Model
317
Printer
Service Manual

A82784900A
(8/97).00

INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

METTLER TOLEDO
350 W. Wilson Bridge Road
Worthington, Ohio 43085
(614) 438-4511

FCC Notice

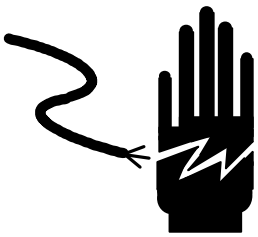
This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including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

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of 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.

METTLER TOLEDO RESERVES THE RIGHT TO MAKE REFINEMENTS OR CHANGES WITHOUT NOTICE.

PRECAUTIONS

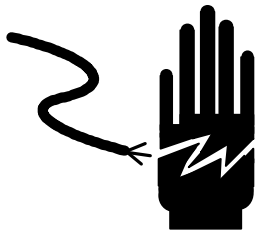
READ this manual BEFORE operating or servicing this equipment.



WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

FOLLOW these instructions carefully.

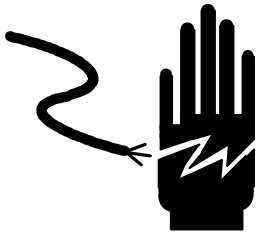


WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY.

DO NOT REMOVE THE GROUND PRONG.

SAVE this manual for future reference.



WARNING

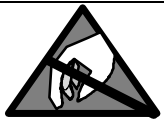
DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING THE FUSE OR SERVICING.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

CAUTION

BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT, ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF THE EQUIPMENT OR BODILY HARM.

ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.



CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

CALL METTLER TOLEDO for parts, information, and service.

CONTENTS

1 General Description

Overview

The 317 is a high speed thermal label printer with a large label capacity designed to print labels containing both human-readable information and a UPC/EAN bar code symbol. The 317 is available as a stand alone printer, or with a Label Applicator for use in automatic labeling operations. The applicator version is available in two styles, Price Label Applicator or Dayglo Label Applicator.

For manual application, the 317 can be configured to print standard data and nutrifacts labels from 1.9in(48mm) to 5.1in(130mm) long and up to 2.63in(67mm) wide and smaller barcode or DayGlo labels from .9in(23mm) to 3.7in(94mm) long by 1.56 in(40mm) wide. When used in an automatic system, the price label applicator can apply 2.63in(67mm) wide labels with lengths of 1.9in(48mm) to 4.2in(106mm). The dayglo label applicator can apply 1.56in(40mm) wide labels with lengths of .9in(23mm) to 1.5in(38mm).

Two interface protocols are supported: Retail Extra Text Printer Interface (315 compatibility) and the Advanced Retail Mode. The 317 mechanism has an all steel frame for long life and is designed to both minimize and simplify maintenance. A unique center loading, free floating, self aligning printhead eliminates all printhead alignment or label tracking adjustments. Label loading is a snap with the self threading mechanism. The printhead pivots up to provide easy access for cleaning the printhead and paper path. A three digit display is provided for displaying error codes and entering setup information.

Features

- Hi resolution 8 dot/mm thermal print head.
- Prints on pre-printed safe handling labels.
- RS232, 19200 baud interface to 8305 scales (with ET kit installed).
- 38.4k baud RS232 interface in the Advanced Mode to 8360 scales.
- Auto-switchable power supply operates from 85 to 264 VAC, 50/60 Hz.
- 5000 label capacity.

Major Component Maps

317

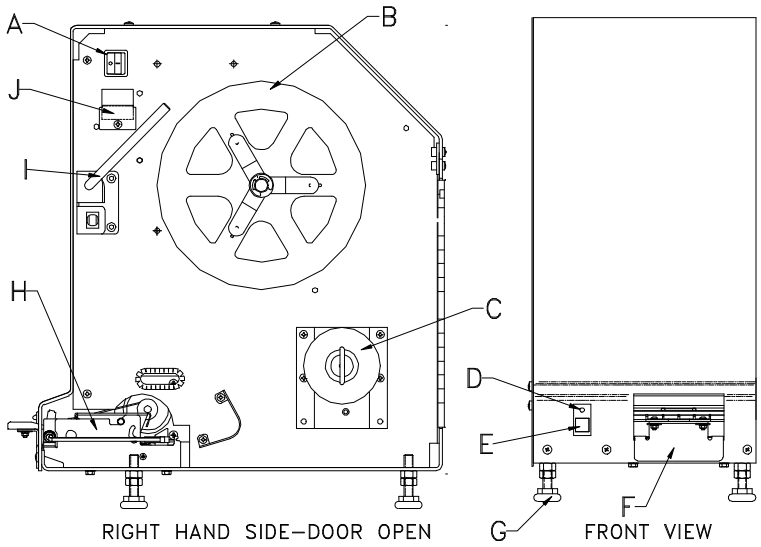


Figure 1.1 317 Printer

Ref	Description
A	Power Switch
B	Ticket Wheel
C	Take-Up Spool
D	Status LED
E	Label Feed Button
F	Label Porch
G	Adjustable Foot
H	Printer Engine
I	Label Retainer Bar
J	Display PCB

317 Applicator

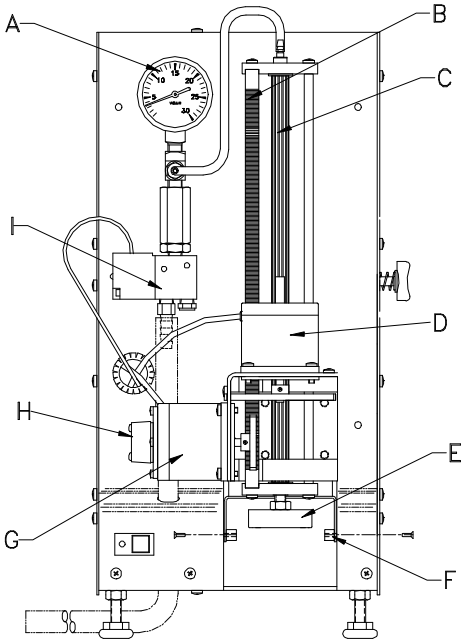


Figure 1.2 317 Applicator

Ref	Description
A	Vacuum Gauge
B	Gear Rack
C	Pinion Shaft
D	Turn Stepper Motor
E	Applicator Head
F	Skis
G	Apply Stepper Motor
H	Optical Encoder
I	Vacuum Control Valve

2 System Description

Overview

Once a print cycle has been initiated, the label is pulled through the print mechanism. As the label advances under the print head, individual dots in the thermal print head are selectively activated to form a black dot by the heating of the chemically treated label stock. A stripper bar in the printer mechanism peels the adhesive backed label from the backing and presents the label to the user or to the applicator for auto application, adhesive side down. The backing paper is wound up on an internal take-up reel.

Power Supply PCB

Converts AC input voltage to a regulated +21 VDC supply.

Logic PCB

Provides control over all print operating functions. The Logic PCB accepts transmitted data, formats the label, controls the printer mechanism, sends data to the printhead, controls the supply voltages to the printhead, monitors the label sensors, and controls the operator interface.

Display PCB

The Display PCB contains three, 7 segment LED displays and three pushbuttons. The Display PCB is used to display error codes, setup selections and operator prompts during powerup self tests and FLASH memory programming.

Flash Memory PCB

Contains operating software and label format data, held in 1 M-byte of FLASH memory. The FLASH Memory PCB also contains a high speed SRAM Cache.

DRAM Memory PCB

Contains 1 M-byte of DRAM for label formatting and data buffering.

Thermal Printhead

The 317 uses an 80 mm (3.15") wide, high resolution, 8 dots/mm (203 dots per inch) smart thermal printhead. The printhead incorporates intelligent dot history energy management to ensure the best possible print quality and to eliminate overheating the printhead, which is a major cause of premature printhead failure.

Printer Engine

Contains the label drive stepper motor, the thermal printhead, and gap sensor and label present sensor.

External Controls

The power on/off switch located on the inside of the printer removes AC power from the printer when in the off position. The label feed button is used to feed blank labels. The label feed button is used to clear print errors (indicated by a red or orange Status LED).

Status LED

The 317 has one LED indicator on the front cover. The Status LED has three colors to indicate the operating status of the printer. A green Status LED indicates normal operations. A red Status LED indicates an error condition. An orange Status LED indicates the 317 is in the middle of a FLASH memory programming cycle.

Applicator

The 317 Applicator is microprocessor controlled. The control electronics reside on an additional Applicator Control PCB mounted to the vertical plate inside the printer housing. The Applicator Control PCB controls the Vacuum Valve, Stepper Motors, and the Take Label Sensor. Vacuum for the applicator is supplied by a vacuum pump mounted in the autolabeler and is used to hold the label on the applicator head as it is applied to a package. Two stepper motors are used for head control. One stepper motor is used to lower the applicator head, and the other to turn the label if required. An Optical Encoder is attached to the Applicator Shaft Stepper Motor and is used to monitor the vertical position of the shaft. A serial interface is provided for interconnection to the autolabeler electronics. The Applicator Control PCB receives a +21VDC supply from the 317 Power Supply. A built-in test mode is available by shorting Jumper W1 on the Applicator Control PCB. The test mode allows troubleshooting the applicator without connection to the autolabeler (Refer to Troubleshooting Section).

3 Specifications

Factory Numbers

Factory numbers for the 317 are as follows:

317 - ABCD -000

A
0 = 317 Stand Alone, Price/Data Label
1 = 317 Stand Alone, Dayglo Label
2 = 317 with applicator, Price/Data Label
3 = 317 with applicator, Dayglo Label

B = Not currently used

C = Not currently used

D = Country Finish Code

1 = US

Environmental

Operating and Storage Temperatures

The 317 is designed to operate in ambient temperatures from 40 °F to 104 °F (4 °C to 40 °C) with a relative humidity between 10% and 95% non condensing. Storage temperatures range from 32 °F to 150 °F (0° C to 65° C), not including media.

Harsh Environments

The 317 is intended for normal indoor backroom labeling environments. The 317 enclosure is constructed to prevent debris from falling into the enclosure and label media. The 317 MUST NOT be used in wet or extremely dusty areas. The 317 MUST NOT be used in washdown applications or where corrosive or caustic substances will come in contact with the printer.

Hazardous Areas

WARNING

The 317 printer *IS NOT* intrinsically safe! *DO NOT* use the 317 printer in areas classified as *HAZARDOUS* by the National Electric Code (NEC) because of combustible or explosive atmospheres.

Product Conformance

The 317 is ETL listed by ETL Testing Laboratories, Inc.

Tested to UL 1950 and CSA C22.2 950-93

Mechanical

Physical Construction

The 317 printer enclosure is constructed of stainless steel. The label side cover and component side covers are hinged for easy access to the printer engine, label stock, and electrical components. Loading of the label supply roll requires no tools.

Dimensions

The printer is 36.8 cm (14.5 in) deep, 20.6 cm (8.1 in) wide and 45.7 cm (18 in) high.

Operational Interface Mechanisms

The printer contains a simple operator interface which includes a status indicator, label feed button, an ON/OFF switch, and an internal 3 digit error/setup display with push button setup switches.

Operational Area

Operational clearance required to operate and service the printer is 25 mm (1 in) above and 34.3 cm (13.5 in) on either side.

Electrical

Power Requirements

The printer uses a universal autosensing/autoswitching power supply which operates in the range between 85 VAC to 264 VAC, with a frequency range between 49 to 61 Hz. The power supply has a replaceable, internal 5A/250V fuse. The AC power must not be shared or on a common ground with any types of motors, compressors, thermostats, fluorescent lighting, or other noise generating equipment.

Electrical Interfaces

The printer uses a universal AC power connector IEC 320 type for use with country specific line cords.

Serial I/O Interfaces

A subminiature DB25 female serial interface connector is located inside the printer for RS-232 or RS-422. The 317 provides an 8k byte input buffer with RTS/CTS flow control. Pin connections are as follows:

J1-1 Chassis Ground
J1-2 TXD (RS 232 Transmit Data output)
J1-3 RXD (RS 232 Receive Data input)
J1-4 RTS (RS 232 Request to Send input)
J1-5 CTS (RS 232 Clear to Send output)
J1-6 NC (No Connect)
J1-7 GND (Logic Ground)
J1-8 NC (No Connect)
J1-9 T+ (RS-422, Transmit Data)
J1-10 T- (RS-422, Transmit Data)
J1-11 NC (No Connect)
J1-12 Test (TTL logic input)
J1-13 GND (Logic Ground)
J1-14 NC (No Connect)
J1-15 NC (No Connect)
J1-16 NC (No Connect)
J1-17 NC (No Connect)
J1-18 R+ (RS-422, Receive Data)
J1-19 R- (RS-422, Receive Data)
J1-20 DTR (TTL logic output)
J1-21 through J1-25 NC (No Connect)

Note: Test Line - Pin 12 (TTL logic input places the printer into factory test mode).

Print Specifications

The 317 printer is designed for roll fed, die-cut, direct thermal labels. In the Extra Text Printer Mode, the 317 can be setup to print on fixed label lengths of: 1.0, 1.5, 1.7, 1.9, 2.1, 2.4, 3.3, 3.7, 4.2, 4.7, and 5.1 inches or 25, 38, 48, 53, 61, 84, 94, 107, 119, or 130 mm. The label length can also be learned by the printer for label lengths between 1in(25mm) and 10in(245mm). If no specific length is set, the printer will feed the label until the next label gap is detected.

When used with the model 8360 controller in the Advanced Mode, the label length and format is setup by the controller.

The 317 Applicator version can print and apply 1.9, 2.1, 2.4, 3.3, 3.7, and 4.2 inch labels or 25, 43, 48, 53, 61, 84, 94, and 107 mm labels. The

317 Dayglo applicator version can print and apply labels 1.56in(40mm) wide with a length of .9in(23mm) to 1.5in(38mm).

The label print width range is 1.57in(40mm) to 3.14in(80mm). The Retail Extra Text Protocol will automatically select the 64mm width for standard or safe handling labels.

The liner take up mechanism is provided inside the printer and labels are stripped as they exit the printer. A second mode of operation is non stripped. In this mode, several labels can be printed without stripping the liner and the printhead is used as a tear off.

The printer is capable of printing continuous stock, if selected. In this mode, the front edge of printhead mounting plate is used to tear off the continuous label stock.

The maximum print speed is 125 mm/second (4.9”/second) for both text and bar code data.

Reliability

MTBF for the thermal printhead and platen roller using standard label stock is 2 million inches of label stock (non-synthetic). MTBF for other replaceable parts is 2 million inches of labels. The printer electronics has a MTBF greater than 17520 hours with power cycled off and on once per day.

Label Formats

The following built-in label formats are available in the Retail Extra Text mode for use with 8422, 8423 or 8305 scale controllers. In the Advanced Mode, the formats are setup in the 8360 controller.

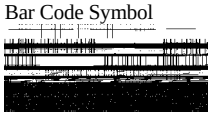
Standard Bar Code Label Example

PLU Description Line 1
PLU Description Line 2

Grade Line

Variable Data Line

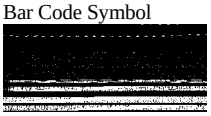
Bar Code Symbol



Store Address/Message Line 1
Store Address/Message Line 1

Extra Text Random Weight Label Example

Bar Code Symbol



PLU Description Line 1
PLU Description Line 2

Extra Text Line 1

Extra Text Line 30

Dates and Total Price Legends
Dates and Total Price Data
Net Weight & Unit Price Legends
Net Weight & Unit Price Data

Store Address/Message Line 1
Store Address/Message Line 1

4 Setup and Operation

Unpacking

Remove the 317 printer from the shipping carton and carefully inspect for any damage. Any shipping damage should be reported to the shipping company immediately. Failure to do so may result in the damage claim being denied. Remove the three screws and open the component side printer door. Verify that there are no loose connections before installation.

The printer mounting screws, software diskette and manuals are shipped inside the label loading door of the printer. Printers are shipped from the factory with Advanced Graphics (8360 compatible) software installed in the flash memory. If a model 0606-0118-000 autolabeler is ordered with an 8305, the Retail Extra Text (8305 compatible) software is installed when the system is tested at the factory. If you are not sure what software is in the printer, see the softswitch setup section of this manual for instructions on how to print a test label. The test label will display the part number of the installed software.

Applicator Setup

The 317 with Applicator Serial Interface must be connected to the Autolabeler for control. The vacuum is supplied by a vacuum pump on the Autolabeler. (Refer to the Autolabeler Technical Manual for specific details on connection of the interface cable and vacuum line, and mounting hardware.)

DO NOT CONNECT AC POWER AT THIS TIME! Mount the 317 to the autolabeler using the hardware supplied with the autolabeler. Remove the three screws securing the left side cover on the 317 to allow access to the component side of the printer. Remove the Applicator Cover. Carefully route the vacuum hose up through the printer base and through the hole (A in Figure 4.3) in the front cover. Exercise care when routing the vacuum hose past the Optical Coupler (B) on the Stepper Motor! Connect the vacuum hose to the nipple on the vacuum control valve (C).

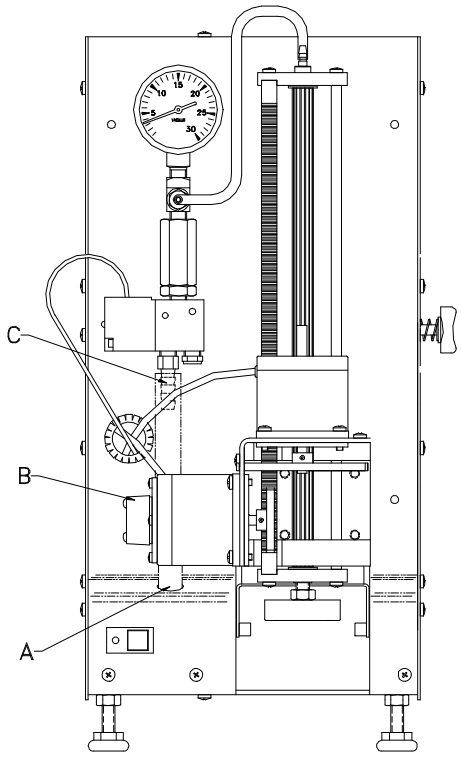


Figure 4.3 Line Routing

The serial interface from the autolabeler must be connected to the Applicator Control PCB at J5. Route the serial interface cable through the bottom of the printer base. Connect the wires to J5 (A in Figure 4.4) on the Applicator Control PCB using the removable connector on J5. Connect the wires on the terminals as follows:

Connection to 606 Interface	Connection to 705 Interface
Red Wire to J5 Pin 3	White Wire to J5 Pin 1
Black Wire to J5 Pin 4	Green Wire toJ5 Pin 2
Bare wire to J5 Pin 6	Red Wire to J5 Pin 3
	Black Wire to J5 Pin 4
	Bare Wire to J5 Pin 5

Next, connect the cable from the scale controller (8305/8360) to the DB25 connector (B in Figure 4.4). Connect the supplied Power Cord to the AC Jack (C in Figure 4.4). Connect the other end of the power cord to the autolabeler outlet.

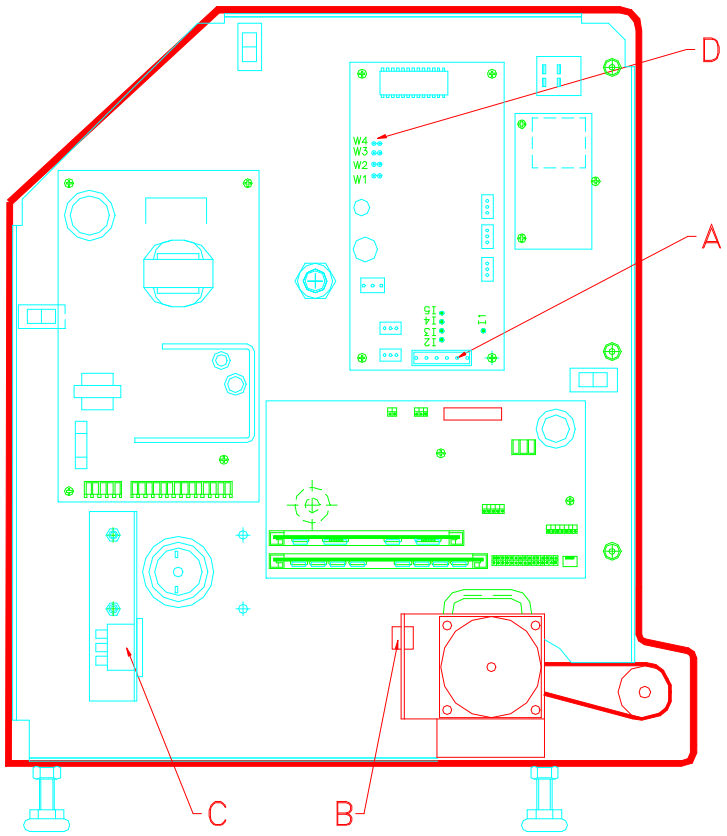


Figure 4.4 Cable Connections & Jumpers

When using the applicator in an automatic weighing mode on the autolabeler, the ski's must be in the lowered position. Jumpers (D in Figure 4.4) on the Applicator Control PCB must be set as follows:

W1 Off = Normal Operating Mode
On = Test Mode
W2 Used in Test Mode Only
W3 Used in Test Mode Only
W4 Off = Label Applicator as Primary Label Applicator
On = Label Applicator as Secondary Dayglo Applicator

Connecting to 8422 8423 or 8305

When using the 317 with the 8422, 8423 or 8305 controllers, the standard Extra Text Printer software must be installed in the 317. Softswitch SSW 01 must be set to 3 for the Extra Text Mode for the 8305, 8422, or 8423.

The following cable is used for the 317 Printer to connect to the 8305 or 8423 controllers.

0900-0306 Cable kit, 317 to 8305/8423 10 feet (A14609200A)

0900-0307 Cable kit, 317 to 8305/8423 25 feet (14609400A)

Connect the cable from the controller to Location B in Figure 4.4. Table 6-1 shows the wiring for an RS-232 cable used to connect the 317 to the METTLER TOLEDO 8423 or 8305 scales (Extra Text Harness 13247000A must be installed in 8305/8423 or Extra Text Modification must be made in the 8305 master scale printer harness).

317 DB-25 M Pin #	8423/8305 DB-9 F Pin #
2 TxD	9 RxD
3 RxD	6 TxD
7 Gnd	7 Gnd

317 RS232 to 8423/8305 Wiring
Table 6-1

0900-0310-000 Cable kit, 317/327 to 8422, 4ft. (B14721900A)

Connecting to 8360

When using the 317 with the 8360, the Advanced Graphics Software must be installed in the 317. The softswitches must be setup correctly when connected to the 8360. The following softswitches must be set as follows:

SSW 01 - 2 (Advanced Graphics Mode)
SSW 02 - 6 (38400 baud)
SSW 03 - 3 (8 data bits)
SSW 04 - 4 (No Parity)

Connect the cable from the controller to Location B in Figure 4.4. Table 6-2 shows the wiring for an RS-232 cable used to connect the 317 to the METTLER TOLEDO 8360 controller. Connect the primary printer to the printer one port. If the printer is used for Dayglo labeling connect the printer to the Printer 2 port.

317 DB-25 M Pin #	8360 DB-9 M Pin #
2 TxD	3 RxD
3 RxD	2 TxD
7 Gnd	7 Gnd

317 RS232 to 8450/8360 Wiring
Table 6-2

Loading Label Stock

Open the side cover of the printer and refer to the Label Threading Diagrams in Figure 4.1, 4.2, or the loading instruction label located on the inside of the 317 cover. It is not necessary to unlock the printhead to load paper stock into the 317.

1) Remove the liner take-up clip from the take-up spool (Figure 4.1 #7, Figure 4.2 #6). On units with Applicator, raise the Ski Bracket (Figure 4.1 #1).

2) Adjust the label guides for the width of the paper stock you are loading. The paper guides are geared together and adjust symmetrically around the center of the paper path.

3) Install the new roll of labels on the Ticket Wheel with the labels unwinding from the top to the front of the printer. Lower the Label Retainer to secure the roll on the Ticket Wheel.

4) Route the labels around the rear guide (Figure 4.1 #2, Figure 4.2 #1). Insert the end of the paper through the Gap Sensor and into the rear label guides of the printer engine (Figure 4.1 #3, Figure 4.2 #2). Manually feed approximately 2 1/2" of paper stock into the mechanism. The paper will stop when it reaches the platen roller.

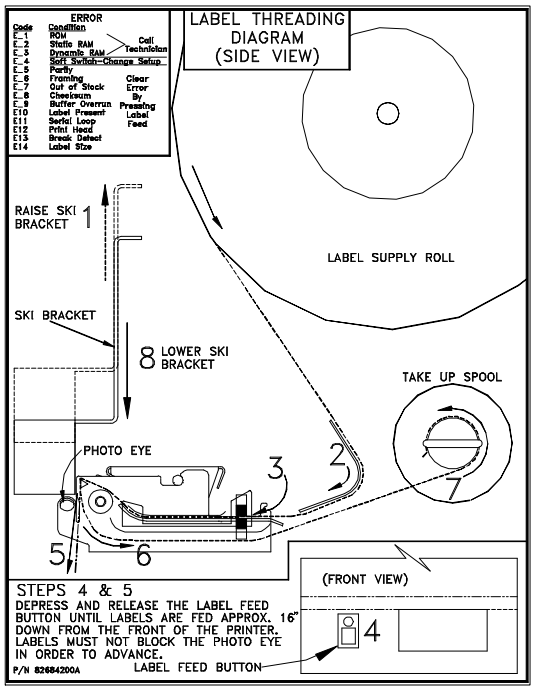
5) Press the label feed button (Figure 4.1 #4, Figure 4.2 #3). Gently push the label stock into the rear of the mechanism until the label feeds out the front of the mechanism. Feed out approximately 16 inches of labels, straight down from the stripper bar without blocking the Take Label Sensor (Figure 4.1 #5, Figure 4.2 #4). If the label stock will not feed out the front then there may be a label jam inside the mechanism. An orange Status LED indicates a blocked label taken sensor.

6) Remove the labels from the liner and insert the liner back into the printer (Figure 4.1 #6, Figure 4.2 #5). Wind the liner around the take-up spool and secure with the liner clip (Figure 4.1 #7, Figure 4.2 #6).

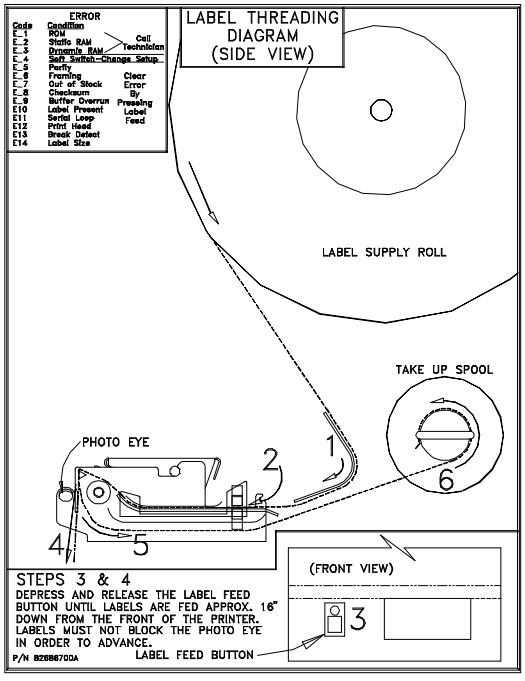
7) On units with applicator, lower the Ski Bracket.

8) Close the 317 side cover.

Note: Printers are shipped from the factory with the gap sensor set to Mode 1 (Auto Sensing). Potentiometer R55 on the printer control board is set to 60K ohms. This mode will not always work with perforated or black pre-printed label stock. Part of the initial setup procedure is to test the customers label stock to make sure that the labels index properly. See the Label Gap Sensor Adjustment section of this manual for the adjustment procedure.



Label Threading Diagram 317 W/Applicator
Figure 4.1



Label Threading Diagram 317
Figure 4.2

Operator Controls

There is an ON/OFF switch located inside the printer. The printer has a label feed button and status indicator on the front of the unit. In addition to the status indicator, a three digit LED information display is located inside the printer.

The status indicator is also a low stock indicator as well as a simple error indicator. The indicator has three colors and uses flashing sequences, see Section 5.

Power-Up Functions

At power-up, RAM and ROM checks are made automatically. A test label is printed at power up if selected in SSW 80.

If the label feed button is held depressed as power is turned on, the printer will begin a countdown on the information display from 10 to 0. When 0 is reached and the label feed button is released, the flash memory program mode is entered. Refer to Section 5 for more details.

Softswitch Setup

The SETUP mode provides easy access to soft switches which are used to configure the printer. These soft switch settings are retained when power is removed. The soft switches must be configured to set the printer up for specific interfacing and functionality. The soft switch set up mode can be entered when the printer is powered up and is not printing. To enter the soft switch set up mode, open the right side cover of the printer, and remove the cover to access the Push-button Switches on the Display PCB. The 3-digit LED display will show the status of the printer. The display shows ***-OP*** for normal operation. If an ***EXX*** is displayed, this indicates an error condition. Refer to the troubleshooting section to determine and resolve the error. To enter the setup mode, when ***-OP*** is displayed:

- Press and release the left and right most push buttons of the Display PCB simultaneously.
- The display shows ***-SU*** for Set Up.
- The display switches to ***01X***. This is soft switch 1 (SSW 01) and X is the current setting of SSW 01.
- The push button directly below each display increments that display by one. The first two digits display the SSW number and the third digit displays the setting.
- Refer to the definitions below to set up the SSW's appropriately.

Once the SSW's have been correctly configured, press and release the left and right most push buttons of the Display PCB simultaneously. If SSW's have been changed, the display will briefly show ***FLH*** as the SSW values are stored in flash memory. The display will then change back to ***-OP*** for normal operation.

<*> Indicates Retail Extra Text mode default SSW (Soft Switch) settings:

<**> Indicates Advanced Graphics mode default SSW (Soft Switch) settings:

SSW 01 Interface Mode	0	Simple Interface Mode
	1	8860 Mode 1 Emulation
	2**	Advanced Graphics Mode (8360)
	3*	Extra Text Mode (8305 ET Mode).
	4	Safe Handling Mode (8305ET)
	5	Floral Retail Mode
	6	Dayglo Retail Mode

SSW 02 Baud Rate	0	0300 Baud
(Advanced Mode Only)	1	1200 Baud
	2	2400 Baud
	3	4800 Baud
	4	9600 Baud
	5	19200 Baud
	6**	38400 Baud
SSW 03 Data Bits	0	5
(Advanced Mode Only)	1	6
	2	7
	3**	8
SSW 04 Parity	0	Even
(Advanced Mode Only)	1	Odd
	2	Space
	3	Mark
	4**	None
SSW 07 Take Label Sensor/RS	0**	Not Enabled
(Advanced Mode Only)	1	Enabled
SSW 09 International		
Character Remapping	0**	USA
(Advanced Mode Only)	1	France
	2	Germany
	3	U.K.
	4	Denmark
	5	Sweden
	6	Italy
	7	Spain
	8	Japan
	9	Norway
	A	8860 Fonts
SSW 11 Label Width	0	40 mm (Barcode/Floral Labels)
	1* **	64 mm (Retail Extra Text/SH Labels)
	2	80 mm
SSW 12 Label Length	0	25
In Millimeters	1	44
(Advanced Mode Only)	2	67
	3	80
	4	99
	5	120
	6	160
	7	200
	8**	Printer Determined (Limited 1 to 10 inch/25 to 254 mm)
	9	Continuous

SSW 15 Interface Timeout to Print (Advanced Mode Only)	0	350 ms between data fields before printing.
	1**	1 second between data fields before printing.
SSW 18 Print Speed/ Density	2	Printing @ 4.9”/sec, Low power
	3	Printing @ 4.9”/sec, Low-Medium Power
	4	Printing @ 4.9”/sec, High-Medium Power
	5**	Printing @ 4.9”/sec, High Power
	6	Printing @ 4”/sec, High Power
	7	Printing @ 3”/sec, High Power
	8*	Printing @ 2.7”/sec, High Power
	9	Printing @ 2.2”/sec, High Power
SSW 19 Printhead Resistance **(SSW 90 must be set to 1 to access this SSW)**	0	< 623A
	1	624-630 A
	2	631-638 A
	3	639-645 A
	4	646-653 A
	5* **	654-660 A
	6	661-668 A
	7	669-675 A
	8	676-683 A
	9	> 683 A
SSW 24 Label Placement Adjustment (Retail Extra Text Mode Only)	0	Default Label position, 3.28 mm from front edge of stripper bar. Each selection 1-9 feeds the label an extra 0.5 mm further out.
		Position Relative to Front Edge
	0	3.28mm/.129 in
	1	2.78mm/.109 in
	2	2.28mm/.090 in
	3	1.78mm/.070 in
	4	1.28mm/.050 in
	5	.78mm/.031 in
	6	.28mm/.011 in
	7	-.22mm/-.009 in
	8	-.72mm/-.028 in
	9*	-1.22mm/-.048 in
SSW 25 Scale Type (Retail Extra Text Mode Only)	0	8422/8423
	1*	8305/8360
SSW 26 Staging Location **(SSW 26 accessible**	0	Staging for Center Mounted Gap Sensor

when SSW 90 is set to 1.)	1* **	Staging for Edge Mounted Gap Sensor (Normal Position).
SSW 27 Diagnostics	0* **	None
(SSW 27 only accessible when SSW 90 is set to 1.)	1	Display Label Size
	2	Display Gap Size
	3	Display Label Position
	4	Display # K Bytes of Memory Available
	5	Display Printhead Temperature
	6	Display Flash Memory Available
SSW 28 Image Offset (Extra Text Mode Only)	1	Lower Image 2.0 mm
	2	Lower Image 1.5 mm
	3	Lower Image 1.0 mm
	4	Lower Image 0.5 mm
	5*	Factory Default Position (current)
	6	Raise Image 0.5 mm
	7	Raise Image 1.0 mm
	8	Raise Image 1.5 mm
	9	Raise Image 2.0 mm
SSW 80 Power Up Test Label	0* **	None
	1	Software Revision/Test Pattern
	2	Soft Switch Settings Print Out
	3	Serial Port Loop Back Test
	4	Hex Dump Mode
SSW 90 Maintenance Enable	0* **	Do not make SSW 19, 26, and 27 accessible.
	1	Access SSW 19, 26 and 27 .
SSW 99 Load Factory Defaults	0* **	Do Not Load Factory Defaults.
	1	Load Factory Defaults (SSW Defaults Marked with * or **).

5 Maintenance

Cleaning

Enclosure Cleaning

Disconnect AC power to the 317.

Use a soft clean cloth dampened with a mild detergent and water to wipe the exterior surfaces. Do not spray liquids directly on the unit. Do not use solvents or commercial cleaners on the unit.

CAUTION!

THE 317 IS NOT DESIGNED FOR A HOSE DOWN ENVIRONMENT!

Mechanism Cleaning

Open the printer right side cover. To unlock the printhead first pull the rear of the printhead assembly forward and up at the same time. Once the rear of the assembly is unlocked, lift the front of the printhead assembly. Refer to Figure 5.1. Remove the paper stock and clean the printhead and paper path with a soft clean cloth and isopropyl alcohol. A thermal printer CLEAN-PENN (part # 082287-020) is available from Mettler Toledo After Market for cleaning the printhead. To lock the printhead, press the front of the printhead down first, then press the rear down until the locking bar engages the latches (Figure 5.2).

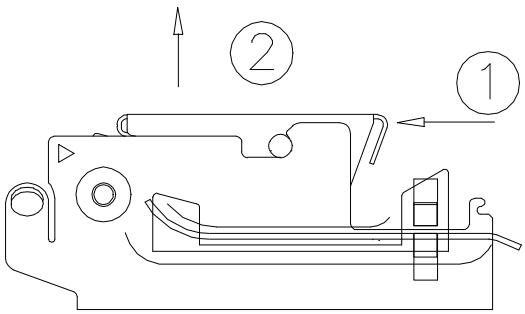


Figure 5.1 Unlocking the Printhead

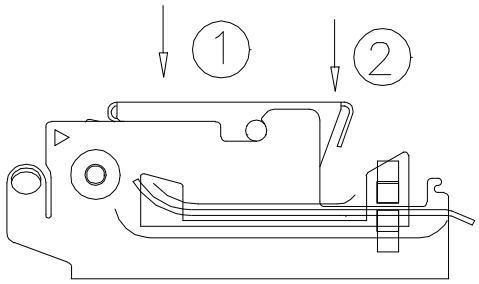
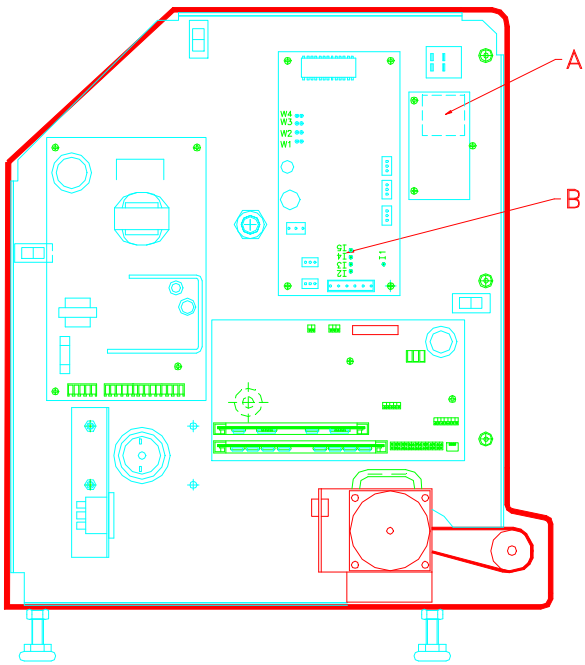


Figure 5.2 Locking the Printhead

Error Handling

If an error is detected, the status indicator LED changes to red providing the operator an error indication. In addition to the red indicator a message code is shown on the Display PCB to help pinpoint the exact cause of the error. Refer to the Error Codes & Messages Section. Press the label feed button to clear the error. If data is received during an error condition, no printing occurs.

If a flash memory checksum error is detected during power-up, the status indicator will change to orange. This indicates the printer has entered the flash memory erase / program sequence. If serial data (the new hex file) is not detected within 20 seconds, the indicator will change to red and flash. During downloading of the hex file the indicator will stay orange. A successful download will change the indicator to green. A failure will cause the indicator to change to a flashing red, indicating that the printer has entered the flash memory erase / program sequence again. Refer to the Flash Memory Programming Section.



Display PCB (A) and Status LED's (B)
Figure 5.3

Error Codes & Messages

Display PCB Errors

There is a three digit, 7-segment LED display on the Display PCB (A in Figure 5.3) to indicate errors and status messages. This includes serial input errors as well as processing or printing errors. This is used for technical troubleshooting purposes only and not intended for operator interface. These errors and messages are as follows:

ERROR CODE	ERROR
E_1	Flash Memory Error - Reflash Program
E_2	Static RAM Error - Replace Static RAM Daughter Board.
E_3	Dynamic RAM Error - Replace DRAM Daughter Board.
E_4	Soft switch Storage/Format (Soft Switch 99 Required)
E_5	Serial Input Parity error
E_6	Serial Input Framing error
E_7	Out of stock
E_8	Serial Input Checksum error
E_9	Serial Input buffer Overrun
E_10	Label present (Label Taken Sensor Blocked)
E_11	Serial loop error
E_12	Print head error
E_13	Break Detect
E_14	Incorrect Label size selected

Applicator PCB Errors

In addition to the Display PCB, there are four LED's (B in Figure 5.3) on the Applicator Control PCB to aid in troubleshooting problems with the Applicator, by indicating error conditions. All four LED's are off during normal operation. On power-up, the LED's will illuminate one at a time in sequence. An LED that stays on continuously indicates an error. The errors are as follows:

I2 EPROM Checksum Error. Indicates an error has occurred in the EPROM on the Applicator Control PCB. Replace the Applicator Control PCB and retest.

I3 RAM Error. Cycle Power and retry. If condition continues, Replace Applicator Control PCB.

I4 Shaft Encoder Error. Micro did not see Shaft Encoder count change. Check Optical Encoder disk and gear on the Applicator Shaft Stepper Motor. If the gear is slipping on the shaft, tighten the set screw and retry operation. If the optical coupler disk is slipping, refer to Section 6 Applicator Head & Optical Coupler Adjustment to re-adjust the optical coupler. If the problem persists replace Optical Encoder and retry operation. If problem persists replace Applicator Control PCB.

I5 Index Error. Index mark on Encoder not found. Check Optical Encoder disk and gear on stepper motor. If the gear is slipping on the shaft, tighten the set screw and retry operation. If the optical coupler disk is slipping, refer to Section 6 Applicator Head & Optical Encoder Adjustment to re-adjust the optical coupler. If problem persists replace Optical Coupler and retry operation. If problem persists replace Applicator Control PCB.

Flash Memory Programming

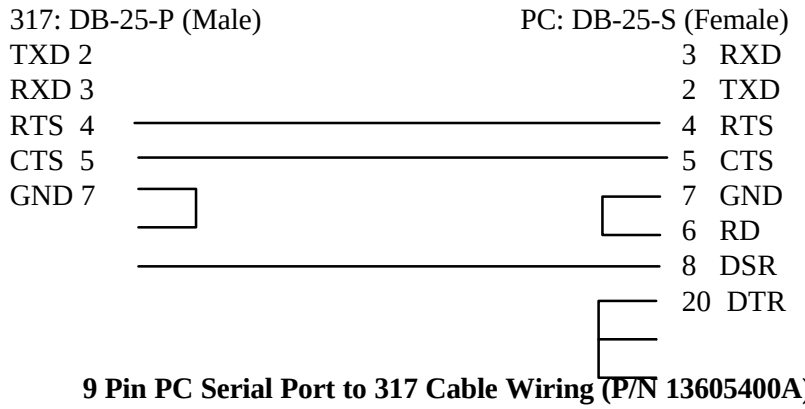
The 317 operating software can be updated by downloading through the serial port to FLASH memory using the program FLASHPRT.EXE. Specific files must be used dependent on connection to 8305 (Extra Text) or 8360 (Advanced Graphics) controllers.

Note: The software download program FLASHPRT.EXE is for IBM-PC or compatible computers only, and is different than the FLASHPRO program used for flashing 8460, 8450, and 8360 products. FLASHPRO will not work with the 317.

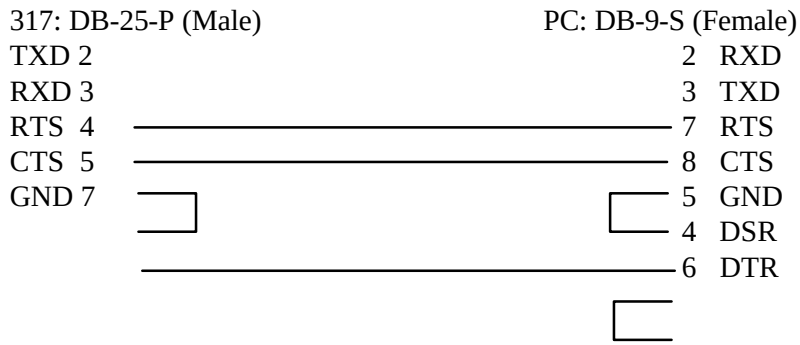
PC to 317 Cables

Connect a serial interconnect cable between the 317 and the PC. PC serial ports are either 25 pin or 9 pin. Use the wiring diagrams listed for the serial interconnect cable.

25 Pin PC Serial Port to 317 Cable Wiring (P/N 13605300A)



9 Pin PC Serial Port to 317 Cable Wiring (P/N 13605400A)



Flashing the Software

To flash the software into the 317 printer, follow this procedure:

1. Power up your PC and change to the directory that contains FLASHPRT.EXE and the new 317 operating software file. If the operating software file has a .ZIP extension then this file is compressed and you must use PKUNZIP to extract the 317 operating software file.(See Note 2 below)
2. Turn off the 317 power switch.
3. Press and hold the label feed button on the front of the 317.
4. Turn on the 317 power switch and continue to hold the label feed button. After 5 seconds the operator display inside the 317 will begin to count down from 10 to 0.
5. When the 317 operator display shows 0, release the label feed button. The operator display will then show FLH and the label feed button LED indicator color will change to orange.
6. When the 317 operator display shows FLH, type:

   FLASHPRT -T*filename.ext* -s2

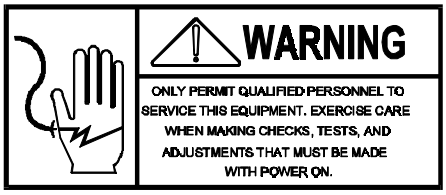
   Press the Enter key. The *filename.ext* is the program hex file name including the extension of the file you wish to download to the 317. (Do not use any files with an EXE extension!) The files used will generally have an extension of ***MNG.*** The PC will then Download the new operating software to the printer.

NOTE 1: THE PRINTER WILL TIME OUT AND THE LED WILL FLASH RED AFTER 20 SECONDS IF NO DATA IS TRANSFERRED. YOU MUST THEN TURN POWER TO THE PRINTER OFF AND REPEAT THE PROCESS.

*NOTE 2: THE SOFTWARE FILES ARE SOMETIMES DISTRIBUTED IN A SELF-EXTRACTING ZIP FORMAT. YOU MUST FIRST UNCOMPRESS THE FILE BEFORE IT CAN BE USED. TO UNCOMPRESS THE FILE, FIRST COPY IT TO YOUR HARD DISK DRIVE, THEN TYPE IN THE FILE NAME. IT WILL THEN CREATE A FILE WITH AN **MNG** EXTENSION. THIS IS THE FILE YOU WILL USE WITH FLASHPRT.*

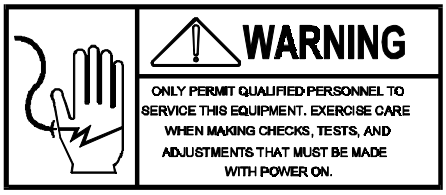
6 Troubleshooting & Adjustments

Power Supply



The Power Supply Assembly supplies +21 VDC to drive all printer functions. The +21 VDC can be tested at J8 on the Printer Logic PCB. Place your negative meter lead on J8 pin 1. Place your positive meter lead on J8 pin 2. You should read + 21 VDC. If this voltage is missing check the AC power input and the fuse on the Power Supply PCB. If the AC input voltage is between 85 to 265 VAC, and the fuse is not at fault, replace the Power Supply PCB.

Printer Logic PCB



The Printer Logic PCB controls all printer functions. If the 21 VDC checks correctly (refer to Section 7.1) the Printer Logic PCB can be tested as follows. Disconnect the label advance motor from J12, the stock take-up motor from J10, the label taken sensor from J1 and from J11. The +5 VDC can be tested on the printer logic PCB by placing the negative meter lead on TP2 and the positive meter lead on TP1. You should read +5 VDC ±0.25 VDC. The +21 VDC can be tested by placing the negative Meter Lead on TP2 and the positive meter lead on TP3. You should read +21 VDC ± 0.5 VDC. If either of these voltages is out of tolerance replace the Printer Logic PCB.

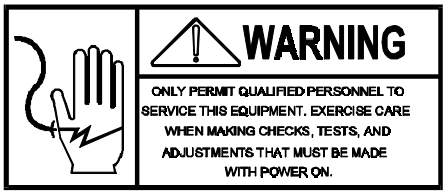
Label Drive Motor

The Label Drive Motor can be tested by disconnecting it from the Printer Logic PCB. Connect your ohm meter between pins 1 and 2. You should read between 2.43 ohms and 2.97 ohms. Next, connect the ohm meter between pins 3 and 4. You should read between 2.43 ohms and 2.97 ohms. If the motor checks good, and does not appear to have a mechanical bind, replace the Printer Logic PCB.

Take Up Motor

The Liner Take Up Motor can be tested by disconnecting the take up motor from the Printer Logic PCB. Connect an ohm meter across pins 2 and 3. You should read a nominal resistance between the pins. A short (0 ohms) or and open (Infinite ohms) indicates the motor is defective. If the motor checks good and does not appear to have a mechanical bind, replace the Printer Logic PCB.

Take Label Sensor



The Take Label Sensor can be tested as follows.

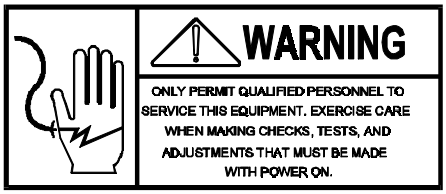
- Place your positive meter lead on J1 pin 3 on the Printer Logic PCB.
- Place your negative meter lead on J1 pin 2 on the Printer Logic PCB.
- You should read +5 VDC when the Take Label Sensor is blocked.
- You should read 0 VDC when it is not blocked.

If the Take Label Sensor fails this test you can test the transmitter by disconnecting the harness at J11 on the Printer Logic PCB as follows:

- Place your ohm meter negative lead on the harness removed from J11 pin 1 and the positive meter lead on pin 2.
- You should read some resistance.
- Reverse the meter leads and you should read an open.
- If the transmitter fails this test replace the Transmitter.
- If it passes this test, replace the Take Label Sensor Receiver.

Tip: The Take label Sensor can be temporarily by-passed by disconnecting the harness at J1 and shorting J1 pin 2 to J1 pin 3. You can also disable the Take label Sensor via SSW 07 (Advanced Mode only). This should be a temporary fix while parts are being obtained.

Label Gap Sensor



There are two modes of adjustment for the label sensor. Mode 1, also known as the Automatic level adjustment, should be tried first (this is the factory default setting). If you are experiencing label indexing problems with the gap sensor set to mode 1, proceed to the mode 2 adjustment. Mode 2 should be used with labels that have perforations or black preprinting.

Part of the initial setup of the printer is to verify that the gap sensor is operating correctly. Adjustment may be necessary depending on what type of label stock you are using.

MODE 1: Automatic level adjustment. (default factory setting)

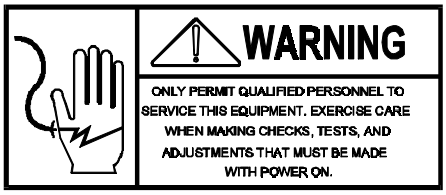
Note: Readings can be taken with or without labels or backing paper present in the gap sensor.

The Gap Sensor can be tested by removing power from the unit and placing the positive meter lead on TP4 and the negative lead on ground or TP5. Adjust R55 to 60K ohms ±5K ohms

MODE 2: Fixed Level Output (Should be used with labels that have perforations or black preprinting)

If the above test points and reading are within specifications and you are still experiencing problems, place the white area of label stock and liner within the gap sensor and adjust R55 to an output voltage of 1.3, ±0.2VDC across TP4 and TP5. Check the voltage with the label stock in the upper and lower positions in the sensor. The voltage must be 1.3 VDC =/- .1 VDC.

Applicator Control PCB



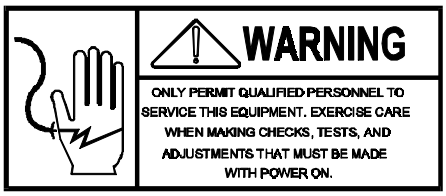
The Applicator Control PCB can be tested with a volt-ohm meter by placing the positive meter lead on J1 pin 2, and the negative meter lead on J1 pin 1. You should read +21 VDC. If this voltage is missing see the Power Supply Section in Chapter 6 Troubleshooting to test the Power Supply. If this voltage is correct, install the jumper on W1 (Refer to D in Figure 4.4). This places the applicator in test mode. While in test mode, when the take label sensor is blocked, the applicator will cycle through the application sequence. When Jumper W1 is ON, Jumpers at W3 and W4 control the testing of the turn label sequence as show below.

W3	W4	Function
OFF	OFF	Straight Application
ON	OFF	90° Turn Application
OFF	ON	270° Turn Application
ON	ON	180° Turn Application

Sequentially place the jumper in the above listed configurations and press the label feed button. Perform this test with the vacuum pump on. This will allow you to check for proper pick and apply of the label. Verify that the label turn is working correctly in all configurations. Remember to remove all jumpers when testing is complete.

Note: Jumper W4 must be left in the on position for normal Dayglo applicator operation.

Applicator Drive Motor



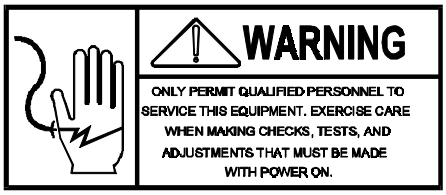
The Applicator Drive Motor can be tested by checking the resistance of the windings of the stepper motor. Disconnect the Applicator Drive

Motor from the Applicator Control PCB. Connect your ohm meter between pins 1 and 2. You should read between 2.43 ohms and 2.97 ohms. Connect your ohm meter between pins 3 and 4. You should read between 2.43 ohms and 2.97 ohms. If the motor checks good and does not appear to have a mechanical bind, replace the Applicator Control PCB.

Applicator Turn Label Motor

The Applicator Turn Label Motor can be tested by checking the resistance of the windings of the stepper motor. Disconnect the Applicator Turn Label Motor from the Applicator Control PCB. Connect your ohm meter between pins 1 and 2. You should read between 2.43 ohms and 2.97 ohms. Connect your ohm meter between pins 3 and 4. You should read between 2.43 ohms and 2.97 ohms. If the motor checks good and does not appear to have a mechanical bind, replace the Applicator Control PCB.

Applicator Vacuum Control Solenoid



The Applicator Vacuum Control Solenoid can be tested by disconnecting the wires at TB1. Check the resistance of the coil by placing an ohm meter lead on each wire. The resistance of the coil should be about 140 ohms. If the Applicator Solenoid Coil is open or shorted replace the Solenoid. Reconnect the wires.

Place your positive meter lead on TB1 pin 1 and your negative meter lead on ground. You should read +21 VDC. If you do not have +21 VDC check the power supply.

Disconnect the wire from TB1 pin 2. Turn on the vacuum pump and pinch the applicator vacuum hose to restrict any air flow. Touch the disconnected wire from TB1 pin 2 to chassis ground. This will manually energize the vacuum control solenoid bypassing the control circuit on the Applicator Control PCB. You should see at least 22 inches of vacuum on the vacuum gauge. If the solenoid does not operate manually, replace the solenoid assembly. If the solenoid does operate manually but does not operate in the normal mode, replace the Applicator Control PCB.

NOTE: If the solenoid fails to operate, try depressing the red relief button on the left side of the valve and then retest the solenoid following the above procedure. This will release the valve if there is a mechanical bind.

Applicator Rack and Pinion Adjustment

If the stepper motors or parts associated with the Rack and Pinion shafts are replaced, or if problems with label turning or application are encountered, the following adjustments must be checked. Refer to Figure 6.1 for component locations.

1. Loosen the screws on both the Applicator Motor (A) and the Label Turn Motor (B).
2. Place a .254 mm (.010") feeler gauge behind Gear Rack (C) at point (2) between the Rack and Delrin Block.
3. Apply pressure by pressing the Applicator Motor (A) Gear into Rack (C) and tighten screws. Remove the feeler gauge.
4. Press the Turn Motor (B) into Pinion (D), allowing enough clearance to allow free vertical movement of pinion. The gap must allow free vertical movement, but must not be excessive. Too large of a gap will cause movement between the gears which can affect label turning and placement. Re-tighten the retaining screws after adjusting.

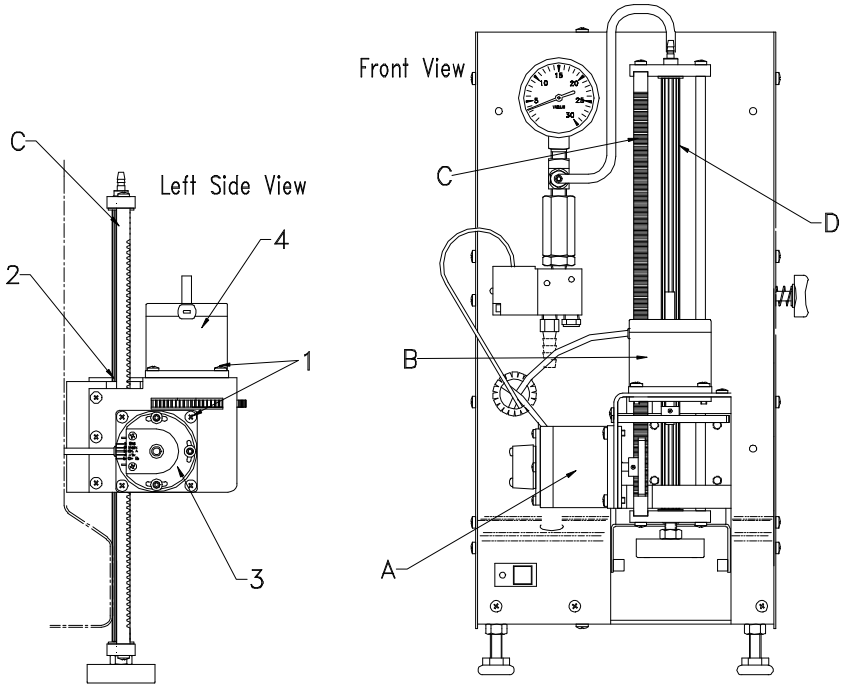
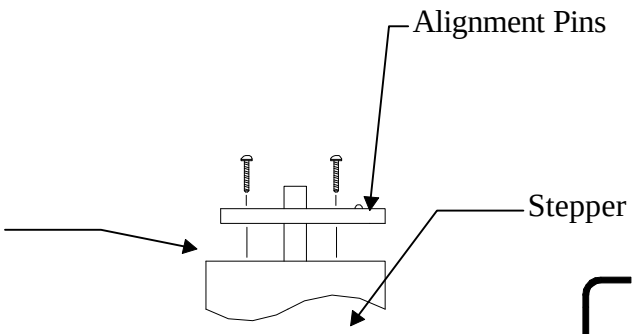


Figure 6.1 Applicator Rack & Pinion Adjustments

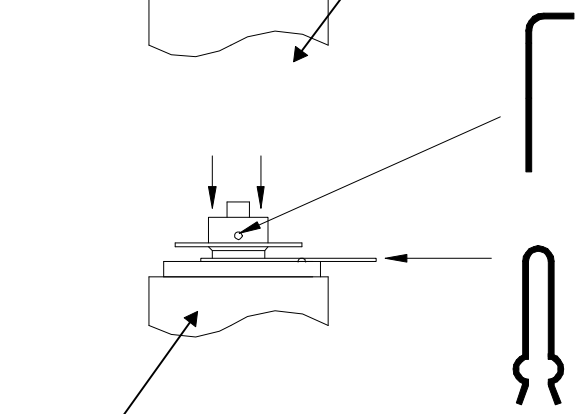
Optical Encoder

The Optical Encoder is used on the Applicator Shaft Stepper Motor to determine the vertical position of the shaft. If the Optical Coupler is replaced, or if the Encoder Disk is moved or replaced, the unit must be adjusted as described in Section 6, Applicator Head and Optical Encoder Adjustment. To replace the Optical Encoder follow these steps.

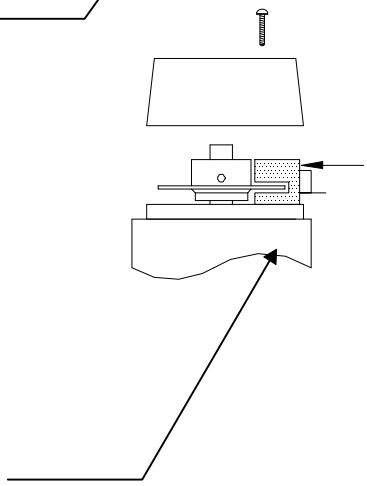
Mount the base to the Stepper Motor. Make sure the two alignment pins face outward



Snap the Alignment Tool over the shaft, then slide Encoder Disk on the shaft until it rests against the tool. Tighten the hub set screw with the supplied hex wrench.

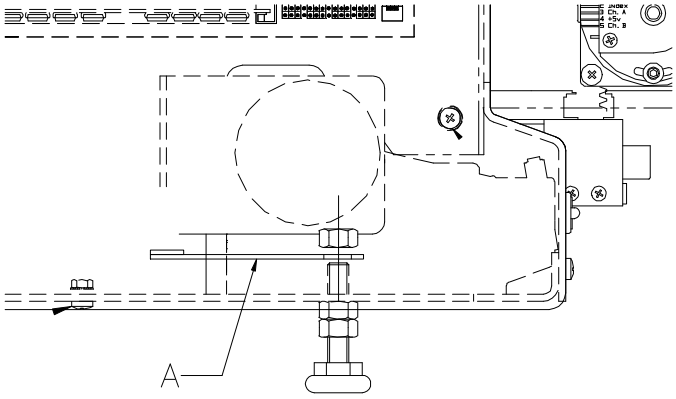


Slip the Optical Module into position on the two alignment pins. Place the cover over the assembly to secure the module and install the two screws.



Applicator Head & Optical Encoder Adjustment

If the Applicator Head is out of adjustment, label application problems can occur. If any of the mechanical parts, stepper motor, or Optical Encoder are replaced, the Applicator Head home position must be set. An Alignment Tool (P/N 82784300A) is supplied to set the necessary alignment of the head to the plane of the skis and stripper bar. A shaft spacer and hex wrench is also included to set the optical encoder on the applicator stepper motor. The Alignment Tools are shipped inside the printer on the component side attached to the front left foot, as shown in Figure 6.2.

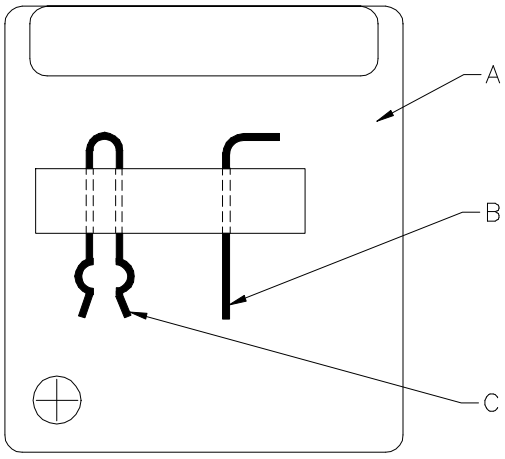


A - Applicator Alignment Tools
Figure 6.2

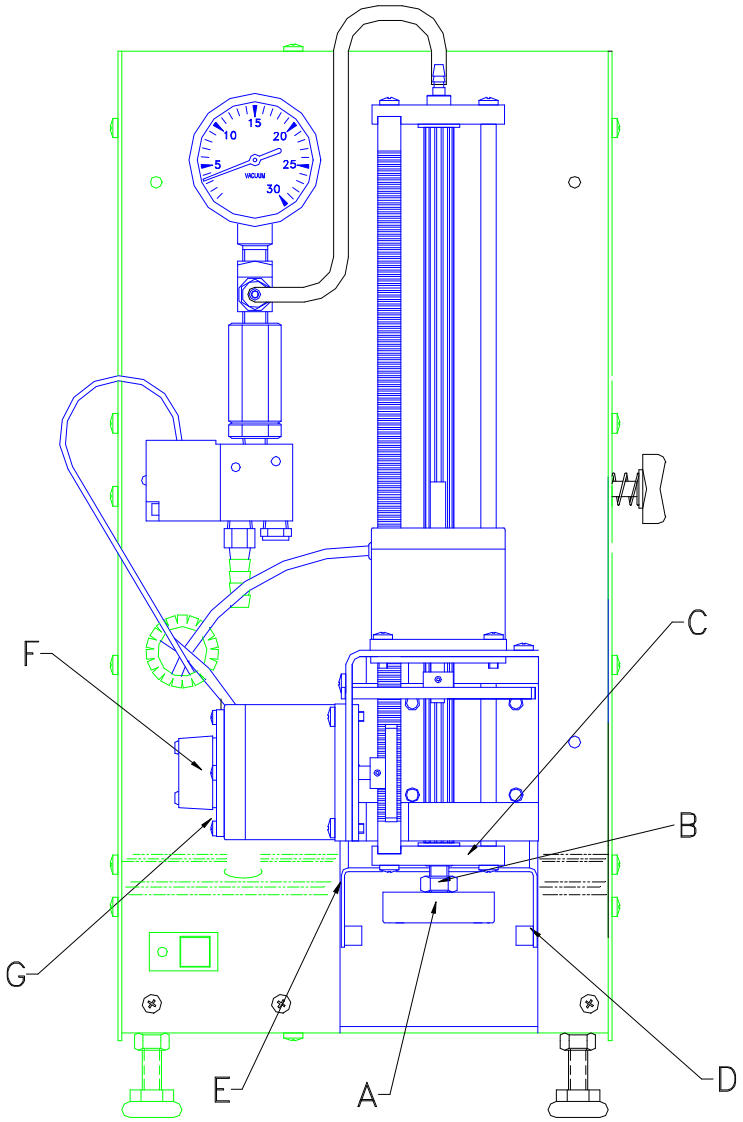
The applicator home position can be adjusted as follows. Refer to Figure 6.3 for component locations.

1. Tap the Stripper Bar to make sure it is seated at the bottom of the slots on the Printer Engine frame.
2. Loosen the Applicator Head (A) Lock Nut (B). Turn the head (A) until there is approximately 3/8 in (10 mm) clearance between the Head (A) and the Bottom Pinion Mounting Bracket (C). Do not tighten the lock nut.
3. Turn on the power to the 317.

4. Insert the 82784300A Alignment Tool between the Skis (D) and the Head (A) with the thick end of the tool facing down toward the stripper bar. Check that the Applicator Head (A) is parallel to the Skis (and Alignment Tool). Bend the Ski Bracket (E) if necessary until the Skis are parallel to the Head (A).
5. Loosen the Ski Mounting Block hex screws (located on rear of front printer cover) until they are just finger tight. Move the Ski Bracket down until the alignment tool is resting on the stripper bar and the tool is also resting flat on the skis. Re-tighten the Ski Mounting Block hex screws.
6. Manually lower the Applicator Head to the closest detent (approximately 1/16 in) above the Alignment Tool on the Skis (D).
7. Next, remove the Optical Encoder cover (F) and snap the Encoder Shaft Spacer Tool (P/N 82784400A) over the Encoder Shaft. Loosen the set screw on the Encoder Wheel with the supplied hex wrench.
8. Holding the Encoder Optical Module against the motor, slightly turn the Encoder Wheel until the LED I1 on the Applicator Control PCB is off. Tighten the set screw on the Encoder Wheel and reassemble the cover. A fine adjustment can be made by loosening the Encoder Mounting Screws (G) on the Stepper Motor and turning the Encoder Assembly while watching the status of LED I1.
9. Turn the Applicator Head (A) until it just touches the tool. This will adjust the head to be .060 inch above the plane of the Skis.
10. When all adjustments are complete, re-tighten the Applicator Head Lock Nut (B).

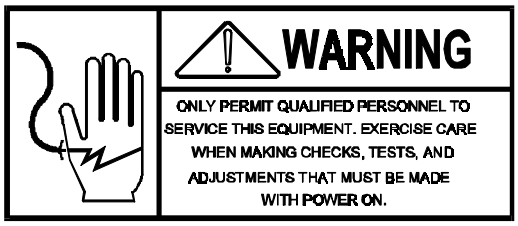


A - Head Alignment Tool
B - Optical Encoder Hex Wrench
C - Encoder Shaft Spacer Tool



Applicator Head/Optical Encoder Adjustment
Figure 6.3

Applicator Head Adjustment - Dayglo Printer



1. Turn printer on.
2. Loosen head lock nut
3. Seat stripper bar by tapping lightly downward on the far ends of the bar.
4. Temporarily set top of head 3/8” from bottom of pinion bracket. Do not tighten lock nut.
5. Insert .060 spacer so that it rests on top of stripper bar in between applicator head and the lower level of ski.
6. Adjust ski so that it is parallel to head.
7. Move the label ski adjustment plate to the top position by loosening retaining bolts.
8. Slowly move ski bracket downward until the spacer is resting on the stripper bar and the spacer is also resting flat on the ski.
9. Tighten down bolts for adjustment plate so that plate will remain in position while ski bracket is able to be moved up and down.
10. Lower head so that it is at the last resting position before contacting adjustment tool (approximately 1/8”).
11. Set home position of encoder.
12. Rotate the head downward until it makes light contact with top of tool.
13. Remove adjustment tool, tighten head lock nut, and test unit.
14. Set applicator control board jumper W4 to ON position.

Printer Engine Alignment

If the Printer Engine is replaced or removed, it must be properly aligned to the printer base plate. Refer to Figure 6.4. The front of the engine must be set for .062 inch or 1.6 mm in relation to the front of the printer base. The engine must be aligned square to the side of the base .775 inch or 20 mm from the side of the frame.

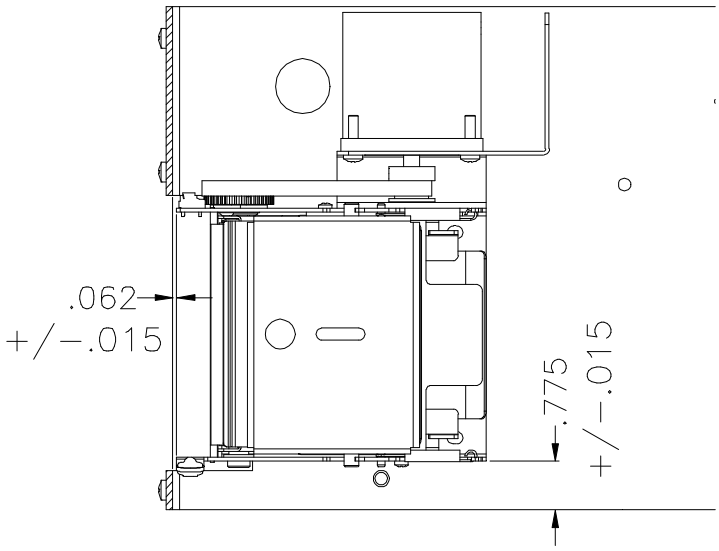
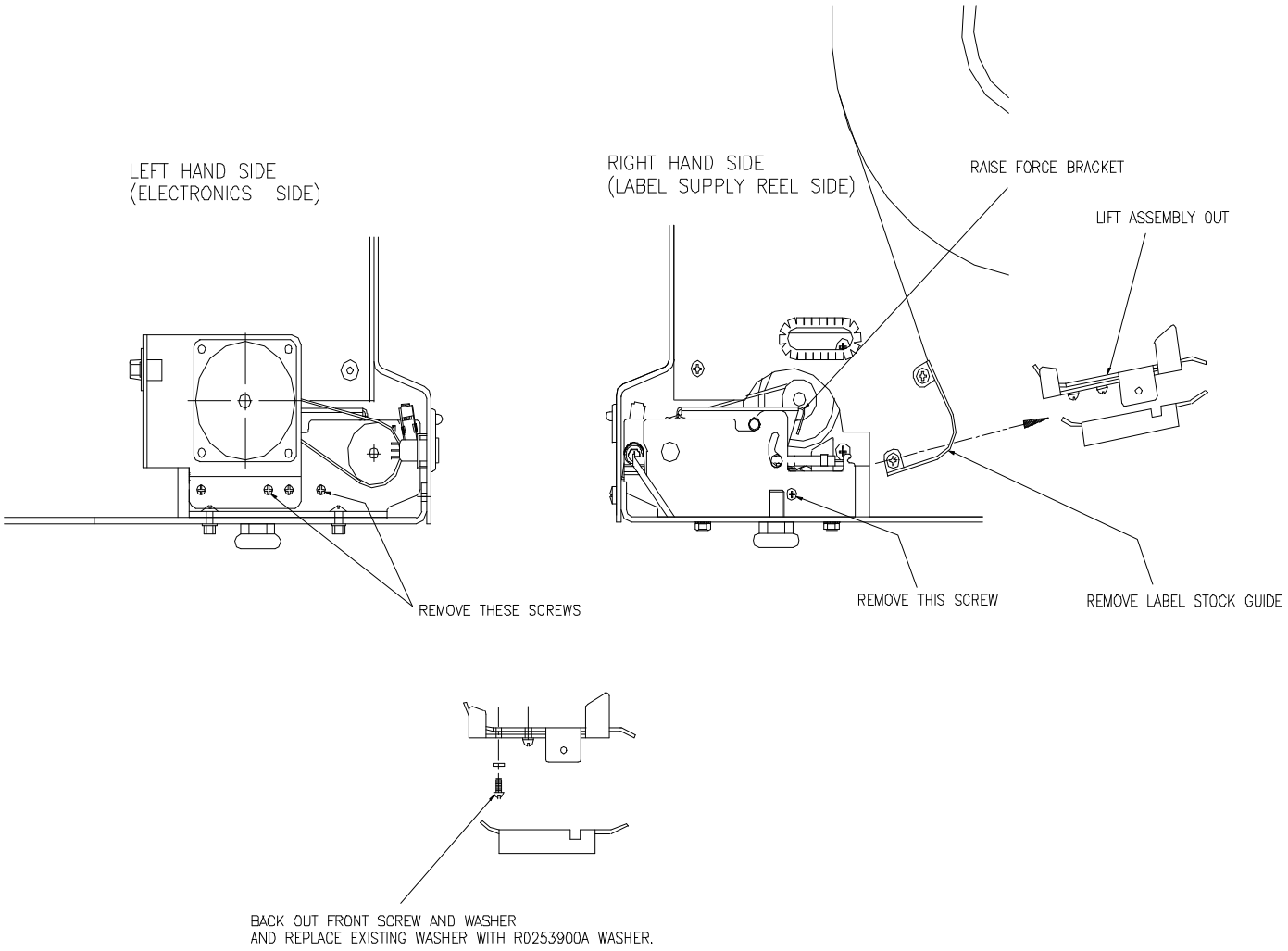


Figure 6.4 Printer Engine Alignment

Label Guide and Gap Sensor Width Adjustment

Starting with serial number 3072460-3-PY all printers are shipped from the factory with the label guides and gap sensor locked in a fixed position. If for any reason you need to adjust the width or replace a part, use the following procedure: (see figure ??????? on page ??)

1. Unplug gap sensor from printer PCB.
2. Remove the label stock guide.
3. Remove the three Phillips head screws (two on the left side, one on the right side) that hold the label guide assembly in the printer engine.
4. Raise the force bracket for clearance.
5. Carefully lift out the label guide assembly. The guide liner will come out with it.
6. Turn over the assembly. Locate and loosen the center screw and washer.
7. Using a piece of label stock, adjust the label guides to the correct width and tighten the screw.
8. Reassemble in reverse order.



828858.DWG
828858.DOC

Label Eject Distance Setting, Dayglo and Price Printers

For price label applicators (RAM 2001), the label must remain on roll backing approximately 1 mm when staged in order to correctly pick and apply labels.

For dayglo label applicators (RAM 3001), the label must remain on roll backing approximately 2.5 mm when staged in order to correctly pick and apply labels.

To adjust ejection distance from 8360 controller:

- -SETUP
- -UNIT
- -PRINTER SETUP
- -PRINTER #1(PRICE) OR PRINTER #2(DAYGLO/NUTRIFACTS)
- -SELECT CORRECT LABEL SIZE AND TOUCH EDIT
- -PAGE DOWN
- -EJECT DISTANCE (97 mm IS THE DEFAULT)

With an 8305 controller, the ejection distance is set with Soft Switch 24 in the 317 printer. To increase or decrease the ejection distance:

- By reducing the ejection distance, more of the label will remain on the backing.

- By increasing the ejection distance, less of the label will remain on the backing

Note: It is VERY important that the eject distance is adjusted correctly. Incorrect adjustment can cause pick and apply or turn label problems.

Troubleshooting Symptoms

Following are a list of common questions and symptoms that can be used as an aid in troubleshooting the 317 printer and applicator.

No Label Issued

1. Check Power to Printer. Is Power LED on?
2. Check Label Supply.
3. Check for Label Jam.
4. Check/Clean Take Label Sensor.
5. Cycle power to printer and retry.
6. Check for Error Conditions on Display PCB (Section 5)
7. Press Label Feed Button. If label issues when Label Feed is pressed, but not in normal printing mode, check communication cable from scale controller.

Applicator won't pick or apply labels

1. Label Skis must be in the down position.
2. Remove Applicator Cover and observe operation of Applicator.
3. If applicator mechanical movements are normal, but the label is not picked or applied, check the vacuum to the Applicator Control Valve by watching the Vacuum Gauge. During normal operation, there should be approximately 23 inches of vacuum when a label is picked from the skis.
4. Pinch the tube between the Control Valve and the Pinion shaft and observe the gauge. There should be a minimum of 23 inches of vacuum with the tube plugged. If there is not 23 inches of vacuum, check the vacuum to the valve and at the vacuum pump.
5. If there is 23 inches of vacuum at the gauge, but the applicator still will not pick the label, check for obstructions in the Pinion and the applicator head.
6. Check for loose set screws on rack and pinion gears.
7. Check label guides in print engine for proper adjustment.
8. Check label ejection for proper distance. (Section 6)

Label Placement Varies on Package

1. Check applicator for mechanical binds.
2. Check for loose set screws on rack and pinion gears.
3. Check Stepper Motor Gear to Rack and Pinion clearance as described in Section 6 Applicator Rack and Pinion Adjustment.
4. Check label ejection for proper distance. (Section 6)

Label Applicator Won't Turn Labels

1. Check controller and labeler programming.
2. Check for loose set screws on rack and pinion gears.
3. If controller or labeler programming is correct, remove Applicator Cover and check for mechanical binds.
4. Test Applicator Turn Motor (Section 6).
5. Replace Applicator Control PCB.

Light Print on Labels

1. Check Print Density/Speed setting in softswitches (SSW 18). Set at 7 for standard label stock.
2. Clean Printhead and Platen Roller.
3. Check Printhead Resistance Rating with programmed settings in Softswitches (SSW 19).
4. Test printing with known good batch of labels.

Print mottled or missing segments

1. Clean Printhead and Platen Roller.
2. Test printing with known good batch of labels.
3. Replace Printhead.

Extra labels are printed

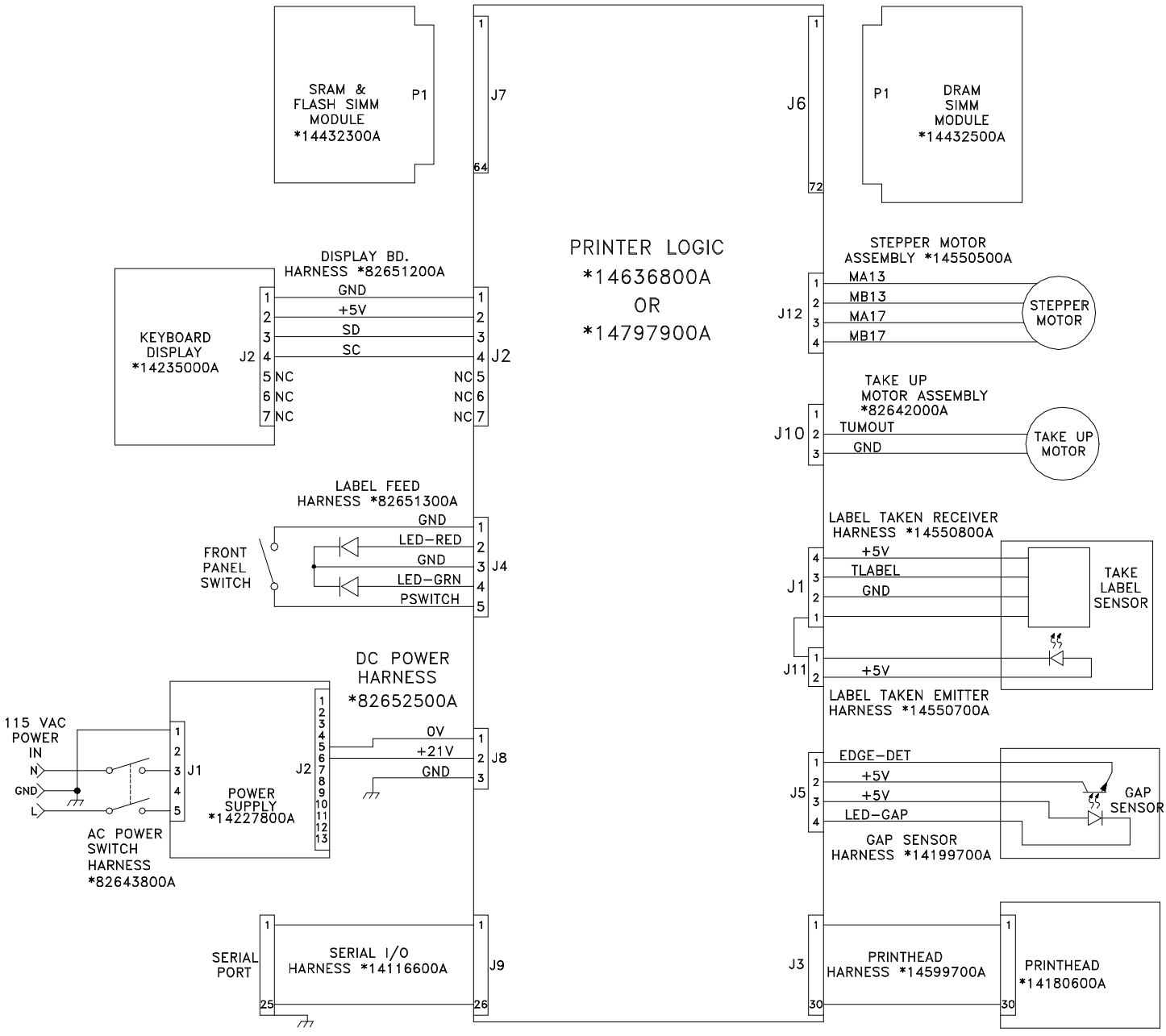
1. Check label format for stripped/unstripped mode. In automatic applications, the format must be set to Stripped Mode.
2. Test Take Label Circuit (Section 6).
3. Test Gap Sensor Circuit.
4. Test with known good labels.

Labels not indexing correctly

1. Clean Gap Sensor.
2. Check Label Format Programming.
3. Test Gap Sensor Circuit.
4. Test with known good labels.
5. Check for loose set screws on drive motor and platen roller pulleys.
6. Check for loose or worn drive belt.
7. Make sure that the label guides are up against the edge of the label stock.

7 Interconnecting Diagrams

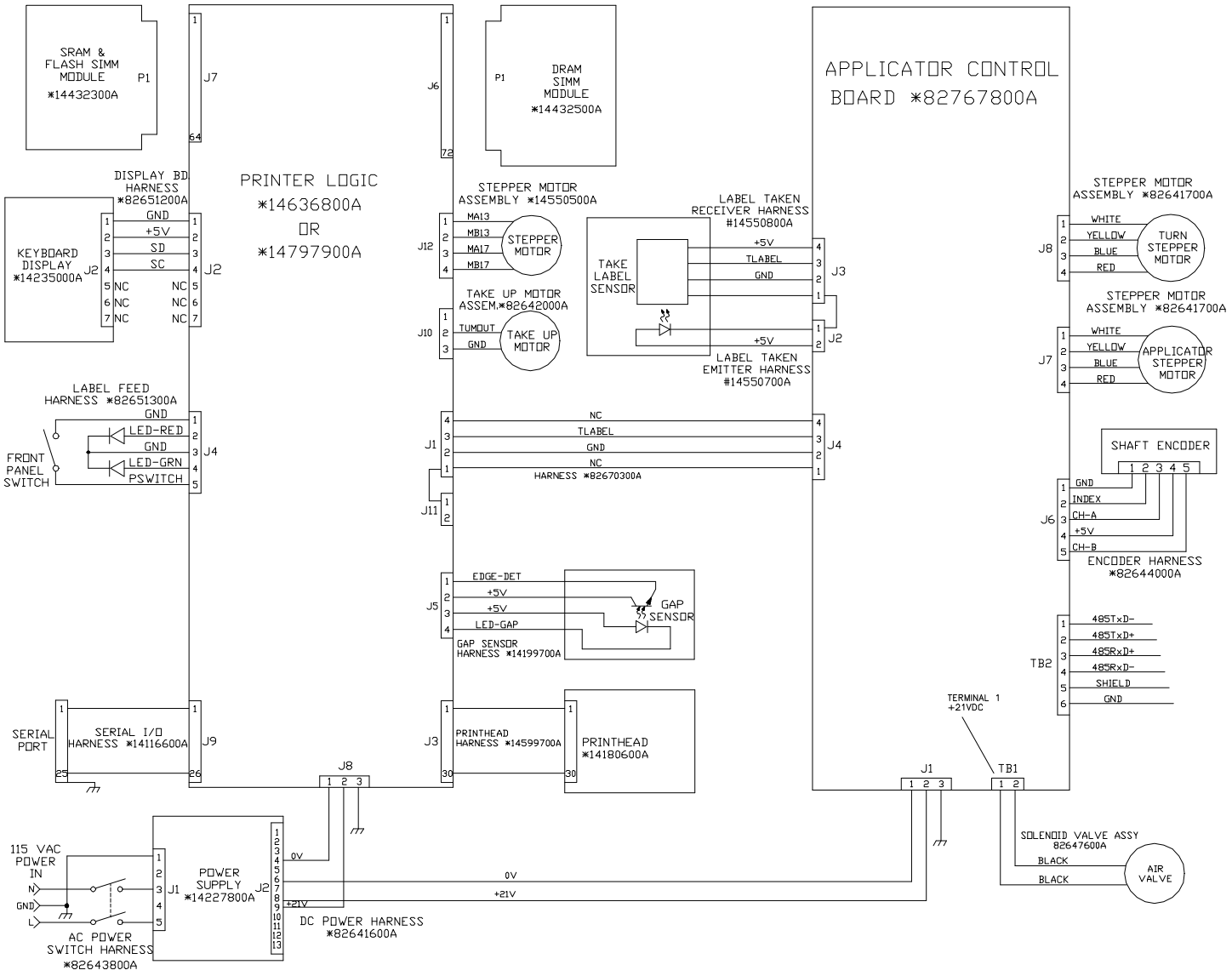
Model 317



NOTE:

1. * INDICATES MAY HAVE LETTER PREFIX

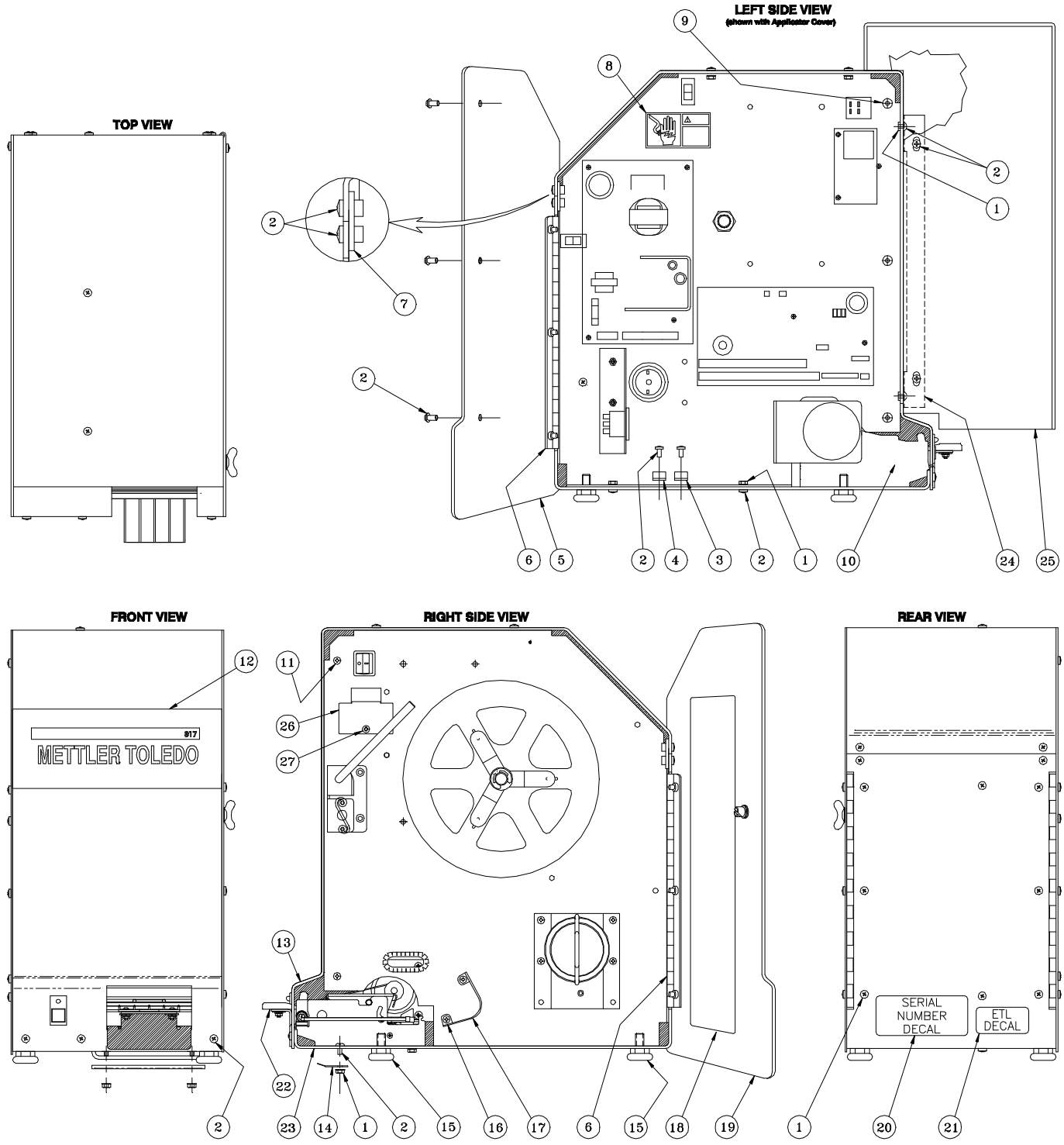
Model 317 Applicator



NOTE:
1. * INDICATES MAY HAVE LETTER PREFIX

8 Replacement Parts

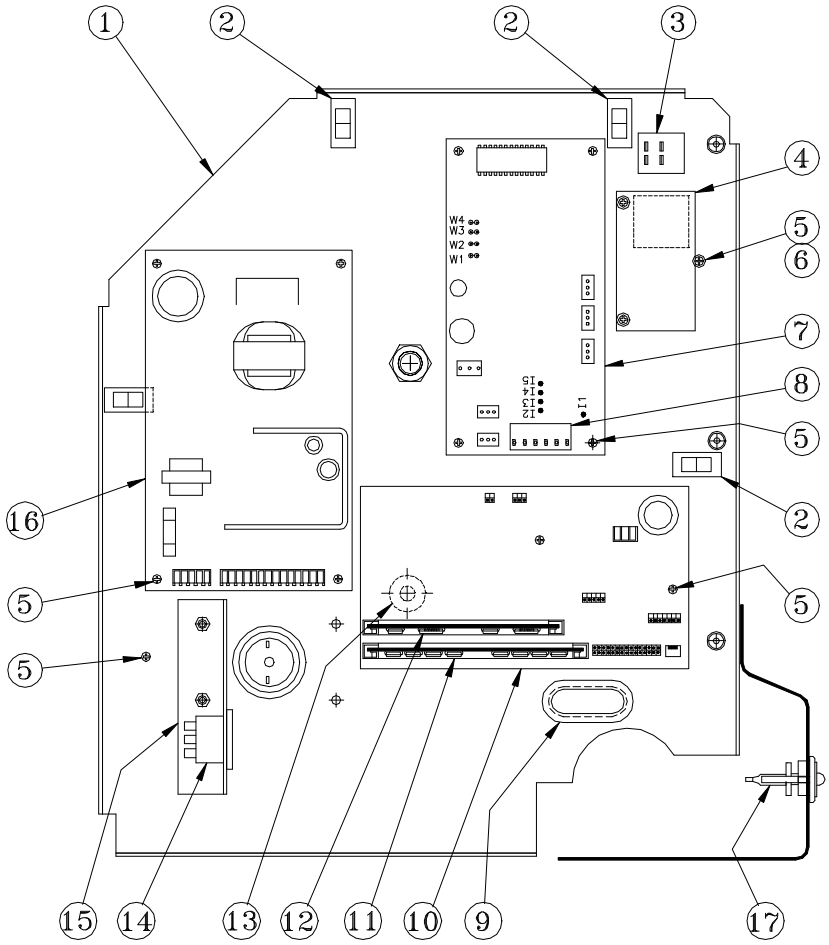
Frame Assembly



Frame Assembly Parts List

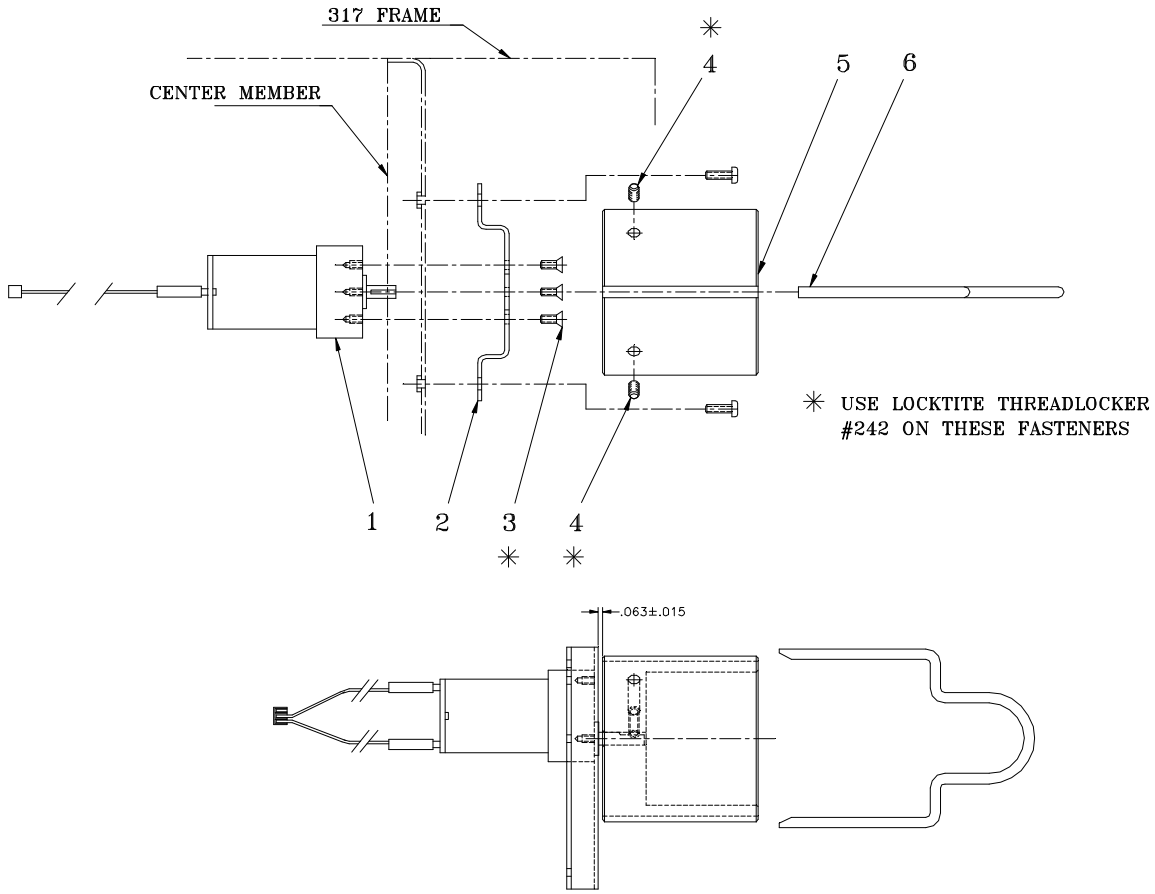
ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	8	NUT - M4 X 0.7 KEPS	82783100A
2	19	SCREW - M4 X 8 PHILLIPS TRUSS HEAD ST. ST.	82783000A
3	1	CABLE CLAMP - .187 DIA.	82684600A
4	1	CABLE CLAMP - .250 DIA.	82659200A
5	1	PRINTER DOOR - LEFT SIDE	82647200A
6	2	HINGE	82666300A
7	1	BRACKET - FRAME	82674700A
8	1	DECAL - WARNING DISCONNECT	81921300A
9	3	STAND OFF	82674400A
10	1	PRINTER DIVIDER	82636200A
11	3	SCREW - M4 X 12MM PHILLIPS HEAD	82715400A
12	1	DECAL METTLER - TOLEDO 317	82784700A
13	1	FRAME - PRINTER TOP (STAND ALONE)	82676200A
13A	1	FRAME - PRINTER TOP (APPLICATOR)	82674500A
14	1	WIRE COVER	82816600A
15	4	FOOT 1/2"	82816200A
16	2	SCREW M3 X 8MM PHILLIPS PAN HEAD	82783300A
17	1	LABEL GUIDE	82669200A
18	1	LABEL THREADING DECAL	82684200A
19	1	PRINTER DOOR - RIGHT SIDE	82910800A
20	1	SERIAL NUMBER DECAL	82519600A
21	1	ETL LABEL	82781900A
22	1	PORCH ASSEMBLY	82671000A
23	1	FRAME - PRINTER BOTTOM	82674600A
24	2	BRACKET - APPLICATOR COVER	82767500A
25	1	APPLICATOR COVER	82672500A
26	1	BUTTON COVER	82664900A
27	1	SCREW - M3 X 8MM PHILLIPS PAN HEAD	82783300A

Printed Circuit Boards



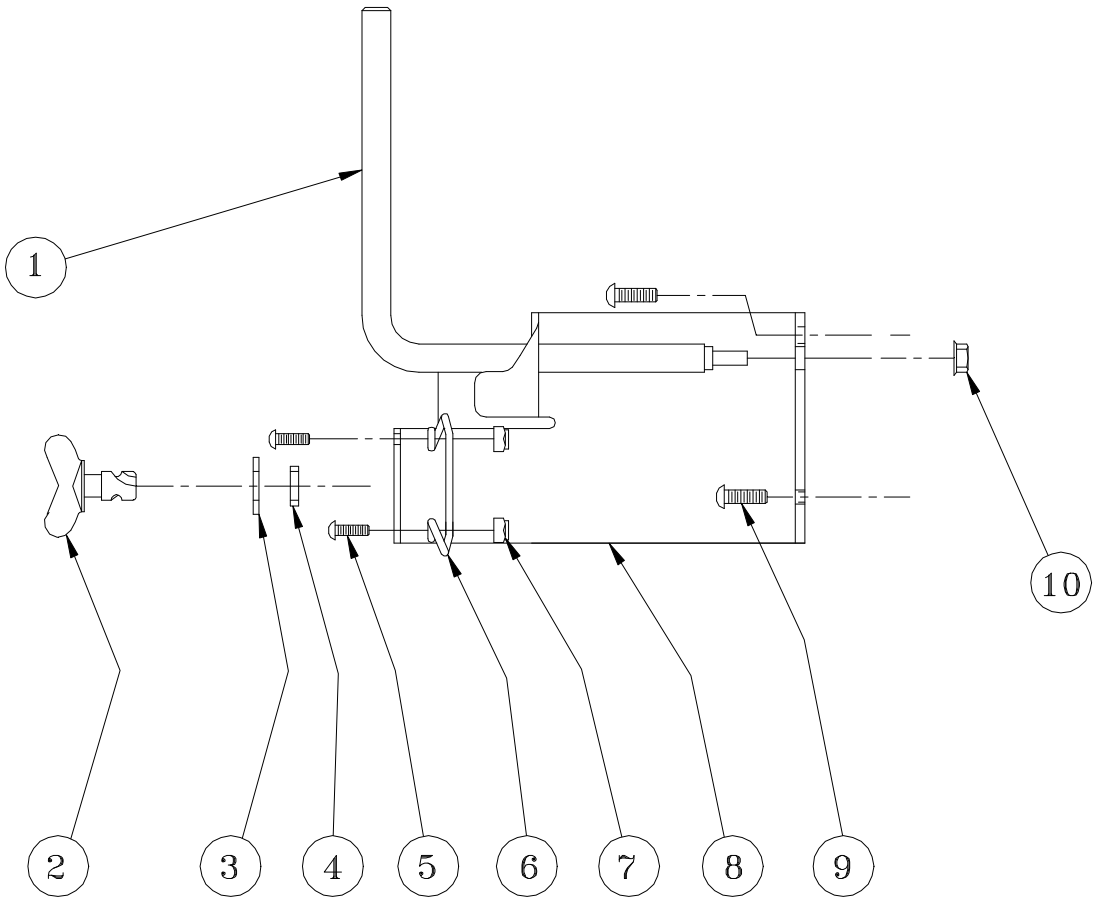
ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	1	PRINTER DIVIDER	82636200A
2	4	ADHESIVE WIRE HOLD DOWN	821168100A
3	1	SWITCH ON/OFF	11913300A
4	1	PCB INFO ASSEMBLY	14235000A
5	16	SCREW - M3 X 8MM PHILLIPS PAN HEAD	82783300A
6	3	WASHER - M3 POLYAMIDE	82783500A
7	1	APPLICATOR CONTROL PCB	82767800A
8	1	CONNECTOR TERMINAL BLOCK 6 POSITION	13162500A
9	3.3"	GROMMET CONTINUOUS STRIP	82660100A
10	1	THERMAL PRINTER ENGINE PCB	14636800A OR 14797900A
11	1	SIMM PIN DRAM MODULE	14432500A
12	1	SIMM FLASH MEMORY MODULE	A14432300A
13	1	BUMPER - PCB ENGINE	82660000A
14	1	AC POWER INLET	82643900A
15	1	AC INLET BRACKET	82650200A
16	1	POWER SUPPLY PCB	14227800A
17	1	ON/OFF LABEL FEED HARNESS	82651300A

Take-Up Motor



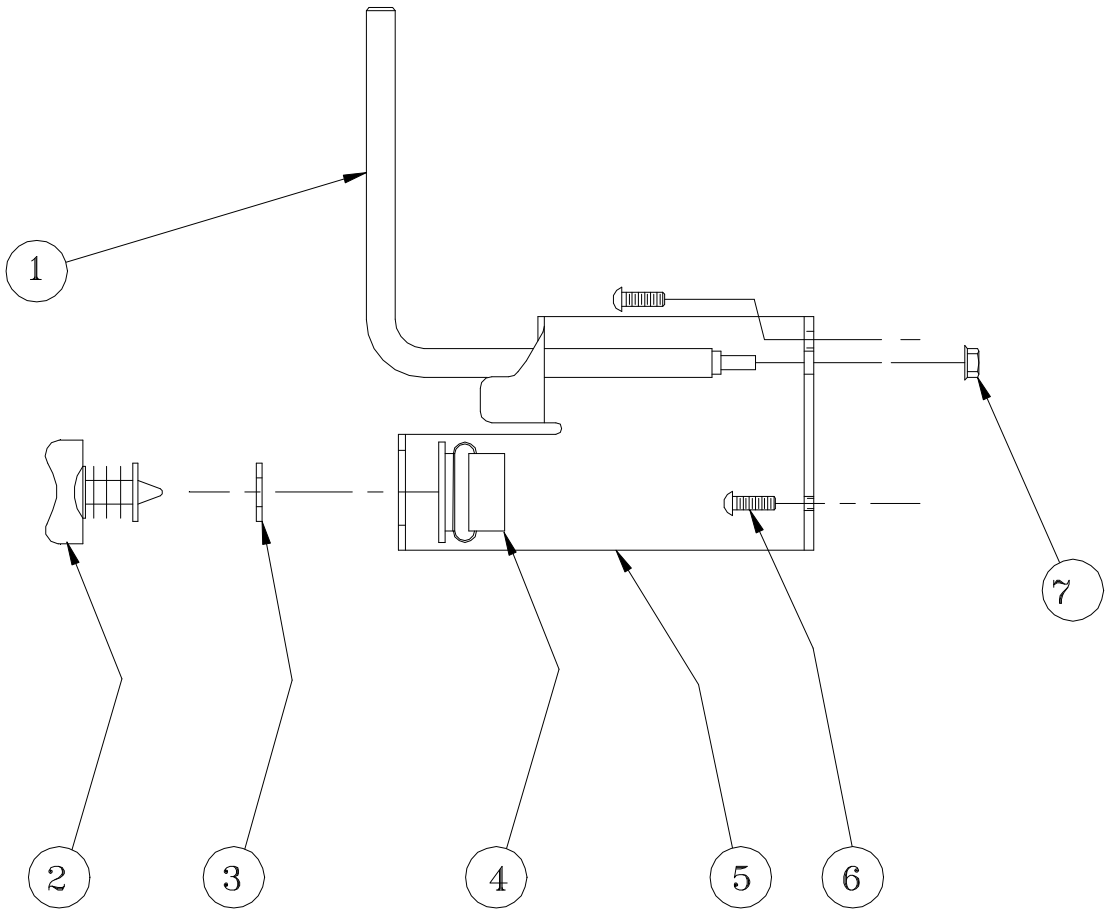
ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	1	MOTOR ASSEMBLY	82688600A
2	1	BRACKET - GEAR MOTOR	82692400A
3	3	SCREW - 4-40 X 1/4" LONG FLAT HEAD	R0277800A
4	2	SCREW - M4 X 5MM LONG SOCKET SET	82783600A
5	1	TAKE UP SPOOL - 2.5 DIA.	82801500A
6	1	TAKE UP ROD - 2.5 DIA.	82801100A

Label Retainer and Door Latch (Metal Latch)



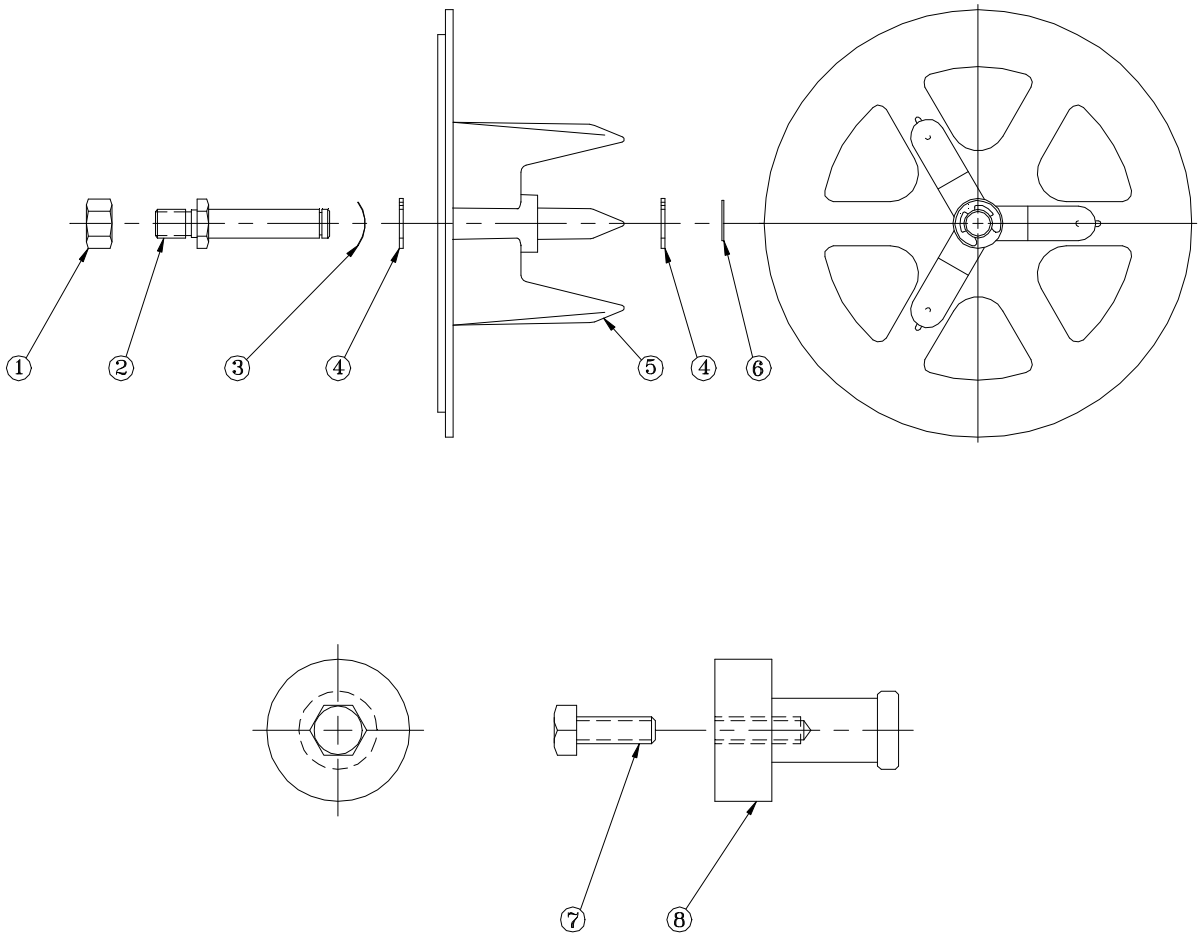
ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	1	LABEL STOP	82665800A
2	1	WING STUD	82910500A
3	1	RETAINING RING 8MM I.D. DIN 471	82706900A
4	1	NYLON WASHER .312 I.D. X .500 O.D.	82910400A
5	2	SCREW M3 X 10MM PHILLIPS HEAD	82714900A
6	1	LATCH RECEPTICAL	A82671700A
7	2	LOCK NUT M3 NYLON INSULATED	82818400A
8	1	BRACKET - LABEL STOP	82910900A
9	2	SCREW - M4 X 12MM PHILLIPS PAN HEAD	82715400A
10	1	NUT - M4 HEX KEPS	82783100A

Label Retainer and Door Latch (Plastic Latch)



ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	1	LABEL STOP	82665900A
2	1	LATCH	82671500A
3	1	RETAINING RING 8MM I.D. DIN 471	82706900A
4	1	LATCH RECEPTICAL	82671700A
5	1	BRACKET - LABEL STOP	82665900A
6	2	SCREW - M4 X 12MM PHILLIPS PAN HEAD	82715400A
7	1	NUT - M4 HEX KEPS	82783100A

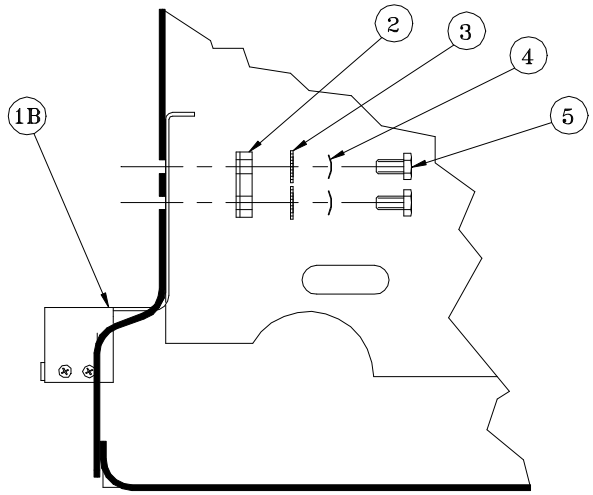
Ticket Wheel



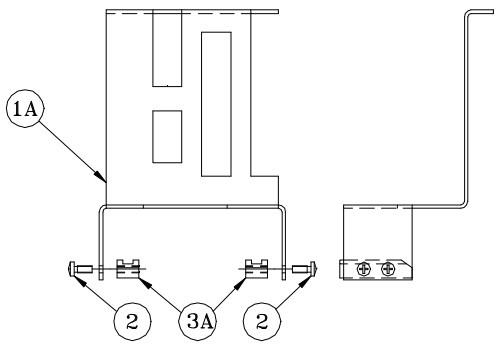
ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	1	NUT M12 X 1.75 HEX	82708800A
2	1	SHAFT	82642100A
3	1	SPRING WASHER	82674200A
4	2	THRUST WASHER	82646200A
5	1	TICKET WHEEL	82768400A
6	1	E-RING	82646300A
7	1	BOLT M12 X 35MM HEX HEAD	82839600A
8	1	DAYGLO TICKET WHEEL	82697700A

Applicator Ski

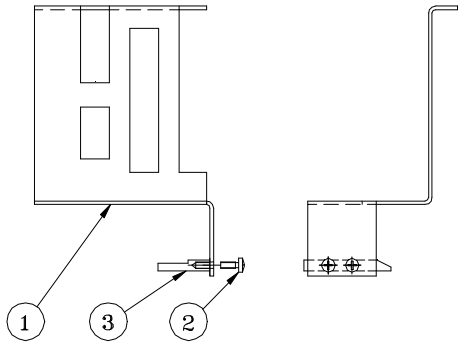
ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	1	APPLICATOR SKI ASSEMBLY DAYGLO (NOT SHOWN)	B82840200A
1B	1	APPLICATOR SKI ASSEMBLY - STANDARD	A82772600A
2	1	LABEL SKI ADJUSTMENT PLATE	82779100A
3	2	LOCK WASHER - M6 SERRATED SS	82783800A
4	2	SPRING WASHER - CURVED	82684800A
5	2	SCREW - M6 X 16MM HEX HEAD STAINLESS STEEL	82712400A



Standard Ski Assembly

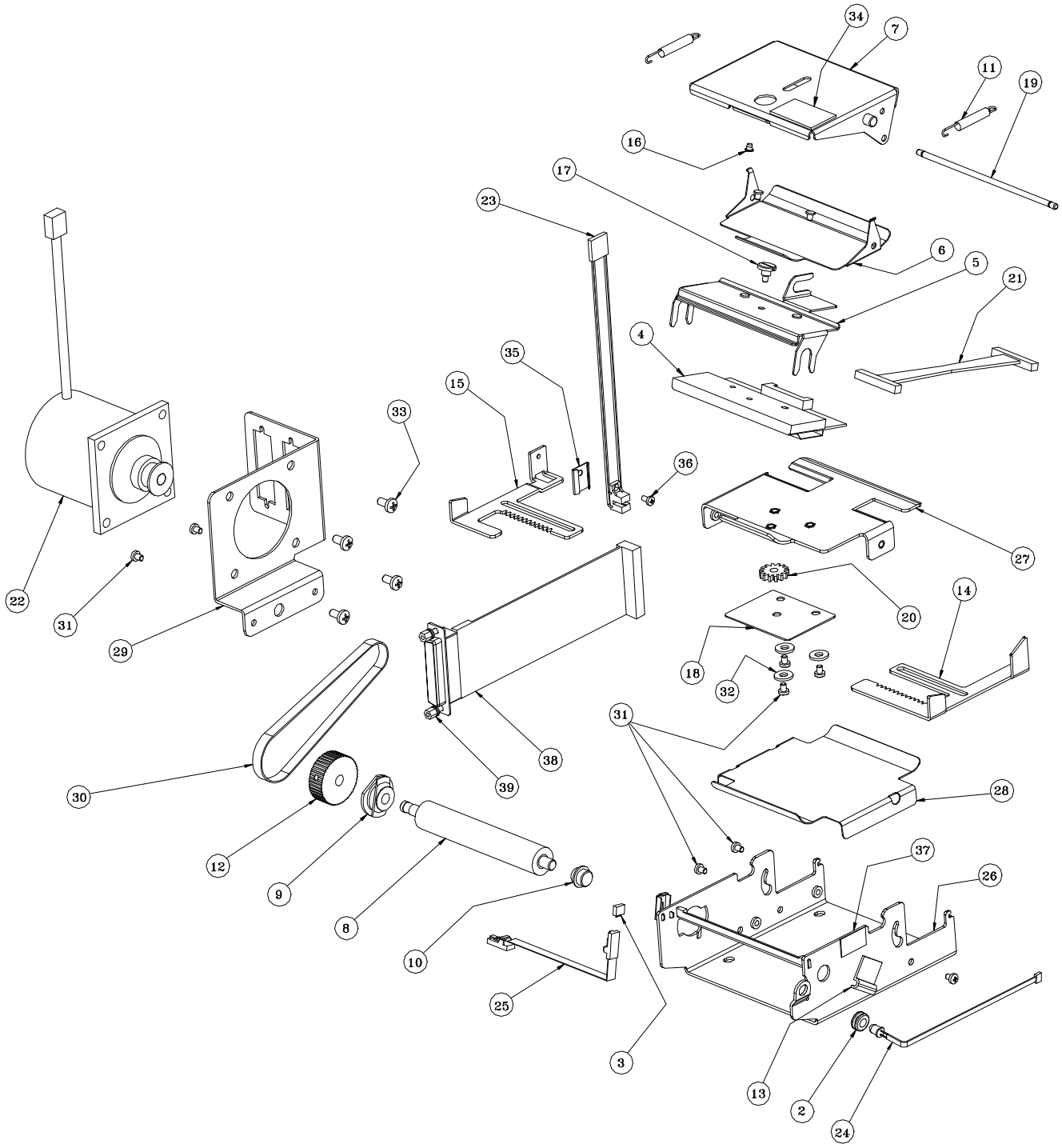


Dayglo Ski Assembly



ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	1	LABEL SKI BRACKET - DAYGLO	A82812200A
1A	1	LABEL SKI BRACKET - STANDARD	A82772600A
2	4	SCREW - M3 X 8MM PHILLIPS PAN HEAD	82783300A
3	1	LABEL SKI - DAYGLO	A82766900A
3A	2	LABEL SKI - STANDARD	82781300A

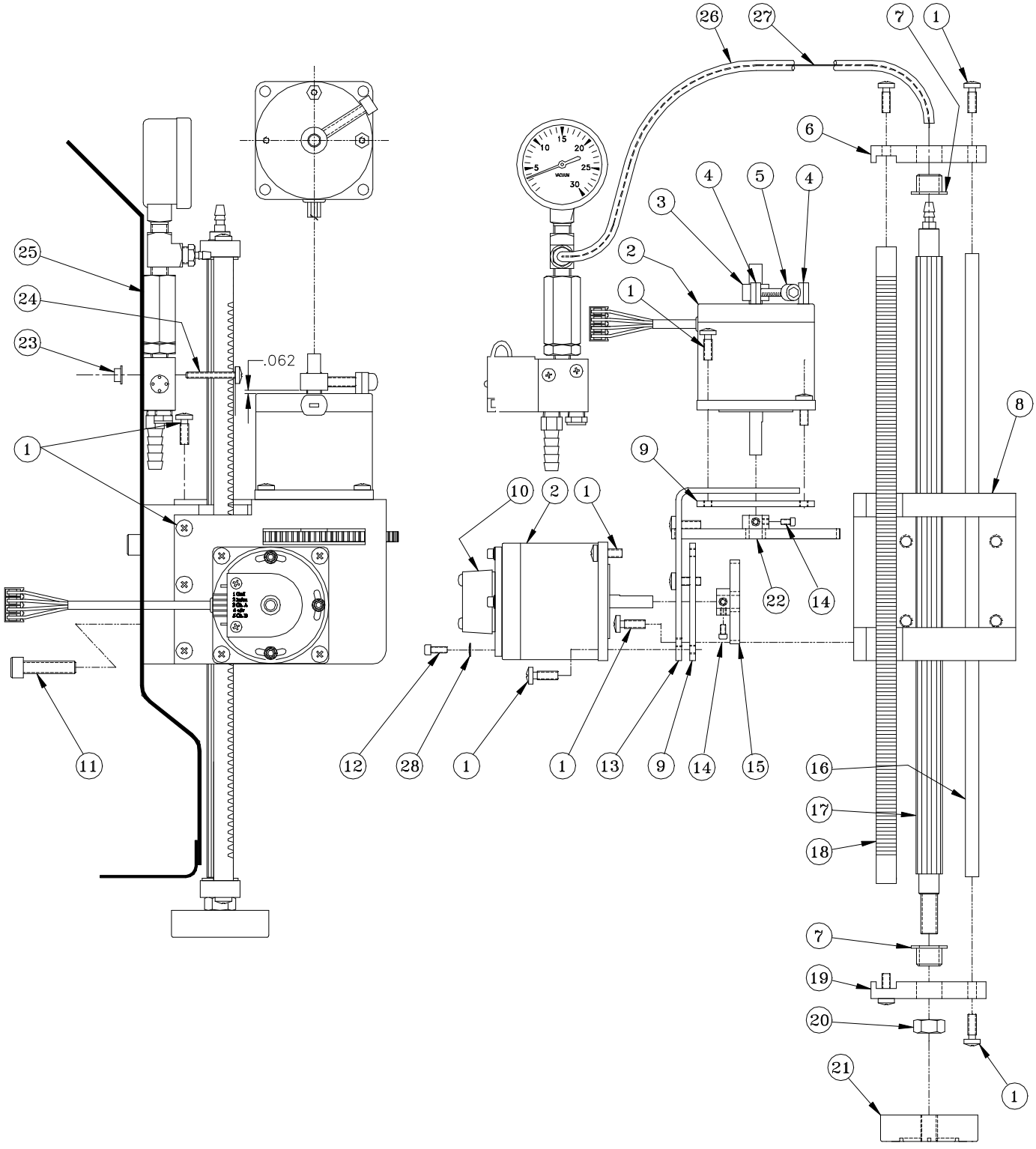
Printer Engine



Printer Engine Parts List

ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	1	PRINTER ENGINE ASSEMBLY - COMPLETE	A14565800A
2	1	GROMMET .12 I.D.	12462200A
3	1	IC OTIC, IS471F	14156600A
4	1	ASSEMBLY, PRINHEAD	A14180600A
5	1	BRACKET, PRINTHEAD MOUNTING	A14203500A
6	1	GUIDE, UPPER	14572200A
7	1	BRACKET ASSY, FORCE	14203800A
8	1	PLATEN	14211500A
9	1	BEARING, LEFT PLATEN	A14211600A
10	1	BEARING, RIGHT PLATEN	A14211700A
11	2	SPRING, EXTENSION	14212000A
12	1	PULLEY, PLATEN	14212300A
13	1	CLIP, 1/2U	14274800A
14	1	GUIDE, RIGHT	14213000A
15	1	GUIDE, LEFT	14572300A
16	1	BUTTON	14247900A
17	1	SCREW, PRINTHEAD MOUNTING	14262600A
18	1	PLATE COVER	14270900A
19	1	SHAFT, SPRING	14286000A
20	1	GEAR, RACK	14306900A
21	1	HARNESS, PRINTHEAD	14599700A
22	1	STEPPER MOTOR ASSEMBLY	14550500A
23	1	HARNESS, GAP SENSOR	14199700A
24	1	HARNESS, EMITTER, LABEL	14550700A
25	1	HARNESS, RECEIVER, LABEL	14550800A
26	1	FRAME ASSEMBLY	A14565600A
27	1	GUIDE, LOWER	A14565700A
28	1	GUIDE, LINER	14565900A
29	1	BRACKET, STEPPER MOTOR MTG.	A14566000A
30	1	BELT, TIMING	14212400A
31	8	SCREW, M3 x 4MM TRUSS HEAD	R0379300A
32	3	WASHER, FLAT	R0253900A
33	4	SCREW, M4 x 8MM PHILLIPS PAN HEAD	R0516800A
34	1	LABEL, CAUTION HOT	12801200A
35	1	CLIP, SENSOR	14625000A
36	1	SCREW M2.5 x 5MM PHILLIPS PAN HEAD	R0521700A
37	1	LABEL	13134200A
38	1	HARNESS, SERIAL I/O 0317	14116600A
39	1	SCREW LOCK ASSEMBLY	10856800A
	SUFF	LUBRICANT, FOOD GRADE	11825100A

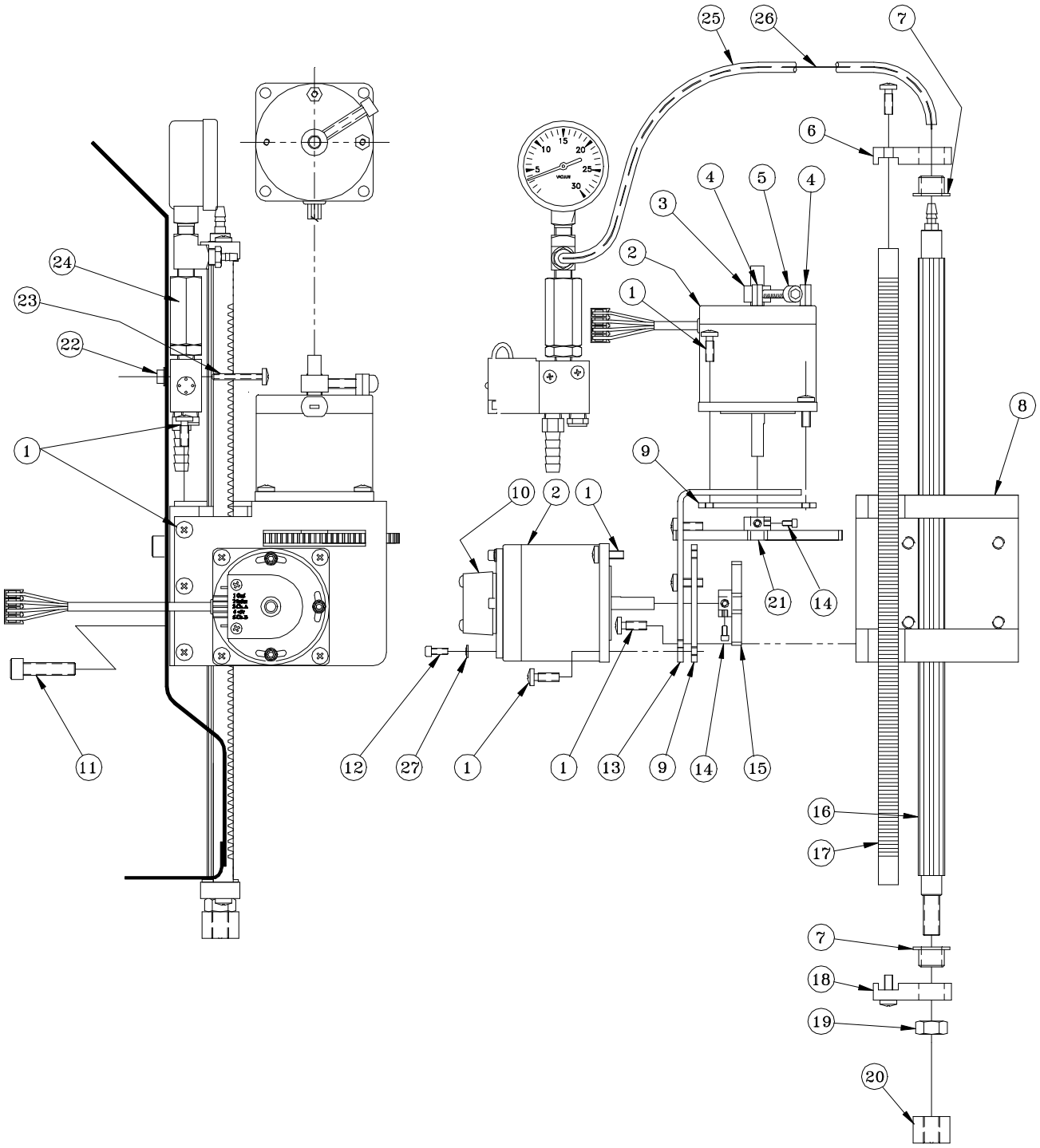
Applicator Assembly



Applicator Assembly
Parts List

ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	16	SCREW - M4 X 12MM PHILLIPS PAN HEAD ST.ST.	82715400A
2	2	MOTOR ASSEMBLY	82641700A
3	1	COLLAR - 1/4" SET ST. ST.	81895700A
4	2	STANDOFF	82805900A
5	1	SCREW - #10-32 X 1" SOCKET HEAD	R0271600A
6	1	BRACKET - TOP PINION MOUNTING	82636400A
7	2	BEARING - FLANGE	82640100A
8	1	BASE - APPLICATOR	82637700A
9	2	PLATE - APPLICATOR NUT	82672300A
10	1	ENCODER - OPTICAL	82642600A
11	4	SCREW - M6 X 20MM SOCKET HEAD CAP ST. ST.	82714200A
12	3	SCREW 4-40 X 5/16" SOCKET HEAD CAP	82914500A
13	1	MOUNT - APPLICATOR STEPPER	82677600A
14	4	SCREW - M4 X 8MM SOCKET HEAD CAP	82713100A
15	1	GEAR - 36 TOOTH SPUR	82641400A
16	1	ROD - APPLICATOR	82670100A
17	1	WIRE ASSEMBLY - PINION	82807700A
18	1	RACK - GEAR	82632300A
19	1	BRACKET - BOTTOM PINION MOUNTING	82669300A
20	1	NUT - 8MM ST. ST.	82784200A
21	1	HEAD - APPLICATOR (STANDARD)	82687400A
22	1	GEAR - 100 TOOTH SPUR	82641500A
23	2	NUT - M4 X 0.7 KEPS	82783100A
24	2	SCREW - M4 X 30MM PHILLIPS PAN HEAD	82715800A
25	1	SOLENOID VALVE ASSEMBLY	82647600A
26	10"	HOSE - APPLICATOR	276380001
27	1	WIRE - NYLON COATED ST.ST.	82915200A
28	3	#4 LOCK WASHER	R0167900A

DayGlo Applicator Assembly



DayGlo Applicator
Assembly Parts List

ITEM	QUAN.	DESCRIPTION	PART NUMBER
1	16	SCREW – M4 X 12MM PHILLIPS PAN HEAD ST.ST.	82715400A
2	2	MOTOR ASSEMBLY	82641700A
3	1	COLLAR – 1/4" SET ST. ST.	81895700A
4	2	STANDOFF	82805900A
5	1	SCREW – #10-32 X 1" SOCKET HEAD	R0271600A
6	1	BRACKET – TOP PINION MOUNTING	82766300A
7	2	BEARING – FLANGE	82640100A
8	1	BASE – APPLICATOR	82677500A
9	2	PLATE – APPLICATOR NUT	82672300A
10	1	ENCODER – OPTICAL	82642600A
11	4	SCREW – M6 X 20MM SOCKET HEAD CAP ST. ST.	82714200A
12	3	SCREW 4-40 X 5/16 SOCKET HEAD CAP	82914500A
13	1	MOUNT – APPLICATOR STEPPER	82677600A
14	4	SCREW – M4 X 8MM SOCKET HEAD CAP	82713100A
15	1	GEAR – 36 TOOTH SPUR	82641400A
16	1	WIRE ASSEMBLY – PINION	82807700A
17	1	RACK – GEAR	82632300A
18	1	BRACKET – BOTTOM PINION MOUNTING	82766400A
19	1	NUT – 8MM ST. ST.	82784200A
20	1	HEAD – APPLICATOR (DAYGLO)	82677700A
21	1	GEAR – 100 TOOTH SPUR	82641500A
22	2	NUT – M4 X 0.7 KEPS	82783100A
23	2	SCREW – M4 X 30MM PHILLIPS PAN HEAD	82715800A
24	1	SOLENOID VALVE ASSEMBLY	82647600A
25	10"	HOSE – APPLICATOR	276380001
26	1	WIRE – NYLON COATED ST.ST.	82915200A
27	3	#4 LOCK WASHER	R0167900A

METTLER TOLEDO

Publication Problem Report

If you find a problem with our documentation, please complete and fax this form to (614) 438-4783

Publication Name: METTLER TOLEDO Model 317 Printer Service Manual_____

Publication Part Number: A82784900A_____ **Publication Date: 8/97**_____

PROBLEM(S) TYPE:	DESCRIBE PROBLEM(S):	*INTERNAL USE ONLY*
☐ **Technical Accuracy**	☐ **Text** ☐ **Illustration**	
☐ **Completeness** **What information is missing?**	☐ **Procedure/step** ☐ **Illustration** ☐ **Definition** ☐ **Example** ☐ **Guideline** ☐ **Feature** ☐ **Explanation** ☐ **Other (please explain below)**	☐ ***Info. in manual*** ☐ ***Info. not in manual***
☐ **Clarity** **What is not clear?**		
☐ **Sequence** **What is not in the right order?**		
☐ **Other Comments** **Use another sheet for additional comments.**		

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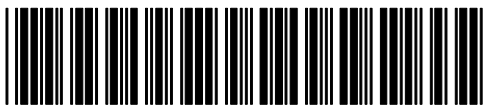

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