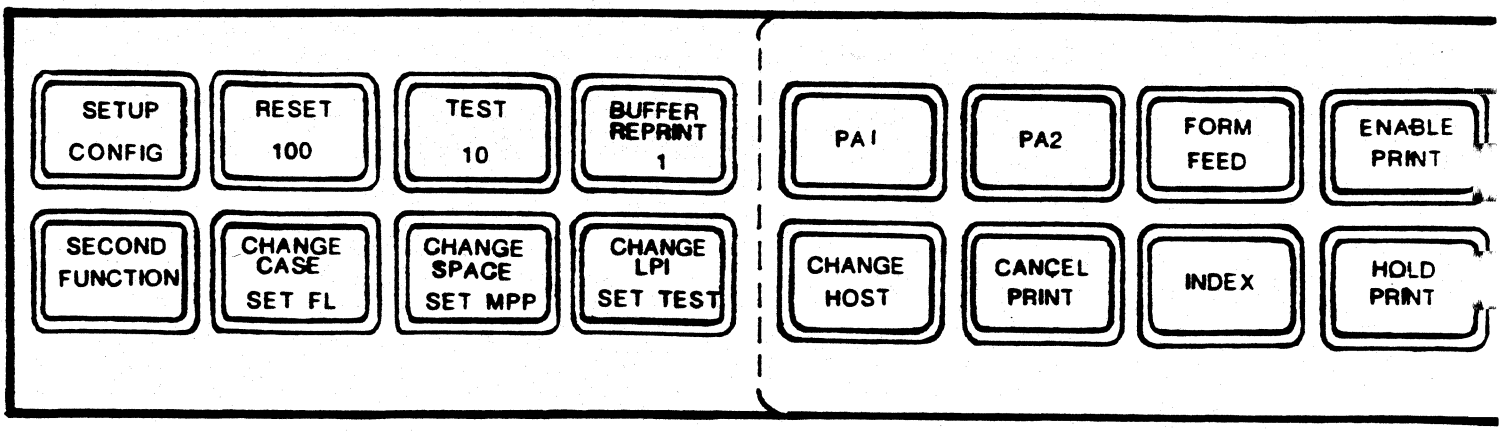



Figure 2-6 Control Panel Keys

## 2.8 Default Settings

When the printer is powered on, there are certain format parameters already set in your printer that will be used automatically if you don't make any changes, these are called default settings. You can change them temporarily for your specific job by setting the desired keys on the operator panel. You can even change the default settings permanently by using the CONFIG key (see description on CONFIG key). If you do not change the default settings, the following settings will be in effect:

| DEFAULT SETTINGS | MEANING |
|---|---|
| Dual Case | Prints in upper and lower case. |
| Single Space | Prints with single spacing between lines. |
| 6 LPI | Prints six lines per inch. |
| Forms Length | Prints 66 lines per page (11 inch forms.) |
| Maximum Presentation Position | Prints 132 characters per line. |
| 64 Character EBCDIC Band | Prints 300 LPM - Model 13<br>Prints 600 LPM - Model 3.. |

## 2.9 The Keys

Most of the time, your printer is in the primary function mode. In primary function mode, the default mode of your printer, you can use the primary function keys.

---

NOTE

All of the keys on the control panel (except HOLD PRINT) must be set when the printer is not printing. This means the HOLD key must be pressed before using any other key.

---

The Second Function Keys allow you to set and reset a variety of different parameters with temporary or permanent values (see the CONFIG key for details). Read the key descriptions below and carefully follow the procedures in the order they are given. The HOLD PRINT light will flash on and off to indicate that the keys have assumed their second function. This section describes where each key is, what it does, and how to use it.

---

NOTE

If any key, other than those with designated second functions is pressed while the printer is in second function mode, the printer will immediately return to primary function.

---

### 2.9.1 Top Cover Closed

The following eight keys are accessible with the TOP COVER CLOSED.

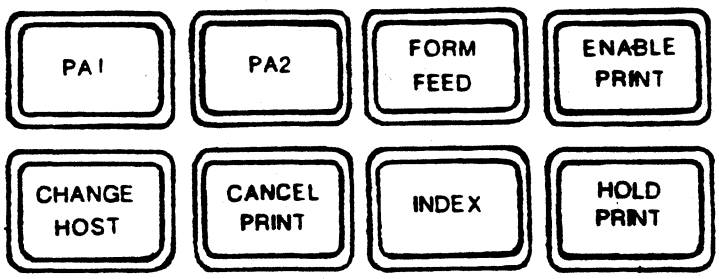



Figure 2-7 Available Keys With the Top Cover Closed

### 2.9.2 PA1 and PA2 (Program Attention)

These keys are referred to as Program Attention keys. If the SCS (SNA Character String) feature is operational on your printer, these keys can be selected while in SCS mode to transfer printing control to the application program.

### 2.9.3 FORM FEED

Press FORM FEED while in HOLD to advance the paper to the next top of form.

### 2.9.4 ENABLE PRINT

Press ENABLE PRINT to continue normal printing.

- The HOLD PRINT light goes out.
- The READY light comes on.

All error conditions must be cleared before this switch can function.

### 2.9.5 CHANGE HOST

Press this key while in second function mode to switch printing from IBM 3270 input to an IBM PC or equivalent unit. You may switch to this alternate host input any time an IBM print from the CU is not in process. The current status of this key is indicated by the ALT HOST light.

Press HOLD PRINT, SECOND FUNCTION, and CHANGE HOST.

- The ALT HOST light comes on.
- The 462 accepts input from an IBM PC or equivalent unit. (The current printer parameters will not change when switching between control unit input and IBM PC input.

To return to 3270 input press HOLD PRINT, SECOND FUNCTION, and CHANGE HOST.

- The ALT HOST light goes out.
- The 462 accepts input from the 3270 control unit.

Press ENABLE PRINT and printing will resume.

NOTE

You can only use one of these devices at a time, never both.

### 2.9.6 CANCEL PRINT

You can only use this key if SCS (SNA Character String) is operational on your printer. If the printer is in SCS mode, press CANCEL PRINT while in HOLD PRINT. Printing will stop and all unprinted data will be lost.

### 2.9.7 INDEX

Press INDEX while in HOLD PRINT to advance the paper one line. To advance paper continuously, just hold the INDEX key down.

### 2.9.8 HOLD PRINT

Press HOLD PRINT to stop printing.

- The HOLD PRINT indicator will light.
- The READY light flashes.

To resume printing, press ENABLE.

### 2.9.9 Top Cover Open

The following eight keys can only be used when the top cover is open.

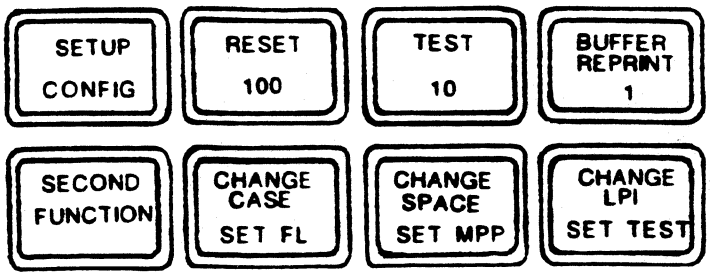



Figure 2-8 Keys That Can Be Used With the Top Cover Open.

### 2.9.10 SETUP

Press SETUP while in HOLD PRINT.

- The printer will print "H's" at 10 CPI between the left margin and the current MPP (maximum presentation position) or right margin.

- When the MPP is reached, the printer will return to the left margin, but will not advance the form. (Only one "H" will be printed at a time; not a whole line).

This feature is useful for viewing the current MPP and forms alignment. After you have seen the current MPP, press ENABLE PRINT to resume printing.

### 2.9.11 RESET

Press RESET while in HOLD PRINT to reset the error indication in the numeric display. When the reset is accepted, the form will advance one line. To resume printing, press ENABLE PRINT.

### 2.9.12 TEST

While in HOLD PRINT, the test KEY is pressed to perform a self-test.

- The printer will perform the requested test.

- The TEST light comes on.

Press ENABLE PRINT to resume printing.

For detailed instructions on the self-test procedure, see "Running a Self Test" to change the current test number, follow the procedure outlined in the SET TEST key description.

### 2.9.13 BUFFER REPRINT

Press BUFFER REPRINT while in HOLD PRINT to print the contents of the print buffer. The print buffer is a temporary storage place for information while it is being switched from one place to another.

This feature is useful if the printer runs out of paper while printing. If the printer has finished the current job, however the buffer reprint will not work. If the printer can execute the command , the contents of the buffer is printed from the beginning, after ENABLE PRINT is pressed. BUFFER REPRINT must be selected before selecting ENABLE PRINT after printing has been interrupted, otherwise, data in the print buffer may be lost.

NOTE

BUFFER REPRINT is only active in SCS mode if the host is system generated to support it. Check with your system manager if you're not sure.

### 2.9.14 SECOND FUNCTION

Pressing this key while in HOLD PRINT activates the second function printed in orange on the keys (lower portion of the keypad), thus placing the printer in Second Function mode. When this switch is pressed, the HOLD PRINT light will begin flashing and "FNC" will appear in the Status Indicator. To fully understand how the Second Function keys work, see the "Second Function Keys" section on the following page. NOTE: The CHANGE HOST key is the only second function key printed in white and accessible with the top cover closed.

### 2.9.15 CHANGE CASE

In non-SCS mode while in HOLD PRINT, this tells the printer which case to print letters in. The current status of this key is defined by the MONO CASE indicator. Dual case is the default setting at power on; letters are printed in upper and lower case, unless overridden by the host program.

Press HOLD PRINT,then press CHANGE CASE.

- The MONO CASE light comes on.
- The printer will print letters in upper and lower case.

Press CHANGE CASE again.

- The MONO CASE light goes out.
- The printer will return to Dual Case printing.

Press ENABLE PRINT.

- Printing will resume.

NOTE

In SCS mode, the printer operates only in Dual Case. Mono Case setting will be overridden.

### 2.9.16 CHANGE SPACE

Pressing CHANGE SPACE while in HOLD PRINT determines whether the spacing between lines will be single or double. The current status of this switch is defined by the DOUBLE indicator. Single spacing is the default setting at power on.

Press HOLD PRINT, then press CHANGE SPACE.

- The DOUBLE light is on.
- The printer will print with double spacing.

Press CHANGE SPACE again.

- The DOUBLE light goes out.
- The printer will return to single spacing.

Press ENABLE PRINT.

- Printing will resume.

---

NOTE

When changing SPACE, it is assumed that you are at TOF.

---

### 2.9.17 CHANGE LPI (Lines Per Inch)

Pressing CHANGE LPI while in HOLD PRINT determines the number of lines per inch to print, 6 or 8. The current status of this key is indicated by the 8 LPI light. 6 LPI is the default setting at power up.

Press HOLD PRINT, then press CHANGE LPI.

- The 8 LPI light comes on.
- Your ISI 462 will print at 8 LPI.

Press the CHANGE LPI again.

- The 8 LPI light will go out.
- The printer will return to 6 LPI.
- Press ENABLE PRINT and printing will resume.

NOTE

When changing LPI, it is assumed that you are at TOF. If you specify double spacing along with a setting of 6 LPI (8LPI), you will actually get 3 lines per inch.

## 2.10 Second Function Keys

The Second Function Keys allow you to set and reset a variety of different parameters with temporary or permanent values (see the CONFIG key for details). Read the key descriptions below and carefully follow the procedures in the order they are given. The HOLD PRINT light will flash on and off to indicate that the keys have assumed their second function.

NOTE

If any key, other than those with designated second functions is pressed while the printer is in second function mode, the printer will immediately return to primary function.

### 2.10.1 CONFIG (Configure)

While in the second function mode, CONFIG allows you to set chosen parameters permanently. Values set permanently will stay in the printer's memory and are ready for use at power on.

NOTE

CONFIG is to be used in specialized applications only. It is not recommended for printers used for a variety of printing functions.

Primary function mode parameters such as LPI, print spacing, and character case are set temporarily as explained under each key definition. These parameters can also be set permanently by using the CONFIGURE key. To set these features permanently, follow the procedures below:

1. Place the printer in HOLD PRINT.
2. While in primary function mode, select the desired parameters. You may use primary function keys: CHANGE LPI, CHANGE SPACE, or CHANGE CASE. See the definition of each key you are interested in setting under "Primary Function Keys".
3. Press SECOND FUNCTION. (Notice that the LED display shows "ccc".)
4. Press CONFIGURE.

EXAMPLE

To permanently set the printer at 8 LPI, first press HOLD PRINT,then press CHG LPI. Next press SECOND FUNCTION, then SET FL to select the new forms length setting. Finally, press SECOND FUNCTION, CONFIGURE, and ENABLE PRINT to resume printing.

### 2.10.2 100, 10, 1

The number 100, 10, and 1 keys are used to change page length, line length, and to select a diagnostic test number. The number you enter to indicate a new setting for these functions is displayed on the status indicator. For complete instructions on how to use these keys, refer to "SET FL", "SET MPP" and "SET TEST".

### 2.10.3 SET FL(Set Forms Length)

The default setting for forms length is 66 lines. To see the current setting:

- Press HOLD PRINT, then press SECOND FUNCTION.
- Then press SET FL.

The LED status indicator displays the current lines per page as a three digit number (066 for 66 lines per page).

Now, you can select a new forms length in the range of 0 to 99.

- Press the 1, 10, and/or 100 keys.
- Then press SET FL to tell the printer to begin using this new forms length. (Or, you may return to primary mode without altering the length, by pressing SECOND FUNCTION.)
- Press ENABLE PRINT to resume printing.

To determine the number of lines to select for your new forms length, you must consider three things:

- The length of the paper form in inches.
- The number of lines you want to have print per inch.
- The line spacing you want: single or double.

### 2.10.4 Forms Length Setting Example

The default forms length setting at power on is based on a standard form length of 11 inches. The number of lines per inch (LPI) defaults to 6 LPI. Multiply: 11 inches x 6 lines per inch = the total lines per page. This is the default forms length setting. In this example, we'll assume that the paper form length is 11 inches (279.4mm) and that you want 8 lines per inch, single spaced:

1. First press HOLD PRINT.

2. You want to print 8 LPI, but your printer is in the 6 LPI default setting. To set the printer at 8 LPI simply press CHANGE LPI (the 8 LPI indicator should light) and your printer will print 8 lines per inch.

3. Now, you want single spacing, which is the default setting for the printer. Multiply the paper length by 8 for single spacing (11 x 8 = 88). (For double spacing, set the CHANGE SPACE key and multiply the paper length by 4{11 x 4 = 44}.)

4. Put the printer in second function mode. (You should still be in HOLD PRINT, so just press SECOND FUNCTION.)

5. Then press SET FORMS.

6. Now enter the page length value as a three digit number by using the 1, 10, and 100 keys. Your entry (088) will be displayed in the LED status indicator.

7. Press SET FORMS again.

The printer is back in primary function mode and will select the value you have just set. The display window will be blank. This value is temporary and will not remain once the printer has been powered off. To set your forms length permanently, see "Secondary Function Keys, CONFIG". Press ENABLE PRINT to resume printing.

### 2.10.5 SET MPP (Maximum Presentation Position)

The default setting for maximum presentation position is 132 characters at power on. To view the current setting:

1. Place the printer in second function mode (by pressing HOLD PRINT, then SECOND FUNCTION).

2. Then press SET MPP. The LED status indicator displays the current characters per line as a three digit number.

You may now select a new maximum presentation position setting in the range of 1 to 132 (1 to 198 for 15 CPI), or you may exit the second function mode.

1. To select a new MPP use the 1, 10, and 100 keys. You can check your work by viewing the new parameter in the LED status indicator.

2. To exit the second function mode, press SECOND FUNCTION.

3. Press SET MPP again, and your printer is back in primary function mode and will select the value you have just set. This value is temporary and will not remain once the printer has been powered off. To set this value permanently, see the following section. Press ENABLE PRINT to resume printing.

### 2.10.6 SET TEST

While in second function mode, the SET TEST key allows you to select a test you wish the printer to run when TEST is pressed. The default setting for the test number is 0. To view the current setting:

1. Place the printer in second function mode (by pressing HOLD PRINT, then SECOND FUNCTION).

2. Then press the SET TEST key. The status indicator displays the current test number as a three digit number (003 for test #3).

To select your new test number:

1. Press the "1" key.

See "Running a Self-Test" for a list of the available self-tests and their corresponding numbers. The status indicator will display your selection.

To return to primary function mode:

1. Press SET TEST again.

2. The printer is now back in primary function mode and will select the value you have just set. This value is temporary and will not remain once the printer has been powered off. The status indicator will be blank.

---

NOTE

The SET TEST setting cannot be set permanently.

---

## 2.13 What The Lights Mean

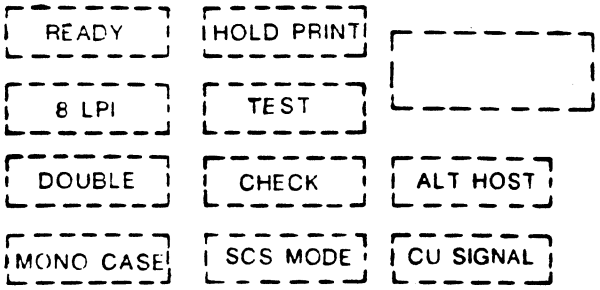



Figure 2-9

### 2.13.1 READY

READY is on when:

- The printer is ready to receive data from the controller.

READY is off when:

- The printer enters HOLD PRINT.
- The printer enters test mode.
- The check condition occurs (error detected).
- The printer is powered off.
- The printer runs out of paper.

### 2.13.2 HOLD PRINT

HOLD PRINT is on when:

- The printer is in the hold print mode.

HOLD PRINT flashes when:

- The printer is in second function mode.

### 2.11.3 8 LPI

8 LPI is on when:

- The printer is set to print 8 lines per vertical inch.

### 2.11.4 TEST

TEST is on when:

- The self-test or a selected diagnostic test is being run.

TEST is off when:

- The printer completes the self-test or a selected diagnostic test.
- The HOLD PRINT key is pressed.

See the TEST key description for details.

---

NOTE

The TEST light does not come on during test #8. HOLD PRINT will stop the test, but it will not make the light go on.

---

### 2.11.5 DOUBLE

DOUBLE is on when:

- The printer is set to print with double spacing.

### 2.11.6 CHECK

CHECK is on when:

- An error condition occurs.

The printer will stop printing and the status indicator displays an error code (see "What To Do If You Have a Printer Problem" to determine the meaning of the error codes).

### 2.11.7 ALT HOST

ALT HOST is on when:

- The printer is set to communicate via the parallel connector to a unit such as an IBM PC, instead of to the IBM 3270 control unit.

### 2.11.8 MONO CASE

MONO CASE is on when:

- The printer is set to print in all upper case letters.

### 2.11.9 SCS MODE

SCS MODE is on when:

- The printer is in SCS mode.

### 2.11.10 CU SIGNAL

The CU SIGNAL comes on when:

- The printer has received, accepted, and is returning a response from the control unit.

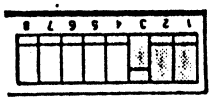
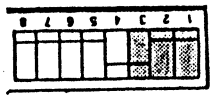
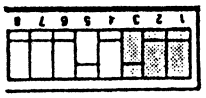
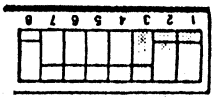
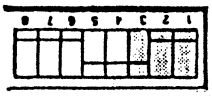
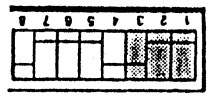
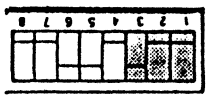
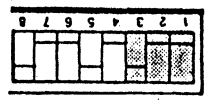
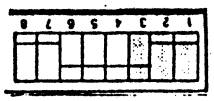
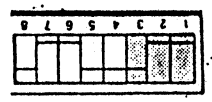
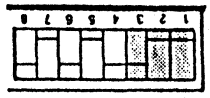
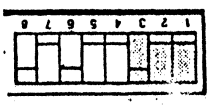
## 2.12 User Selectable Features (Switch Settings)

The switches you can use to control the model selection, language/band selection, and special functions are located under the control panel. There are three switch packs. Two have eight switches, and one has twelve. Switch pack E8 controls the IBM model number and the language selection, E7 controls the special printing functions, and E6 is reserved for later use. You must change all 462 option switches before the printer is turned on or the printer will not recognize the change. The values of the option switches are read and stored only at power on.

When you receive your printer it will already be set at the positions listed in Section 1 "How to Operate Your Printer". If you want to change any of these settings, refer to the sections below for specific switch settings.

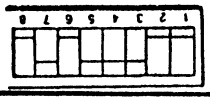
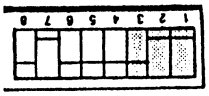
## 2.12.1 Language Select Switch Settings

Switches 4 through 8 on switch pack E8 specify the different language settings. The 462 has the capability to print a variety of international character sets which you can select by changing the print band and selecting the appropriate switches in switch pack E8. (A standard EBCDIC band is currently available.) The ISI 462 has the potential to support the language sets listed below.

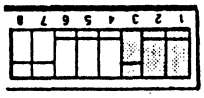
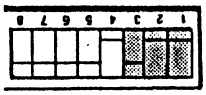
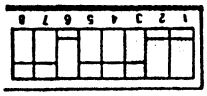
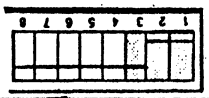
| Switch E8 | Language | Switch E8 | Language |
|---|---|---|---|
|  | English, U.S. |  | Belgian |
|  | Austrian/German |  | International |
|  | Austrian/German Alt. |  | Japanese/English |
|  | Danish/Norwegian Alt. |  | Canadian/French |
|  | Danish/Norwegian |  | Brazilian |
|  | Finnish/Swedish |  | Canadian Bi-lingual |
|  | Finnish/Swedish Alt. |  | Katakana |
|  | French |  | Yugoslavian |
|  | Italian |  | Reserved |
|  | Portugese Alt. |  | Reserved |

(continued)

(continued)

| | | | |
|---|---|---|---|
|  | Spanish |  | Reserved |
|  | English, U.K. |  | Reserved |

The following sets enable the right-to-left printing mode:

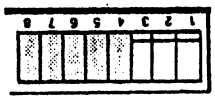
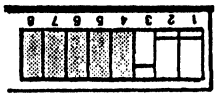
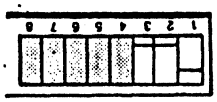
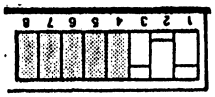
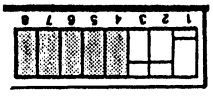
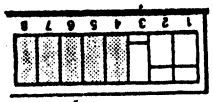
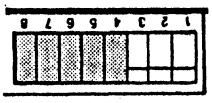
| Switch | Language | Switch | Language |
|---|---|---|---|
|  | English |  | " |
|  | Hebrew, A |  | " |
|  | Hebrew, B |  | " |
|  | English |  | " |

IMPORTANT

When a right-to-left language set has been selected, the CHG CASE key and its associated indicator, DUAL CASE, control and indicate print direction. Thus, CHG CASE must be pressed (and the DUAL CASE indicator lit) to enable right-to-left printing.

## 2.16 IBM Model Select Switches

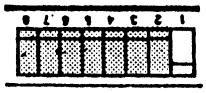
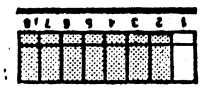
Switches 1 through 3 in switch pack E8 specify the IBM model to be used. Switches 4 through 8 are reserved.

| SWITCH 3 2 1 | IBM MODEL | SWITCH 3 2 1 | IBM MODEL |
|---|---|---|---|
|  | - |  | 4 |
|  | 1 |  | 5 |
|  | 2 |  | 2 |
|  | 3 |  | 4 |

Undefined codes: 0 defaults to IBM Model 2. Model 7 defaults to IBM Model 4. It is important that the printer be configured to match the controller.

## 2.17 Special Function Switch Settings

Switches 1 through 5 on switch pack E7 control the selection of special printing functions offered by the 462. Switches 6-8 are reserved. These functions and their required switch settings are outlined in the chart below.

| SWITCH E7 | FUNCTION |
|---|---|
|  | selects "standard default settings at power up |
|  | selects settings made permanent by CONFIG. |

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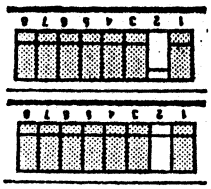
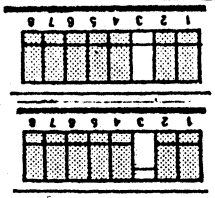
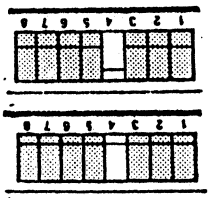
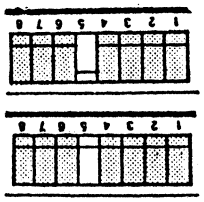
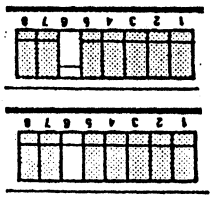
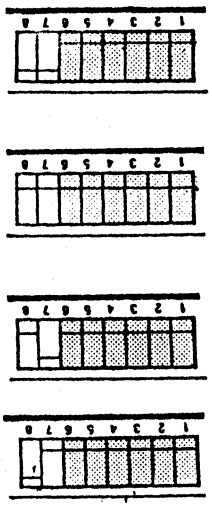
| | |
|---|---|
|  | alarm disable<br><br>alarm enable |
|  | no automatic line feed after CR (for PC only)<br><br>automatic line feed after CR (for PC only) |
|  | print null lines<br><br>do not print null lines* |
|  | print form feed on local copy**<br><br>do not print form feed on local copy |
|  | IBM Model 3262 I.D.<br><br>IBM Model 3287 I.D. |
|  | FEATURE 9504. A form feed terminating a non-SCS print will advance the printer to the first print position of the second line of the following form.<br><br>IBM 3287 STANDARD. (Same as IBM 3287 RPQ S30219 - 3268 Specify Feature 9504) A non-SCS form feed at the end of a print will advance the printer to the first print position of the first line on the next form.<br><br>NO FORM FEED AT END OF PRINT<br><br>RESERVED - If forms length = 0, the printer will ignore non-SCS form feeds. No paper motion will occur when a form feed is received. Forms length settings other than zero will act the same as FORM FEED AT END OF PRINT. |

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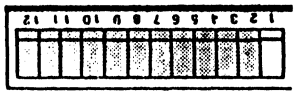
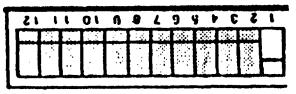
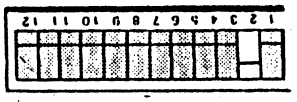
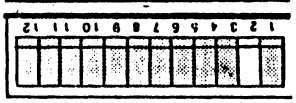
| E6 | |
|---|---|
|  | 3287 STANDARD - ~~carriage return or~~ new line at MPP+1 |
|  | 3262 STANDARD - carriage return or new line at MPP+1<br>3282 RPG |
|  | AUTOMATIC FORM FEED AT END OF PRINT |
|  | AUTOMATIC NEWLINE AT END OF PRINT |

*Null Lines: Will not print null lines - if a print line has no printable characters, a New Line will not be performed. The first print position of the current line is the next print position.

Print Null Lines - all null lines will be printed as a blank line and a New Line will be performed. The first print position of the next line is the next print position.

**Form Feed On Local Copy - an automatic form feed is performed immediately after a print order. The first print position of the first line on the next form is the next print position.

the current line is the next print position.

Print Null Lines - all null lines will be printed as a blank line and a New Line will be performed. The first print position of the next line is the next print position.

**Form Feed On Local Copy - an automatic form feed is performed immediately after a print order. The first print position of the first line on the next form is the next print position.

## 2.18 Miscellaneous Items

### 2.18.1 Status Indicator

You can monitor the operation of your printer by reading the various codes displayed on the status indicator. The status indicator is a four digit LED Display located in the upper right corner of the control panel. The information that may be displayed includes:

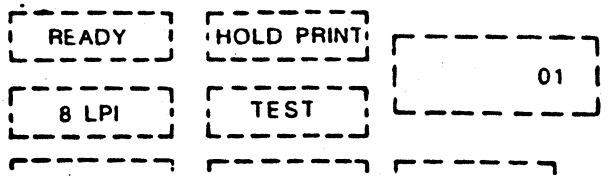



Figure 2-10

- A status code when the printer requires operator attention (for example, when the printer runs out of paper).See pages 42-43 for a list of the operational status codes and their meanings.

- The current forms length setting when you press SECOND FUNCTION and then SET MPP.

- The current MPP when you press the SECOND FUNCTION key and then the SET MPP key.

- The current test number selected when you press SECOND FUNCTION and then SET TEST.

### 2.18.2 Audible Alarm

If the alarm is enabled, the audible alarm sounds (beeps) a one second tone when the printer requires your attention. It continues to beep at refular intervals until you press HOLD PRINT.

The alarm will sound when:

- The printer is out of paper.
- An error is detected and the CHECK indicator is lit.
- The paper throat is open.
- The printer received a program attention action request.

### 2.18.3 CU Signal

The CU SIGNAL light comes on when the printer has received, accepted, and is returning a response from the control unit.

## 2.19 What to Do if You Have a Printer Problem

First of all stay calm. Most of the problems you encounter during normal operation are called operational problems which you can fix quite easily. When a problem occurs, look at the status indicator to see if a code is displayed. If there is a code, record it and refer to the following section, "Operational Status Codes".

## 2.20 Operational Status Codes

The table below lists the most common operatioanl status codes and their meanings. For example, when the printer runs out of paper the "1" code is displayed on the status indicator. A status code is always accompanied by the alarm sounding and the CHECK indicator coming on.*

To use this chart, locate the code in the far left column. Then refer to the middle column for the description of your problem. Finally, look in the far right column and follow the suggested corrective action. If the problem can't be corrected by the procedure suggested, contact your service representative or qualified service personnel at Interface Systems, Inc. The number is (313) 769-5900.

| OPERATIONAL STATUS CODES | | |
|---|---|---|
| CODE | PROBLEM DESCRIPTION | CORRECTIVE ACTION |
| 1 | paper out | Load in more paper. |
| 2 | throat open | Close throat. |

| OPERATIONAL STATUS CODES | | |
|---|---|---|
| CODE | PROBLEM DESCRIPTION | CORRECTIVE ACTION |
| 8 | operator intervention required | Ask your system manager for instructions on this installation related problem. |
| 4, 10, 14 | band jam, ribbon jam | - Make sure hammer bank lever is down.<br>- Remove paper or any other object which may be jamming the band.<br>- Make sure the restraining clip has been removed.<br>- Check adjustment lever.<br>- Remove ribbon, straighten, tighten slack, install. If knob doesn't move, get a new ribbon. |
| 27 | control out of communication | Ask your system manager for instructions on this installation related problem. |
| 63 | printer has received action request | Program is requesting a PA key actuation, if you're not sure why, ask your system manager for instructions. |
| 999 | power failure | Turn printer off for 5-10 seconds, then power back on. |

These next status codes appear when more than one error occures at once. As you fix them the next appropriate error code will be displayed. For example, if error code 11 (head jam and paper out) shows, and you fix the head jam the code 1 will be displayed until you fix the paper out condition.

| | | |
|---|---|---|
| 3 | paper out and cover open | Reload the paper and close the top and/or acrylic covers. |
| 5, 11, 15 | paper out band jam, ribbon jam | - Make sure hammer bank lever is down.<br>- Remove any paper or any other object which may be jamming the band.<br>- Make sure the restraining clip has been removed.<br>- Reload paper as necessary.<br>- Check adjustment lever.<br>- Remove ribbon, straighten, tighten slack, install. If knob doesn't turn get a new ribbon. |
| 6, 12, 16 | throat open, band jam, ribbon jam, | - Make sure hammer bank lever is down.<br>- Remove paper or any other object which may be jamming the print band.<br>- Make sure the restraining clip has been removed. |

| | | |
|---|---|---|
| 7, 13, 17 | paper out, throat open, band jam | - Close the throat.<br>- Check adjustment lever.<br>- Remove ribbon, straighten, tighten slack, install. If knob doesn't turn, get a new ribbon.<br>- Make sure hammer bank lever is down.<br>- Remove paper or any other object which may be jamming the print band.<br>- Make sure the restraining clip has been removed.<br>- Reload paper as necessary and close the top and/or acrylic covers. |
| | paper is tearing and/or ink is smearing letters are being clipped | Adjust for forms thickness. See "Adjusting For Forms Thickness". |

## 2.21 Running a Self-Test

If a printer error occurs, the following procedure should be followed to perform a self-test. An accurate diagnosis of the problem can then be made by consulting the table below. This test may not mean much to you, but it will be helpful when talking with your service personnel. It may even save you a service visit from your service representative or our qualified personnel at Interface Systems, Inc.

1. Place the printer in HOLD PRINT.
2. Press the SECOND FUNCTION switch.
3. Press SET TEST to view the current test mode (see Table 2-7).
4. If you wish to change the test mode at this time, press the "1" key until you arrive at the desired number.
5. Push the SET TEST key to store the test in the printer's memory (i.e., you must press SET TEST to achieve the new test, otherwise the printer will print the original test displayed.
6. Push TEST. The printer will run the test. If you wish to stop a lengthy test (such as 3, 4, 5, and 9) press the TEST key again.
7. When the test is over, the printer returns to the primary condition.
8. To run another test, press SECOND FUNCTION again and repeat steps 2 through 4.
9. To re-run the same test, press TEST.

NOTE: Test #8, auto dump, is run in READY mode. To stop the test push HOLD PRINT.

## SELF-TEST DIAGNOSTICS

0 - version and status
1 - version - print version, model, ROM checksum, status
2 - print status "Xxxyzab"
- x - identifies the next 6 characters as a status code
- xx
  - 80 - not defined
  - 40 - not defined
  - 20 - not defined
  - 10 - RESET command received
  - 8 - LPS order received
  - 4 - PRINT order received
  - 2 - ABORT order received
  - 1 - SSA order received
- y
  - F - printer is busy
  - 0 - printer is not busy
- z
  - F - printer is ENABLED and may alter adapter RAM
  - 0 - printer is DISABLED
- a
  - 0 - no order received (or an illegal, o, order was last)
  - 1 - last received order was ABORT
  - 2 - last received order was SSA
  - 3 - last received order was PRINT
  - 4 - last received order was load Programmed Symbols
  - 5-F these last values are illegal at this time
- b
  - 0 - last command received was DISABLE
  - 1 - last command received was ENABLE
  - 2 - last command received was RESET
  - 3 - last command received was SOP

3 - dump print buffer and variable RAM (Random Access Memory)
4 - dump variable RAM only
5 - device dependent test (character dump print)
6 - not defined
7 - display Centronix status codes(refer to technical manual or printer cards)
8 - auto dump (as in 3) at the end of print
9 - print test (repeats until stopped)
10 - print lines of "H's" at 10 CPI
11 - print spaces without advancing form

# Section 3: Appendix

## Appendix A

## Care and Cleaning of Your Printer

Your printer is clean, new, and operating beautifully and it's easy to keep it that way. Although there are no regularly scheduled preventive maintenance procedures, you should periodically inspect and clean the printer area that is immediately accessible under the top cover.

Occasionally, during paper loading or ribbon replacement, inspect the printer for a build-up of lint or foreign material. If the build up of material is evident, clean the area with a lint free cloth.

Table A-1 below lists the maintenance occasionally required on certain areas of the printer. This maintenance may be required more or less frequently, depending on what you use your printer for and where you use it.

CAUTION

Turn your printer OFF before doing any of the following cleaning procedures.

Cleaning and Inspecting Your 462

| Assembly | Maintenance |
|---|---|
| Covers | Clean all cover assemblies using a mild detergent and a lint-free cloth. |
| Internal Inspection | Remove the top cover and look inside for loose wires, connectors, and hardware, chafing of cables, and worn or damaged parts. |
| Carriage | After removing the ribbon, use a light bristle brush to gently remove the dust and residue from the print head and carriage assembly. |
| Platen Assembly | Clean the platen assembly with a mild detergent. |
| Print Band | After removing the print band, use a light bristle brush or soft lint free cloth and denatured alcohol. Don't bend or fold the |

| | |
|---|---|
| | print band. Before you replace the band check the band area as instructed below. After cleaning the band and band area, replace the band.<br><br>CAUTION<br><br>Edges of band may be sharp after repeated use. |
| Ribbon Shield Support, Band Cover, and Band Path. | With the ribbon shield support plate and band cover open and print band removed clean the area. Use a soft bristle nozzle attachment on a vacuum cleaner, and a small brush (like a paint brush) to remove all dust and residue from the band path and all exposed interior components. Then vacuum the printer's air intake screen. |

There are also some general guidelines you can follow to keep the need for cleaning and maintenance to a minimum. Table A-2 lists a number of common sense tips for the care of your 462.

Care of Your 462

- Keep the cover closed whenever possible to keep out dust, dirt, fingers, and anything else that may wander in.
- Don't spill liquids (such as your morning coffee) into your printer.
- Don't drop things (paper clips, combs, gum, pencils, etc....) into your 462.
- Keep fingers, ties, and hair out of the printer. It really messes things up, and it doesn't feel too good either.
- Don't set things on your 462. Books, pencils, and papers have a tendency to be forgotten and fly all over the room for you to pick up when the cover is opened.
- Don't let the 462 print past the top, bottom, or side edges of the paper or forms. It will dirty the platen and may damage the hammers.
- Be nice to your printer by following the directions listed in this manual. Do not yank and pull at levers, cassettes, doors and cables.
- Never kick, pound, or roll your printer into walls; although, situations may arise where you would like to, the problem is usually minor and not worthy of such abuse.

## Appendix B

## Paper Specifications

The 462 uses tractor-fed single or multi-part forms. The following section lists the various specifications you should follow when selecting paper for the 462.

The paper you select should:

- fit the specifications listed below.
- not bind when feeding from the box.
- be in line with the pin feed tractors (i.e., the paper should be fed from directly under the printer; not three feet out in front and two feet to the side.
- be stored in an area free from both high and low humidity.

### B.1 Continuous Forms Design

continuous forms should fit the specifications listed below.

- Forms may be glued or crimped.
- Crimps must be spaced a minimum of 2.0 in. (50.8 mm) along both edges of the forms and not within 0.5 in. (12.7 mm).
- Metal staples cannot be used.
- Pin feed holes must be punched along both margins.

1. Size: The printer can handle fan-fold paper and card stock from 4.0 to 15.0 inches (101 to 381 mm) wide and 0.125 to 16.5 inches (3.175 to 419 mm), or 1 to 99 lines depending on your forms length setting.
2. Thickness:
   - Single part - 0.010 in. (0.25 mm)

- Multi-part - 0.0204 in. (0.52 mm) maximum, up to six part with carbon.

3. Weight:

   - Single part - 15-125 lb. bond (56 to 470 g/m2)

   - Multi-part- Six part maximum for standard 10 pitch print bands. These are generally composed of sheets of 11.5 lb (43 g/m2) to 15 lb. (56 g/m2) with one-time carbon sheets of from 7 lb (26 g/m2) to 9 lb.(34 g/m2).

## REVISIONS

| Description | Date |
|---|---|
| Added "Attaching the Paper Platform" information. (pg. 6) | 8/26/85 |
| Added all language switches, not just U.K. Also corrected illustration of dip switch settings. | 12/86 |
| Combined 462 model 3 and 13 Operator's Guides | 3/86 |
| Added parallel information | 4/86 |
| General revision | 4/86 |
| Revised forms length from 0 to 99 to 0 to 127, added the Yugoslavian language setting, and corrected some minor errors. | 7/86 |
| Added switch settings (E6) 1,2, (E7) 7,8. | 8/86 |