Top Hand 2

Top Hand 2C

Setup Guide
part number 22834-021

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Limited Warranty

Limited Warranty

To obtain warranty services, call (401) 828-4000 for information. Astro-Med is not responsible for your product if it is lost or damaged in transit.

Astro-Med makes no warranty, either express or implied, with respect to this product's fitness for a particular purpose.

Canadian Emissions Requirements

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numérique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Shielded cables must be used with this unit to ensure compliance with the Class A FCC limits.

FCC Compliance Statement

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Printer Identification Data

Congratulations. Your Astro-Med purchase is an investment in the finest of state-of-the-art technology. Please use the spaces below to list the model name and serial number of your printer.

If, for any reason, it should be necessary for you to contact Astro-Med regarding your purchase, please refer to:

model name   _____

serial number _____

Table of contents

Table of contents

1   About this manual

This manual applies to the following Astro-Med printers:

- the Top Hand 2 with rewinder.

- the Top Hand 2 without rewinder.

- the Top Hand 2C
  - for use with Astro-Med's CS-20, CT-20 and CU-20 cutters.

Instructions which apply only to specific versions of the Top Hand 2 are clearly noted.

2   Unpacking the printer

Remove the printer and all other items from the packing carton.

Set the packing carton and its packing forms aside. Ensure that no printer-associated parts or accessories remain in the carton.

Ensure that the printer is in good condition and has suffered no visible damage during shipment.

3   Features of the Top Hand 2 without a rewinder

The callouts below identify the parts of the Top Hand 2 without a rewinder shown in the illustration on the next page.

1   media supply-roll retainer
2   media supply support rods
3   thermal transfer ribbon supply spindle
4   printhead horizontal position control
5   thermal transfer ribbon take-up spindle
6   printhead cam
7   printhead
8   media guide and media rod
9   media guide and sensor housing

3 Features of the Top Hand 2 without a rewinder
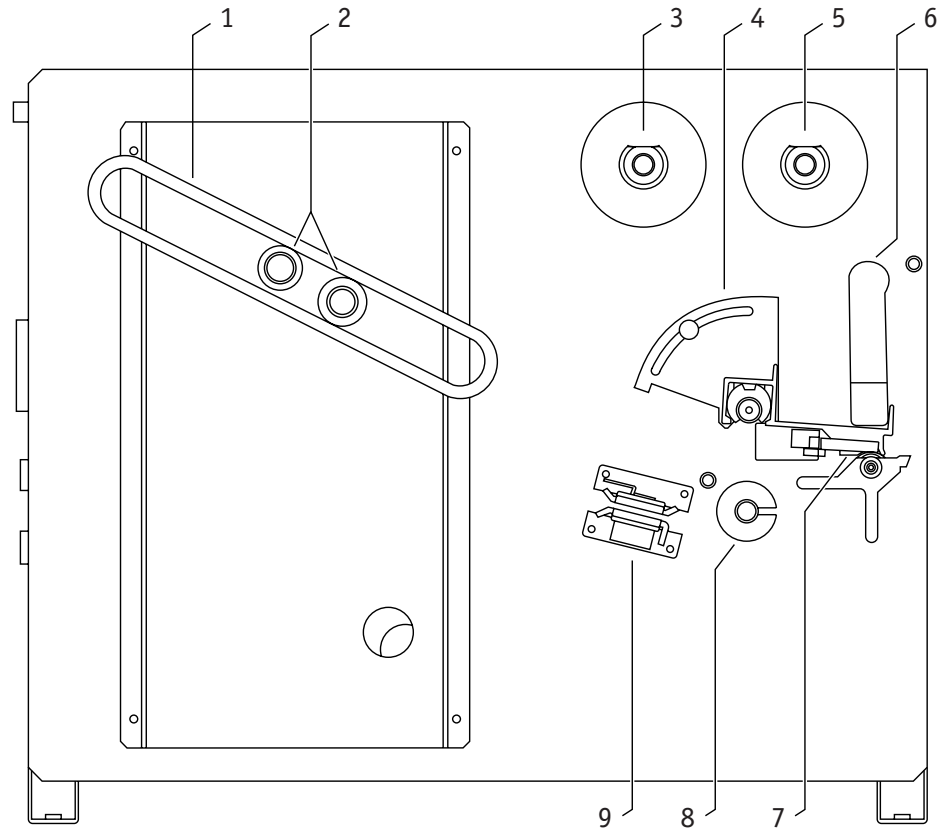
4 Features of the Top Hand 2 equipped with a rewinder

The callouts below identify the parts of the Top Hand 2 equipped with a rewinder shown in the illustration on the next page.

1	media supply-roll retainer
2	media supply support rods
3	thermal transfer ribbon supply spindle
4	printhead horizontal position control
5	thermal transfer ribbon take-up spindle
6	printhead cam
7	media rewind bracket
8	printhead
9	media guide and media rod
10	media guide and sensor housing
11	rewinder

4 Features of the Top Hand 2 equipped with a rewinder
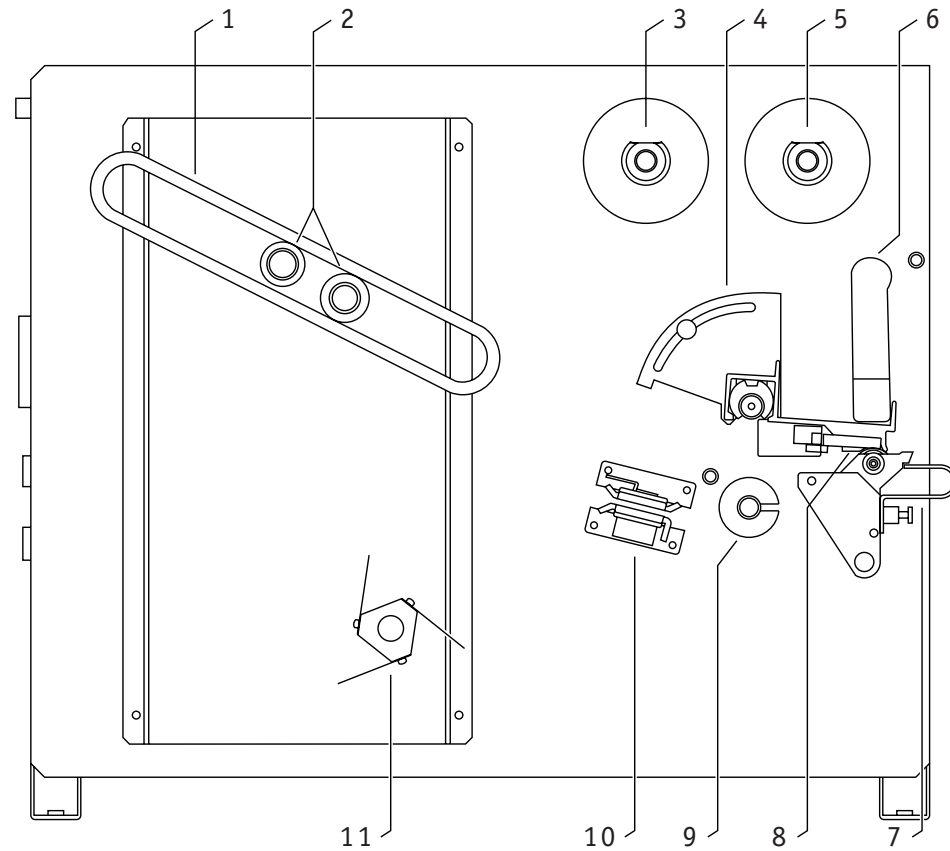
5 Features of the Top Hand 2C

The callouts below identify the parts of the Top Hand 2C shown in the illustration on the next page.

1 media supply-roll retainer
2 media supply support rods
3 thermal transfer ribbon supply spindle
4 printhead horizontal position control
5 thermal transfer ribbon take-up spindle
6 printhead cam
7 printhead
8 media travel sensor (speed sensor)
9 media guide and sensor housing
10 media guide and media rod

5 Features of the Top Hand 2C

6
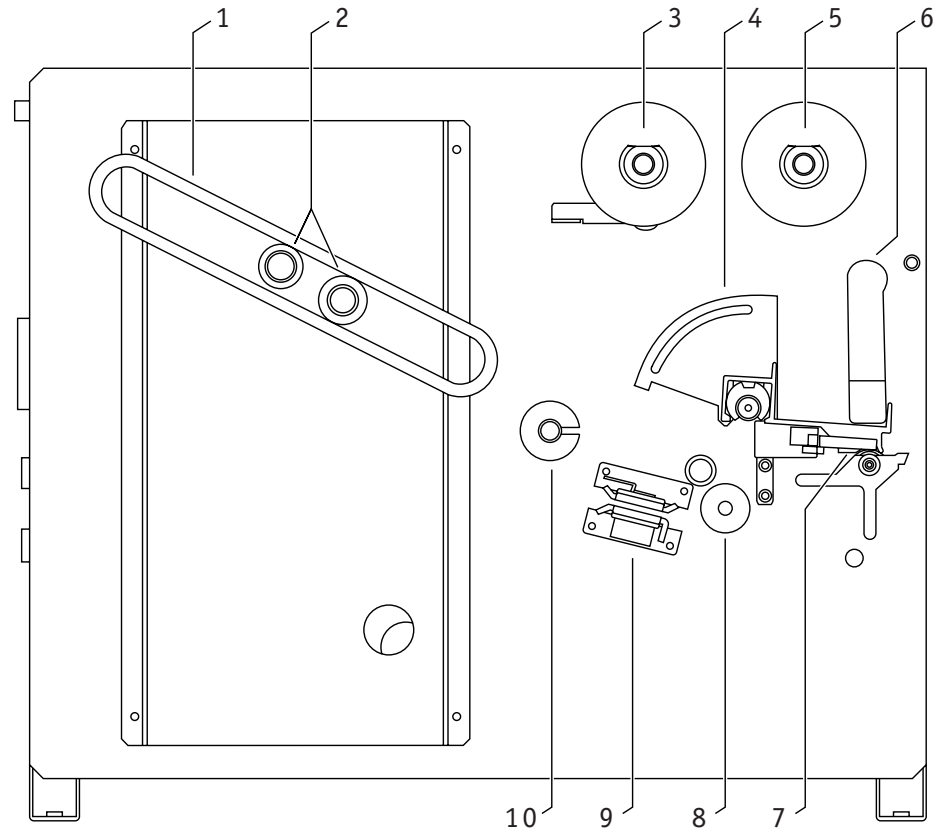
Loading label media on a Top Hand 2 without a rewinder

Refer to the illustration on the next page when performing the media loading procedure given below.

1 Remove the media supply-roll retainer.

2 Flip the printhead cam "up" to relieve pressure on the printhead.

3 Place a roll of label media on the two media supply support rods.

4 Advance the label media through the media guide and sensor housing.

5 Continue to advance the label media over the media rod and beneath the printhead assembly.

6 Adjust the media guide (the white collar on the media rod) to the media width.

7 Reattach the media supply-roll retainer.

8 Lower the printhead using the printhead cam.

6 Loading label media on a Top Hand 2 without a rewinder

NOTE:
loading media below this rod may
cause registration errors

7

Loading label media on a Top Hand 2 with a rewinder

Refer to the illustration on the next page when performing this media loading procedure.

1   Remove the media supply-roll retainer.

2   Flip the printhead cam "up" to relieve pressure on the printhead.

3   Place a roll of label media on the two media supply support rods.

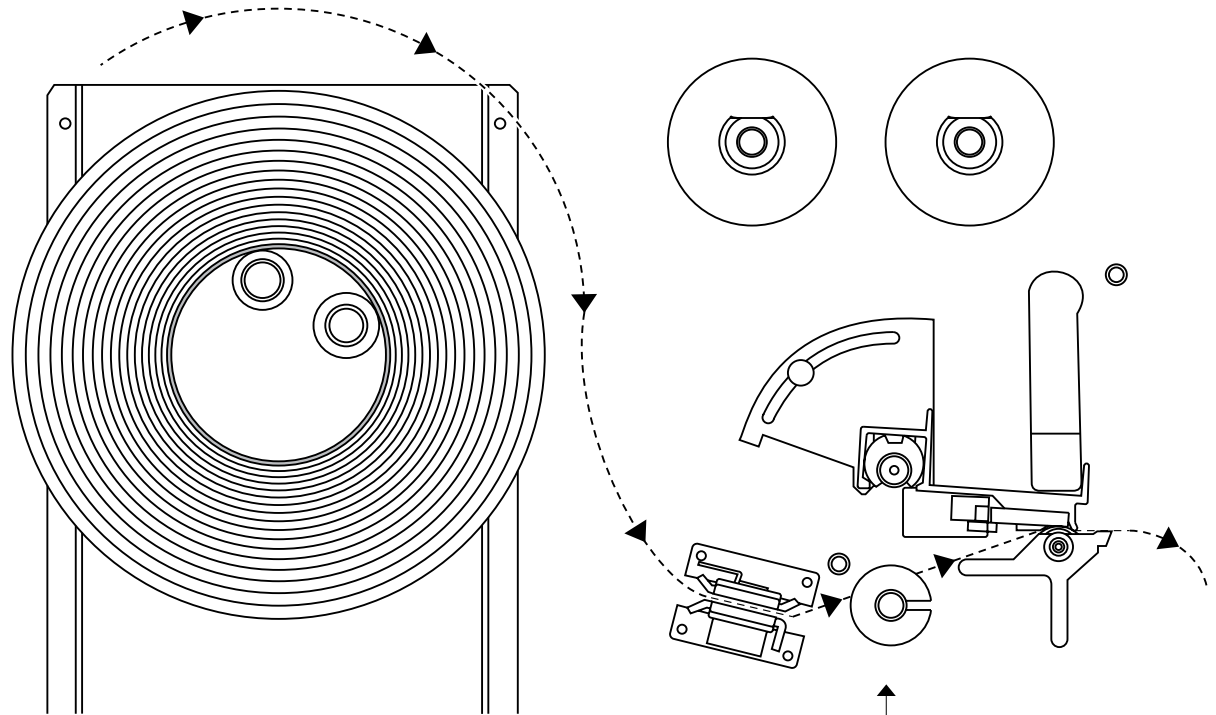4   Fully seat a cardboard take-up core on the rewinder.

5   Advance the label media through the media guide and sensor housing.

6   Advance the label media over the media rod and beneath the printhead assembly.

7   Adjust the media guide (the white collar on the media rod) to the media width.

8   Advance the label media to the cardboard take-up core on the rewinder.

9   Advance the media beneath and around the core and tape only a small segment of the media to the core.

10   Reattach the media supply-roll retainer.

11   Lower the printhead using the printhead cam.

7

Loading label media on a Top Hand 2 with a rewinder

step 9
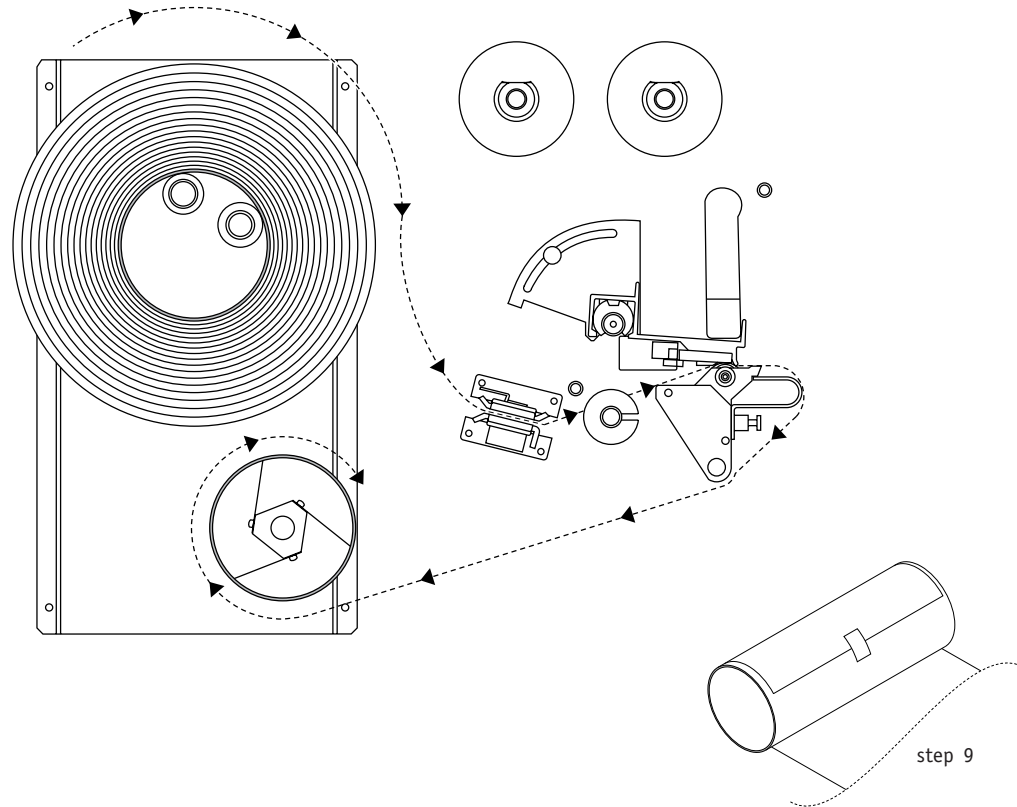
8   Loading label media on a Top Hand 2C

1   Remove the media supply-roll retainer.

2   Flip the printhead cam "up" to relieve pressure on the printhead.

3   Place a roll of label media on the two media supply support rods.

4   Advance the label media over the media guide/media rod through the media guide and sensor housing.

5   Continue to advance the label media over the media rod and beneath the printhead assembly.

6   Adjust the media guide (the white collar on the media rod) to the media width.

7   Reattach the media supply-roll retainer.

8   Lower the printhead using the printhead cam.

8

Loading label media on a Top Hand 2C
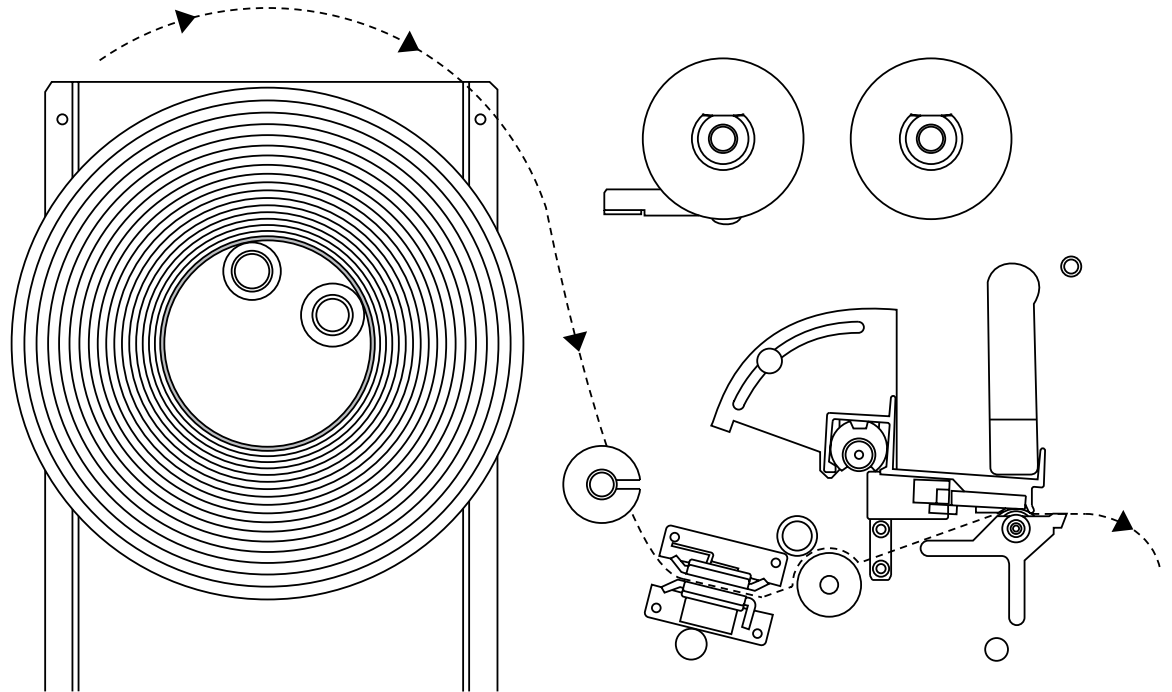
9 Loading thermal transfer ribbon

NOTE

The thermal transfer ribbon (TTR) must be wider than the label media being used.

Refer to the illustration on the next page when performing this thermal transfer ribbon loading procedure.

1   Fully seat a roll of thermal transfer ribbon on the TTR supply spindle.

2   Place a cardboard take-up core on the TTR take-up spindle.

3   Flip the printhead cam "up" to relieve pressure on the printhead.

4   Advance the TTR to beneath the lower TTR guide roller.

5   Advance the TTR beneath the printhead.

6   Advance the TTR over the upper TTR guide roller.

7   Advance the TTR beneath and around the cardboard take-up core and tape the TTR to the core.

8   Lower the printhead using the printhead cam.

9

Loading thermal transfer ribbon
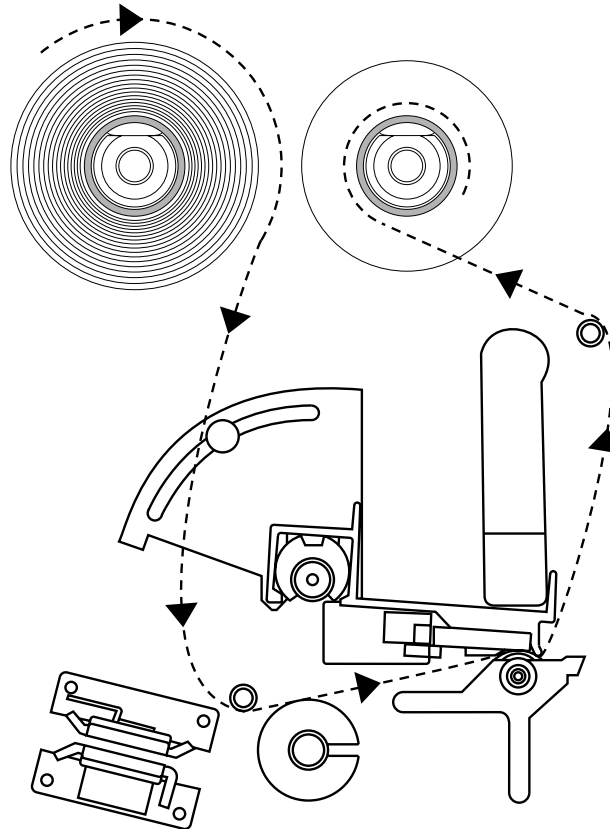
10 Setting up serial communications with a host computer

1 Locate the 9-pin serial cable provided with the printer and the serial D-shell interface on the printer's power-connect side. See the illustration on the next page.

2 In accordance with the serial interface pin table below, connect the male end of the serial cable to the printer's serial D-shell interface.

pin	function
1	not used
2	TXD (transmit data)
3	RXD (receive data)
4	DTR (data terminal ready)
5	ground
6	DSR (data set ready)
7	internally connected
8	internally connected
9	not used

3 Connect the female end of the serial cable to the host computer's serial port.

10 Setting up serial communications with a host computer

4 For further information regarding host control of the printer, refer to either:

- the <u>Host Protocol for Top Hand 2 and Range Boss</u> manual

- or, if you have purchased Astro-Med's proprietary QuickLabel® software, refer to the QuickLabel® documentation.
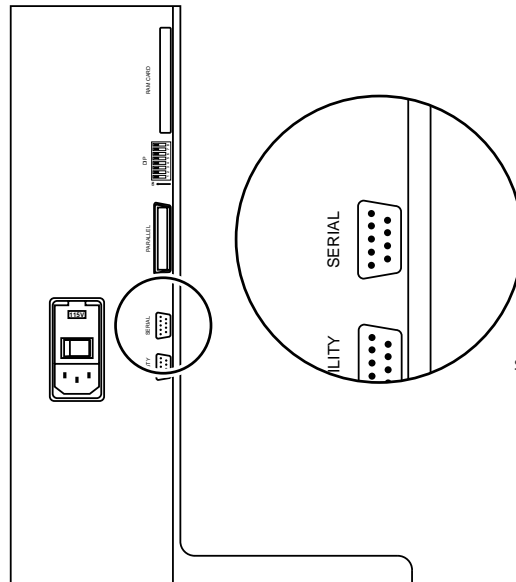
locate the printer's
serial connection D-shell interface

11 Setting up parallel communications with a host computer

Refer to the illustration on the next page when performing this parallel communications setup procedure.

1 Locate the parallel communications cable provided with the printer.

2 On the printer's power-connect side, locate the parallel D-shell interface.

- See the illustration on the next page.

3 Connect the standard Centronics® 36-contact end of the parallel cable to the printer's parallel D-shell interface.

4 Connect the 25-pin end of the parallel cable to the host computer's parallel port.

NOTE

When using Astro-Med's proprietary QuickLabel and Color QuickLabel software, it is necessary to insert an Astro-Med security key into the host computer's parallel communications port. The security key is supplied with the Astro-Med software. The parallel cable then connects from the Top Hand's parallel communications interface to the security key installed in the host-computer's parallel communications interface.
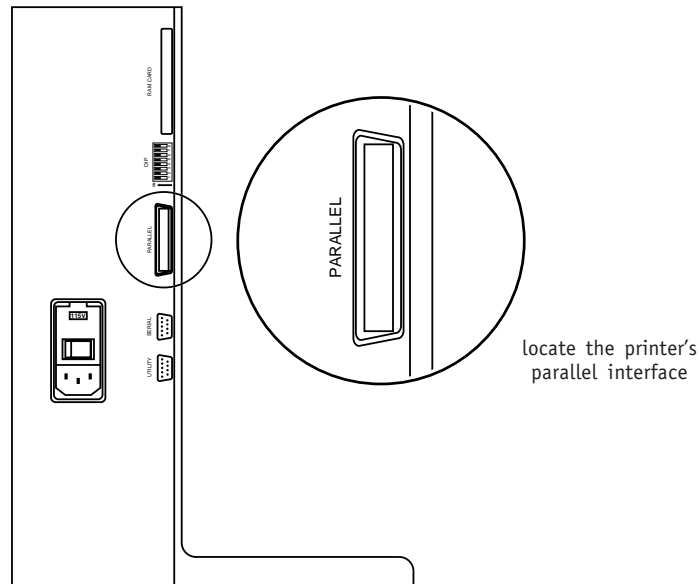
11 Setting up parallel communications with a host computer

5 For further information regarding host control of the printer, refer to either:

- the <u>Host Protocol for Top Hand 2 and Range Boss</u> manual

- or, if you have purchased Astro-Med's proprietary QuickLabel software, refer to the QuickLabel documentation.

locate the printer's parallel interface

12 Setting the printer's selection switches

<u>NOTE</u>

Selection switch 7 (cutter enable/disable) pertains only to the Top Hand 2C . The setting of switch 7 has no affect when operating the non-cutter version of the printer: the Top Hand 2.

In addition to the information provided below, a selection switch table is given on the next page.

1 Use selection switches 1 and 2 to set any one of four communication baud rates: 4800, 9600, 19200 or 38400.

  - Typically, a baud rate of 19200 is used for host control communication.

2 Use selection switch 3 to set a communications handshake method: DTR/DSR or XON/XOFF.

3 Use selection switch 4 to select a communications method: serial or parallel.

4 Use selection switch 5 to enable the Windows driver.

5 When the printer is used with an optional cutter or cutter/stacker unit, use selection switch 7 to enable or disable the cutter.

12 Setting the printer's selection switches
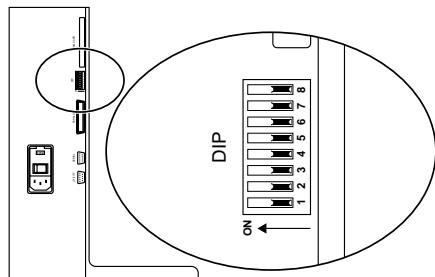
|	switch	status	result		switch	status	result
baud rate	1 and 2	off	38400	**parallel**	4	off	disabled
	1	on			4	on	enabled
	2	off	4800				
	1	off		**serial**	4	off	enabled
	2	on	9600		4	on	disabled
	1 and 2	on	19200				
				Windows®	5	off	disabled
handshake	3	off	DTR/DSR*	**driver**	5	on	enabled
	3	on	XON/XOFF				
				cutter	7†	off	disabled
					7†	on	enabled

* When using QuickLabel for DOS, ensure that switch 3 is set to off.
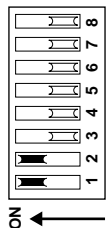† Pertains to Top Hand 2C only.

12 Setting the printer's selection switches
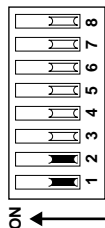
1 off **2 off** ——— **38400**	**1 on** **2 on** ——— **19200**
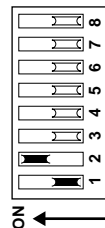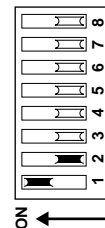
1 off **2 on** ——— **9600**	**1 on** **2 off** ——— **4800**
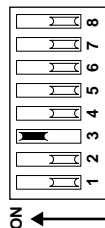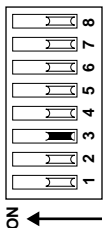
3 on ——— **XON /** **XOFF**	**3 off** ——— **DTR /** **DSR**
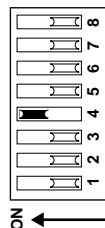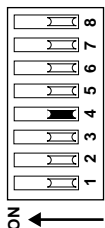
4 on ——— **parallel**	**4 off** ——— **serial**
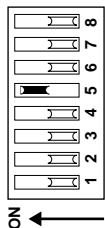
5 on ——— **windows** **driver** **enabled**	**5 off** ——— **windows** **driver** **disabled**
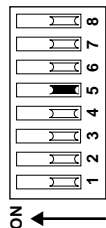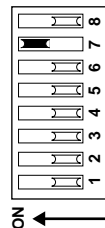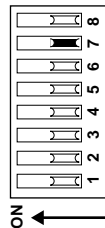
7 on ——— **cutter** **enabled**	**7 off** ——— **cutter** **disabled**

13 Calibrating the printer for the type of label media used

<u>NOTE</u>

Calibrating the printer for the type of media being used is essential and is the first procedure that must be performed after every change of label size or type.

The calibration process automatically determines label length and senses any index or top-of-form indicator between labels. This allows the printer to position widely varying types of media automatically and correctly.

- The printer stores the last calibrated values and menu setups even after shut down or restart.

- Continuous media cannot be calibrated. Instead, the printer is calibrated to detect the "media out" condition.

- The printer's internal label queue is reset during the calibration process. Any labels pending in the queue are terminated.

Use the procedure below to setup and perform a printer calibration. Refer to the illustration on page 25 when performing this calibration procedure.

1 Press the [PAUSE] push-button to put the printer into the "pause" mode.

2 Press the [MENU] until the Calibrate menu is displayed.

13 Calibrating the printer for the type of label media used

3   Press the [+] or [-] push-buttons until the type of media that you are using is shown.

- When "continuous" media is selected, the host must include a label-length parameter within the label formats.

4   Press the [SELECT] push-button.

- The display will prompt you to adjust the label media for the calibration process.

5   Flip the printhead cam "up" to relieve pressure on the printhead.

- See the illustration on the next page.

6   Position the labels so that the gap, notch, or index mark that separates one label from another is within two inches of the media guide and sensor housing.

7   Position the media sensor to ensure that the sensor will be able to detect the gap, notch, or reflective mark that separates labels.

8   Push the printhead cam down to its original position.

9   Press the [SELECT] push-button.

- The calibration is performed.

13   Calibrating the printer for the type of label media used

step 5

step 6
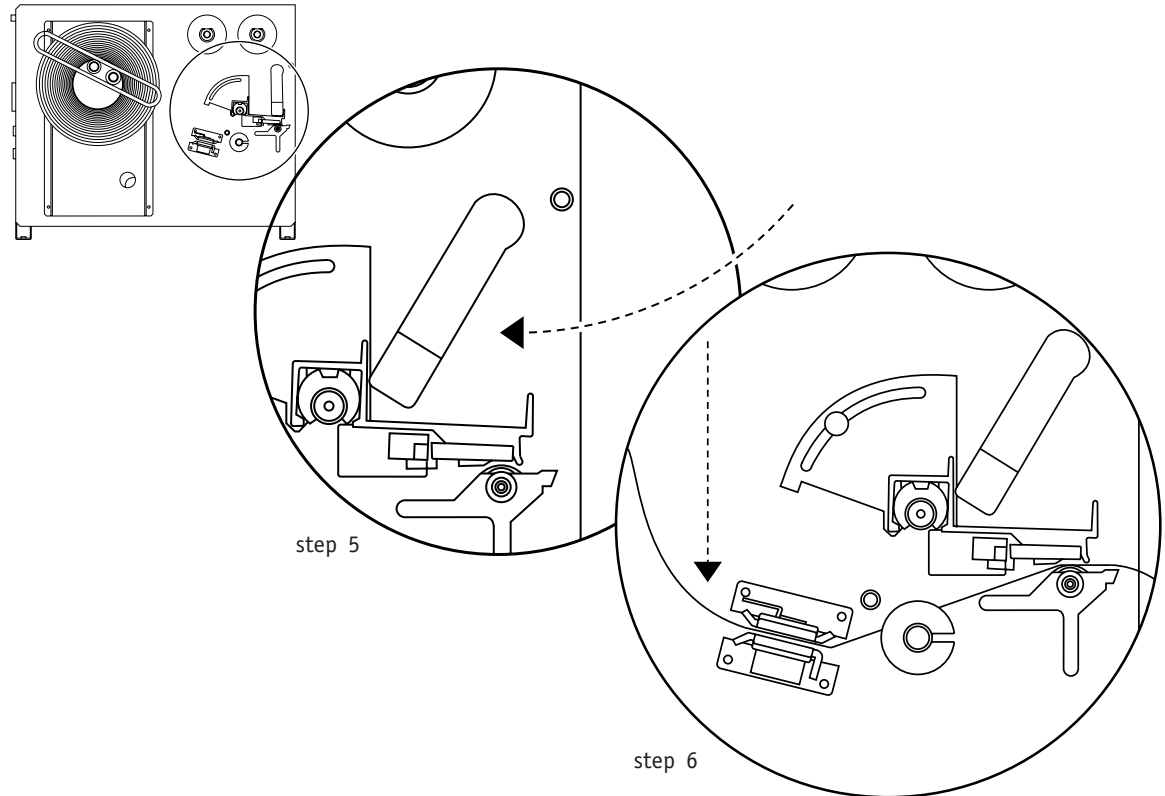
14 Setup menus and the printer's front-panel controls

The printer has five front-panel push-button controls for making menu selections: [PAUSE], [MENU], [+], [-], and [SELECT].
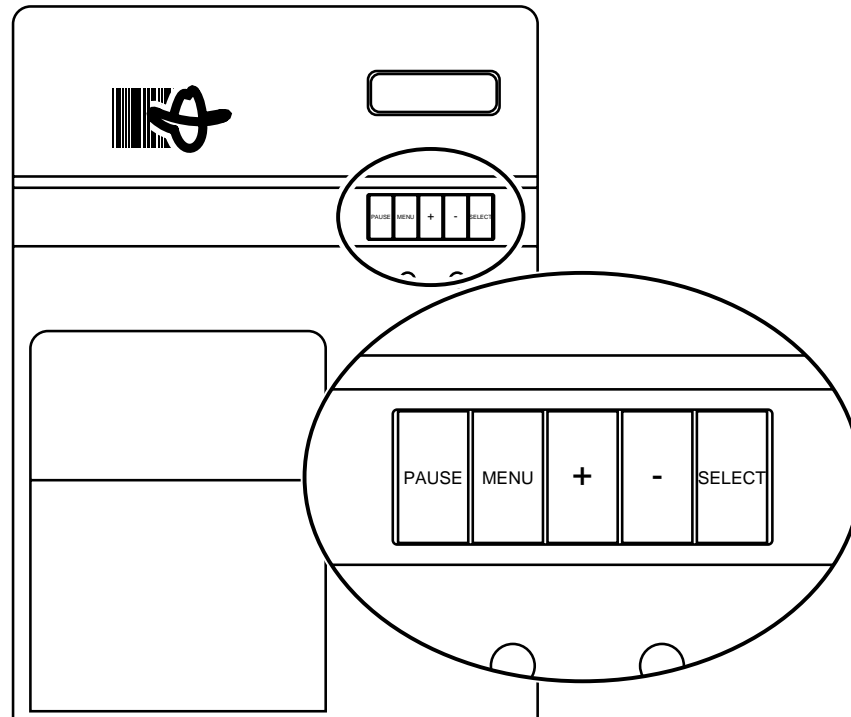
14 Setup menus and the printer's front-panel controls

Ten menus required for printer setup are accessed through the front panel:

- print speed
- print intensity (heat)
- print offset
- tag counter
- cutter flag (if enabled)
- cutter offset (if enabled)
- form feed*
- print method*
- media calibration*
- test pattern*

*These functions are available only when the printer is paused. The other printer functions are available at all times.
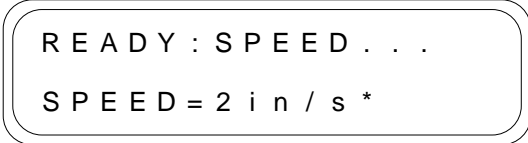
Use the procedures that follow to define the setup menus available from the [MENU] push-button.

15 Selecting a print speed

1   Press the [MENU] push-button until the SPEED menu is displayed.

  - The SPEED menu is used to select a print speed.

2   Press the [+] or [-] push-buttons until the print speed you want is shown.

  - Top Hand 2 speeds in inches/second are: 2, 3, 4, 5, 6, 7, 8, 9, and 10.

  - Top Hand 2C speeds in inches/second are: 2, 3, 4, 5, 6, 7, and 8.

3   Press the [SELECT] push-button to confirm your choice.

  - An asterisk will appear in the display indicating your selection has been confirmed.

```
R E A D Y : S P E E D . . .

S P E E D = 2 i n / s *
```

16 Adjusting printhead temperature

1 Press the [MENU] push-button until the HEAT menu is displayed.

  - The HEAT menu is used to adjust the heat setting of the thermal printhead.

  - The higher the temperature, the darker the print.

  - The lower the temperature, the lighter the print.

2 Press the [+] or [-] push-buttons until the heat setting you want is shown.

  - Heat settings are: 1 through 32. (The default setting is 16; if set previously, the most recent selection will be indicated.)

  - The higher the heat setting, the higher the printhead temperature.

3 Press the [SELECT] push-button to confirm your choice.

  - An asterisk will appear in the display.

```
R E A D Y : H E A T
H E A T = 1 6 *
```

17 Adjusting the print offset setting

The print offset adjustment can be used to adjust print registration in fine increments or to move the printed image completely with respect to the sensor mark. Refer to the illustration on the next page when performing this print offset procedure.

1   Press the [MENU] push-button until the Pr Offset menu is displayed.

-   The Pr Offset (print offset) menu is used to adjust (up or down) the location of the image on the label.

2   Press the [+] or [-] push-buttons until the print offset setting you want is shown.

-   Offset settings are measured in single pixel increments.

-   Offset settings are: -1200 through +1200. (The default setting is 0.)

3   Press the [SELECT] push-button to confirm your choice.

-   An asterisk will appear in the display.

17 Adjusting the print offset setting

13791412197352278111

buck jeans

~zero in~

$ **45** **00**

positive values
shift the image up

direction of
paper travel

13791412197352278111

buck jeans

~zero in~

$ **45** **00**

negative values
shift the image down

direction of
paper travel
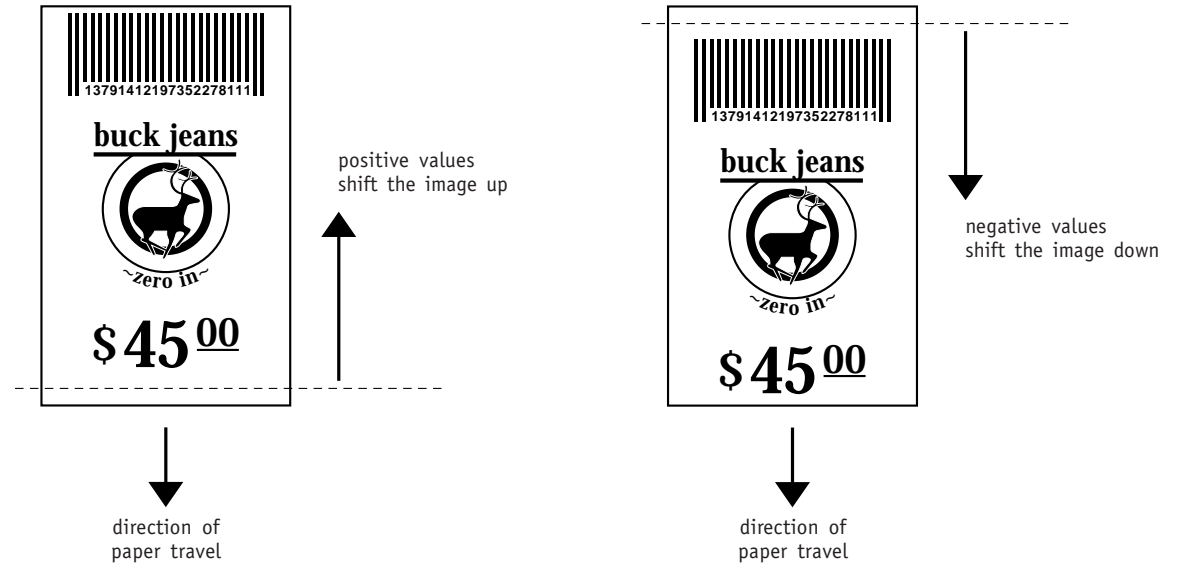
18 Automatically counting the labels as they are printed

1 Press the [MENU] push-button until the COUNTER menu is displayed.

2 Press the [+] or [-] push-buttons until the counter setting you want is shown.

- Counter settings are: off, batch, or total.

- When the "batch" setting is selected, the Counter menu dynamically displays the ongoing number of labels printed in the batch.

- When the "total" setting is selected, the Counter menu dynamically displays the ongoing total of labels printed since the current power-up of the printer.

3 Press the [SELECT] push-button to confirm your choice.

- An asterisk will appear in the display.

18 Automatically counting the labels as they are printed

```
READY : Counter
On *
```

```
READY
000042  of  000059
```

batch count display
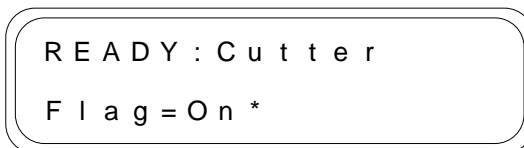
```
READY
       00000035
```

total count display

19 Using a cutter flag when printing with a Top Hand 2C

The cutter flag menu selection is available only when printing with a Top Hand 2C.

A cutter flag is a length of label stock used during batch printing to visually and physically separate one batch of printed labels from another.

This procedure assumes that:

- an Astro-Med CS-20 cutter/stacker has been correctly attached to the Top Hand 2C.

- printer selection switch 7 has been set to the "ON" position.

1 Press the [MENU] push-button until the CUTTER flag menu is displayed.

2 Press the [+] or [-] push-buttons until the cutter flag status you want is shown.

- Cutter flag status settings are: on or off.

3 Press the [SELECT] push-button to confirm your choice.

```
R E A D Y : C u t t e r
F l a g = O n *
```

20 Using the cutter offset menu to adjust where labels are cut

The cutter offset menu selection is available only when printing with a Top Hand 2C.

The cut position for any label is referenced to the completion of print. As a result, the cut position changes when the printing offset changes. The cut position follows the print position pixel for pixel.

In contrast, the print position (as set at the print offset menu) is not changed when the cut position changes. For this reason, the print position should be adjusted before the cut position is adjusted.

1 Press the [MENU] push-button until the Cutter Offset menu is displayed.

- The Cutter Offset menu is used to adjust the location (up or down) on the label stock at which each label will be cut.

2 Press the [+] or [-] push-buttons until the cutter offset setting you want is shown.

- Offset settings are: -1200 through +1200. The default setting is 0.

3 Press the [SELECT] push-button to confirm your choice.

- An asterisk will appear in the display.

20 Using the cutter offset menu to adjust where labels are cut

buck jeans
1379141219735227811
45^{00}

print position
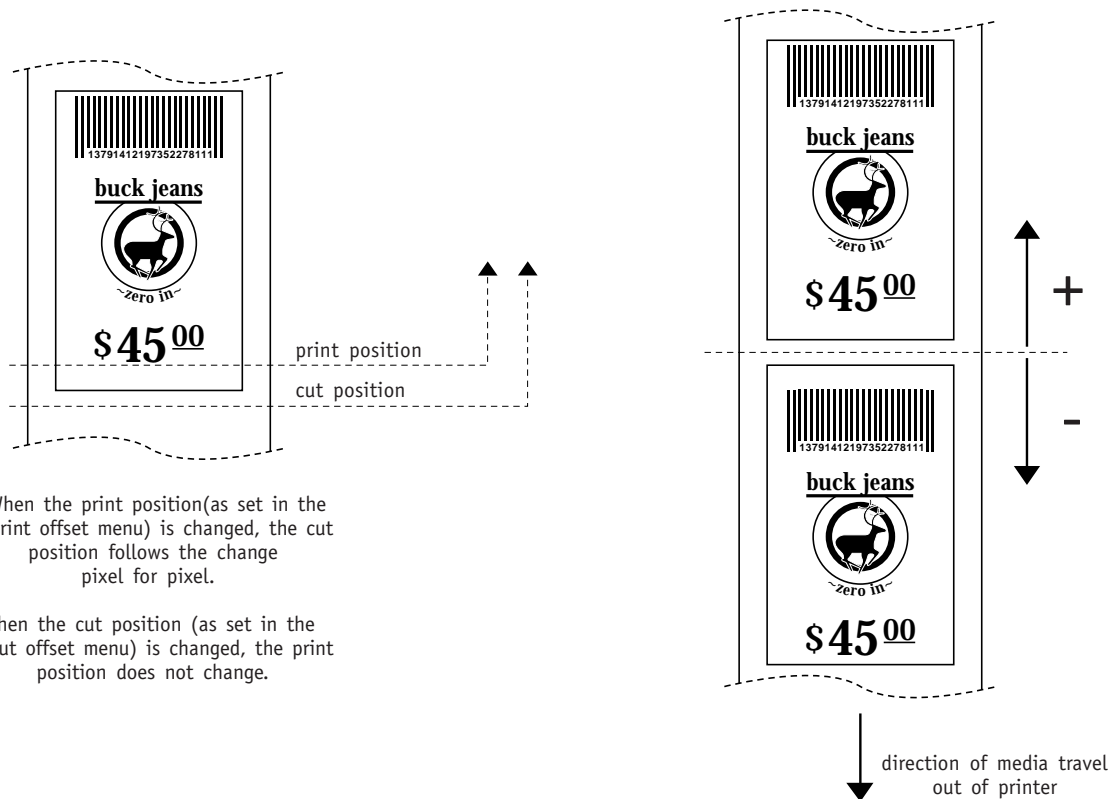
cut position

When the print position(as set in the print offset menu) is changed, the cut position follows the change pixel for pixel.

When the cut position (as set in the cut offset menu) is changed, the print position does not change.

1379141219735227811
buck jeans
45^{00}

+

-

1379141219735227811
buck jeans
45^{00}

direction of media travel out of printer

21   Performing a form feed to advance the media to the next label

1 Press the [PAUSE] push-button.

2 Press the [MENU] push-button until the Form Feed menu is displayed.

- The Form Feed menu is used to advance the label media to the top-of-form
   index mark of the next label.

3 Press the [SELECT] push-button.

- The media immediately advances to the next top-of-form index mark
   and then stops.

```
Pause : Form  Feed

Press  Select
```

22 Selecting a print method

The printer can use either of two types of label media: thermal sensitive or thermal transfer. As a result, the printer can operate using either of two print methods:

- direct thermal printing in which the label is printed directly onto thermal sensitive media.

- thermal transfer printing in which thermal transfer ribbon is used to place the image onto the label media.

Use the procedure below to select the print method appropriate to the label/label media being used.

1   Press the [PAUSE] push-button.

2   Press the [MENU] push-button until the Print Method menu is displayed.

3   Press the [+] or [-] push-buttons until the print method you want is shown.

4   Press the [SELECT] push-button to confirm your choice.

```
Pause:Pr  Method
Thermal  Transfr*
```

23 Printing a test pattern

The printer can print a test pattern that can be used to evaluate print quality. The test is printed as a pattern of diagonal lines. The diagonal pattern alternates and is especially useful for revealing printhead integrity problems such as blown printhead dots. The test pattern looks like the example shown on the next page.

Use the procedure below to have the printer print a test pattern.

1   Press the [PAUSE] push-button to put the printer into the "pause" mode.

2   Press the [MENU] until the "Test Prn" menu is displayed.

3   Press the [+] or [-] push-buttons until the test pattern selection is shown.

4   Press the [SELECT] push-button twice.

    -   The printer will begin to print the test pattern immediately.

5   Press the [PAUSE] push-button to stop the printer from printing the test pattern.

If the print quality of the test pattern is unsatisfactory, refer to the printhead adjustment procedures on pages 29 and 53 - 58 of this manual.

23   Printing a test pattern
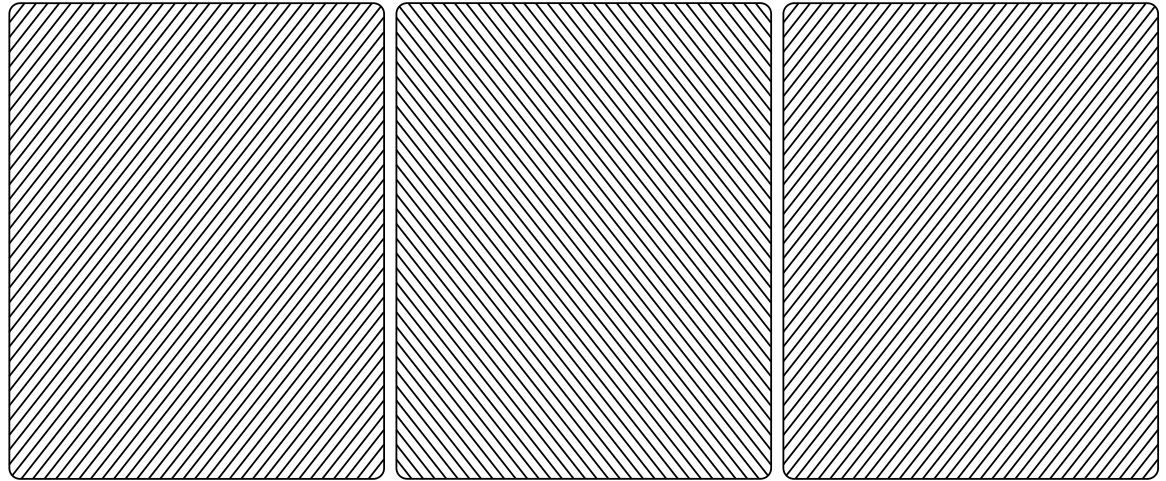
diagonal test pattern alternates
and is especially useful for evaluating
printhead integrity

24 Operating in the continuous mode

<u>NOTE</u>

Do not confuse the terms "continuous mode" and "continuous media." The continuous mode is a batch-printing operating mode. Continuous media refers to label media that is a continuous undivided roll rather than a roll of individual labels separated by notches, reflective index marks, or gaps.
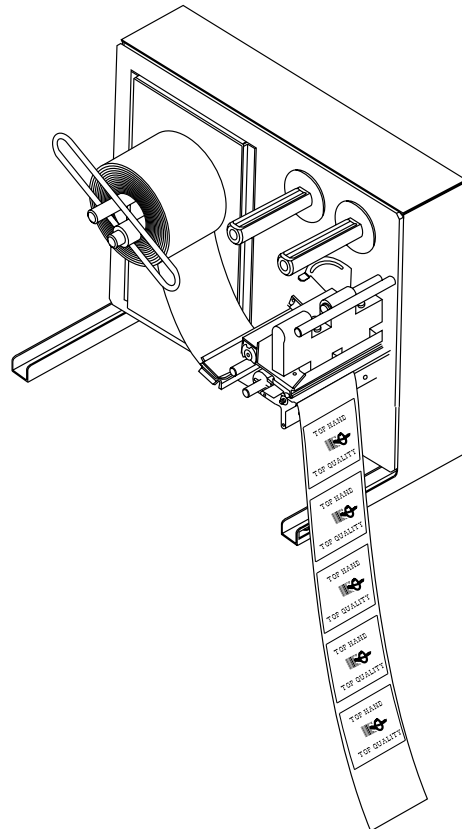
The continuous mode, the printer's default operating mode, is available only when selected and setup from your host computer. Refer to relevant documentation: <u>Host Protocol for Top Hand 2 and Range Boss</u> manual, "print batch command" heading in section 4.2; the QuickLabel documentation provided with your QuickLabel software; the documentation provided with your label-creation software.

- In the continuous mode, the printer prints each batch of labels as each is received. A batch is defined as a group of one or more of the same label format.

- Printing will stop when one of the following occurs: the last batch of labels has been printed; media or ribbon is exhausted; the user intervenes (front panel pause function); a problem has occurred.

- There are no pauses between batches other than those resulting from the processing of label data.

- The continuous mode can be implemented with or without an internal rewinder. If a rewinder is used, the rewind bracket must be installed on the printer.

24   Operating in the continuous mode

The continuous print mode
is the printer's default operating mode.
In the continuous mode, the printer prints each
batch of labels as each is received.

Printing stops when the last batch
of labels has been printed.

25   Operating in the demand mode with peel-off

NOTE

The Top Hand 2 must be equipped with an internal rewinder in order to operate in the demand mode with peel-off.

The demand mode with peel-off is available only when:

- using the Top Hand 2, the non-cutter version of the printer (the demand mode with peel-off does not apply to the Top Hand 2C).

- it is selected and setup from your host computer.

To program the printer for demand mode with peel-off, refer to the relevant documentation:

- the Host Protocol for Top Hand 2 and Range Boss manual (see "enable/disable post batch label eject" heading in section 4.1 and the "print batch command" heading in section 4.2).

- the QuickLabel documentation provided with your QuickLabel software.

- the documentation provided with your label-creation software.

25   Operating in the demand mode with peel-off

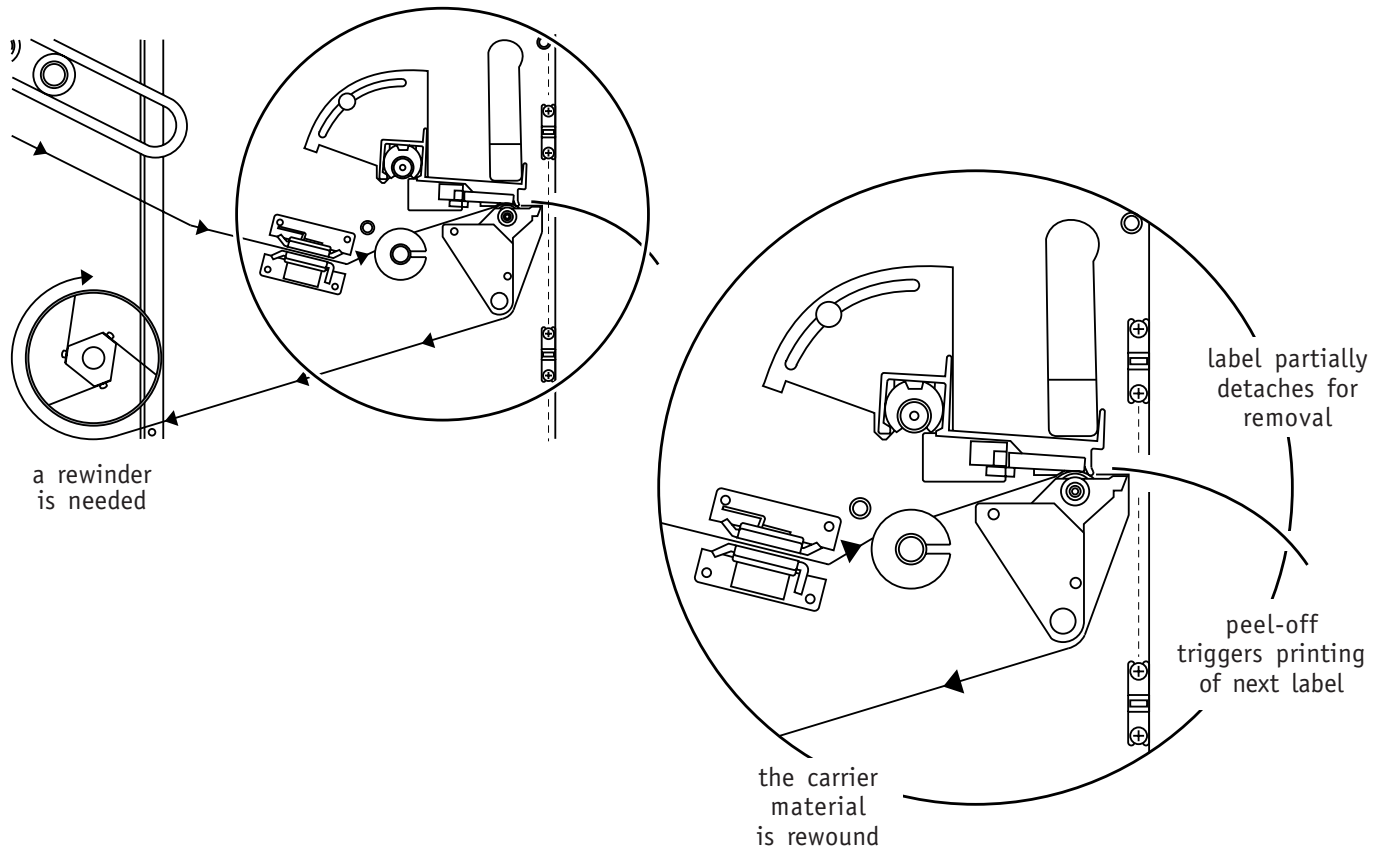The demand mode with peel-off prints labels in a way that can be described as "peel and present."

Individual labels are printed and ejected to the "present" position. In the "present" position, a small portion of the label remains physically positioned on the peel edge under the "present-position" sensor until a trigger starts the next print cycle.

Two types of triggers are available from the host: front panel/remote trigger, or sensor trigger.

- When the <u>front panel trigger</u> is selected, the next label will be printed only when a front panel key is pressed. When the front panel trigger is enabled, the remote trigger is also enabled.

- When the <u>sensor trigger</u> is selected, the next label will be printed when the "present-position" sensor detects that the previously printed label has been physically removed.

25 Operating in the demand mode with peel-off

a rewinder
is needed

label partially
detaches for
removal

peel-off
triggers printing
of next label

the carrier
material
is rewound

26 Operating in the demand mode with tear-off

The demand mode with tear-off is available only when:

- using the Top Hand 2, the non-cutter version of the printer (this mode does not apply to the Top Hand 2C).

- it is selected and setup from your host computer.

To setup your host computer, refer to relevant documentation: <u>Host Protocol for Top Hand 2 and Range Boss</u> manual, "print batch command" heading in section 4.2; the QuickLabel documentation provided with your QuickLabel software; the documentation provided with your label-creation software.

The demand mode with tear-off prints labels and presents them at the peel edge positioned in such a way that they can be physically torn from the roll of media.

- <u>An internal rewinder is not used</u> when operating in the demand mode with tear-off.

- <u>Use of perforated media is desirable</u> when printing in the demand mode with tear-off.

- The demand mode with tear-off responds to the same trigger sources as the demand mode with peel-off.

26 Operating in the demand mode with tear-off

- Note the following differences between the demand mode with tear-off and the demand mode with peel-off.

  • No rewinder is required to operate in the demand mode with tear-off.

  • Labels are ejected slightly farther in the demand mode with tear-off than in the demand mode with peel-off.

  • In the demand mode with tear-off, labels can be printed in groups and presented for tear-off. In the demand mode with peel-off, labels can only be printed <u>one at a time</u>.

26 Operating in the demand mode with tear-off
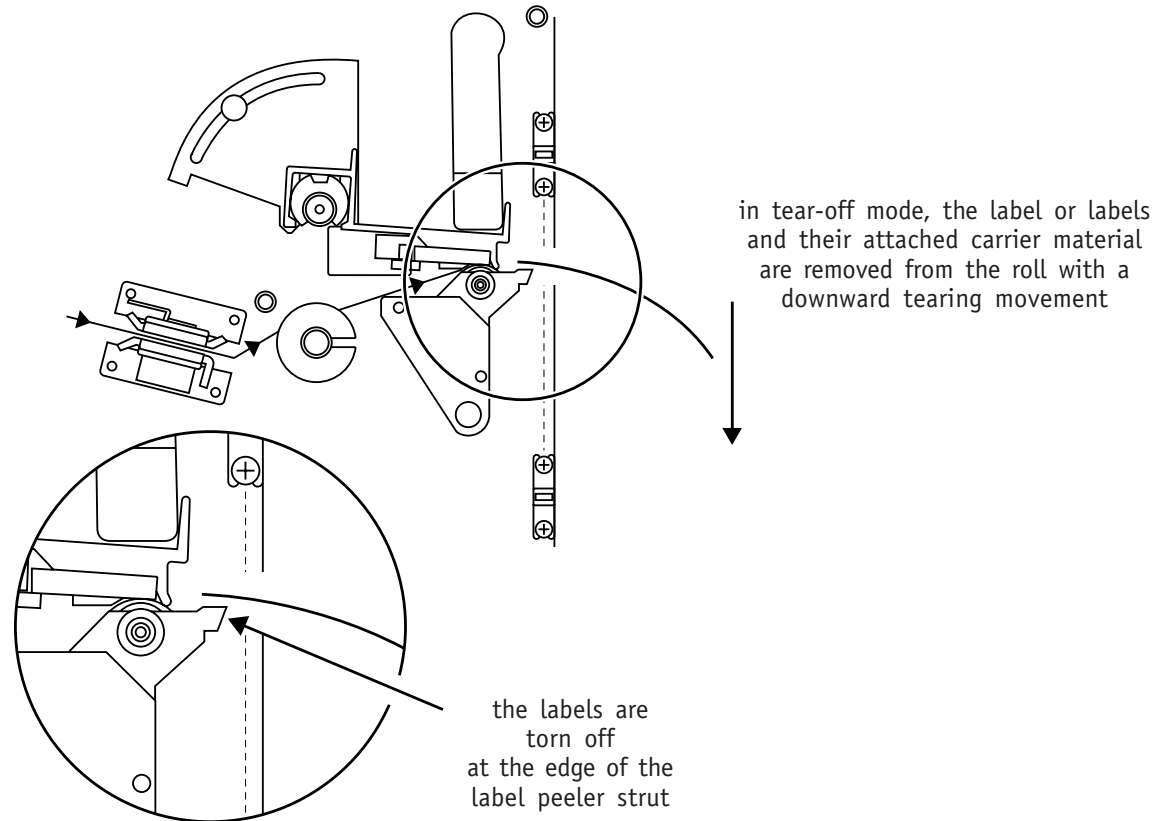
in tear-off mode, the label or labels
and their attached carrier material
are removed from the roll with a
downward tearing movement

the labels are
torn off
at the edge of the
label peeler strut

27 Using the remote pause function

The UTILITY port is used to enable the remote pause, remote trigger, cutter, and cutter/stacker functions. The UTILITY port pin table is given below.

pin	function
1	remote trigger (input, active low)
2	ground (+5V)
3	reserved (do not use)*
4	+5V (fused @1A)
5	reserved (do not use)*
6	reserved (do not use)*
7	reserved (do not use)*
8	remote pause (input, active low)
9	error (output, active low)

*reserved for use with the cutter; do not use these pins except with the cutter interface cable

The remote pause function is only available when operating in continuous (batch processing) mode. It permits the user to pause the printer during batch processing when keypad intervention is not possible - for example, when a secondary device is being used. The remote pause function makes it possible for this secondary device, such as a label applicator, to regulate the flow of labels from the printer.

Remote pause is enabled by a switch closure between pins 8 and 2 of the UTILITY port. When pins 8 and 2 are electronically connected, the printer will complete printing of any label still in progress and will pause when that label is complete. The printer will resume printing when the switch is opened.

27 Using the remote pause function
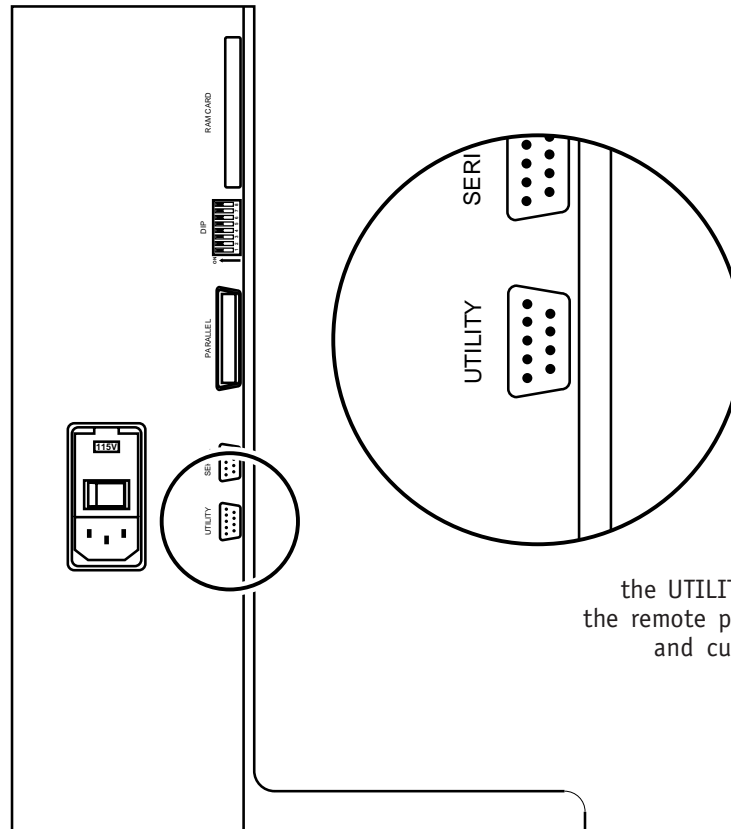
the UTILITY port is used to enable the remote pause, remote trigger, cutter, and cutter/stacker functions

28 Using the remote trigger function

The remote trigger function is only available when:

- using the Top Hand 2, the non-cutter version of the printer (the remote trigger function does not apply to the Top Hand 2C).

- operating in either the demand mode with peel-off or the demand mode with tear-off (see paragraphs 25 and 26).

In demand mode, the printer will automatically pause after printing each label (or group of labels) and then "present" the label(s) to the peel-off or tear-off position. The remote trigger function provides a remote means for the user to re-initiate printing after the printer has paused. (See paragraphs 25 and 26 for a complete description of demand mode.)

To use the remote trigger signal, the printer must be programmed to use the front panel as the trigger source in demand mode. (See the Host Protocol for Top Hand 2 and Range Boss manual, "print batch command" heading in section 4.2). Once programmed, the remote trigger line may be PULSED* from a TTL logic "1" state to a "0" state to initiate printing of the next label or group of labels after the printer has paused.

---

* The duration of the remote trigger pulse **t** must meet this requirement: $500\mu sec > t > 10\mu sec$
Since +5V and GND are provided on the UTILITY port (pins 4 and 2, respectively), the output of an IC, such as 74HCT123 or 74HCT221 (single and dual monostable multi-vibrator or "one-shot"), with its output pulse duration set within the limits specified above could be used to drive the remote trigger input.

28 Using the remote trigger function

When the front panel has been selected as the trigger source (also enabling the remote trigger), any of the printer's front-panel keys can be used to initiate printing of the next label.

When the printer detects a remote trigger, the label media is retracted to the "home" position and the next label or group of labels in the batch is printed.

29 Adjusting the printhead's horizontal alignment

For best printing quality, the active area of the printhead should be positioned at the top of the drive roller. The active area of the printhead is a hairline-thin horizontal row of individual print element dots that run the length of the printhead.

printhead, side view

print elements

top of drive roller

printhead / drive roller
alignment
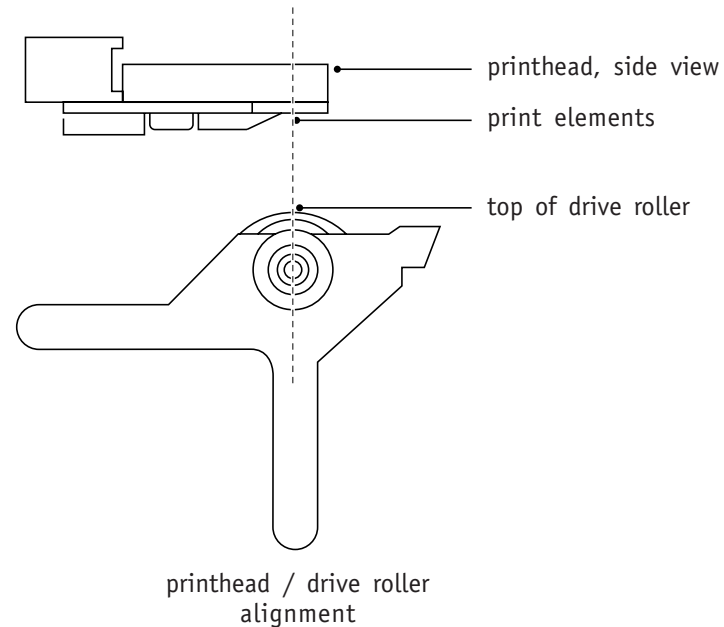
29 Adjusting the printhead's horizontal alignment

Use the procedure below to position the print elements at the crest of the drive roller.

1   Turn the printer on and begin to print a test pattern (see pages 39, 40).

   -   Continue to print the test pattern during this adjustment procedure.

2   Loosen the screw that locks the printhead horizontal position control in place.

3   Locate the small, bent-metal handle of the printhead horizontal position control.

   -   The handle is a small, bent-metal tab.

4   Pull the handle to the left or right to move the printhead forward or backward in relation to the drive roller.

   -   When the print elements of the printhead are positioned just above the top of the drive roller, the printhead is in its optimum position.

   -   Observe that the print quality of the test pattern is consistently and uniformly dark and crisp.

5   Tighten down the horizontal position control's locking screw to secure the printhead in its optimum location.

29 Adjusting the printhead's horizontal alignment

steps 2 and 3
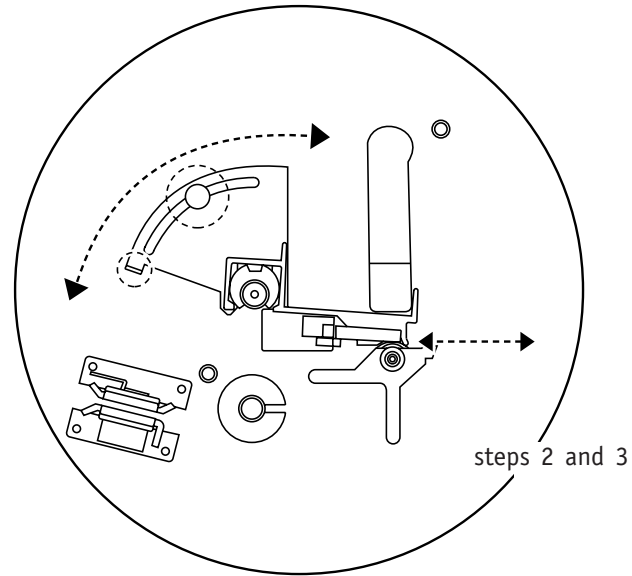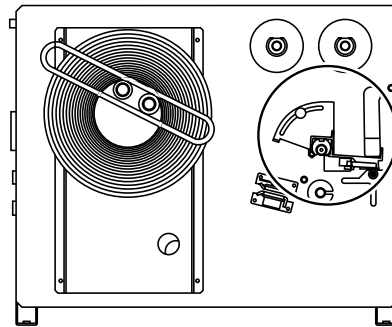
30 Adjusting printhead pressure

This procedure is specifically concerned with printhead pressure and its affect on print quality. Be aware that other factors such as printhead temperature, print speed, and TTR stock can also affect print quality.

If your printing needs require you to switch between very wide label media and very narrow label media, it may become necessary to adjust the downward pressure on either side of the printhead.

Similarly, if you switch between relatively thick media (such as card stock) and thin media, printhead pressure adjustments may be necessary.

Downward pressure on the printhead is controlled by two printhead pressure thumbwheels.

- The inner thumbwheel
  increases or decreases pressure on the inner half of the printhead.

- The outer thumbwheel
  increases or decreases pressure on the outer half of the printhead.

30 Adjusting printhead pressure
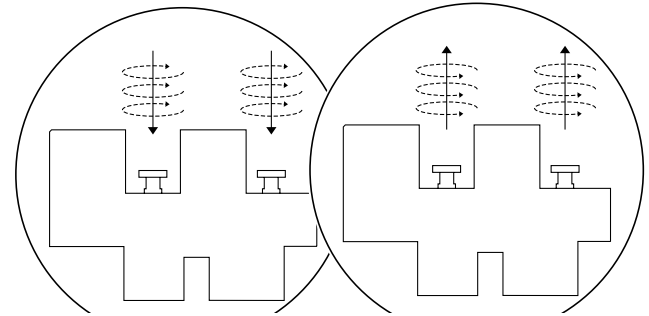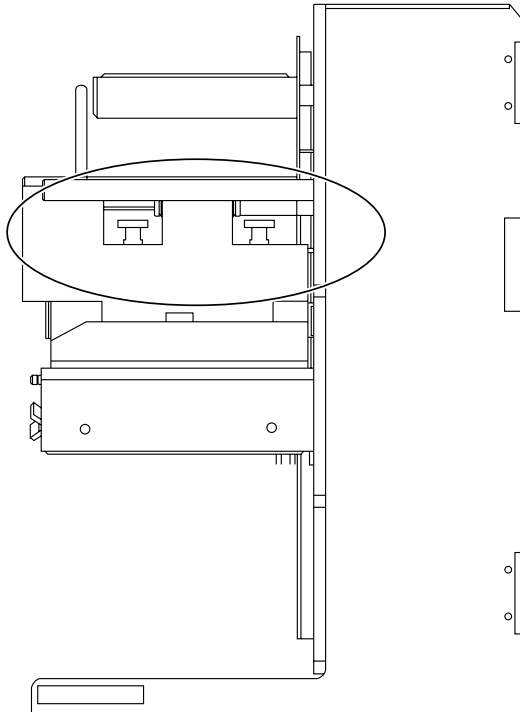
▶ turn clockwise
to increase pressure

▶ turn counterclockwise
to decrease pressure
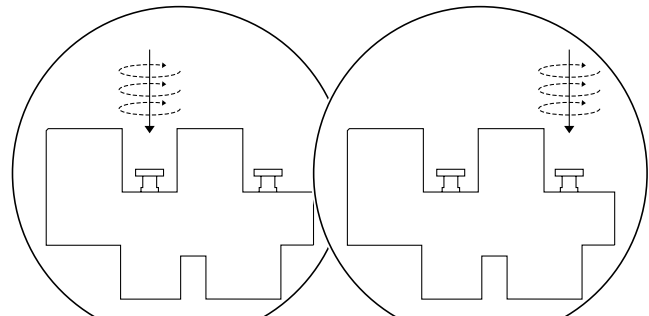
▶ outer screw
controls pressure on
outer half of wider media

▶ inner screw
controls pressure on narrow media

30 Adjusting printhead pressure

Use the procedure below to adjust the pressure on the printhead.

1 Examine printed labels to determine the adjustments required.

- Light or dark printing on the outer edge of a label may indicate that the outer thumbscrew should be adjusted.

- Light or dark printing on the inner edge of a label may indicate that the inner thumbscrew should be adjusted.

- <u>To prevent potential printhead damage or stalling when using narrow media, always begin your adjustments by reducing or eliminating the pressure exerted by the printer's outer thumbscrew</u>.

2 Run labels at a slow speed and adjust each thumbscrew as required to maximize the clarity and detail of the label.

- counterclockwise turns decrease pressure to lighten the quality of the image.

  • the higher the thumbscrew, the less the pressure on the printhead.

- clockwise turns increase pressure to darken the quality of the image.

  • the lower the thumbscrew, the more the pressure on the printhead.

31   Changing fuses/voltage selection

1   Turn off and unplug the printer.

2   Locate the fuse/voltage selection box.

3   Open the fuse/voltage selection box with a small flat-head screw driver.

4   Remove the fuse block and replace the fuses in accordance with your operation requirements.

- The North American fuse configuration
  requires two 5mm x 20mm 2A, 250V fuses.

- The European fuse configuration
  requires two 5mm x 20mm 1A, 250V fuses.

  WARNING

  For continued protection against the risk of fire, replace fuses only with fuses of the same type and rating.

5   Slide the fuse block back into the fuse/voltage selection box.

6   Close the cover to the fuse/voltage selection box.

31 Changing fuses/voltage selection
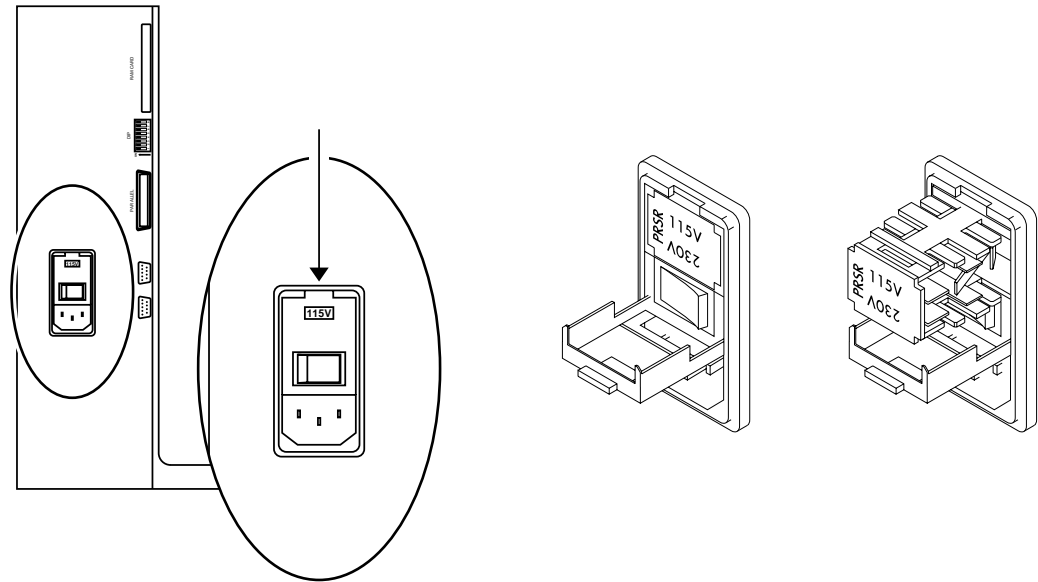
locate and open
the fuse/voltage selection box

31 Changing fuses/voltage selection

North American (120VAC)

two fuses
5mm x 20mm
2 Amp, 250V fuse
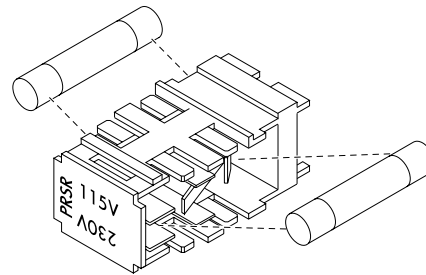
European (240VAC)

two fuses
5mm x 20mm
1 Amp, 250V fuses
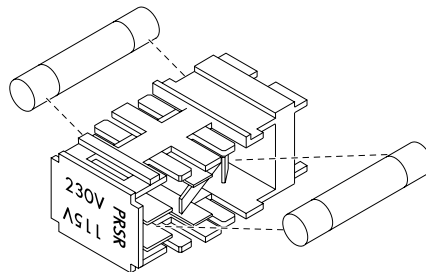
32 Cleaning the printhead

The printhead requires regular cleaning. How frequently the printhead should be cleaned depends on how many labels you print. At a minimum, the printhead should be cleaned in place at 5,000-label intervals. At 50,000-label intervals, the printhead may need to be removed and cleaned more thoroughly.

WARNING

Never use a hard object of any sort to clean the printhead. Damage to the printhead will result if the edge of any hard object is used to scrape or chip away accumulated printing residue from the printhead.

Use the procedure below to clean the printhead in place on the printer.

1   Flip the printhead cam "up" to relieve pressure on the printhead.

2   Unload any thermal transfer ribbon loaded on the printer (or simply move it away from the printhead area).

   -   Though not required, removing any label media loaded on the printer may help to simplify the cleaning procedure.

3   Open the front panel to expose the front of the printer's assemblies.

   -   The front panel is hinged and is held closed by a magnetic clasp.

32 Cleaning the printhead

4 Raise the printhead assembly with your hand.

5 Wet a cotton swab or a soft lint-free cloth with isopropyl alcohol.

6 Run the damp swab on the underside of the printhead, especially on the hairline row of print elements.

7 Close the front panel and reinstall any label media and thermal transfer ribbon.

32   Cleaning the printhead

step 1

steps 4 and 6
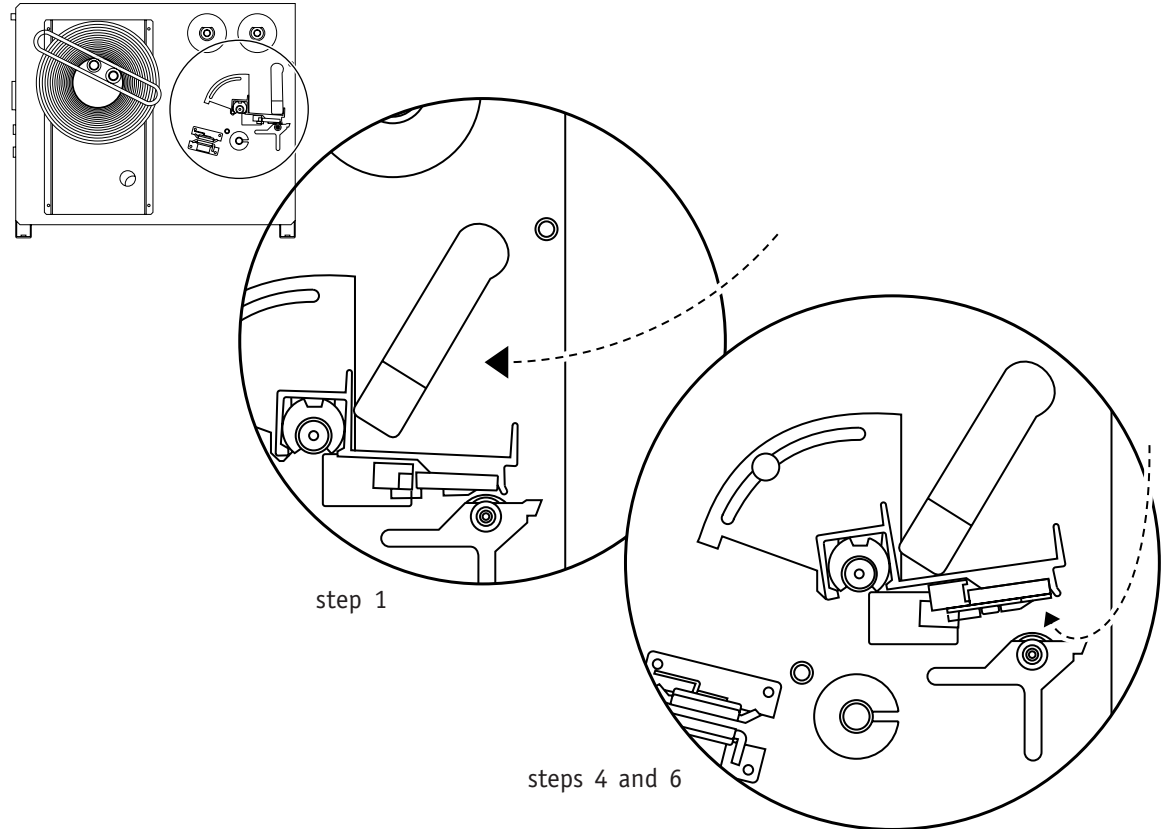
33 Replacing the printhead

Use the procedure below to replace the printhead.

1 Turn the printer off and unplug it.

2 Lift the printer's cover and open the hinged front panel.

3 Flip the printhead cam "up" to relieve pressure on the printhead.

4 Remove any label media and thermal transfer ribbon currently loaded on the printer.

5 Locate the printhead retainer screw on the top surface of the printhead retaining plate.

6 Loosen the printhead retainer screw completely.

- The printhead will detach from the assembly.

7 Unplug the printhead cable harness from the printhead.

- Set the detached printhead aside.

8 Plug the printhead cable harness into the replacement printhead.

33 Replacing the printhead

9   Position the replacement printhead beneath the printhead retaining plate for attachment to the plate.

- Note that the retaining plate has studs that mate with the printhead to ensure correct installation positioning.

10   Reinsert and tighten the printhead retainer screw.

- Do not over-tighten the printhead retainer screw. If the printhead retainer screw is over-tightened, the printhead may bow in the middle. Printhead bowing can cause light printing in the center of labels.

11   Reinstall any label media and thermal transfer ribbon removed earlier.

12   Plug the printer in.

13   Adjust the printhead for optimum print quality.

33 Replacing the printhead
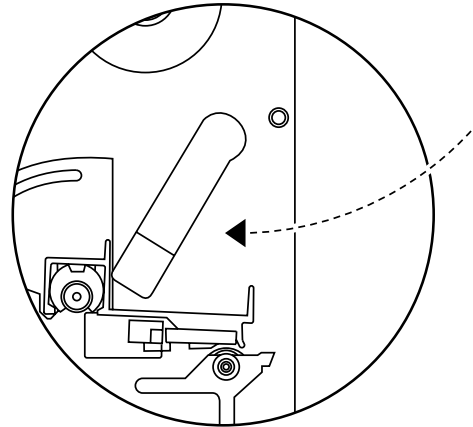
step 3
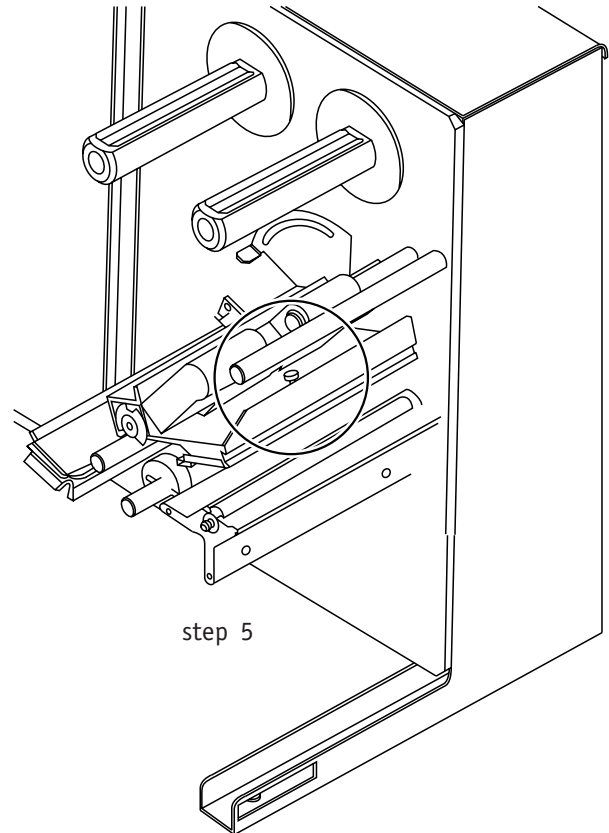
step 5

34 Specifications

- in alphabetical order -

bar codes
•UPC-A •UPC-E •UPC Extensions •EAN-8 •EAN-13 •EAN Extensions •Code 39 •Interleaved 2 of 5 with or without check digits •EAN ITF •Code 93 •UPC 2 of 5 •Codabar •UCC 128 •USS 128 •Code 49 •Postnet •Logmars •Maxicode •PDF 417

bar code/text features
All bar codes and text can be rotated in 90° increments. Check digit calculation. Interpretation selection above or below barcode where applicable.

communications interfaces
RS232 and parallel

dimensions
width: 11 inches (279.4 mm)
depth: 18 inches (457.2 mm)
height: 15 inches (381 mm)

downloadable fonts/images
True Type® fonts. Multiple .PCX image formats on the same label.
Printers with -
• 1 Mbyte memory (standard): 64 kbytes .PCX images, 0 kbytes fonts
• 4 Mbytes memory (enhanced): 128 kbytes .PCX images, 256 kbytes fonts

34 Specifications

label size width: 1" to 5.2" (25.4 mm to 132.08 mm)
      length: 0.2" to 6" (5.08 mm to 152.4 mm) standard
         0.2" to 24" (5.08 mm to 609.6 mm) enhanced
      thickness: 0.003" to 0.010" (.0762 mm to .2540 mm)
      print width: 5.1" (129.54 mm) maximum

media roll size 3" (76.2 mm) inner diameter
      10" (254 mm) maximum outer diameter

media type direct thermal or plain paper, including pressure sensitive.
      Rolls, plain or die cut. Labels can be preprinted to
      customer specifications.
      - if using thermal transfer ribbon, the ribbon must be wider than the
       media being used -

operator controls • 16 character x 2 line LCD display for counters and menus
      • status LEDs

operating modes batch, batch with auto-increment/decrement

output modes batch

**power
requirements** 110/240 VAC, 50/60 Hz

34 Specifications

print field	5.1" width; 30 square inches maximum
printer speed	with cutter: 2 to 6 inches (50.8 mm to 152.4 mm) per second without cutter: 2 to 10 inches (50.8 mm to 254 mm) per second
printing type	thermal transfer or direct thermal
QuickLabel for DOS*	basic label-creation software. Windows version optional.
resident fonts	OCRA, OCRB, CG Times™, CG Triumvirate™ (all are True Type® scalable fonts from AGFA®)
resolution	300 dots-per-inch (dpi)
weight	35 lbs. (15.8 kg)

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* Astro-Med suggests the purchase of QuickLabel for Windows to fully utilize printer capabilities. (See section 35, options.)

35 Options

**enhanced
performance
option**   expands print fields up to 120 square inches and allows faster multiple
                   field updating and printing.

**QuickLabel for
Windows**   Easy-to-use Windows version of QuickLabel.

**RAM/ROM card
interface**   For nonvolatile storage of fonts and images.
                   Card sizes: 256 kbytes to 4 Mbytes.

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