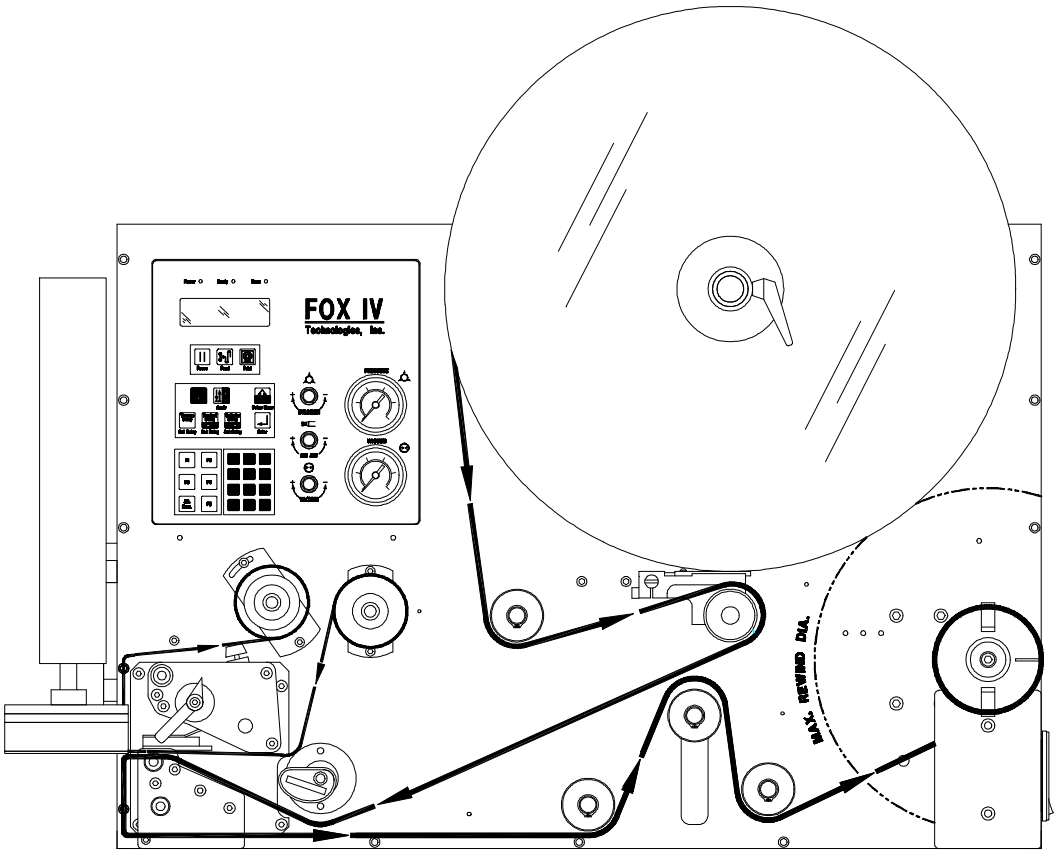
FOX IV
Technologies, Inc.

MODEL 4600S
LABEL PRINTER APPLICATOR



OPERATOR'S MANUAL

M4600-002-00

EQUIPMENT WARRANTY

FOX IV TECHNOLOGIES, INC.
6011 ENTERPRISE DRIVE
EXPORT, PA 15632
724-387-3500

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Model _____ Set-Up Values

Software Version _____

Touch-Blo Control _____

Print Mode _____

Apply Mode _____

Print Darkness _____

Machine Type _____

Pinch Roller _____

Random Stroke Delay _____

Cycle Time Delay _____

Cylinder Extend Time _____

Vacuum Delay Time _____

CPU Dip Switch Settings _____

Printer Serial Number _____

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MODEL 4600 STANDARD
LABEL PRINTER APPLICATOR

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1.0 Overview

1.1 GENERAL OPERATION

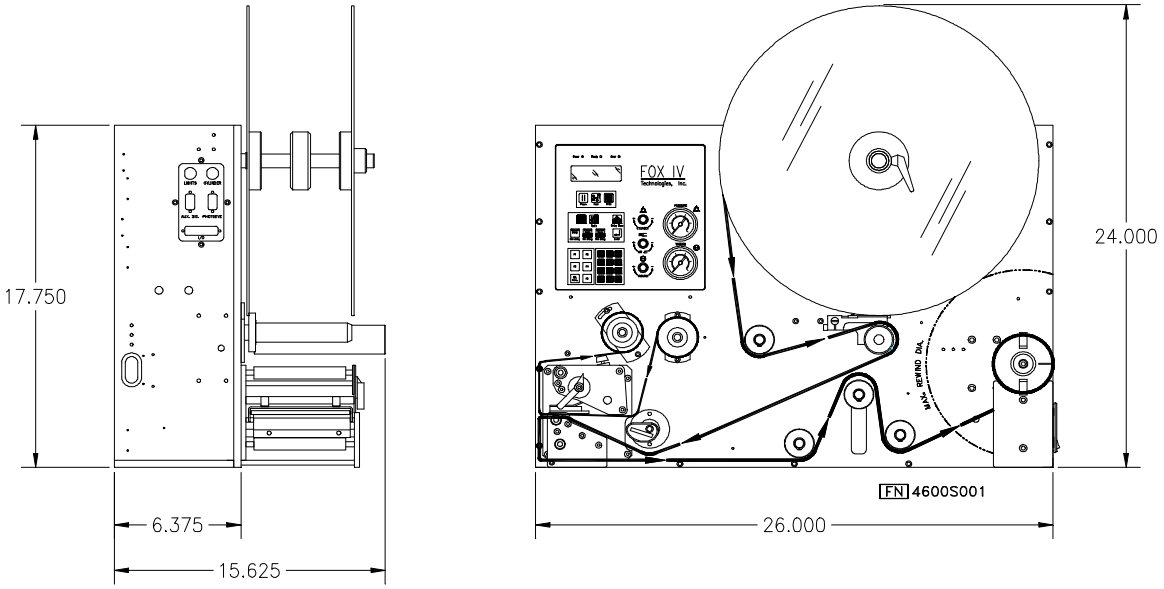


FIGURE 1A
OVERALL DIMENSIONS

This document contains information and instructions for a FOX IV Label Printer Applicator hereafter referred to as the LPA. The LPA can print label patterns up to 6.63 inches (104 mm) wide and apply them by means of a pneumatic applicator system, although optional methods of applying the label are available by design. The Operator's Manual contains information on setting up and operating the LPA, adjustments, and basic maintenance procedures that can be performed by the operator.

The printer is both a direct thermal and thermal transfer label printer. The LPA can be positioned for top, side or bottom applications and mounted using the mounting holes in either the base or sides of the unit.

NOTE:	**The orientation of the LPA should be specified when ordering. If the system is to be used for bottom applications, custom work may be needed.**

The LPA is an integrated unit composed of the following modules: the Label Printer Engine, a Label Apply System, microprocessor- based control system, Control Panel (which is comprised of: air controls, LCD display, Touch Keypad/Display, air pressure gages), and the Label Supply and Backing Rewind System. These systems are packaged into a metal frame with an aluminum cover enclosing the rest of the system. The metal frame is used for component mounting, and all system controls are located on this frame.

1.2 OPERATING SPECIFICATIONS

1.2.1 OPERATING ENVIRONMENT

The LPA is designed for general use in all warehouse and industrial environments. This unit should not be exposed to liquids or damaging chemical vapors, and will function properly in environments with an ambient temperature between 40º - 100º F (4º - 38º C). Minimizing unnecessary exposure to dirt and dust is also recommended.

NOTE:	**Optional enclosures may be purchased to protect the products in unusually harsh environments. See section 2.6: Media, for details.**

1.2.2 POWER SPECIFICATIONS

A properly grounded, dedicated line supplying either:
115 VAC ± 10%, single phase @ 50 - 60 Hz

or

230 VAC ± 10%, single phase @ 50 - 60 Hz

CAUTION 	**It is recommended that you isolate the LPA from its power supply by means of a surge suppressor, to minimize any potential damage to the equipment.** **A suppressor which limits voltage to 400V and has a response time of 1-5ns is highly recommended.**

1.2.3 AIR SUPPLY

The applicator system works with a regulated 80 - 100 psi (550 - 690 kPa) air supply that is free of dust, and oil. A filter is provided that is equipped with a mist separator to remove any condensation that may have built up in the line.

CAUTION 	**The pneumatic supply line should also be dedicated to maintain the appropriate pressure range, thereby providing relief against excess pressure. Providing such protection should prevent the supply pressure from exceeding 135 psi (931 kPA).**

1.3 STORAGE, SHIPPING, & HANDLING

1.3.1 STORAGE

- The LPA should be stored in a clean dry area.
- Storage temperatures should average between -13° to 131° F (-25° to 55° C), but may be as high as 158° F (70° C) for periods of 24 hours or less.
- Do not store the LPA with labels or printing ribbon installed.
- It is recommended that the printer be stored in its original packaging if possible.

1.3.2 SHIPPING

- Storage conditions should be observed when shipping. Shipping materials should be retained if the unit is intended to be moved from site to site.
- If the original packing is not available, ensure sufficient padding/protection for the printhead, applicator, label rollers, and rear cover.
- Carefully inspect the LPA packaging upon receipt. In the event of damage from dropping, crushing, or punctures, contact the carrier directly and specify the nature of the damage.

1.3.3 HANDLING:

- When handling the LPA, do not rest or pivot the unit such that pressure may be applied to the print head assembly.
- Do not lift or pull the unit by gripping the Applicator Pad, the pneumatic tubing, the print head assembly, or any of the rollers which are located on the front of the printer.
- Note that it is possible to manually position the Applicator Pad. Ensure that the Applicator Pad is in the full up position to prevent any damage from occurring when the LPA is moved.

1.4 WARNINGS & CAUTIONS

WARNING

FOX IV has provided the necessary guards and warnings within the confines of the LPA, but cannot anticipate each customer's individual installation and operational environments. It is the customer's responsibility to provide in-house safety guards to provide adequate worker safety for their respective production settings.

WARNING

An input signal from the product sensor will activate the LPA when the unit is energized. Make certain that protective guards are properly secured and that everything is clear of the applicator pad/printhead assembly before activating the unit.

WARNING

This manual includes instructions on basic operation and preventative maintenance only. Only qualified technicians should perform service procedures, i.e, procedures requiring access to the rear compartment or power entry module of the LPA.

WARNING

Both surge protection for the electrical supply and pressure relief for the pneumatic supply are strongly recommended. Failure to properly protect against extreme fluctuations in the supply sources could result in operator injury or damage to equipment.

CAUTION

Turn OFF the LPA and disconnect both the POWER SOURCE and the AIR SUPPLY prior to doing any maintenance, adjustments, and/or parts replacement which do not require these systems to be activated.

CAUTION

It is advisable to read and become familiar with all of the instructions in this manual before proceeding to operate the LPA.

Note that all actions to be performed by the user are marked with an arrow (➔).

CAUTION

Any external communications cables to be used with the LPA must be properly shielded and grounded. Failure to provide proper shielding or grounding for these cables could result in malfunctioning or damage to the unit.

CAUTION

When handling the LPA, do not rest or pivot the unit such that pressure may be applied to the Printhead assembly.

1.5 OPERATING PRECAUTIONS

Proper operation of the LPA depends upon timely maintenance and appropriate operation. The following precautions should be observed:

- Use label stock which is designed for use with the LPA. FOX IV supplied replacement stock is recommended.

NOTE:	**For best performance FOX IV recommends a 20-inch trailer on every label roll. See section 2.6: Media, for details.**

- Ensure that a regulated air supply is used for the pneumatic system. Appropriate filters should be used for the removal of dirt, oil and excessive moisture.
- All protective guards, covers, and enclosures must be secured prior to operating the printer. The mounting of the unit should also be properly ensured prior to use.
- Do not attempt to operate an LPA from a power source other than that for which the unit was designed. Neither should any of the unit's components be used to power or operate any components beyond those which they are intended to operate.
- Use only FOX IV replacement parts for maintenance and repair.
- This manual should be present prior to any attempted maintenance. Use only the appropriate tools and ensure that maintenance workers are properly grounded if work is being performed on the circuitry.
- Do not use objects other than a finger to operate buttons on the keypad.
- Sound pressure levels indicated a maximum reading of 81 ±1dB(A). (Sound levels were determined based on printers of similar design and assembled with a 3" x 4" Applicator Pad. Readings were taken in a low noise environment, at a distance of approximately 1.0 meter.)

NOTE:	**Sound levels may vary depending upon the mounting of the LPA, the surface to which a label is applied and the environment in which the unit is used. The size of the Applicator Pad can also affect sound levels in that larger pads can produce greater noise when applying labels.**

1.6 OPERATIONAL SAFETY

- The addition of custom safety guards in the vicinity of the label applicator is essential to the safe operation of this unit. Due to the variety of potential assembly line set-ups, FOX IV cannot practically provide sufficient guarding in a standard package. The addition of such guards is incumbent upon the buyer.
- It is generally recommended that the LPA be de-energized during any operation in which a worker may be exposed to a hazardous zone. If it is necessary that the unit remain energized, make certain that the **PAUSE** button is pressed and the product sensor is disconnected when practical.

2.0 Specifications

2.1 APPLICATOR ORIENTATION

The LPA may be mounted in top, bottom, and/or side rotational position.

2.2 PRODUCT DISTANCE VARIATION

The relationship between the LPA and the product is adjustable by moving the entire machine on the Mounting Stand. The applicator effective stroke length is adjustable by setting the Cylinder Apply Pressure along with the Cylinder Extend Time. The maximum stroke from the bottom of the LPA is equal to the length of the cylinder stroke minus 2.50 inches (63.4mm).

2.3 APPLICATION RATE

The maximum application rate is dependent upon the label size and the mode of operation. The actual Applicator Cycle time must be totaled with the printing time, data download, and formatting time (if Unique Mode), to determine maximum cycle rate for a particular application and label size.

2.4 PLACEMENT ACCURACY

The *maximum* accuracy of placement is ± 0.125" (3.1 mm). This may be attainable if the following conditions exist: constant conveyor speed, constant air pressure, and constant applicator stroke length. Maximum conveyor speed is 200 fpm (61 mpm); higher speeds can cause a loss of accuracy in placement.

Factors that will effect the repeatable placement performance include accuracy of the sensor(s) and any variations in the air pressure and/or line speed. It is important to note that it is not possible to test for all the variables and conditions affecting accuracy that may be present in any specific production or operation prior to installation.

2.5 PRINTING CONSIDERATIONS

Print Speed	**4 to 12 inches per second (100 to 300 mmps)**
Dot Size	**0.0033 inch (0.085 mm) (3.3 mils) @ 300 dpi** **0.0049 inch (0.125 mm) (4.9 mils) @ 203 dpi**
Print Resolution	**300 dots/inch (11.8 dots/mm)** **203 dots/inch (8 dots/mm)**

2.6 MEDIA

NOTE:	**Fro best performance, FOX IV recommends a 20-inch trailer be part of every label roll. A trailer is liner material, with no labels, attached to the label core with a small piece of tape. The tape secures the labels stock to the core. A 20-inch trailer is of sufficient length to trigger the out-of-label sensor on the label printer applicator before the tape jams the printhead.**

Maximum Roll OD	**16 inches**	**406 mm**
Minimum Roll ID	**3 inches**	**76 mm**
Roll Length	**2400 feet**	**732 meters**
Print Width	**1.0 - 6.41 inches (DT)** **1.0 - 6.33 inches (TT)**	**25 - 112 mm** **25 - 110 mm**
Print Length	**0.25 - 8 inches ***	**6 - 203 mm**
Gap for 100% Printing	**0.125 inches**	**3.2 mm**
Label Width (includes liner)	**1.0 - 4.72 inches**	**25 - 120 mm**
Thickness	**0.0024 - 0.01 inches**	**0.061 - 0.254 mm**

* For labels longer than 8.0” custom work is needed.
Contact your FOX IV Service Representative for details.

2.7 RIBBON

Roll OD	**3.0 inches**	**76 mm**
Roll ID	**1.0 inches**	**25.4 mm**
Type	**wax, wax/resin, resin**	
Length	**1968 feet**	**600 meters**
Thickness	**4.5 micron**	**4.5 micron**

2.8 COMMUNICATIONS INTERFACING

STANDARD: RS-232C, USB 2.0, Ethernet 100/10 BaseT, Industrial Interface, Dual Serial ports (RS232,RS-422,RS-485, 20mA Current Loop.

OPTIONS: IEEE-1284 Centronics Parallel, 802.11b/g Wireless Ethernet.

Baud Rate (bps)	**300 to 115200 (default 9600)**
Parity	**None, Even, Odd, Mark, Space**
Data Length	**7 or 8**
Stop Bits	**1 or 2**
Handshaking	**None, Xon/Xoff, RTS/CTS, ENQ/ACK**

2.9 ELECTRICAL

Input Voltage	**115 VAC ± 10%, single phase @ 50 - 60 Hz** **230 VAC ± 10%, single phase @ 50 - 60 Hz**
Power Entry Module	**One 2.0 Amp, 250 V Slo-Blo fuse**
Primary Circuit Protection (Internal to Power Supply)	**Two 3 Amp, 250 V Slo-Blo fuses**
Primary Circuit Protection (Switching Power Supply)	**One 1.8 Amp, 250 V Slo-Blo fuse**

WARNING	Unit must be connected to a properly grounded receptacle which is free of power surges and fluctuations. Proper operation/protection of the LPA can only be guaranteed if the unit's power supply is maintained within the electrical supply specifications given above. The power supply cord used with the LPA must be a 2 conductor plus ground type with minimum 0.75mm square conductors. This connector must incorporate a standard IEC appliance coupler on one end and a mains plug on the other end which is suitable for the use and application of the product, and is approved for use in the country of application.

2.10 PNEUMATIC

Supply Pressure	Recommended setting for regulated air supply 80 - 100 psi (550 - 690 kPa)
Apply Cylinder Pressure	Recommended setting for internal apply pressure is 30 - 40 psi (140 - 275 kPA)
Air Flow Rate	3 - 5 scfm (85 - 142 sclm)

2.11 ENVIRONMENTAL

Temperature:	40^{o} - 100^{o} F (4^{o} - 38^{o} C)
Humidity:	10 - 95% Non-condensing
Liquids:	Free of Direct Fluid Contact
Solids:	Minimize Unnecessary Exposure to Dirt, Dust, and Other Debris
Chemicals:	Free of Caustic or Corrosive Exposure
Ventilation:	Free Air Movement
EM Immunity:	Operating area must be free of emissions in the 250 - 300 MHz range.

2.12 PHYSICAL

Length	**26.00 inches**	**660 mm**
Height	**17.75 inches**	**451 mm**
Width	**15.625 inches**	**397 mm**
Weight	**100 pounds**	**45.5 Kg**

NOTE:	**Dimensions DO NOT include Mounting Bar, Warning/Fault Beacons, or Labels. Allow at least 8 inches (203.2 mm) additional space for power supply, cables, and air lines.**

2.13 CONNECTIONS

2.13.1 RS-232C SERIAL PORT (UART1, UART2)

Two serial ports (COM 1) are provided on the LPA as a connection for host devices. These female DB9, RS-232C serial ports have the following connections:

Pin 2	**Transmit Data**
Pin 3	**Receive Data**
Pin 5	**Signal Ground**

The serial ports must be configured for the correct baud rate, parity, and stop bits. See section 6.6: Setup Parameters, for more information on communications set-up.

2.13.2 USB PORT(USB1)

The USB port is a standard interface and supports USB v1.1(also called USB 2.0 full speed). Use a USB Class A/B cable. The Class A plug connects to the PC and the Class B plug to the LPA.

The USB port is a one-way communication interface and is not recommended for programming because the host cannot receive error messages from the LPA. There is no communication setup for the USB port.

2.13.3 EASYLAN ETHERNET (NETWORK,NET1)

The EasyLAN Ethernet interface is standard with the 4400 Standard LPA. It is designed for 10 Mbps Ethernet and 100 Mbps Fast Ethernet.

2.14 SYSTEM LOGIC

The microprocessor is a 32-bit RISC.

Two on-board Flash SIMM sockets for 4 MB or 8 MB each. Standard is 1 X 4 MB.

One on-board SDRM SIMM socket for 16 MB. Standard is 16 MB.

3.0 Installation Instructions

CAUTION	**It is advisable to thoroughly review this manual before attempting to install, setup and operate the LPA.** **Note that all actions to be performed by the user are marked with an arrow (➔).**

3.1 UNPACKING YOUR PRINTER/APPLICATOR

The LPA has been securely packaged to protect it during transportation. Once received, it is important to follow the steps outlined below to be sure that the LPA is not damaged.

➔ Remove the top layer of protective paper from the LPA.

➔ Lift the LPA from the protective bottom layer of the box.

CAUTION	**Do not lift or pull the unit by gripping the Applicator Pad, the pneumatic tubing, the Printhead Assembly or any rollers which are located on the front of the LPA.**

➔ Save the shipping container and protective layers of paper to insure proper return shipping to FOX IV, if necessary.

Lay out all items in an organized manner as they are unpacked from their containers. Carefully inspect each item for signs of damage. Make certain that all parts (including options) requested were received with the order.

Consult the enclosed packing slip for information on who to contact if any item is missing or damaged.

If everything is in order, proceed as follows:

3.2 MOUNTING THE LPA

➔ The mounting method for the LPA allows for side, top or bottom applications.

NOTE:	**The orientation of the LPA should be specified when ordering. If the system is to be used for bottom applications, custom work may be needed.**

If the bottom base plate is used, the LPA can easily be mounted to any flat surface using the four 3/8 - 16 UNC holes provided. If the LPA is mounted using the 0.39 inch diameter holes provided on the side panels, special fixturing may be needed to prevent potential damage to the connectors and cabling in those areas.

To facilitate access to the Control Panel, the LPA should be mounted at a height between 2.0 ft. (0.6 m) - 6.2 ft. (1.9 m) above service level.

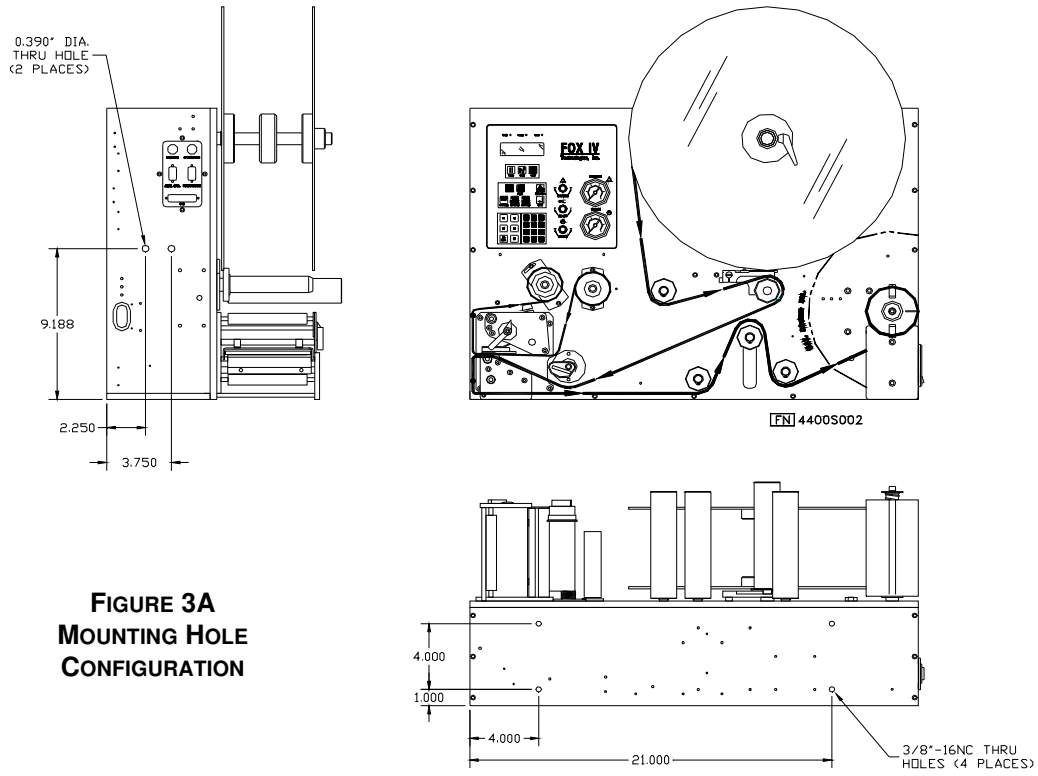


FIGURE 3A
MOUNTING HOLE
CONFIGURATION

CAUTION	
⚠	**The mounting plates of the LPA are .375" (9.25mm) thick. When mounting the LPA, use screws that will secure the assembly into place but will not penetrate deeper that 1/2" (12.7mm) into the unit.** **It is also important to retain cap screws in mounting holes that are not being utilized.**

3.3 OPTIONAL MOUNTING ACCESSORIES

Refer to *Mounting Accessories*, Section 9.3 of this manual.

3.4 MOUNTING THE BEACON

Refer to *Mounting the Beacon*, Section 9.2.6 of this manual.

3.5 CONNECTIONS - AIR, POWER, COMMUNICATIONS

After the LPA has been mounted, connections to the system should be as follows:

CAUTION	
⚠	**Any external communications cables to be used with the LPA must be properly shielded and grounded. Failure to provide proper shielding or grounding for these cables could result in malfunctioning or damage to the unit.**

3.5.1 SIDE PANEL (APPLICATOR SIDE)

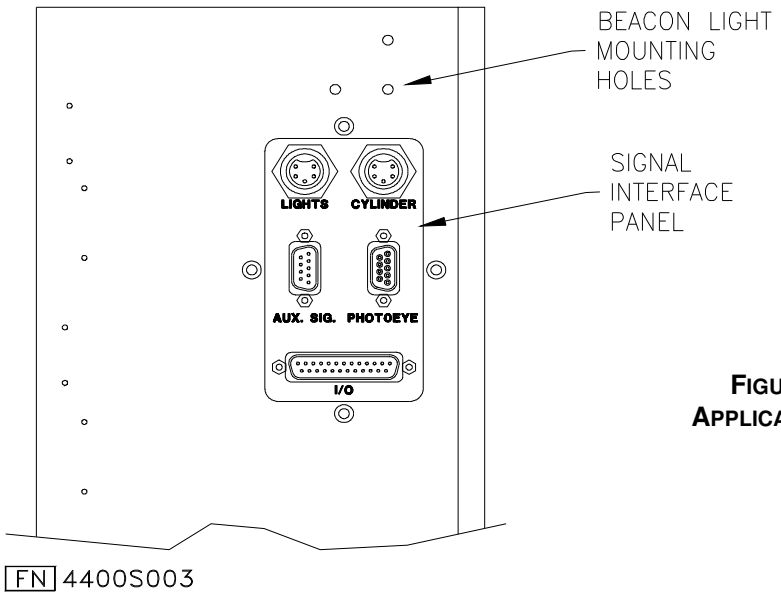


FIGURE 3B
APPLICATOR SIDE

➔ Connect the Pad Home Sensors mounted on the air cylinder to the 5 Pin Applicator Connector provided (above and to the right of the interface panel).

➔ Connect the interface cable to the 25 pin Port marked “Serial Data” on the panel (center of the panel). Connect the opposite end of the interface cable to the serial communications port of the host which will provide data.

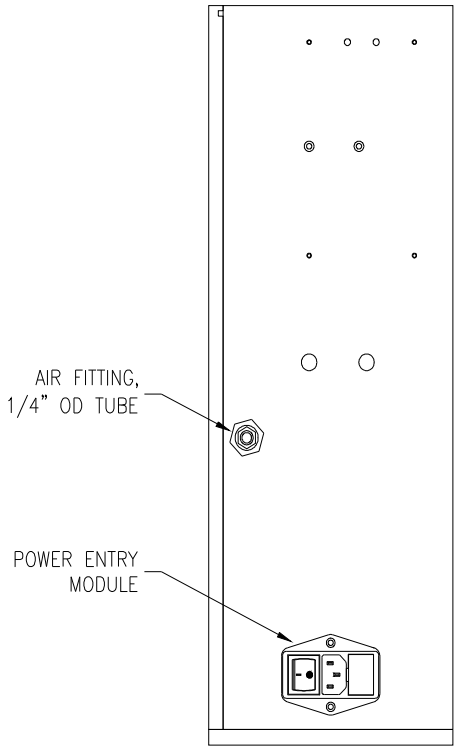
➔ Connect the Product Sensor to the “Photoeye” Port (central-right on panel).

➔ The 25 pin “I/O” port is used to communicate with the unit’s PLC inputs and outputs if the optional Fault/Warning applicator control package is installed.

➔ If the IEEE-1284 parallel communications cable option was purchased, attach it to the connector labeled “Parallel Data” (lower portion of the interface panel).

3.5.2 SIDE PANEL (POWER PANEL)

FIGURE 3C
POWER PANEL SIDE



➔ If a Warning Fault Beacon was ordered with the LPA, connect it to the LPA, using the 5 Pin Connector provided (upper left portion of the panel). The Warning Fault Beacon can also be mounted remotely from the LPA. An optional 12 ft. cable extension is available.

➔ Mount the Air Filter as per requirements.

NOTE:	**Customer must provide the necessary mounting for the AIR FILTER supplied with the system.**

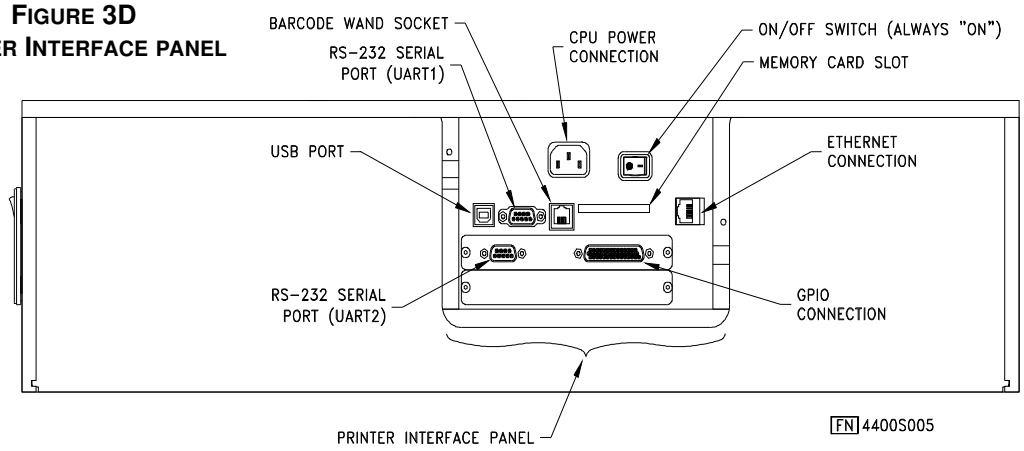
➔ Connect the air supply hose to the section of the Air Filter marked **IN**. Connect the opposite end of the air supply hose to the quick connect air fitting provided (upper left portion of the panel)

NOTE:	**Make certain that all communication port parameters have been configured according to Purchase Order requirements. Print parameters must be programmed correctly to achieve the best possible print quality. The factory settings are sufficient for most applications. See Section 6.0, *Menu Control Functions* for customizing printing setup.**

➔ Plug the LPA and computer into the dedicated electric circuit. Power up the LPA by means of the **ON/OFF** switch, located on the Power Panel.

3.6 TOP PANEL (PRINTER INTERFACE)

FIGURE 3D
PRINTER INTERFACE PANEL



The illustration above shows the details of the printer interface on the top panel of the LPA.

➔ There are two serial ports, UART1 and UART2, one USB interface, one Ethernet connection. Connect the appropriate cable to the port to be used.

➔ Connect the CPU Power connection.

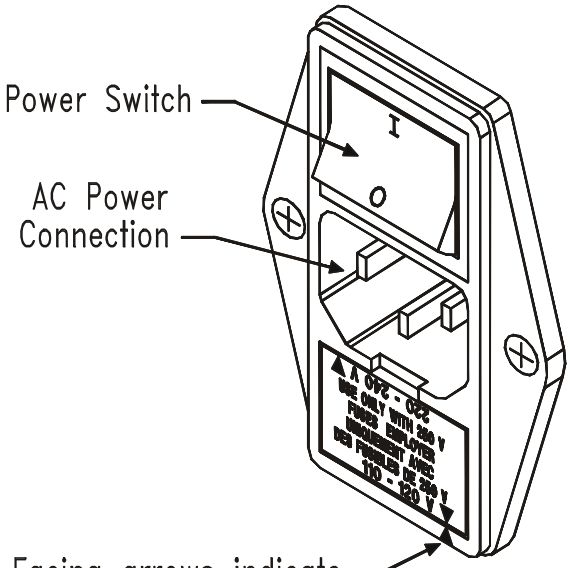
➔ There is one GPO connection. Connect with appropriate cable.

➔ If desired to expand memeory, insert a CompactFlash card into the slot. (See section 9.1: Expansion Modules for details on memory expansion)

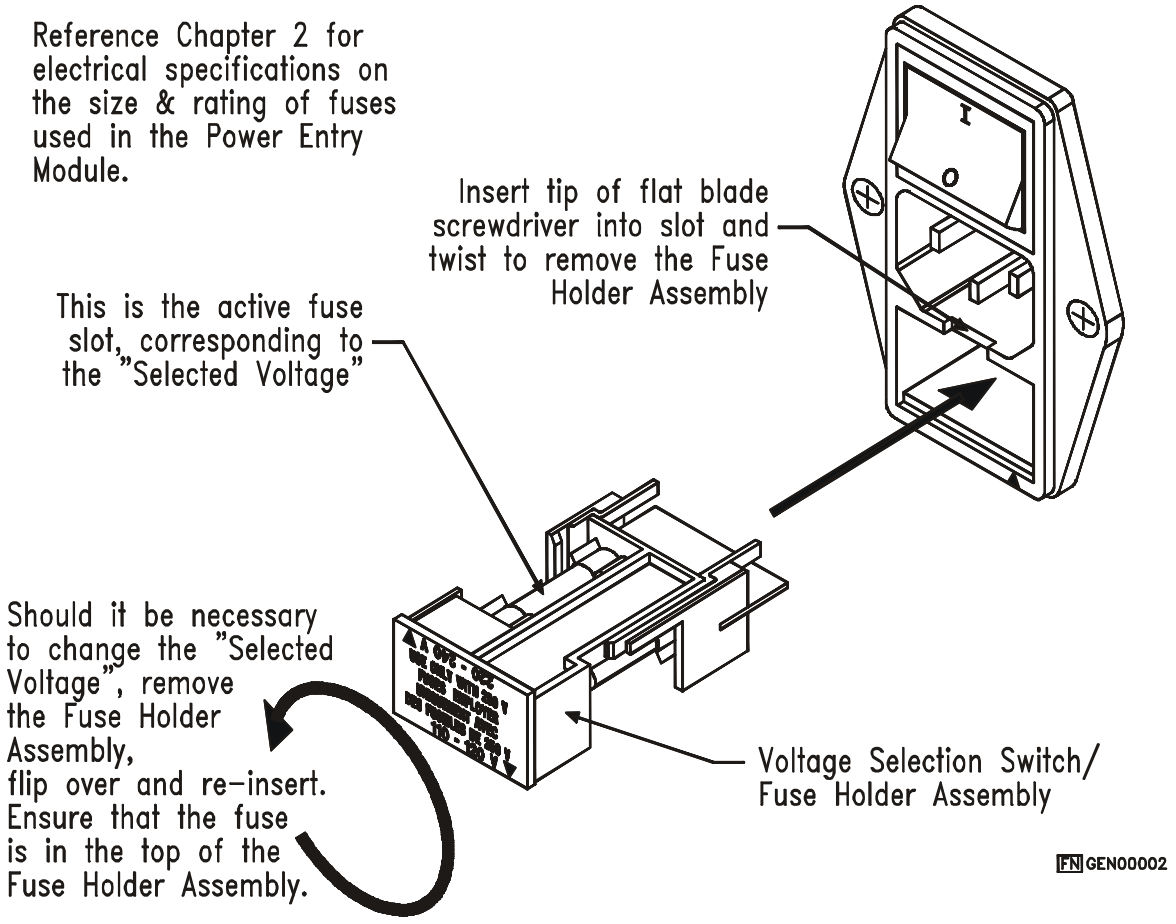
There is one ON/OFF switch which is factory set at “always ON.”

Currently the barcode wand socket is not used.

3.7 AC POWER CONNECTOR



Reference Chapter 2 for electrical specifications on the size & rating of fuses used in the Power Entry Module.



4.0 Setup Procedures

4.1 Removing Label Backing

If the Media Rewind Spool needs to be unloaded during operation, proceed as follows:

➔ Place the LPA in PAUSE mode using the Control Panel. See both Chapter 5 and Chapter 6 of this manual for details. Disable the Product Sensor if necessary.

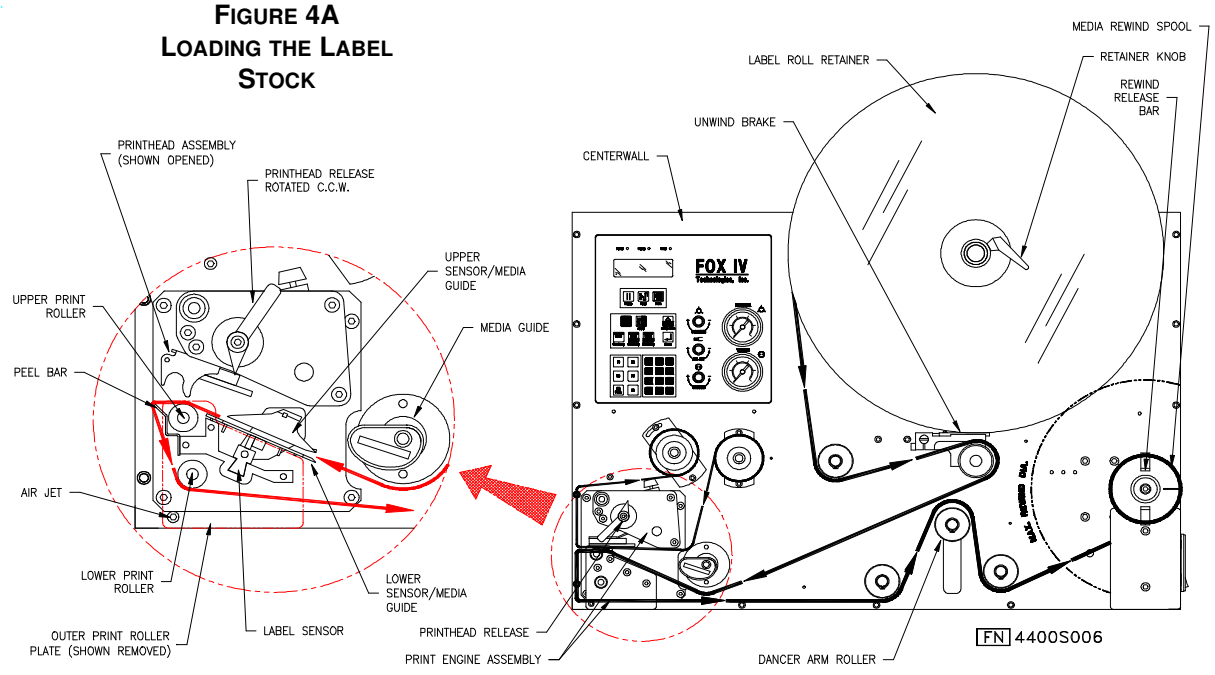
➔ Tear the label backing near the Media Rewind Hub, then reach around the rewound backing, placing your fingers behind the hub of the Media Rewind Spool.

➔ Pull the Rewind Spool away from the Centerwall Plate until the Rewind Release Bars collapse toward the center of the hub, then pull off the used label backing. The Rewind Hub will snap back into position near the Centerwall once the used label backing is removed.

➔ To continue operation with the remaining label media: FEED a few blank labels, insert the new edge of the label backing into the slit on the Rewind Spool and manually rotate the Spool at least one turn counter-clockwise. Remove the LPA from PAUSE mode/enable Product Sensor, to continue operation.

4.2 Threading The Label Roll

Figure 4A
Loading The Label Stock



➔ De-energize the LPA or place it in PAUSE mode as shown in section 5.2.

➔ Turn the green Printhead Release lever counter-clockwise to open the Printhead.

➔ Move the Applicator Pad away from the Print Engine Assembly by loosening the knurled knob on the Applicator Support Plate (see the cylinder assembly drawings in the back of this manual) and swing the Applicator away from the Printhead prior to threading the leader.

➔ Slide the Label Roll Retainer off Label Roll Hub by first loosening the small black Retaining Knob located on the hub's outer diameter. Remove the existing label roll core (if present) from Label Roll Hub.

➔ Slide the new label roll onto the hub so that it may unwind counter-clockwise, and push it against the Label Roll Back Stop. Place the Label Roll Retainer onto Label Roll Hub until it is flush with the label roll, then tighten the black Retaining Knob.

➔ Unwind approximately 3.0 ft (91cm) label media from the Label Roll Retainer and remove the labels from the backing. The empty backing will act as a leader to thread the media through the LPA components. Thread this leader around the rollers and to the Printhead, following the silkscreen pathway on the LPA face.

➔ Thread the leader under the spring tensioned Media Guide, between the Upper & Lower Sensor/Media Guides and toward the Printhead Assembly. The Media Guide is spring tesioned to absorb slack and can be rotated for easier media loading.

➔ Pass the leader between the Printhead Assembly and the Upper Print Roller, then over the Peel Bar and down, between the Lower Print Roller and the Air Jet.

➔ Follow the path from the printhead, around the rollers to the Media Rewind Spool. Insert the leading edge of the label backing into the slit on the Rewind Spool and manually rotate the Spool at least one full turn counter-clockwise.

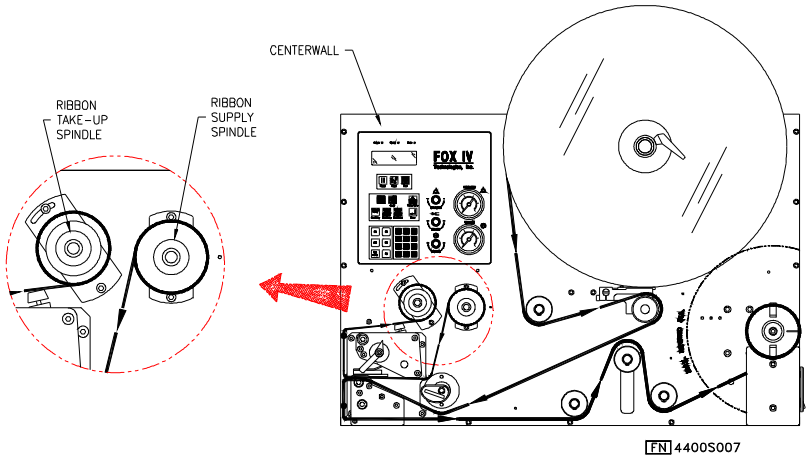
➔ If the printer is being used in Thermal Transfer mode, it may be necessary to add a print ribbon. (see Section 4.4: Loading Ribbon). If no ribbon is needed, proceed as follows.

➔ Close the Printhead by turning the green Printhead Release lever clockwise. Return the Applicator Pad to it's operating position, and secure it by tightening the knurled knob.

➔ Once the Applicator is in its home position, you may energize the unit, or remove it from PAUSE mode, and send a label format via the host.

4.3 REMOVING USED RIBBON

FIGURE 4B
RIBBON SUPPLY & TAKE UP SPINDLES



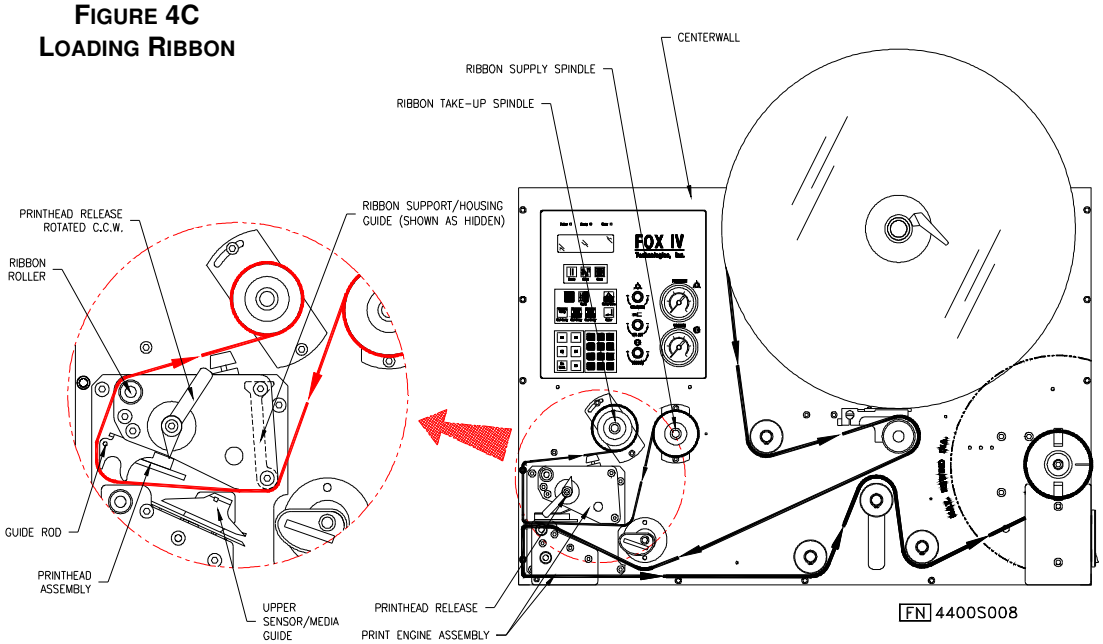
If needed, remove used ribbon from the Ribbon Take-up Spindle as follows:

➔ Either tear the ribbon as closely to the Ribbon Take-up Spindle as possible, or coil any remaining ribbon by manually turning the Take-Up Spool counter-clockwise.

➔ Grasp the Take-Up Spindle firmly and pull it away from the Centerwall, squeezing moderately to collapse the spindle core once it has pulled about 0.5 inch (13 mm) away from the frame. Once the spindle core has collapsed, remove the spent ribbon.

4.4 LOADING RIBBON (THERMAL TRANSFER PRINTING ONLY)

FIGURE 4C
LOADING RIBBON



When printing in thermal transfer mode, ribbon will have to be threaded into the machine. Use the following directions for loading a ribbon into the LPA:

➔ De-energize the LPA or place it in PAUSE mode as outlined in section 5.0.

CAUTION

Do not load ribbon if the printer is to be used in the Direct Thermal Mode.

Use of ribbon that is narrower than the media (label stock) may result in premature Printhead failure due to excessive abrasion.

➔ Rotate the green Printhead Release lever counter-clockwise to open the Printhead.

➔ Remove the spent ribbon core from the Ribbon Supply Spindle (if a core is present), and place it (or another ribbon core) on the Ribbon Take-Up Spindle

➔ Slide a new ribbon roll onto the Ribbon Supply Spindle, until it is against the back stop of the Spindle.

NOTE: **A new roll of ribbon will have a leader to make ribbon loading easier.**
To create a leader for a used roll of ribbon, feed a blank label from the printer. Fold the label in half, over the leading edge of the ribbon so that adhesive halves meet.
Care should be taken not to crease or wrinkle the ribbon.

➔ Follow the silkscreen path on the face of the LPA, and thread the ribbon under the Ribbon Support/Housing Guide, and toward the Printhead.

➔ Pass the ribbon leader between the Upper Print Roller and the Printhead Assembly.

➔ Route the ribbon leader around the outside of the Guide Rod on the Printhead Assembly, and over the Ribbon Roller to the Ribbon Take-Up Spindle.

➔ Secure the ribbon leader onto the empty ribbon core (placed on the spindle earlier) located on the Ribbon Take-Up Spindle. Manually rotate the spindle at least on full turn, in the direction indicated by the ribbon media path.

➔ Ensure that the label path is clear of obstructions, then lightly hold the Printhead in its down position while manually rotating the Take-Up Spindle until the ribbon wrinkles are removed. Latch the Printhead down by turning the Printhead Release lever clockwise.

➔ Energize the unit, or remove it from PAUSE mode, and send a label format via the host.

4.5 POSITIONING THE AIR JETS

When a printed label is being fed from the LPA onto the Applicator Pad, it must be held against the pad so that it can be properly positioned. The Air Jets located on the Air Jet Tube direct air at the label while it is being fed, so that it does not bend or fall from the pad. Once proper positioning is achieved, the vacuum of the Applicator Pad initiates and holds the label into place until application.

In order for the Air Jets to work correctly, they must be directed at an angle specific to the size of the label in use. A general "Rule of Thumb" would be to angle the Air Jets to a point which is approximately 1/3 the length of the current label length, as measured from the peel bar. Wider or longer labels might approximate the Air Jet angle to a point beyond 1/3 the label length, where shorter or narrower labels might target inside the 1/3 length zone. Repeated adjustment may prove necessary for optimum operation.

The Air Jet will typically be adjusted for proper operation prior to being shipped, but if further adjustments should be necessary, proceed as follows:

➔ Loosen the Socket Head Screw holding the Air Tube into place.

➔ Ensure that the proper holes in the air jet are open. The standard tube comes with # 2-56NC threaded holes and some of the holes may be plugged with a small set screw. Add or remove set screws as necessary.

➔ Turn the Air Tube adjustment so that the Air Jets are directed at approximately 1/3 the length of the current label length as measured from the Peel Bar. Tighten the Socket Head Screw into place to hold this adjustment.

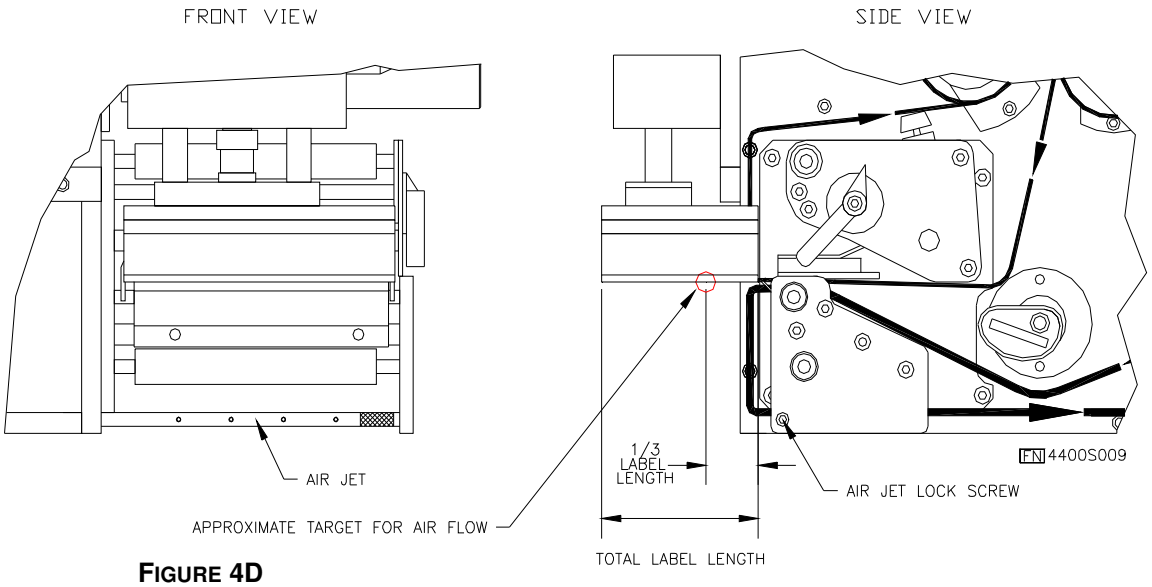


FIGURE 4D
POSITIONING THE AIR JETS

4.6 SYSTEM CONFIGURATION SET-UP

System Configuration is categorized into a series of 6 menus with various sub-menus and parameters. The following table outlines the primary parameters within the system. For more information on accessing and changing these parameters see section 6.2.2: Setup Mode, and section 6.6: Setup Parameters.

NOTE:	**The System Configuration parameters may be set through either the LPA's Control Panel or label data interfacing software (e.g.: Codesoft, etc.). It is important to note that changing system parameters can potentially affect LPA operation and could even disable the unit.** **It is strongly recommended that you thoroughly review section 6.6, and that you print a Configuration Label before altering any of the system's parameters.**

NOTE:	**The following parameters are typical of EasyCoder Class printers with Fingerprint version firmware. Some minor variations in the system's parameters may be possible, based on the firmware installed into the printer's main logic board.**

These variables are preset in your unit and typically will not require further adjustment.

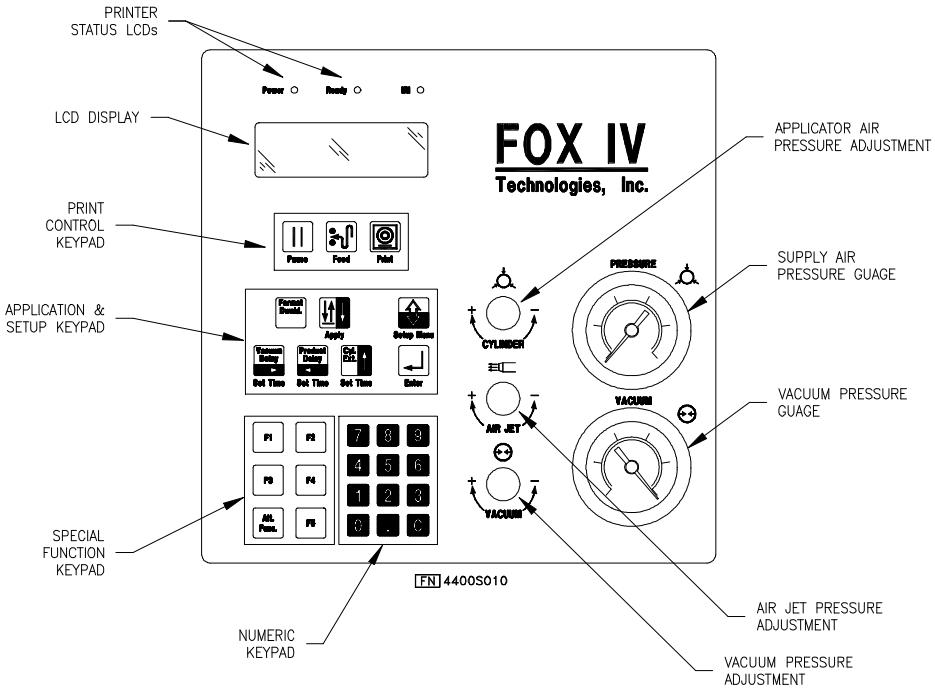
System Setup Menu	Menu Parameters
SER-COM, UART-1	Baud Rate, Character Length, Parity, Stop Bits, Flow Control, New Line,Rec Buffer,Trans Buffer
SER-COM, UART-2	Baud Rate, Character Length, Parity, Stop Bits, Flow Control, New Line,Rec Buffer,Trans Buffer, Connected HW
USB1	
NET-COM, NET1	New Line
NETWORK	IP Selection, IP Address, Netmask, Default Router, Name Server, MAC Address
FEEDADJ	Start Adjust, Stop Adjust
MEDIA	Media Size, Media Type, Paper Type, Contrast, Test Feed
PRINT DEFINES	Head Resistance, Test Print, Print Speed

5.0 Control Panel, Displays and Messages

It is important to become familiar with all of the operations, displays, and components of the Control Panel. This section describes these controls and their functions, and the System Start-up routine (see Section 5.2.2: System Start-up and Display Messages).

The Control Panel is used to set up operations of the LPA prior to printing and applying labels. It is used to input instructions or commands to the LPA. System and operating information is shown on the Liquid Crystal Display (LCD). The Keypads control input for the system setup, changes to operating condition or parameters, or resetting after a fault condition. Control valves are provided for refined adjustments to the pneumatic system, and Air Pressure and Vacuum gauges monitor the Supply Air and system Vacuum pressure.

FIGURE 5A
CONTROL PANEL



5.1 LCD DISPLAY AND INDICATOR LIGHTS

(see Figure 5A)

The Liquid Crystal Display (LCD) is a 2 line by 16 character per line reflective display with a light emitting diode (LED) back light. The LCD displays information on LPA systems setup, operating, and error or fault conditions.

The Indicator Lights are: Power, Ready, Intermec Readiness Indicator (IRI). All three lights are lit when the system is initializing. When the system is powered up and ready for operations the Power and Ready lights are lit green. Lights are as follows:

Table 1: Indicator Lights

INDICATOR LIGHT	COLOR	LPA CONDITION
POWER	GREEN	Power to the LPA is ON.
READY	GREEN	NO ERRORS
	RED	ERROR exists in system.
IRI	BLUE (Steady, non-flashing)	when connected to device via ethernet
	BLUE FLASHING	network card is installed but no connection to device.

5.2 KEYPAD

The Keypad controls input to the LPA for system setup, pausing or resetting the LPA operations, changes to operating parameters, and clearing fault conditions. The three keypads on the Control Panel are shown below in Figure 5B, Figure 5C and Figure 5D.

Press the key which describes the desired function or display. Each time a key is pressed the response is a beep and the display shifts to another text screen.

CAUTION	Keypad buttons should be pressed with no more than approximately the same amount of press that is used to dial a push-button telephone. Using excessive force when pushing Keypads, or depressing or striking the keypad with a hard object, could result in damage.

FIGURE 5B
PRINT CONTROL PAD

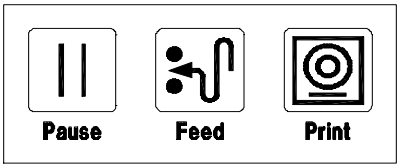


FIGURE 5C
APPLICATION & SET-UP PAD

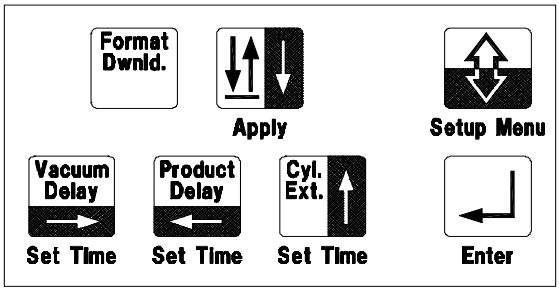
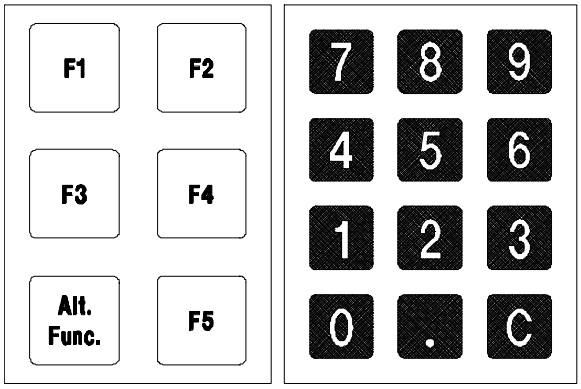


FIGURE 5D
SPECIAL FUNCTION &
NUMERIC INPUT PAD



5.2.1 KEYS

The Keypads located beneath the LCD are used for entering operator commands to the Applicator. Refer to the previous figures for keypad details. Each key (as it appears on the keypad) and its function is described in the table below.

Table 2: KEY PAD FUNCTIONS

KEY ICON	PURPOSE	FUNCTION
	**PAUSE**	Places the printer in a stand-by mode until it is pressed a second time.
	**FEED**	Feeds a blank label.
	**PRINT**	Prints a new label and places it on the Applicator Pad.
	**FORMAT DOWNLOAD**	This key only functions with special, custom programming.
	**APPLY KEY**	The key has two functions: Apply; Down Arrow in the Setup Menu. The Apply Function cycles the Applicator in the same way as the Product Sensor. The cylinder will extend to apply the label and a new label will be printed and placed on the pad upon it's return to the "home" position. The key acts as a DOWN ARROW scroll if the Setup Menu key has been pushed. See the DOWN ARROW icon for a description of that function.
	**SETUP MENU**	Accesses the System Setup Menu to set or change operating parameters for interfaces, feed adjustments, media, and printer definitions

	**ENTER**	Pressed after data or a setup value is input, so that the system accepts any changes in parameters.
	**VACUUM DELAY TIME**	The key has two functions. It serves as the set key for the Vacuum Delay which determines how long the Applicator waits before enabling the vacuum which holds the label to the pad, after label feeding has begun. It also serves as a RIGHT ARROW scroll if the Setup Menu key has been pushed. See the RIGHT ARROW icon for a description of that function.
	**PRODUCT DELAY TIME**	The key has two functions. It serves as the set key for the Product Delay which sets the time delay between the point when the Product Sensor is triggered, and when the Applicator applies a label. It also serves as a LEFT ARROW scroll if the Setup Menu key has been pushed. See the LEFT ARROW icon for a description of that function.
	**CYLINDER EXTEND TIME**	The key has two functions. It serves as the set key for the Cylinder Delay which sets the time period over which the Applicator's pneumatic system is energized; determining the length of applicator travel before retracting. It also serves as a UP ARROW scroll if the Setup Menu key has been pushed. See the UP ARROW icon for a description of that function.
	**UP ARROW**	**Exits** a menu option, sub-menu option or parameter.
	**DOWN ARROW**	**Enters** a menu option, sub-menu, option or parameter.
	**LEFT ARROW**	Scrolls through the Setup Menu and sub-menu options.
	**RIGHT ARROW**	Scrolls through the Setup Menu and sub-menu options.
	**ALTERNATE FUNCTION**	Enables a special printer function via the F1 - F5 keys, if pressed and held. See details in section 6.4.1: Alternate Function (ALT. FUNC) Key.
	**F1**	Provides a special printer function when used with the Alternate Function key, if custom software has been added to LPA. Otherwise it acts the same as the Product Delay / Left Arrow key.
	**F2**	Provides a special printer function when used with the Alternate Function key, if custom software has been added to LPA. Otherwise it acts the same as the Cylinder Delay / Up Arrow key.

F3	F3	**Provides a special printer function when used with the Alternate Function key, if custom software has been added to LPA. Otherwise it acts the same as the Vacuum Delay / Right Arrow key.**
F4	F4	**Provides a special printer function when used with the Alternate Function key, if custom software has been added to LPA. Otherwise it acts the same as the Apply / Down Arrow key.**
F5	F5	**Provides a special printer function when used with the Alternate Function key, if custom software has been added to LPA. Otherwise it acts the same as the Format Download key.**
7 8 9 4 5 6 1 2 3 0 . C	**NUMERICAL KEY PAD 0-9, . and C**	**0-9 inputs numbers for data changes; "C" for Clear which deletes the entries from the LCD; "." (decimal point) to allow numbers to be entered to the right of the decimal point OR to input a minus sign (-) to make a number negative (some parameters can be negative).**

5.2.2 SYSTEM START-UP AND DISPLAY MESSAGES

5.2.2.1 INITIALIZATION AND START-UP

When the LPA is powered on the three indicators lights will be lit. The LCD screen will display "INITIALIZING" with a tracking bar.

Once initialization is complete the screen will read:

FOX IV 4400 VER # C00300-X

VER # is the version number of the software downloaded to the LPA.

Some custom programmed LPA units will recall the last label format downloaded to the LPA after the system is completely booted-up. Systems with this program option will display the following :

RECALLING LABEL FORMAT

5.2.2.2 PRINTING

When the LPA begins to print a label the display will read:

FOX IV 4400 PRINTING 1 of 1

After the label is printed the display will read:

FOX IV 4400 WAITING to APPLY

The LPA is waiting for the apply signal. When is receives that signal the cylinder will cycle and the display will show the batch count again, as the next label prints.

5.3 PNEUMATIC CONTROL VALVES

5.3.1 AIR CYLINDER REGULATOR 

The Air Cylinder Regulator (**AIR PRESSURE**) is used to regulate the air to the Applicator Cylinder. The regulator setting affects how quickly the Applicator Pad will extend (Apply Stroke) and return (Return Stroke) during the apply cycle. This adjustment, therefore, determines the force with which the Applicator Pad will contact the product. If set too high, the Applicator Pad could contact the product with enough force to cause damage. If set too low, the Applicator Pad may not contact the product. The Air Pressure delivered for the Apply and Return Stroke are equal, however, the flow control valve located on the Air Cylinder may be used to adjust the speed of the Apply Stroke. Pressure is increased by rotating the valve clockwise and decreased by rotating counter-clockwise.

5.3.2 VACUUM ADJUSTMENT 

The Vacuum Adjustment (**VACUUM**) controls the amount of air flow through the Vacuum Generator, thus determining the amount of vacuum holding the label onto the Applicator Pad. A weak vacuum will cause labels to fall off of the Applicator Pad

prematurely. A vacuum that is too strong, however, can cause difficulty when transferring the label onto the Applicator Pad and the product. Vacuum is increased by rotating the valve clockwise and decreased by rotating counter-clockwise.

NOTE:	**To get a vacuum on every label, every hole on the Applicator Pad must be covered by the label surface.**

5.3.3 AIR JET ADJUSTMENT 

The Air Jet Adjustment (**AIR ADJUSTMENT**) controls the air supply to the Air Jet Tube. Air is forced out the Air Jet Tube allowing the labels to properly transfer over the Peel Bar then to the Applicator Pad. If the adjustment is too low, the labels will not properly transfer from the printer to the Applicator Pad. If set too high, the label edge will be incorrectly positioned. The Air Jet is factory preset. Adjust the Air Jet pressure by turning the **AIR ADJUSTMENT** Control clockwise to increase the flow, counterclockwise to decrease the flow. See section 4.5: Positioning the Air Jets for more information on Air Jet adjustment.

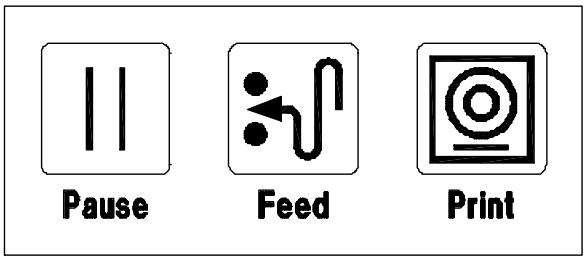
6.0 Menu Control Functions

After the label media and ribbon have been installed, and a label format downloaded, the printer may be placed in immediate operation. This section describes the various functions that can be accessed either for normal operation, or if necessary, for the changing or resetting of the various system parameters. Some keys have dual functions, as shown in section 6.2 and section 6.4. Information is also provided on keypad operation for the recovery of the LPA from several fault conditions.

6.1 OPERATIONS MENU

This menu provides all of the keys necessary for normal, local operation of the LPA. The use of each key on this menu will be explained in the following sub-sections.

Figure 6A
Print Control Keypad



6.1.1 PAUSE KEY

This key suspends all printer operations when pressed, but not until the current print or apply cycles have been completed. Thus mechanical adjustments may be made on the printer, system errors or faults may be cleared, etc., without de-energizing the system.

NOTE:	**When performing any operations with the LPA off-line, it may be desirable to shift from the Operations Menu screen to the System Status Screen once after the unit has been placed in PAUSE. Doing this allows the operator to see that the Pause Mode is active, and also prevents any possibility of placing the unit on-line by accidental contact with the Pause Key.**

To place the LPA in PAUSE:

➔ Press PAUSE key.

The LCD Display will show:

FOX IV 4400 PRINTER PAUSED

The LPA may automatically place itself in Pause Mode in several situations (e.g.: out of labels, after recovering from a fault, etc.). To place the LPA back in operation after either a manual or an automatic insertion into Pause Mode:

➔ Press PAUSE Key.

6.1.2 FEED KEY

6.1.2.1 NORMAL OPERATION

This key is typically used to feed label stock through the Printhead as an aid to set-up, when replacing either the ribbon or the label stock. To Feed a label:

➔ Press FEED key.

Feeding a label confirms proper operation of the Print Engine Assembly.

6.1.2.2 ALTERNATE OPERATION

This mode of operation provides a testfeed which allows the printer to fine-tune the label feeding for the media loaded. To testfeed a label.

➔ Press & hold the ALT. FUNC. key, then press the FEED key, and release both keys.

One or more testfeed labels will be fed through the Print Engine Assembly as it adjusts the media feed.

6.1.3 PRINT KEY

This key prints a label using the last label configuration retained in the data buffer, and feeds it to the applicator pad . If there is no label pattern in the LPA's print buffer, a blank label will be fed, but the system will function as if a label pattern was present. To print the last downloaded label pattern:

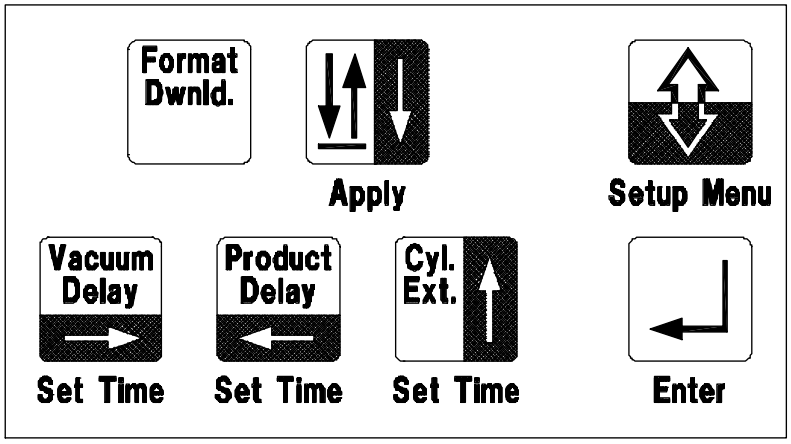
➔ Press PRINT key.

Once the label has printed, it will apply normally if the product sensor is both attached and tripped.

6.2 APPLICATION AND SET-UP MENU

This menu accesses those system parameters which may be adjusted to optimize LPA operations for different applications. The data which is input to these parameters is retained in a non-volatile buffer for continued use.

Figure 6B
Application & Set-Up Keypad



This menu is unique in that most of the keys have two modes of operation; these keys are easily identified by their two color appearance. Application operation (used for normal LPA operation) defines the keys by their white text/icons, while Set-Up operation (used to set the LPA's system parameters as in section 6.2.2) defines the keys by their black icons.

Switching from Application Mode to Setup Mode

The Setup Menu key is used to switch operating modes, toggling from one mode to the other, each time the key is pressed. The mode of operation may be determined by observing the LCD Display readout.

When in a Application mode (without fault conditions), the LCD Display will typically read:

FOX IV 4400 WAITING to APPLY	or	FOX IV 4400 BUFFER EMPTY

When the LPA is in Set-up mode, the LCD Display will typically read:

SETUP: *(current parameter)*

NOTE:	**Remember that the white text and icons identify what the two-color keys do when in Application mode.** **The black icons identify what the two-color keys do when in Setup mode.**

6.2.1 APPLICATION MODE

6.2.1.1 APPLY KEY

The Apply Key fires the LPA Applicator, as though it was triggered by the Product Sensor. The Applicator Pad extends using the associated time delay functions (detailed in section 6.2.1.2 through section 6.2.1.4), placing a label on a targeted product and returning to its home position. Using this key allows you to test Applicator operation and Time Delay functions together.

➔ Press the APPLY key to cycle the Applicator.

6.2.1.2 VACUUM DELAY (SET TIME) KEY

This parameter effects how long the applicator vacuum system waits before applying vacuum to the Pad, after the printing process has begun. Depending upon label size, it may not be necessary to set a Vacuum Delay Time. Generally speaking, labels of about 4 inches (102 mm) in length may need a Vacuum Delay. This will be especially true with the wider width labels which are usable in this LPA. The input values are in milliseconds (msec) or one thousandth of a second. Time values will vary depending on label length, but a delay of 500 msec to 1500 msec (0.5 to 1.5 seconds) is typical.

NOTE:	**If the time delay for this parameter is set too high, the label may fall off before vacuum can be applied.**

To set the Vacuum Delay time:

➔ Press the VACUUM DELAY key.

```
VAC DELAY (msec):
[1]
```

The above example display indicates the current value within the brackets as 1 msec. (The actual displayed value may differ from the above shown.)

➔ To input a new delay time value, use the numerical keypad (see section 6.3) to enter a value of between 1 to 9999 milliseconds (msec).

➔ If an error has been made, press ‘C’ to clear the newly input values.

➔ Press ENTER to accept the value displayed. The LCD will return to the main screen display.

6.2.1.3 PRODUCT DELAY (SET TIME) KEY

This parameter controls the time delay between the time that the Product Sensor is activated, and the beginning of the Apply Cycle. The input values are in milliseconds (msec) or one thousandth of a second. There is no suggested time range for this variable because settings may vary greatly in different environments. ‘

NOTE:	**Please note that even if a time value of 0 is input for the Product Delay Time, the Product Sensor must still be placed far enough upstream (on the assembly line) to ensure that the label will be properly placed on the target material.**

To set the Product Delay time:

➔ Press the PRODUCT DELAY key.

```
PROD DELAY (msec):
[1]
```

The above example display indicates the current value within the brackets as 1 msec. (The actual displayed value may differ from the above shown.)

➔ To input a new delay time value, use the numerical keypad (see section 6.3) to enter a value of between 1 to 9999 milliseconds (msec).

➔ If an error has been made, press ‘C’ to clear the newly input values.

➔ Press ENTER to accept the value displayed. The LCD will return to the main screen display.

6.2.1.4 CYLINDER EXTEND (SET TIME) KEY

This parameter controls the duration of the Applicator Pad’s extending motion, or more specifically, the amount of time that air pressure is supplied to the Applicator so that it may extend. The input values are in milliseconds (msec) or one thousandth of a second. The suggested time range for this variable is from approximately 100 to 3000 msec (0.1 to 3.0 seconds).

NOTE:	**It is important to note that a time value must be input for the Cylinder Extend Time parameter or the Applicator Pad will not extend at all. A time value of zero for this parameter could be misinterpreted as a malfunction of the system.**

NOTE:	**A Cylinder Extend Time value must be input in or the applicator pad will not apply the label.**

To set the Cylinder Extend time:

➔ Press the CYL. EXT. (on some machines this may read CYLINDER DELAY) key.

```
CYL DELAY (msec):
[250]
```

The above example display indicates the current value within the brackets as 250 msec. (The actual displayed value may differ from the above shown.)

➔ To input a new delay time value, use the numerical keypad (see section 6.3) to enter a value of between 1 to 9999 milliseconds (msec).

➔ If an error has been made, press 'C' to clear the newly input values.

➔ Press ENTER to accept the value displayed. The LCD will return to the main screen display.

6.2.1.5 FORMAT DOWNLOAD KEY

This key has no specific function identified with it. If custom programming has been added to your system, the key's function would be defined by a "Custom" section, following chapter 9 in this book.

6.2.2 SETUP MODE

The Setup Menu key is used to access Setup mode (as outlined in "Switching from Application Mode to Setup Mode" on page 6-3). While in this mode, the usage of specific keys will change as follows:

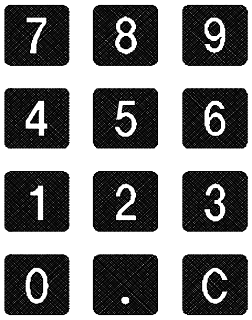
- The APPLY key becomes the DOWN ARROW key.
- The PRODUCT DELAY key becomes the LEFT ARROW key.
- The CYLINDER DELAY key becomes the UP ARROW key.
- The VACUUM DELAY key becomes the RIGHT ARROW key.

The Setup menu may be accessed at any time, however it is preferable to have the print buffer empty and no system errors, before changing settings. See section 6.5 for a comprehensive outline of all of the LPA system parameters and their default settings.

6.3 NUMERIC KEYPAD

The Numeric keypad is used for data input on LPA delay times or system Setup parameters. Keypad input is not recognized by the LPA unless a menu which requires data input is open.

Figure 6C
Numeric Keypad



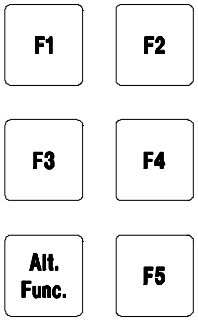
The keys of this pad function as follows:

- Numeric (0-9): Direct number input, with the first digit entered being the fed to the left as more numbers are added.
- Decimal (.): For the placement of a decimal point.
- Clear Key (C): Removes all recently input data (before the new value is 'Entered'), so that mistaken input may be corrected.

6.4 FUNCTION (F) KEYS

These keys are only used in situations where custom software has been added to the printer. If custom software has been added to the LPA, information regarding its use will be available in a section following chapter 9 of this manual. General information on how these keys would be normally used, follows:

Figure 6D
Function Keys



6.4.1 ALTERNATE FUNCTION (ALT. FUNC) KEY

This key is required to enable any custom programmed function key, or to activate a special label feed test.

6.4.1.1 PROGRAMMED FUNCTION USE

Custom programmed functions may be initiated by pressing this key in, while pressing one of the Function keys (F1 - F5). If no custom programming has been installed, pressing this key in conjunction with a function key will have no effect.

6.4.1.2 TESTFEED

Pressing and holding the Alternate Function key, while pressing the FEED key will cause the printer will perform a Testfeed. The LPA will then slow feed at least one label, while self-adjusting the print engine components for optimal operation.

6.4.2 FUNCTION KEYS F1 - F5

Pressing one of these key simultaneously with the Alternate Function key will enable a special printer operation, if custom software has been installed in the LPA. If no custom software is loaded onto the LPA, the keys are not normally used

Function keys operate as follows:

- F1: Provides custom routine #1 if pressed with the Alternate Function key (when pressed singly it functions as the Product Delay/ Left Arrow key).
- F2: Provides custom routine #2 if pressed with the Alternate Function key (when pressed singly it functions as the Cylinder Delay/Up Arrow key).
- F3: Provides custom routine #3 if pressed with the Alternate Function key (when pressed singly it functions as the Vacuum Delay/Right Arrow key).
- F4: Provides custom routine #4 if pressed with the Alternate Function key (when pressed singly ite functions as the Apply/Down Arrow key).
- F5: Provides custom routine #5 if pressed with the Alternate Function key (when pressed singly it functions as the Format Download key).

6.5 SYSTEM SETUP PARAMETERS

This mode provides access to the system's operational parameters for changes. These settings are preset, typically requiring no adjustment. In the event that changes are either required or desired, the following information is offered:

CAUTION 	**Some of the system set-up variables which are disabled, represent either optional equipment or software which is not offered in the LPA. Changing system parameters requires a proper understanding of the unit. Read the following section carefully, as inappropriate settings may impair the unit's functionality.**

The Setup menu may be accessed at any time, however it is preferable to have the print buffer empty and no system errors, before changing settings.

When ready for operation the System LCD will read:

FOX IV 4400 WAITING to APPLY	or	FOX IV 4400 BUFFER EMPTY

6.5.1 SYSTEM SETUP - GENERAL INSTRUCTIONS

The process of accessing, changing, and saving a system variable is roughly the same for each parameter. Setup parameters are visible on the System Display LCD, in a scrolling menu format. The following tables offer a general description of the function of each key within the Setup Menu. More specific information is in following

Table 1: Setup Menu Key Functions

PURPOSE	ACTION REQUIRED	COMMENTS OR ADDTIONAL INFO
Enter Setup mode and access Setup Menu.	Press the SETUP MENU key	
Scroll the Setup Menu or Submenus options.	Press the RIGHT or LEFT ARROW keys.	
Access or enter a Sub-menu or choose a parameter/option to view or change	Press the DOWN ARROW or ENTER key	LCD will show the name of the parameter to be changed and the current system value in [brackets]. If there is more than one choice within a submenu use the LEFT or RIGHT ARROW keys to scroll the options. Then use the DOWN ARROW to choose the option to view or change.
Input numeric data for any parameter	Press numbers 0-9 on the numeric keypad. Use decimal point as needed.	
Clear numerical input from display	Press “C” on numeric keypad.	Display will clear. Re-enter correct numbers or use UP ARROW to exit menu.
Accept/set parameter change or numerical value input.	Press the ENTER key.	Display will return to next sub-menu parameter.
Exit a parameter, or submenu after viewing or changing.	Press the UP ARROW key.	
Exit Setup Mode	Press SETUP MENU key.	...or press UP ARROW until main screen is displayed.

6.5.2 SYSTEM CONFIGURATION PARAMETERS

The following tables detail the Setup Menu Options. Each parameter is listed with its respective options and the preferred default setting (if any).

Table 2: Setup Menu and Submenus

Setup Menu PRESS SETOP MENU key. PRESS LEFT or RIGHT ARROW to scroll Setup Menu.	Submenu From Setup Menu PRESS DOWN ARROW or ENTER to access sub-menu; To scroll parameters within submenu PRESS LEFT or RIGHT ARROW.
SER-COM, UART-1	Baud Rate, Character Length, Parity, Stop Bits, Flow Control, New Line, Rec (receive) Buffer, Trans (transmit) Buffer.
SER-COM, UART-2	Baud Rate, Character Length, Parity, Stop Bits, Flow Control, New Line,Rec (receive) Buffer, Trans (transmit) Buffer, Connected HW.
NET-COM, NET1	New Line
NETWORK	IP Selection, IP Address, Netmask, Default Router, Name Server, MAC Address
FEED ADJ (Feed Adjust)	START ADJ (Start Adjust), STOP ADJ (Stop Adjust)
MEDIA	Media Size, Media Type, Paper Type, Contrast, Test Feed
PRINT DEFINES	Head Resistance, Test Print, Print Speed, LSS Test

Table 3: Setup Parameters

Current value will be displayed within brackets such as [1234]

Setup Menu	Submenu	Parameter Defaults and Variables From Submenu PRESS DOWN ARROW or ENTER key to access parameters. PRESS LEFT or RIGHT ARROW to scroll choices, or use numeric keys to input values. PRESS ENTER to accept choice or value.
SER-COM, UART-1 *OR* **SER-COM, UART-2**	Baud Rate	300, 600, 1200, 2400, 4800, 9600 (default), 19200, 38400, 57600, 115200
	Character Length	7 or 8 (default)
	Parity	None (default), Even, Odd, Mark, Space
	Stop Bits	1 (default) or 2
	Flow Control	RTS/CTS,ENQ/ACK, XON/XOFF (default has all disabled)
	New Line	CR/LF (default), LF, CR
	Rec (receive) Buffer)	Variable. Enter value on numeric keypad. 1024 is default value
	Trans (transmit) Buffer	Variable. Enter value on numeric keypad. 1024 is default value

Setup Menu	Submenu	Parameter Defaults and Variables From Submenu PRESS DOWN ARROW or ENTER key to access parameters. PRESS LEFT or RIGHT ARROW to scroll choices, or use numeric keys to input values. PRESS ENTER to accept choice or value.
SER-COM, UART-2	Connected HW	This parameter is set only in SER-COM, UART2.
		RS232
		Intellitag
		1356 (S002)
		Generic UART
NET-COM, NET1	New Line	CR/LF (default), LF, CR
NETWORK	IP Selection	DHCP+BOOTP (default), MANUAL, DHCP, BOOTP
	IP Address	For IP Selection settings of DHCP+BOOTP, DHCP, or BOOTP the temporary IP address automatically assigned by the server will display as: IP ADDRESS X.X.X.X For MANUAL as the IP Selection setting the display will read: IP ADDRESS 0.0.0.0 To change an IP ADDRESS: Clear all data by pressing “C” key on numeric keypad. Then enter correct numbers. PRESS ENTER to accept numerical input and move to the Netmask parameter, or PRESS Setup Menu to exit Setup. Mode.
	Netmask	For IP Selection settings of DHCP+BOOTP, DHCP, or BOOTP, the server will automatically set this parameter. For MANUAL as the IP Selection setting operator will have to set the parameters via keypad as described in IP Address above.
	Default Router	For IP Selection settings of DHCP+BOOTP, DHCP, or BOOTP, the server will automatically set this parameter. For MANUAL as the IP Selection setting operator will have to set the parameters via keypad as described in IP Address above.
	Name Server	For IP Selection settings of DHCP+BOOTP, DHCP, or BOOTP, the server will automatically set this parameter. For MANUAL as the IP Selection setting operator will have to set the parameters via keypad as described in IP Address above.
	MAC Address	Read-only 00104017b80e
FEEDADJ	Start Adj	0 is default value. Variable.
	Stop Adj	0 is default value. Variable.

Setup Menu	Submenu	Parameter Defaults and Variables From Submenu PRESS DOWN ARROW or ENTER key to access parameters. PRESS LEFT or RIGHT ARROW to scroll choices, or use numeric keys to input values. PRESS ENTER to accept choice or value.
MEDIA	Media Size	XSTART (variable) defaults: for 203 dpi default XSTART is 24 dots for 300 dpi default XSTART is 36 dots.
		WIDTH (variable) defaults: for 203 dpi default WIDTH is 872 dots for 300 dpi default WIDTH is 1286 dots
		LENGTH (variable) defaults: for 203 dpi default LENGTH is 1200 dots for 300 dpi default length is 1800 dots
	Media Type	Label (w Gaps) [default], Ticket (w mark), Ticket (w gaps), Fix length strip, Var length strip
	Paper Type	Direct Thermal
		Label Constant: range 50 to 115
		Label Factor: range 50 to 115
		Thermal transfer (default) Ribbon Constant: range 50 to 115
		Ribbon Factor: range 50 to 115
		Label Offset: range -50 to 50
		Ribbon Sensor: read-only auto adjustment
		Low Diameter: range 25 to 80 mm
	Contrast	variable range of -10% to +10% in +/-2% increments default: 0%
	Test Feed	Press Enter to test the label feed. Read-only information.
PRINT DEF	LSS Test	LSS Auto -a quick way to determine if the label stop sensor is working properly.
		LSS Manual shows the actual setting provided be the latest Test Feed. Primarily intended for service and is not described in this manual.
	Head Resistance	read-only information

Setup Menu	Submenu	Parameter Defaults and Variables From Submenu PRESS DOWN ARROW or ENTER key to access parameters. PRESS LEFT or RIGHT ARROW to scroll choices, or use numeric keys to input values. PRESS ENTER to accept choice or value.
Print Defs continued	Test Print	Press ENTER to print a test label. More than one label may have to be printed with setup information PRESS the UP or DOWN ARROW or F5 to choose which setup label to print (#1 through #5) then PRESS ENTER. Test labels include “Diamonds,” “Chess,” “Bar Codes #1,” and “Bar Codes #2,” Setup Info, Hardware Info, and Network Info used to check print quality and printhead pressure and information on LPA system setup values.
	Print Speed	variable between 4 to 12 inches per second (100 and 300 mm/sec) Default is 200 mm/sec (about 8 inches)

6.6 SETUP PARAMETERS

Menu choices are: SER-COM, UART1; SER-COM, UART2, USB1, NET-COM, NET1; NETWORK.

6.6.1 SER-COM,UART1

➔ Press SETUP MENU key and display reads:

```
SETUP:
SER-COM, UART1
```

➔ Press DOWN ARROW or ENTER key to enter SER-COM, UART1 menu. Display reads:

```
SER-COM, UART1
BAUDRATE
```

➔ Scroll this menu with the LEFT or RIGHT ARROW keys. Choices are: Baud Rate, Character Length, Parity, Stop Bits, Flow Control, New Line,Rec (receive) Buffer, Trans (transmit) Buffer. To set any of these parameters proceed as follows:

6.6.1.1 BAUD RATE

Access this menu by following the procedure in section 6.6.1: SER-COM,UART1, then:

➔ Press DOWN ARROW key and the display will read:

BAUDRATE **[current value]**

➔ Use LEFT or RIGHT ARROW keys to scroll Baud Rate choices: 300, 600, 1200, 2400, 4800, 9600 (default), 19200, 38400, 57600, 115200

➔ Press ENTER to set BAUD RATE and display the next menu screen or parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.1.2 CHARACTER LENGTH

Access this menu by following the procedure in section 6.6.1: SER-COM,UART1, then:

➔ Press DOWN ARROW key to enter CHARACTER LENGTH menu. Display may read: (it may display a 7 instead of an 8):

CHAR LENGTH **8**

➔ Press LEFT or RIGHT ARROW to change the setting.

➔ Press ENTER to accept the setting and display the next menu screen or parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.1.3 PARITY

Access this menu by following the procedure in section 6.6.1: SER-COM,UART1, then:

➔ PresS DOWN ARROW key to enter PARITY menu. Display may read:

PARITY **NONE**

➔ Choices are: None, Even, Odd, Mark, Space. Press LEFT or RIGHT ARROW to change the setting.

➔ Press ENTER to accept the setting and display the next menu screen or parameter.

➔ Press UP ARROW to Exit menu parameter, Or Press SETUP MENU key to exit setup mode.

6.6.1.4 STOP BITS

Access this menu by following the procedure in section 6.6.1: SER-COM,UART1, then:

➔ Press DOWN ARROW key to enter CHARACTER LENGTH Menu. Display may read: (it may display a 2 instead of an 1):

```
STOP BITS
1
```

➔ Press LEFT or RIGHT ARROW to change the setting.

➔ Press ENTER to accept the setting display next menu screen or parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.1.5 FLOW CONTROL

Access this menu by following the procedure in section 6.6.1: SER-COM,UART1, then:

➔ Press DOWN ARROW key to enter FLOW CONTROL menu. Display may read:

```
FLOW CONTROL
RTS/CTS
```

➔ Options are: RTS/CTS, END/ACK, XON/XOFF. PRESS LEFT or RIGHT ARROW to scroll choices.

➔ Press DOWN ARROW or ENTER key access the Enable/Disable menu choice for each parameter. Use LEFT or RIGHT ARROW key to toggle between Enabled and Disabled. Default for all options except for XON/XOFF is Disabled. (see below for XON/XOFF)

➔ **FOR XON/OFF ONLY** the displays reads:

FLOW CONTROL **XON/OFF**

➔ Press DOWN ARROW or ENTER key to access XON/XOFF options. Display reads:

XON/XOFF **DATA TO HOST**

- To toggle between DATA **TO** HOST and DATA **FROM** HOST, press the RIGHT or LEFT ARROW key.
- Press DOWN ARROW or ENTER to access DATA TO HOST and display reads:

DATA TO HOST **DISABLE**

- Press LEFT or RIGHT ARROW to toggle between DISABLE and ENABLE.
- From FLOW CONTROL submenu screen PRESS DOWN ARROW or ENTER key to access the option and display reads:

XON/XOFF **DATA FROM HOST**

- Press DOWN ARROW or UP ARROW to access DATA FROM HOST and display reads:

DATA FROM HOST **DISABLE**

- PRESS LEFT or RIGHT ARROW to toggle between DISABLE and ENABLE.

➔ **FOR ALL OPTIONS**: Press ENTER to accept the setting display next menu screen or parameter.

➔ **FOR ALL OPTIONS:** Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.1.6 NEW LINE

Access this menu by following the procedure in section 6.6.1: SER-COM,UART1, then:

➔ Press DOWN ARROW or ENTER key to enter NEW LINE Menu. Display may read: (it may display a 2 instead of an 1):

```
NEW LINE
CR/LF
```

➔ Options are: CR/LF, LF, CR. PRESS LEFT or RIGHT ARROW to change the setting.

➔ Press ENTER to accept the setting and display the next menu screen or parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.1.7 RECIEVE (REC) BUFFER

Access this menu by following the procedure in section 6.6.1: SER-COM,UART1, then:

➔ Press DOWN ARROW or ENTER key to enter REC BUFFER Menu. Display may read: (1024 is default):

```
REC BUFFER
[1024]
```

➔ Input setting via the numeric keypad.

➔ Press ENTER to accept the setting and display the next menu screen or parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.1.8 TRANSMIT (TRANS) BUFFER

Access this menu by following the procedure in section 6.6.1: SER-COM,UART1, then:

➔ Press DOWN ARROW key to enter TRANS BUFFER Menu. Display may

read (1024 is default):

TRANS BUFFER [1024]

➔ Input setting via the numeric keypad.

➔ Press ENTER to accept the setting and display the next menu screen or parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.2 SER-COM, UART 2

All parameters are set the same as for SER-COM, UART1, but substituting SER-COM, UART2 for SER-COM, UART1. See the previous section for details. The parameter CONNECTED HW (connected hardware) is set in SER-COM, UART2 ONLY.

6.6.2.1 CONNECTED HW

Access this menu by following the procedure in section 6.6.2: SER-COM, UART 2, then:

➔ Press DOWN ARROW or ENTER key to enter CONNECTED HW Menu. Display may read:

SER-COM, UART2: CONNECTED HW

➔ Scroll with LEFT or RIGHT ARROW to view the current hardware connection. **This is read-only. Options on this unit are RS232, Intellitag, 1356(S002), Generic UART.**

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.3 NET-COM, NET1

This menu will only be displayed if an EasyLAN interface board is installed.

➔ Press SETUP MENU key and display reads:

SETUP: SER-COM, UART1

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **NET-COM, NET1**

➔ Press DOWN ARROW key to enter NET-COM, NET1 menu. Display reads:

NET-COM, NET1 **NEW LINE**

➔ Press DOWN ARROW key to enter NEW LINE Menu. Display may read:

NEW LINE **CR/LF**

➔ Press LEFT or RIGHT ARROW to change the setting.
(Choices are: CR/LF, LF, CR.)

➔ Press ENTER to accept the setting and display the next menu screen or parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.4 NETWORK

This menu will only be displayed if an EasyLAN interface board is installed.

Menu choices: IP Selection, IP Address, Netmask, Default Router, Name Server, MAC Address.

6.6.4.1 IP SELECTION

➔ Press SETUP MENU key and display reads:

SETUP: **SER-COM, UART1**

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **NETWORK**

➔ Press RIGHT ARROW key. Display reads:

NETWORK **IP SELECTION**

➔ Press DOWN ARROW key to access IP SELECTION menu. Display reads:

IP SELECTION **DHCP+BOOTP**

➔ Scroll choices with LEFT or RIGHT ARROW until it displays the desired setting.
(IP SELECTION menu choices are: DHCP+BOOTP (default), MANUAL, DHCP, BOOTP.)

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.4.2 IP ADDRESS

This is read-only if DCHP and/or BOOTP is selected.

➔ Press SETUP MENU key and display reads:

SETUP: **SER-COM, UART1**

➔ Scroll menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **NETWORK**

➔ Press DOWN ARROW key. Display reads:

NETWORK **IP SELECTION**

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

NETWORK **IP ADDRESS**

➔ Press DOWN ARROW key to access IP ADDRESS menu. Display reads:

IP ADDRESS X.X.X.X

The Xs in the box above indicate the IP Address which depends upon the IP Selection (see section 6.6.4.1: IP SELECTION) as follows:

To change an IP ADDRESS proceed as follows:

➔ Clear all data by pressing “C” key on numeric keypad. Then input correct numbers. Use the decimal point key “.” as needed.

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.4.3 NETMASK

For IP Selection settings of DHCP+BOOTP, DHCP, or BOOTP, the server will automatically set this parameter. Follow setup procedure below to view this parameter without changing it.

For IP Selection setting of MANUAL the operator will have to set the parameters via keypad as follows:

➔ Press SETUP MENU key and display reads:

SETUP: **SER-COM, UART1**

➔ Scroll This menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **NETWORK**

➔ Press DOWN ARROW or ENTER key. Display reads:

NETWORK **IP SELECTION**

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

NETWORK **NETMASK**

➔ Press DOWN ARROW or ENTER key to access NETMASK menu. Display reads:

NETMASK **X.X.X.X**

➔ Clear all data by pressing "C" key on numeric keypad. Input the correct numbers. Use the decimal point key "." as needed.

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.4.4 DEFAULT ROUTER

For IP Selection settings of DHCP+BOOTP, DHCP, or BOOTP, the server will automatically set this parameter.

For MANUAL as the IP Selection setting operator will have to set the parameter via the keypad as follows:

➔ Press SETUP MENU key and display reads:

SETUP: **SER-COM, UART1**

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **NETWORK**

➔ Press DOWN ARROW key. Display reads:

NETWORK **IP SELECTION**

➔ Scroll with the LEFT or RIGHT ARROW keys until the display reads:

NETWORK DEFAULT ROUTER

➔ Press DOWN ARROW or ENTER key to access DEFAULT ROUTER menu. Display reads:

DEFAULT ROUTER X.X.X.X

➔ Clear all data by pressing "C" key on numeric keypad. Input the correct numbers. Use the decimal point key "." as needed.

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.4.5 NAME SERVER

For IP Selection settings of DHCP+BOOTP, DHCP, or BOOTP, the server will automatically set this parameter.

For MANUAL as the IP Selection setting operator will have to set the parameters via keypad as follows:

➔ Press SETUP MENU key and display reads:

SETUP: SER-COM, UART1

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: NETWORK

➔ Press DOWN ARROW key. Display reads:

NETWORK IP SELECTION

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

NETWORK **NAME SERVER**

➔ Press DOWN ARROW or ENTER key to access DEFAULT ROUTER menu. Display reads:

NAME SERVER **X.X.X.X**

➔ Clear all data by pressing “C” key on numeric keypad. Input the correct numbers. Use the decimal point key “.” as needed.

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.4.6 MAC ADDRESS

➔ Press SETUP MENU key and display reads:

SETUP: **SER-COM, UART1**

➔ Scroll with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **NETWORK**

➔ Press DOWN ARROW or ENTER key to access NETWORK menu. Display reads:

NETWORK **IP SELECTION**

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

NETWORK **MAC ADDRESS**

➔ Press DOWN ARROW or ENTER key to access MAC ADDRESS menu. Display reads:

MAC ADDRESS: nnnnnnnnnnnnnnnn

➔ Clear all data by pressing “C” key on numeric keypad. Input the correct numbers. Use the decimal point key “.” as needed.

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

➔

6.6.5 FEED ADJ

Feed Adjustment parameter controls how much media stock is fed out or pulled back before or after the printing operation. These are global settings and will be effected regardless of software. Software uses the front edges of labels with gaps, the ends of detection slots, and the forward edges of black marks for detection (all relative to the direction of feed). The parameters are Start Adjust and Stop Adjust.

The following is a list of recommended Feed Adjustments according to the printer manufacturer.

Table 4: FEED ADJUSTMENT RECOMMENDATIONS

Label Gap (inches)	START ADJ	STOP ADJ
1/8 inch (0.125 inch) (3.175mm)	-136	-20
1/2 inch (0.5 inch) (12.7 mm)	-100	-90

6.6.5.1 START ADJUST

The Start Adjust value adjusts the positioning of text on the label and is given as a positive or negative number of dots. It does not change the place where the label stops (how far the label is fed). Default is zero (0) which places the origin a certain distance from the forward edge of the printing copy. A positive adjustment means that a specified length of media is feed out before printing starts; thus moving the origin back from the leading edge. A negative adjustment means that a specified length of media is pulled back before printing begins; thus, moving the origin toward the leading edge of the copy.’

To set the START ADJ value:

➔ Press SETUP MENU key and display reads:

```
SETUP:
SER-COM, UART1
```

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

```
SETUP:
FEED ADJ
```

➔ Press DOWN ARROW or ENTER key. Display reads:

```
FEED ADJ
START ADJ
```

➔ Press DOWN ARROW or ENTER key to access START ADJ menu. Display reads:

```
START ADJ
[0]
```

➔ Clear all data by pressing “C” key on numeric keypad. Input the desired numbers. Use the decimal point key “.” to change from positive (no + sign is shown) to negative (-) numbers.

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.5.2 STOP ADJUST

The Stop Adjust adjusts where the label will stop prior to printing and is given as a positive or negative number of dots. It also affects the positioning of text on the label. Default is zero (0) which stops the media feed in a position suitable for tear-off operation. A positive stop adjust means that normal media feed after the printing is completed will be increased by the specified value. A negative stop adjustment means the normal media feed after the printing is completed will be decreased by the specified value.

➔ Press SETUP MENU key and display reads:

SETUP: **SER-COM, UART1**

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **FEED ADJ**

➔ Press DOWN ARROW or ENTER key. Display reads:

FEEDADJ **STARTADJ**

➔ Scroll this menu with the LEFT or RIGHT ARROW keys until the display reads:

FEEDADJ: **STOPADJ**

➔ Press DOWN ARROW or ENTER key to access STOPADJ menu. Display reads:

STOP ADJ [0]

➔ Clear all data by pressing “C” key on numeric keypad. Input the desired numbers. Use the decimal point key “.” to change from positive (no + sign is shown) to negative (-) numbers.

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

6.6.6 MEDIA SETTINGS

6.6.6.1 MEDIA SIZE PARAMETERS

Media Size parameters are: XStart, Width, Length. These parameters describe the characteristics of the media that the firmware will use so that the printed text or graphics is properly positioned on the labels. By setting these three parameters a print window is created. This window describes the area inside which the label printing is done. If the parameters are not set correctly the printing may be truncated or cause an error.

➔ Press SETUP MENU key and the display reads:

SETUP: **SER-COM, UART1**

➔ Scroll menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **MEDIA**

➔ Press DOWN ARROW or ENTER key. Display reads:

MEDIA: **MEDIA SIZE**

➔ Press DOWN ARROW or ENTER key and display reads:

MEDIA SIZE **XSTART**

➔ Press LEFT or RIGHT ARROWS to scroll Media Size menu. Options are: XStart, Width, Length. Proceed as follows to set parameters.

- **XSTART parameter:**

XSTART specifies *the position of the origin* along the dots on the printhead. Default is for 203 dpi printhead is 24 dots and for the 300 dpi the default is 36 dots. The default prevents printing outside of the label edges when the liner is wider than the printable label. To maximize print width set the XSTART to zero (0). Increased values move the origin toward the center of the label, away from the inner edge of the media path. This results in a wider inner margin and a reduced print width.

To set XSTART follow procedure in preceding and then proceed as follows:

➔ Press DOWN ARROW or ENTER key and display will read:

XSTART **[current numeric value]**

➔ Clear all data by pressing "C" key on numeric keypad. Use numeric keypads to input new value.

➔ Press ENTER to set the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, or press Setup Menu key to exit setup mode.

- **WIDTH parameter:**

WIDTH specifies the *width of the print area* in the number of dots from the origin. Defaults are: for 203 dpi WIDTH is 872 dots and for 300 dpi WIDTH is 1286 dots. The sum of the XSTART value (described above) and the WIDTH is the outer margin of the print area. The WIDTH should be set to prevent printing outside of the label edges - this may harm the printhead.

To set WIDTH follow procedure in above and then proceed as follows:

➔ Press LEFT or RIGHT ARROW to scroll menu until it displays:

MEDIA SIZE **WIDTH**

➔ Press DOWN ARROW or ENTER key and display will read:

WIDTH **[current numeric value]**

➔ Clear all data by pressing "C" key on numeric keypad. Use numeric keypads to input new value.

➔ Press ENTER to accept the change within the system. Display will move the Setup Menu to the next parameter.

➔ Press UP ARROW to Exit menu parameter, OR

➔ To Exit Setup Mode press SETUP MENU key.

- **LENGTH parameter:**

The LENGTH specifies *the length of the printable area* in the number of dots from the origin along the Y-coordinate and allocates memory for two identical memory buffers in the printer's temporary memory. Default values for LENGTH are; for 203 dpi printhead the length is 1200 dots and for the 300 dpi, the default is 1800 dots

The size of the buffer is calculated as follows:

(Print LENGTH in dots} X {Printhead width in dots} = Buffer size (in bits)

The length setup also decides the amount of media feed when using "fix length strip."

The length setup create an emergency stop which works when the printer is set for Labels (w gaps), Ticket (w mark), or Ticket (w gaps). If the label stop sensor has not detected a gap or mark within 150% of the set length the media feed is automatically stopped to avoid feeding out a whole roll of media because of a sensor malfunction.

➔ Press LEFT or RIGHT ARROW to scroll menu until it displays:

MEDIA SIZE **LENGTH**

➔ Press DOWN ARROW or ENTER key and display will read:

LENGTH **[current numeric value]**

➔ Clear all data by pressing "C" key on numeric keypad. Use numeric keypads to input new value.

➔ Press ENTER to accept the change within the system. Display will move the Setup Menu to the next parameter.

➔ press UP ARROW to Exit menu parameter, or press SETUP MENU key to exit setup mode.

➔ To Exit Media Setup Menu after viewing or setting the parameters press UP ARROW or Enter key. The display will show the next menu item, or

➔ To exit Setup Mode press SETUP MENU key.

6.6.6.2 MEDIA TYPE PARAMETERS

Media Type parameters are: Label (w Gaps), Ticket (w Mark), Ticket (w Gaps), Fix Length Strip, Var Length Strip. These control how the label sensors and the media feed operate. It is important to choose the correct setting for the media type. The options are:

Labels (w gaps) used for adhesive labels mounted on a liner.

Ticket (w mark) is used for labels, tickets, or continuous stock provided with black marks at the back.

Ticket (w gaps) is used for tickets or tags with detection slots.

Fix length strip is used for continuous stock where the length of the print window decides the length of media feed.

Var length strip is used for continuous stock. The size of the print image decides the length of the each copy.

➔ Press SETUP MENU key and display will read:

```
SETUP:
SER-COM, UART1
```

➔ Scroll Setup Menu with the LEFT or RIGHT ARROW keys until the display reads:

```
SETUP:
MEDIA
```

➔ Press DOWN ARROW or ENTER to access Media menu. Display reads:

```
MEDIA:
MEDIA SIZE
```

➔ Scroll Media Menu using LEFT OR RIGHT ARROW keys until display reads:

```
MEDIA:
MEDIA TYPE
```

➔ Press DOWN ARROW key to enter Media Type submenu. Display reads:

```
MEDIA TYPE
LABEL(w GAPS)
```

➔ Media Type choices are: Label (w Gaps), Ticket (w Mark), Ticket (w Gaps), Fix Length Strip, Var Length Strip. Scroll with LEFT OR RIGHT ARROW.

➔ Press ENTER to set the new media type. The display will show the next menu item.

➔ To Exit after viewing or setting the parameter press LEFT ARROW or ENTER key. The display will show the next menu item, or

➔ To Exit Setup Mode press SETUP MENU key.

6.6.6.3 PAPER TYPE PARAMETERS (THERMAL TRANSFER OR DIRECT THERMAL)

➔ Press SETUP MENU key

➔ Scroll menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **MEDIA**

➔ :Press DOWN ARROW or ENTER key to enter Media Menu and the display

MEDIA: **MEDIA SIZE**

reads:

➔ Scroll Media Menu with the LEFT or RIGHT ARROW keys until the display reads:

MEDIA: **PAPER TYPE**

➔ Press DOWN ARROW or ENTER key to enter PAPER TYPE menu. Display reads:

PAPER TYPE: **TRANSFER**

➔ Scroll Paper Type Menu using LEFT or RIGHT ARROW keys to choose between (Thermal) TRANSFER and DIRECT THERMAL. Your choice will be displayed on the second line of the LCD under the words PAPER TYPE. Choose TRANSFER to print with a ribbon. Make sure a ribbon is installed

before printing. DIRECT THERMAL is to be used for printing with label stock that does not require the use of a ribbon. No ribbon shall be installed in the LPA.

- **(THERMAL) TRANSFER MENU**

This is the default setting. The parameter options are: Ribbon Constant, Ribbon Factor, Label Offset, Ribbon Sensor, and Low Diameter. Follow preceding instructions and then proceed:

➔ Press DOWN ARROW or ENTER key to access RIBBON CONSTANT menu. Display reads:

TRANSFER: **RIBBON CONSTANT**

- **TO SET RIBBON CONSTANT:**

➔ Press DOWN ARROW or ENTER key and display will read:

RIBBON CONSTANT **[current value]**

➔ Clear all data by pressing “C” key on numeric keypad. Use numeric keypads to input new value.

➔ Press ENTER to set the new values. The display will show the next menu item.

- **TO SET RIBBON FACTOR:**

➔ Press DOWN ARROW or ENTER key and display will read:

RIBBON FACTOR **[current value]**

➔ Clear all data by pressing “C” key on numeric keypad. Use numeric keypads to input new value.

➔ Press ENTER to set the new values. The display will show the next menu item.

- **LABEL OFFSET:**

This parameter is not used at this time so should be kept at the default value of zero (0).

➔ To Exit after viewing or setting the parameter(s) press UP ARROW or ENTER key. The display will show the next menu item, or

➔ To Exit Setup Mode press SETUP MENU key.

- **RIBBON SENSOR**

The Ribbon Sensor parameter is read-only. The Ribbon Sensor menu is displayed when performing a Testfeed or accessing it by pressing ENTER or DOWN ARROW in the Media/Paper Type/Transfer submenu.The LPA will feed some labels and auto adjust the sensor. The setting is displayed in the menu.

- **LOW DIAMETER**

This parameter specifies the diameter of the ribbon supply roll where SYSVAR (26) switches from 0 to 1. When SYSVAR (26) = 0 there is still a sufficient supply of ribbon. When SYSVAR (26) = 1 the ribbon supply should be changed. The diameter is expressed in millimeters. (1mm=0.04 inches) This setting has little effect unless SYSVAR 926) is read by a Fingerprint program. However, Error "Ribbon Low" is reported in every tenth printing operation. By default the low diameter is 0, that is the ribbon low function is disabled.

- **DIRECT THERMAL MENU**

➔ Press DOWN ARROW or ENTER key to enter PAPER TYPE menu. Display reads:

```
DIRECT:
LABELCONSTANT
```

- **TO SET LABEL CONSTANT:**

➔ Press DOWN ARROW or ENTER key and display will read:

```
LABEL CONSTANT
[current value]
```

➔ Clear all data by pressing "C" key on numeric keypad. Use numeric keypads to input new value.

➔ Press ENTER to set the new values. The display will show the next menu item.

- **TO SET LABEL FACTOR:**

➔ Press DOWN ARROW or ENTER key and display will read:

LABEL FACTOR **[current value]**

➔ Clear all data by pressing "C" key on numeric keypad. Use numeric keypads to input new value.

➔ Press ENTER to set the new values. The display will show the next menu item.

➔ To Exit after viewing or setting the parameter(s) press LEFT ARROW or ENTER key. The display will show the next menu item, or

➔ To Exit Setup Mode press SETUP MENU key.

6.6.6.4 CONTRAST PARAMETERS

This parameter makes minor adjustments to the blackness of the print. Default value is 0% and the range is in 2% increments between -10% to +10%. The system resets to the default upon a change in Paper Type.

➔ Press SETUP MENU key:

SETUP: **SER-COM, UART1**

➔ Scroll menu with the LEFT or UP ARROW keys until the display reads:

SETUP: **MEDIA**

➔ Press DOWN ARROW or ENTER key to access the Media Menu. Display reads:

MEDIA: **MEDIA SIZE**

➔ Scroll Media Menu with the LEFT or RIGHT ARROW keys until the display reads:

MEDIA: **CONTRAST**

➔ Press DOWN ARROW or ENTER key. Display reads:

CONTRAST: **[current value]**

➔ Press LEFT or RIGHT ARROW to scroll contrast choices. default is +0%. Values available are: +10%, +8%, +6%, +4%, +2%, +0%, -2%, -4%, -6%, -8%, -10%.

➔ If correct, press ENTER to set new value and move to the next menu screen.

➔ To Exit after viewing or setting the parameter press UP ARROW or ENTER key. The display will show the next menu item, or

➔ To Exit Setup Mode press SETUP MENU key.

6.6.6.5 TESTFEED

This is a read-only. To feed a blank label press ENTER. This tests the media feed there by testing the sensitivity of the sensor. To display the TEST FEED menu:

➔ Press SETUP MENU key:

SETUP: **SER-COM, UART1**

➔ Scroll menu with the LEFT or RIGHT ARROW keys until the display reads:

SETUP: **MEDIA**

➔ Press DOWN ARROW or ENTER key to enter Media Menu and the display reads:

MEDIA: **MEDIA SIZE**

➔ Scroll Media Menu with the LEFT or RIGHT ARROW keys until the display reads:

MEDIA: **TESTFEED**

➔ Press DOWN ARROW or ENTER key to enter Media Menu and the display reads:

```
TESTFEED
[read-only value]
```

➔ Press ENTER to perform a Test Feed. This feeds a blank label.

➔ To Exit after viewing or setting the parameter press UP ARROW or ENTER key. The display will show the next menu item, or

➔ Press SETUP MENU to exit setup mode.

6.6.7 PRINT DEFS

The parameters in this menu are: Head Resistance, Test Print, Print Speed, LSS Test.

6.6.7.1 HEAD RESISTANCE

Head Resistance is a read-only value and cannot be changed.

6.6.7.2 TEST PRINT

Test Print is detailed in section 6.7: Printing a Test Label.

6.6.7.3 PRINT SPEED

To set the Print Speed:

➔ Press SETUP MENU key and display reads:

```
SETUP:
PRINT DEFS
```

➔ Scroll menu with the LEFT or RIGHT ARROW keys until the display reads:

```
PRINT DEFS:
HEAD RESISTANCE
```

➔ Scroll PRINT DEFS Menu with the LEFT or RIGHT ARROW keys until the display reads:

```
PRINT DEFS:
PRINT SPEED
```

➔ Press DOWN ARROW or ENTER key to enter PRINT SPEED Menu. Print speeds are displayed in units of millimeters per second (mm/sec.). The param-

eter is variable between 100 and 300 mm/sec. (4 and 12 inches per second). Default is 200 mm/sec. (about 8 ips). Display may read:

PRINT SPEED: **[200]**

Use numeric keypads to input new value.

➔ If correct, press ENTER to set new value and move to the next menu screen.

➔ To Exit after viewing or setting the parameter press UP ARROW or ENTER key. The display will show the next menu item, or

➔ To Exit Setup Mode press SETUP MENU key.

6.6.7.4 LSS TEST

The LSS is a photoelectric sensor that controls the label media feed by detecting the gaps between labels or the slots or black marks on continuous stock. This depends on the media type setup. See section 6.6.6: Media Settings.

The function of the Label Stop Sensor (LSS) is tested either automatically or manually as described in Chapter 8.2.2, *Label Stop Sensor (LSS) Positioning and Adjustment* .

6.7 PRINTING A TEST LABEL

CAUTION 	**1). Printing a test label will clear all data from the print buffer, and may require the operator to cycle power on the LPA to recover the unit. DO NOT PRINT TEST LABELS WHEN THE LPA IS IN NORMAL OPERATING MODE.** **2). When printing multiple test labels, either the "Print" or "Apply" key should be cycled at least once before cancelling the test.**

➔ Press SETUP MENU key. The displays reads:

SETUP: **SER-COM, UART1**

➔ Scroll the menu with the RIGHT or LEFT ARROW keys until the display reads:

SETUP: **PRINT DEFS**

➔ Press DOWN ARROW or ENTER key to access PRINT DEFS menu. Display reads:

```
PRINT DEFS:
HEAD RESIST
```

➔ Scroll PRINT DEFS menu with the LEFT or RIGHT ARROW key until the display reads:

```
PRINT DEFS:
TEST PRINT
```

➔ Press DOWN ARROW or ENTER key and display reads:

```
TEST PRINT:
DIAMONDS
```

➔ Press LEFT or RIGHT ARROW to scroll the menu options. The style options for the Test Print labels are: Diamonds, Chess, Bar Codes#1, Bar Codes #2, Setup Info, Hardware Info, Network Info. The three “info” labels will print the LPA’s system values for the system setup, hardware setup or network setup.

➔ Press ENTER to print chosen Test Label. The chosen label style will print. If you do not want to print proceed to next step.

➔ Press LEFT or RIGHT ARROW OR F5 to choose next test label to print. Repeat until all the desired test labels have been printed.

➔ To Exit after printing, or to Quit before printing press UP ARROW key.

7.0 Printing and Applying Labels

WARNING

FOX IV has provided the necessary guards and warnings within the confines of the LPA, but cannot anticipate each customer's individual installation and operational environments. It is the customer's responsibility to provide in-house safety guards to provide adequate worker safety for their respective production settings.

WARNING

An input signal from the product sensor will activate the LPA when the unit is energized unless it is placed in PAUSE.

This section provides a condensed overview of the print and apply process as well as suggestions on steps which would be preliminary to printing.

During power-up, the LPA will perform a self-diagnostic test and will indicate if the system has any existing fault or warning conditions. The LCD will show this diagnostic check while the Control Panel powers up. When the LCD screen and indicator lights display a ready state, it is recommended that you proceed to the Test Menu screen and confirm the operation of the Beacon Lights, if this option has been purchased.

Once the printer has been energized and configured (if necessary) for the desired application, the LPA should be placed in Pause before downloading labels from the host into the printer buffer. This will prevent any chance of having the system cycle before you are prepared to begin print operations.

➔ For information on the proper setup of the LPA refer to the previous chapters of this manual.

7.1 LABEL APPLICATION (POSITIONING) ADJUSTMENTS

To apply the labels at the desired location on the product:

➔ Mount the Product Sensor on the side of the conveyor, determining if the sensor should be mounted upstream from the Applicator Pad (product passes sensor before pad) or downstream from the Applicator Pad (product passes pad before sensor), depending on the application.

NOTE:	**It is important the Product Sensor be mounted as closely as possible to the Applicator Pad. If the spacing between the two is too wide, it may be to difficult to set the Product Sensor Delay to position the label properly.** **It is easier to position the label onto the product using the sensor delay when the sensor is mounted upstream from the Applicator Pad.**

➔ Set the Product Delay Time for the Product Sensor. Press the PRODUCT DELAY key on the Control Panel. See Section 6.2.1.3, *Product Delay (Set Time) Key*.

NOTE:	**The Product Sensor Delay, determines the amount of delay from the time that the Product Sensor detects the product to the time that the Applicator Pad is energized. Remember that the label will print first, so printing time will have to be accounted for. The longer the time entered, the farther back (closer to the trailing edge) the label will be placed onto the product. Conversely, if this value is set to zero, for example, the Applicator Pad will fire as soon as the label is printed.** **It is suggested that you begin by setting the Extend Time to 1.0 second (default time) to begin this adjustment procedure.**

Place the product sample on the conveyor and allow it move past the LPA. The label that is applied will be used as a reference point for positioning the rest of the labels.

➔ To move the label toward the leading edge of the product, decrease the Product Sensor Delay time. Begin by decreasing the time in intervals of 0.01 secs, then fine tune in intervals 0.01 secs. Repeat this procedure until the label is positioned where desired.

➔ To move the label toward the trailing edge of the product, increase the Product Sensor Delay time. Begin by increasing the time in intervals of 0.01 secs, then fine tune in intervals 0.01 secs. Repeat this procedure until the label is positioned where desired

If the label still cannot be positioned properly, remount the product sensor as follows:

➔ To position the label toward the leading edge of the product, move the Product Sensor upstream.

➔ To position the label toward the trailing edge of the product, move the Product Sensor downstream.

Once the label is positioned in the desired location on the product, secure the product sensor onto the conveyor.

If the LPA cycles when a product is not in position, a background object may be activating the sensor. To correct this problem, reposition the product sensor or adjust the product sensor. See section 9.5: Product Sensor, for more information on Product Sensor adjustments.)

WARNING 	**Interrupting the signal on the PRODUCT SENSOR will activate the LPA.** **Make certain that the path of the APPLICATOR PAD is clear.**

7.2 ADJUSTING THE CYLINDER EXTEND TIME

NOTE:	**Remember that the supply air pressure to the LPA should be 80 - 100 psi (550 - 690 kPa).**

➔ To set the Cylinder Extend Time, press the CYLINDER DELAY key (located on the keypad of the Control Panel). See Section 6.2.1.4, *Cylinder Extend (Set Time) Key*.

NOTE:	**The amount of time the Applicator Pad is energized through the Cylinder Extend Time, determines how far the pad travels during application of the label. The longer the time entered, the farther the distance the applicator pad travels. If this value is set to zero, for example, the Applicator Pad will not fire.** **Set the Cylinder Extend Time to 0.30 sec (default time) to begin this adjustment procedure.**

- If the Applicator Pad does not contact the product (if the stroke time is not long enough):

➔ Increase the Cylinder Delay time as shown in section 6.2.1.4: Cylinder Extend (Set Time) Key. Begin by increasing the time in intervals of 0.1 secs, then fine tune in increments of 0.01 secs.
A higher setting will allow the Applicator Pad more time to extend toward the product, therefore, increasing the stroke length.

- If the Applicator Pad remains on the product for too long (if the stroke time is too long):

➔ Decrease the Cylinder Delay Timeas shown in section 6.2.1.4: Cylinder Extend (Set Time) Key. Begin by increasing the time in intervals of 0.1 secs, then fine tune in increments of 0.01 secs.
A lower setting will decrease the amount of time that the Applicator Pad is extended (in contact with the product).

7.3 THE PRINT & APPLY PROCESS

Before labels can be printed and applied:

➔ Make certain that protective guards are properly secured and that everything is clear of the applicator pad and printhead assembly.

➔ Ensure that you have input time values for the Extend Time, Product Delay, and Vacuum Delay (if applicable). Remember that the Applicator will not move unless a value is input for Extend Time.

➔ Press the "PRINT" key on the Control Panel to feed a blank label to the pad, and to enable the Product sensor.

NOTE:	**If certain custom software has been added to the LPA, pressing the PRINT key will print the last label pattern in the print buffer. Data on custom systems will be given in chapter 10, if applicable.**

or

➔ to allow remote signals received through the interface package option to activate the LPA.

NOTE:	**You may wish to cycle several labels onto product samples, to ensure proper operation of the unit.**

8.0 PREVENTATIVE MAINTENANCE/CLEANING

WARNING

Prior to any maintenance procedures, be sure to turn the LPA off and disconnect the power cord and air supply hoses unless indicated otherwise.

WARNING

Maintenance operation should only be performed a trained and qualified technician.

8.1 CLEANING

8.1.1 GENERAL CLEANING

During normal operation, media debris may accumulate around the printer mechanism. The Printhead area should be cleaned with the FOX IV Cleaning Kit. A soft bristle brush or vacuum cleaner may be used to dust the interior.

CAUTION

Never use metallic tools to clean the interior of the LPA.

The exterior of the LPA should be dusted regularly. It is preferable to use a FOX IV Cleaning Kit to clean the exterior of the LPA, or a soft cloth dampened with isopropyl alcohol.

CAUTION

Do not use abrasive cleaners or solvents to clean either the exterior or interior of the LPA.

8.1.2 CLEANING THE PRINTHEAD

Occasionally, dirt may collect on the Printhead causing poor print quality, which is usually evidenced by a streak appearing in the same location on each printed label. (This condition may also appear if poor quality stock has been used; and for this reason, it is recommended that FOX IV supplies be used to obtain continuous high quality printing.) Direct thermal printing is especially damaging to printheads due to abrasion and dirt deposits. Follow these procedures to clean the printhead.

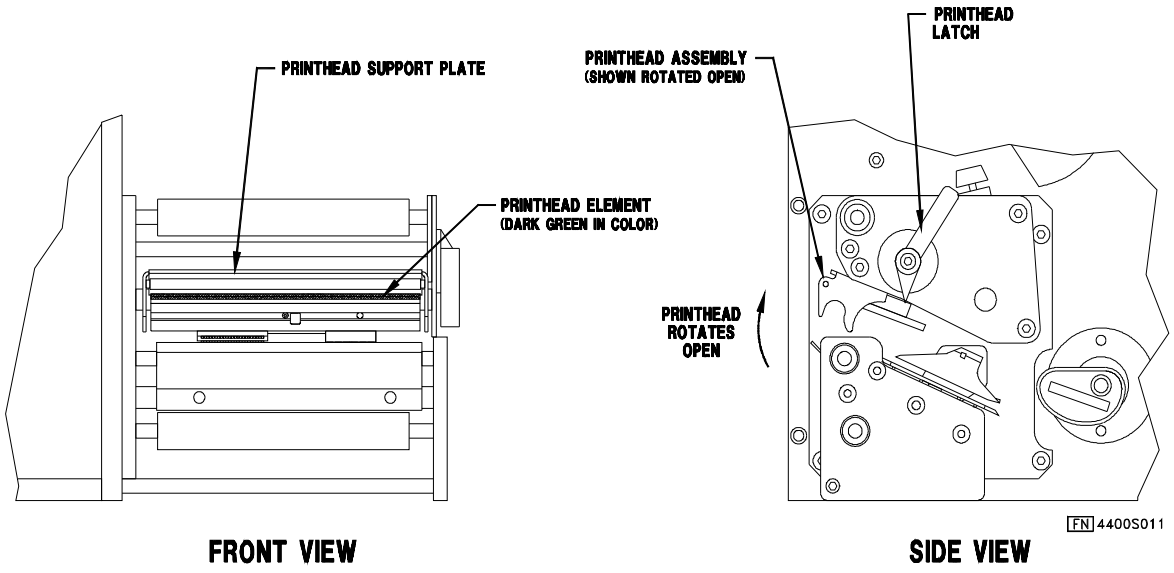


FIGURE 8A
CLEANING THE PRINTHEAD

➔ Turn the power to the LPA **OFF** and let it cool for 5 minutes.

➔ Lift the Printhead to the open position and remove the label stock and ribbon from under the Printhead.

➔ Use the Printhead Cleaner in the FOX IV Cleaning Kit, following directions in the kit. A cotton swab moistened with 100% superpolite alcohol may also be used, wiping across the Printhead several times. Repeat as necessary with clean swabs.

➔ Allow the Printhead to dry for 2 minutes before turning the power **ON**.

WARNING

Do not use sharp objects of any type on the print surface of the Printhead. Be aware that the edges of the Printhead may be sharp. Keep fingers away from the edges.

8.1.3 CLEANING THE APPLICATOR PAD

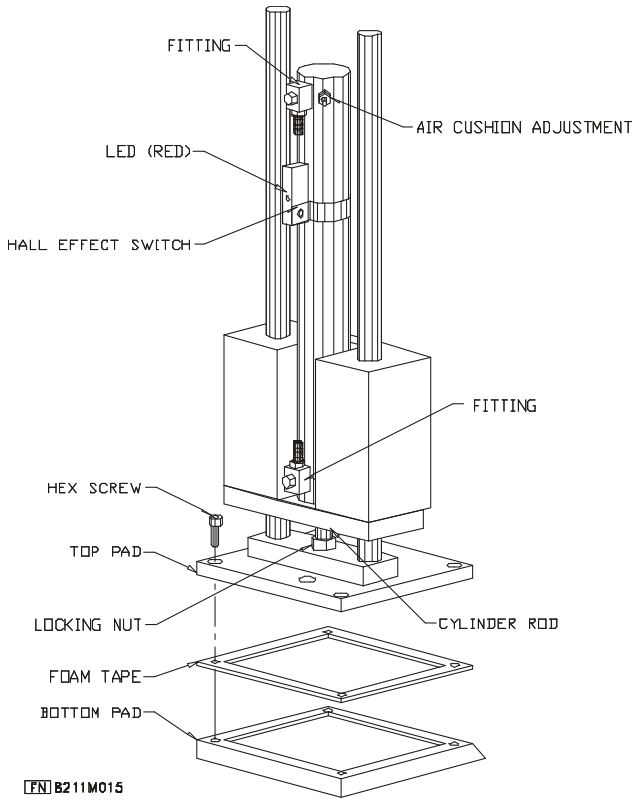


FIGURE 8B
DIAGRAM OF APPLICATOR PAD ASSEMBLY

The Applicator Pad must be clean to ensure that labels will be properly dispensed. Use the FOX IV Cleaning Kit cleaning agent or isopropyl alcohol and a clean soft cloth. No other cleaning agent should ever be used to clean the Applicator Pad.

Perform a maintenance check of the Applicator Pad Vacuum Chamber approximately every three months, at minimum, using the following procedures:

- ➔ Remove the Hex Screws found at the top of the Applicator Pad, allowing the Bottom Pad to drop downward.
- ➔ Check the holes of the Applicator Pad to make certain that there are no large particles of dirt or dust clogging any of the holes.
- ➔ Reassemble, making certain that the gasket (Foam Tape) is seated properly before replacing the Bottom Pad.
- ➔ Check for leaks by covering all the holes in the Applicator Pad with a piece of paper. If there is a leak, the vacuum will not retain the paper on underside of the Applicator. Sealing compound may be used to isolate leaks, but must dry thoroughly before the Applicator may be used.

8.1.4 CLEANING/REPLACING THE VACUUM GENERATOR

The flow of air through the Vacuum Generator creates the vacuum for the Applicator Pad, allowing the label to be held in place. If the label is not retained on the Pad and the Pad has already been inspected for leaks, then the Vacuum Generator should be cleaned as follows.

➔ Locate the Vacuum Generator inside the electrical enclosure, on the Applicator side of the unit (see Figure 8C). The Vacuum Generator housing will mark the pressure connection with a 'P' and the vacuum connection with a 'V'. Label the respective tubes before disconnecting them, to ensure proper reassembly.

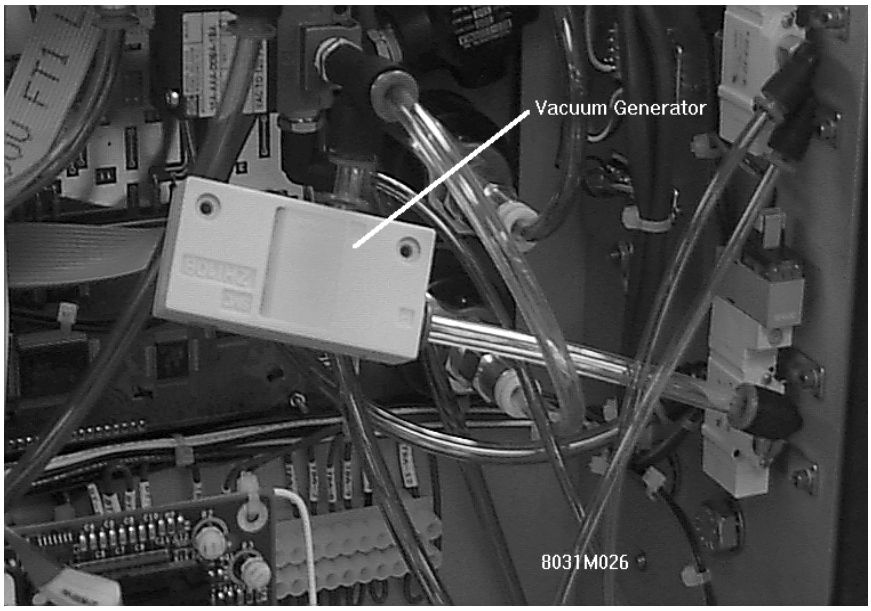


FIGURE 8C VACUUM GENERATOR

➔ Remove the two air lines attached to the Vacuum Generator by pushing in on the tube fitting (red collar) to release tension on the flexible tubing. Hold the tube fitting down while pulling the tube free.

➔ Carefully wipe inside the tube fittings, using a small cotton swab moistened with alcohol.

➔ Using a low pressure air nozzle (90 p.s.i. max. pressure) blow air through the 'V' port, then the 'P' port conducting three - 2 seconds bursts.

➔ Reconnect the Vacuum Generator and test the Applicator Pad's vacuum as outlined in (see Section 8.1.3: Cleaning the Applicator Pad)

➔ If the vacuum has not improved and all pneumatic assemblies & tubing are secure, replace the Vacuum Generator being careful to connect the air lines to the proper fitting.

8.1.5 CLEANING SCHEDULE

WARNING

All cleaning of printer/applicator parts should be done with isopropyl alcohol and a non-metallic tool. Using any metallic tools can damage machine parts, particularly the Printhead and surrounding parts.

What follows is a guide for general day-to-day cleaning of the parts of the LPA. To keep the machine running smoothly, adhere to the following guidelines:

General Cleaning Schedule

Items to be Serviced	Frequency	How to Clean
Printhead Rollers	8 Hours	Wipe with soft, lint-free cloth moistened with cleaning solution.$_H$
Applicator Pad Surface	8 Hours	Wipe with soft, lint-free cloth moistened with water or cleaning solution.$_H$
Air Jets	Daily	Blow tube clear with filtered air if needed. Wipe with soft, lint-free cloth moistened with iso-propyl alcohol. (See section 4.5: Positioning the Air Jets.)
Air Filter/Regulator	Check Daily or As Needed	Replace filter. Wipe parts w/ clean rag moistened in water and\or alcohol.
Printhead Element	Weekly or As Needed	Wipe with Cotton swab moistened with cleaning solution.$_H$ (See Section 8.1.2 of this manual, *Cleaning the Printhead*). Printhead cleaning needs depend upon the print mode which is being used.
H: Iso-propyl alchemy be used for cleaning, but FOX IV cleaning solution (part number PF217-007-00) is especially recommended for cleaning printheads/rollers		

8.2 SYSTEM MAINTENANCE

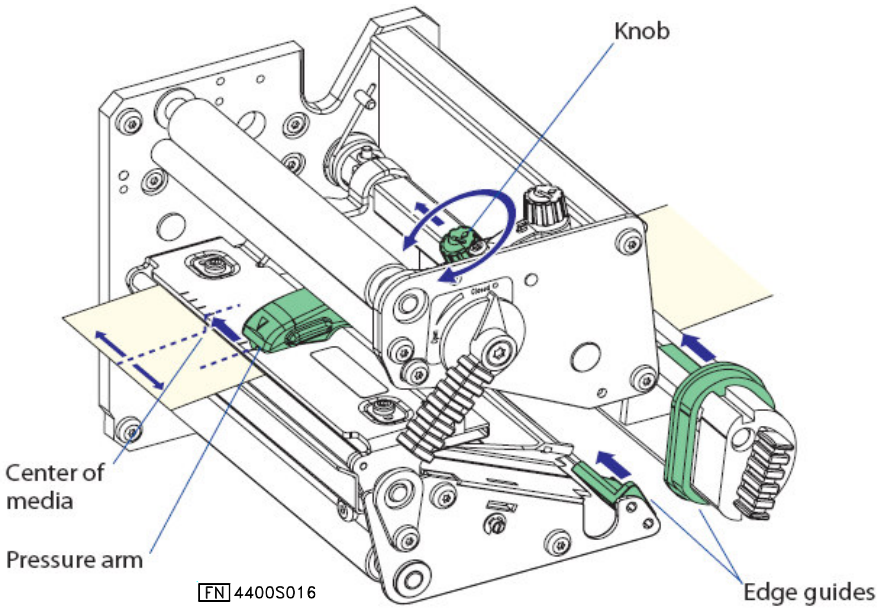
This portion of the manual covers all general aspects of Printhead and system adjustment and replacement.

8.2.1 PRINTHEAD ADJUSTMENT FOR NARROW MEDIA

The printer is factory-adjusted for full size media width. When using media less than full width, it is recommended that the Operator adjust the pressure arm so it becomes centered on the media. Thereby, an even pressure across the media is obtained.

A poorly adjusted pressure arm may be detected by a weaker printout on either side of the media path. To adjust the pressure arm see Figure 8D below. Proceed as follows:

FIGURE 8D PRINTHEAD ADJUSTMENT FOR NARROW MEDIA



- ➔ Remove the ribbon, if any.
- ➔ Loosen the knob that holds the pressure arm.
- ➔ Move the arm inwards or outwards until the arrow on the tip of the arm becomes centered with the media stock
- ➔ While moving the arm, push at the part where the knob is situated, not at the tip.
- ➔ If the arm is hard to move, lift the printhead and pull the printhead bracket free from the magnet in the arm.
- ➔ After having centered the arm, lock it by tightening the knob.
- ➔ Reload the ribbon if needed.

8.2.2 LABEL STOP SENSOR (LSS) POSITIONING AND ADJUSTMENT

8.2.2.1 POSITIONING THE LSS

The label stop sensor (LSS) is a photoelectric sensor that controls the LPA's media feed. It detects gaps between labels or slots or black marks in continuous label stock. This will depend upon the Media Type setup as detailed in section 6.6.6.2: MEDIA TYPE Parameters. The LSS should be aligned with the gaps, slots or black marks. If irregularly shaped labels are used the LSS should be aligned with the front tips of the labels.

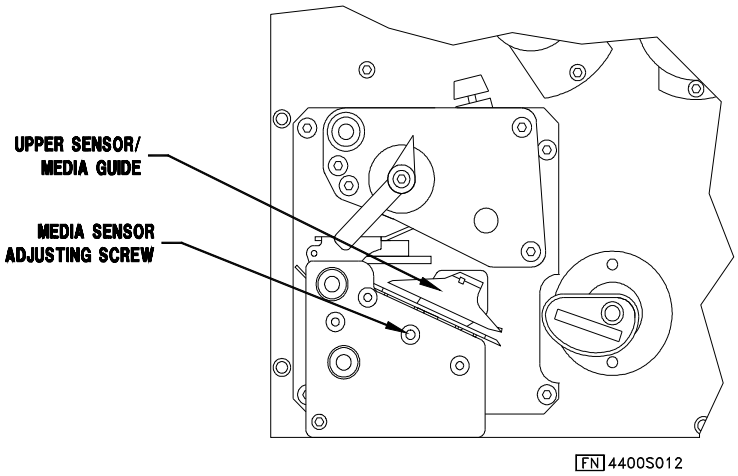


FIGURE 8E LABEL STOP SENSOR

The label stop/black mark sensor (LSS) can be moved laterally within a range of 0.0 mm to 50 mm (0.0 to 1.96 inches) from the inner edge of the media path. There is a crew running through the outer lower gable. Turning the screw *clockwise* will move the LSS inwards. Turning it *counter-clockwise* will move the LSS outwards. The position of the LSS in relation to the media is best checked by looking head on into the print unit when the printhead is raised or open. Align the center-point of the V-shaped upper sensor with the center of the slots or marks to be detected.

The linear markings on the lower guide plate can also be used for positioning of the LSS because they are spaced with an interval of exactly 1 cm (0.39 inches). This method is especially useful for black marks (measure the lateral position of the black marks with a ruler before loading the media).

TESTING THE LABEL STOP SENSOR (LSS)

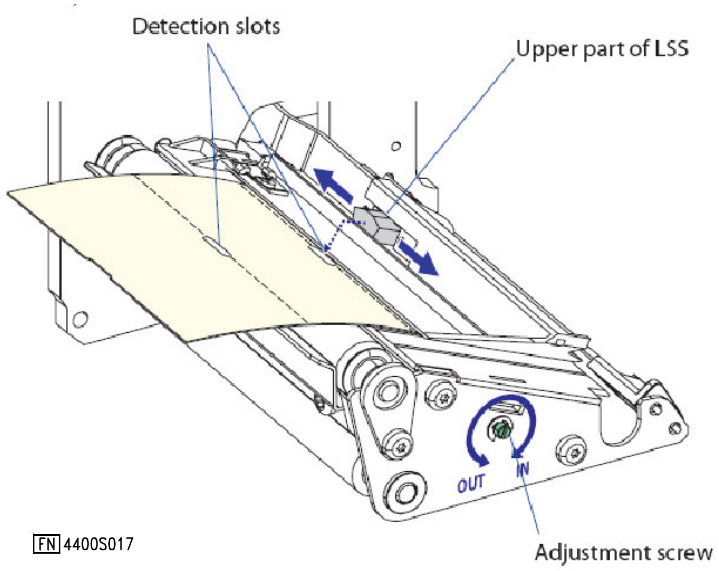


FIGURE 8F LABEL STOP SENSOR POSITIONING

(Reference Figure 8F)

In the Print Defines part of the Setup Mode, there are two ways to test Label Stop Sensor if there is a detection problem: LSS Auto and LSS Manual. The menus shown in section 6.6.7.4: LSS Test only provide indications from the Label Stop Sensor unit.

The testing menus can determine if the LSS unit is not physically in position, is blocked by dust or jammed by labels, or is defective in some way. This is also an aid if media has detection complications.

NOTE:	**There is no way to adjust the LSS function. The menus only indicate values from the LSS obtained by performing a TESTFEED.**

- **LSS Manual** shows the actual setting provided by the latest TESTFEED operation. It is also possible to try other settings. LSS Manual is primarily intended for service and is not described in this manual.

- **LSS AUTO** is the quick and normal way to determine if the Label Stop Sensor works properly and is able to detect gaps, slots, or black marks. To sue the LSS Auto proceed as follows:

  ➔ Check that the LPA is setup for the correct Media Type loaded or that will be used: Labels w/gaps, Ticket w/mark, Ticket w/gaps, Fix Length Strip, Variable length Strip (see Section 6.6.6.2: MEDIA TYPE Parameters).

  ➔ Perform a TESTFEED by simultaneously pressing the <Alt> and <Feed> keys on the LPA's control panel.

  ➔ Make sure there is a label positioned beneath the Label Stop Sensor, not a gap or mark.

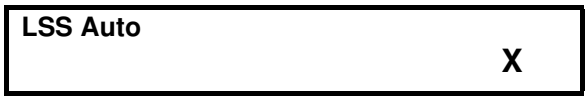
  ➔ Check that the media is routed as close to the center section as the guides allow.

  ➔ Enter the Setup Mode (see Section 6.5: System Setup Parameters) and go to the Setup Mode/Print Defines/LSS Test/LSS Auto menu (see Section 6.6.7.4: LSS Test) The menu should resemble this with the cursor (represented by an X) at the center).

LSS Auto
X

- For Label Gap or Slot detection:

➔ Lift the printhead and pull out the media slowly. When the LSS detects a gap or a detection slot the cursor should move to the right as shown below:



- For Black Mark detection;

➔ Lift the printhead and pull the media out slowly. When the LSS detects a black mark, the cursor should move to the left as shown below:.

NOTE: It is possible to refresh the cursor to the center position by pressing the DOWN ARROW or F4 key.

If the cursor behaved as described above the LSS is working and is properly aligned with the gaps, slots or black marks.

8.2.2.2 TROUBLESHOOTING THE LSS

If the cursor does NOT react to a gap, slot or black mark check the following:

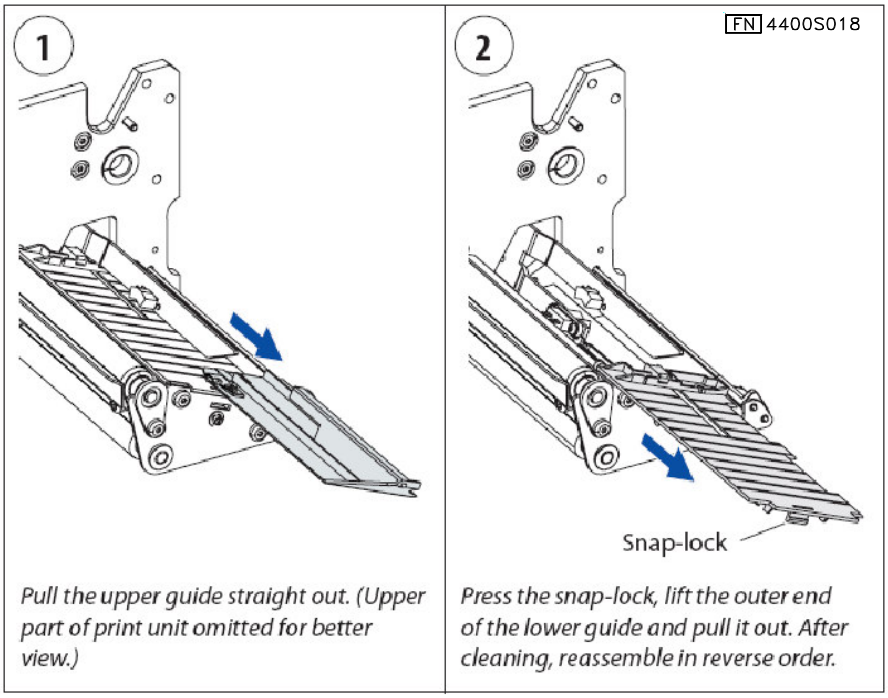
- Is the LSS laterally aligned with the slots or black marks?
- Are both the upper and lower parts of the LSS aligned with each other?
- Is the transfer ribbon properly loaded so that it does not interfere with the LSS? See section 4.4: Loading Ribbon.
- Is the LSS free of dust? Are the guides free from jammed or stuck labels or other objects which may interfere with the light that goes between the parts of the LSS? If not, clean as described in the next section.
- Does the media have some kind of pre-print that can disturb the detection?
- Is there too little difference between the black marks and the surrounding areas?
- Does the label liner have too little transparency?
- Does the LSS work with another type of media? If media is changed remember to change the MEDIA TYPE setup as described in section 6.6.6.2: MEDIA TYPE Parameters.

8.2.2.3 CLEANING THE LABEL STOP SENSOR (LSS)

The Label Stop Sensor, which controls the media feed, is partially enclosed by two plastic guides. The guides have slots where the light between the upper and lower part of the LSS can pass.

The guides must be kept free from stuck or jammed labels and other objects that can block the light. If the LPA begins to feed labels in an unexpected way proceed as follows:

FIGURE 8G LABEL STOP SENSOR CLEANING



(Reference Figure 8F for additional details on the sensor's locale.)

➔ Remove the two guides as described in Figure 8G.

➔ Check for dust or other debris on the sensors that might block the light.

➔ If necessary, clean the guides using a cleaning card or a soft cloth soaked in iso-propyl alcohol (wring so the liquid doesn't drip). DO NOT USE ANY OTHER CLEANSERS OR CHEMICALS!

8.2.3 PRINTHEAD PRESSURE ADJUSTMENT

The pressure of the printhead against the media or ribbon is factory adjusted. However, since the printhead may be used with a variety of media thicknesses, a Pressure Adjustment knob has been provided to ensure even print quality. This adjustment knob is located on the top of the printhead assembly as shown in Figure 8H below.

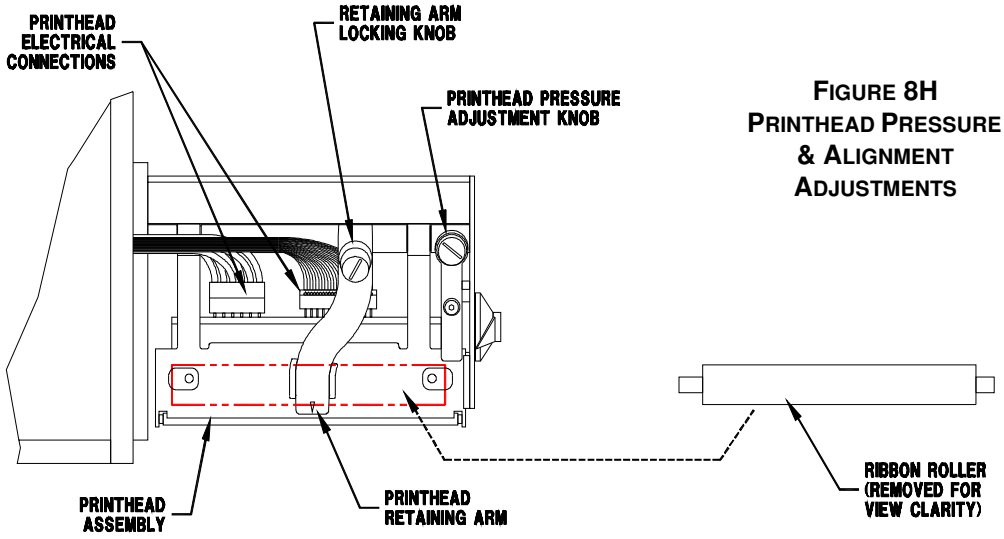


FIGURE 8H
PRINTHEAD PRESSURE & ALIGNMENT ADJUSTMENTS

CAUTION

Do not use more pressure than is necessary to for satisfactory print quality. Higher pressure increases wear and tear on the printhead and may shorten its operational life.

- **To Make Fine Adjustments in the Printhead Pressure:**

➔ Turn the pressure adjustment knob in small increments *clockwise* for *increased* pressure.

➔ Turn the pressure adjustment knob in small increments *counterclockwise* for *decreased* pressure.

➔ Print a few labels, preferably Test labels (see Section 6.6.7.2: Test Print), and check the print quality. Generally, higher pressure produces a darker printout and lower pressure a lighter printout.

➔ Repeat as needed until print quality is satisfactory.

- **To Make Major Adjustments in the Printhead Pressure:**

➔ Turn the knob *counter-clockwise* until there is no pressure remaining. Test by placing a label under the printhead. When the label is pulled out there should be little resistance.

➔ Turn the knob four (4) turns *clockwise.*

➔ Fine-tune the Printhead pressure using the process Fine Adjustment process given above.

8.2.4 REPLACING THE PRINTHEAD

The printhead is subject to wear and tear from the thermal transfer ribbon or direct thermal media, and from rapid heating and cooling during the printing process. If repeated cleaning and adjustment of the printhead does not restore print quality it may be necessary to replace the printhead. This is typically a last report and only to be done if it is believed that the "head" has truly worn out.

If the printhead assembly must be replaced proceed as follows:

CAUTION

It is recommended that personnel wear a grounding strap or some other form of ESD protection, to minimize any potential of damage to the equipment.

8.2.4.1 PRINTHEAD REMOVAL

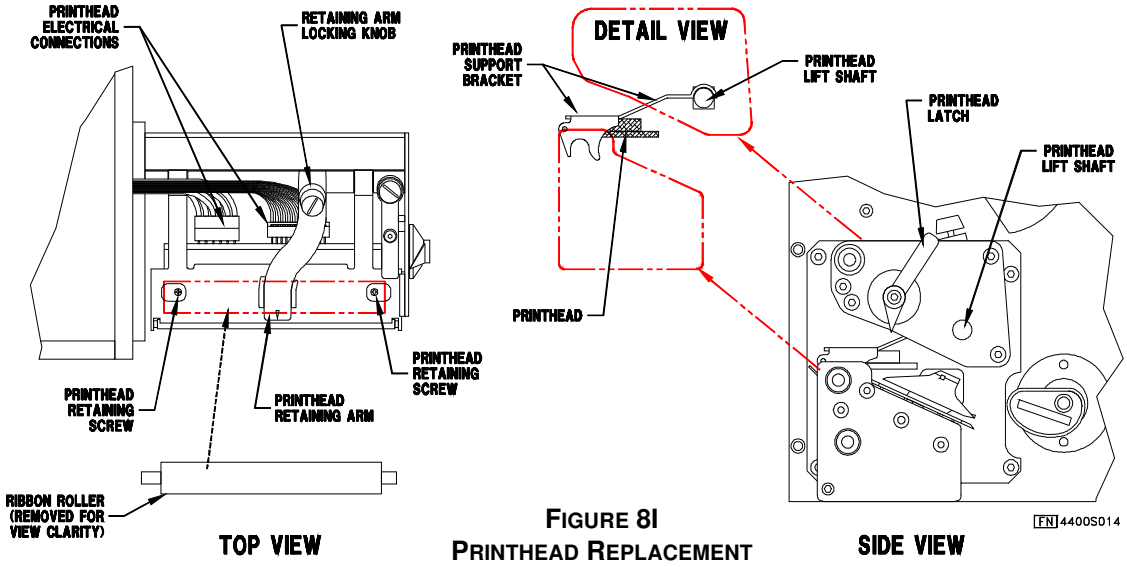


FIGURE 8I
PRINTHEAD REPLACEMENT

➔ Turn the LPA off.

➔ Turn the printhead lift lever *counter-clockwise* to open the printhead.

➔ Remove any media or ribbon.

➔ Pull the Printhead Support Bracket away from the magnet on the Printhead Retaining Arm (see Figure 8I).

➔ Disconnect the hooked fingers of the Printhead Support Bracket from the Printhead Lift Shaft (small round shaft under the Support Bracket) and pull out the printhead as far as the cables allow.

➔ Disconnect the Printhead Electrical Connection cables, noting the snap-lock on the inner connector.

NOTE: Ensure that the electrical cables are gripped at the connector when removing them from the Printhead. Do not pull the cables from the Printhead by gripping the wires.

➔ Remove the printhead from the Printhead Assembly. Proceed to the next section for details on installing a new printhead.

8.2.4.2 PRINTHEAD REPLACEMENT

➔ Plug the two Printhead Electrical Connections into the new Printhead. (see Figure 8I)

➔ Fit the hooked fingers of the Printhead Support Bracket over and onto the Printhead Lift Shaft. Make sure that the cables do not prevent the bracket fingers from being properly seated, and that the support bracket does not foul or damage the cables.

➔ Close the printhead by turning the Printhead Latch *clockwise* so that the Retaining Arm magnet engages the Printhead Support Bracket.

➔ The printhead must be cleaned if touched by any fingers or oily substances (see Section 8.1.2: Cleaning the Printhead).

➔ Reload the media and ribbon (if required for thermal transfer printing).

8.3 TROUBLESHOOTING

Symptom	Possible Cause	Remedy	Refer to Section
Overall weak printout	Wrong Paper Type parameter	Change Paper Type parameter	6.6.6.3
	Contrast value too low	Change Contrast parameter	6.6.6.4
	Printhead pressure too low	Adjust	8.2.3
	Worn printhead	Replace Printhead	8.2.4
	Wrong printhead voltage	Replace CPU board	Call FOX IV at (724) 387-3500

Symptom	Possible Cause	Remedy	Refer to Section
Printout weaker on one side	Uneven printhead pressure	Adjust arm alignment	8.2.1
Weak spots	Foreign particles on media	Clean or replace	4.0
	Media and ribbon don't match	Change to match	6.6.6
	Poor media or ribbon quality	Select a better brand of media or ribbon	4.0 and 6.0
	Worn printhead	Replace Printhead	8.2.4
	Worn platen roller	Check and replace.	Call FOX IV at (724) 387-3500
Overall dark printout	Wrong Paper Type parameter	Change Paper Type parameter	6.6.6.3
	Contrast value too high	Change Contrast parameter	6.6.6.4
	Printhead pressure too high	Adjust	8.2.3
	Wrong printhead voltage	Replace CPU board	Call FOX IV at (724) 387-3500
Excessive bleeding	Wrong Paper Type parameter	Change Paper Type parameter	6.6.6.3
	Contrast value too high	Change Contrast parameter	6.6.6.4
	Printhead pressure too high	Adjust	8.2.3
	Faulty energy control	Replace CPU board.	Call FOX IV at (724) 387-3500
Dark lines along media path	Foreign objects on printhead	Clean printhead	8.1.2

9.0 'Options

9.1 EXPANSION MODULES

The 4400 Standard LPA is equipped with a CompactFlash memory card adapter in the top panel as shown in Figure 3D - Printer Interface panel. The card must be a CompactFlash card of 8MB to1 GB. CompactFlash card marked CF+ are *not* compatible with this machine.

In addition, there are pre programmed CompactFlash cards such as: font cards which provide additional fonts as long as the card remains in the card slot; font install cards which permanently install fonts even when the card has been removed; firmware cards that replace the LPA's firmware with an updated version.

There is also a card theft protection plate that covers the card when installed in the slot.

NOTE:	**Always turn the power OFF before installing or removing a card. A memory card is only detected if it is inserted before the printer is powered ON.** **The card will only fit into the slot one-way. Memory cards have a arrow to indicate the direction of insertion.**

9.2 BEACON / INTERFACE PACKAGE OPTIONS

Optional remote indication and/or system control is possible through these options. Both types of optional equipment require additional cabling, sensors and/or additional components.

9.2.1 INTERFACE MODULE

This option allows signals and data on the LPA's operating status to be transferred to a system external to the unit. These signals define where the LPA is in it's operating cycle, if a fault or warning condition exists, and allow remote initiation of the print cycle.

The connections for the Interface Package are outlined in the following table. Interface is made through the DB-25 connector marked I/O, on the Side Panel (see Section 3.5.1: Side Panel (Applicator Side)).

Signal Description	Input/ Output	DB-25 Pin	Function
Start Print Cycle Input	Input	1	Initiates the Print & Apply Cycle (as if the system received a Print Signal), when this line is pulled to ground. This line must be held low for a duration of ~30 msec to begin the cycle.
Pad Home	Output	14	Closes an open contact switch (rated @ 24V dc) when the Applicator pad is in its “Home” position.
Print Cycle Complete	Output	15	Closes an open contact switch (rated @ 24V dc) for a 30 msec, when the Printhead has finished printing the current label.
Apply Cycle Complete	Output	16	Closes an open contact switch (rated @ 24V dc) for a 30 msec, when the Applicator Pad has finished applying a label.
Fault	Output	17	Closes an open contact switch (rated @ 24V dc) when the printer experiences an Out-Of-Label or Out-of-Ribbon Condition.
Warning	Output	18	Closes an open contact switch (rated @ 24V dc) when the printer is experiencing a Low Label Condition.
Output Common	Output	9	This pin is the common connection for all outputs and allows a maximum total current of 0.8 Amps. for all outputs.

9.2.2 FAULT/WARNING BEACON PACKAGE

This option provides a blue and a amber beacon tower that is connected to the LPA. The blue/amber lights are used to convey Fault/Warning information in this package, as follows:

- Fault: An illuminated blue beacon signals a Fault situation. Fault conditions (such as Out of Label) signal a state where operation is suspended until the condition is cleared.
- Warning: An illuminated amber beacon signals a Low Label situation. This signal state allows operation to continue, but the operator is prompted to check on the system’s status.

9.2.3 PNEUMATIC MONITOR PACKAGE

The Pneumatic Monitor package is comparable to the Fault/Warning Beacon package (see See 9.2.2, Fault/Warning Beacon Package) but contains additional parts and software to monitor the input pressure of the LPA.

NOTE: An input pressure error occurs if the input pressure to the LPA falls out of the specified range.

The blue/amber lights are used to convey Fault/Warning information in this package, as follows:

- Fault: An illuminated blue beacon signals a Fault situation. Fault conditions (such as Out of Label) signal a state where operation is suspended until the condition is cleared.
- Warning: An illuminated amber beacon signals a Low Air Pressure or Low Label situation. Warning conditions signal a state where operation may continue, but the operator is prompted to check on the system's status.

9.2.4 FAULT/WARNING BEACON PACKAGE WITH INTERFACE MODULE

This option provides the same abilities as the Fault/Warning Beacon (section 9.2.2), combined with the signal ability of the Interface Package (section 9.2.1).

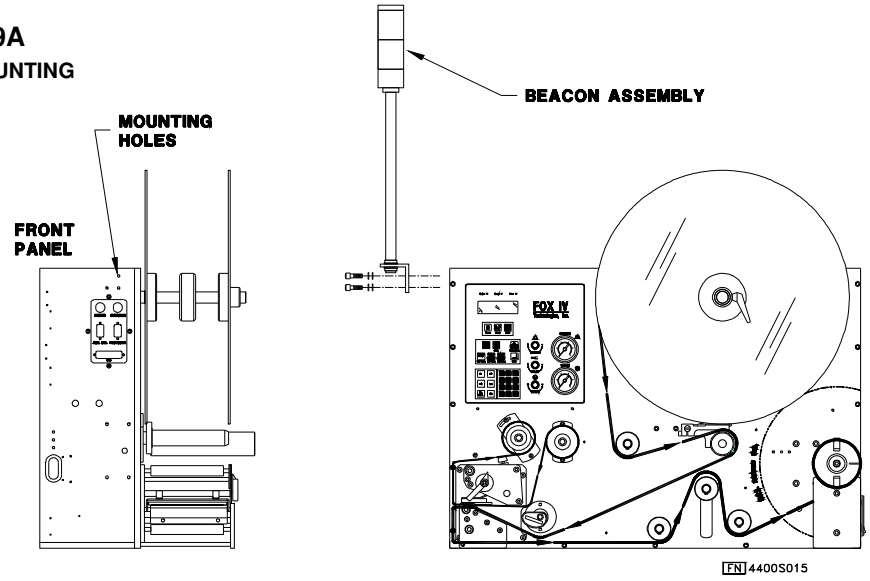
9.2.5 PNEUMATIC MONITOR PACKAGE WITH INTERFACE MODULE

This option provides the same abilities as the Pneumatic Monitor Package (section 9.2.3), combined with the signal ability of the Interface Package (section 9.2.1).

9.2.6 MOUNTING THE BEACON

If a Beacon option was ordered with the system, it is advisable to mount it before mounting the LPA to the conveyor line. To mount the Beacon Post:

FIGURE 9A
BEACON MOUNTING



➔ Orient the mounting holes of the Beacon to the holes on the side panel of the LPA and secure into place using the provided screws.

➔ Connect the 5-pin connector assembly of the beacon to the 5-pin plug located on the side panel of the LPA (Power Panel).

9.3 MOUNTING ACCESSORIES

9.3.1 U_ARM AND ACCESSORIES

The LPA is designed so that it can be mounted to a stand, or other fixturing device, using a 3/4" bolt and U-arm. The Offset Arms arms are provided to adapt the LPA for mounting to the U-arm configuration. The LPA is then mounted as follows:

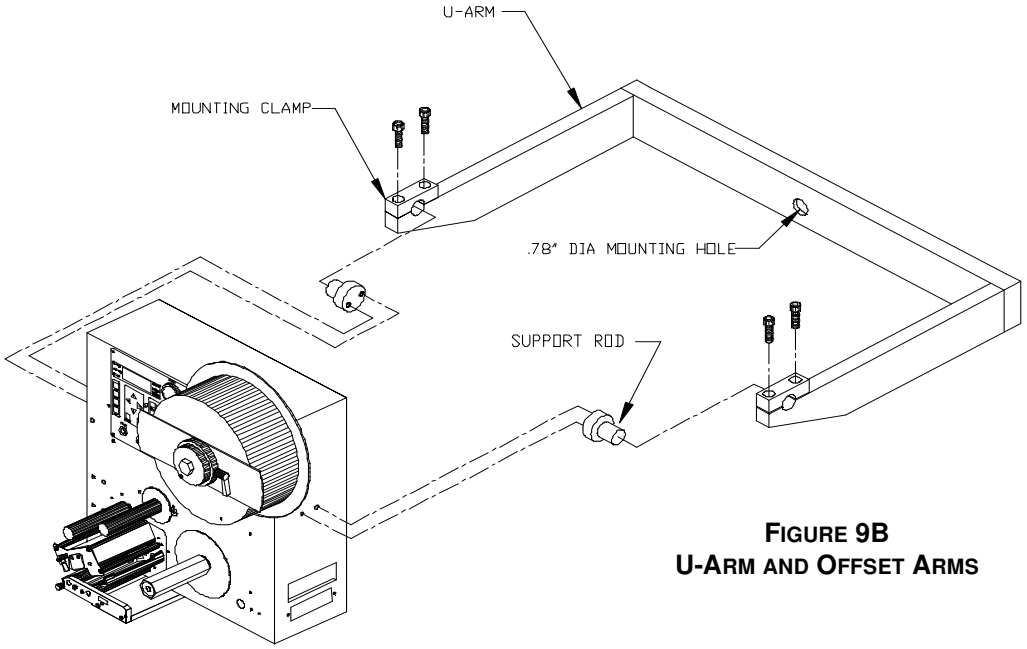


FIGURE 9B
U-ARM AND OFFSET ARMS

NOTE:	**The optional MOUNTING STAND that can be purchased with the LPA utilizes the U-ARM configuration. The following specifications should also be followed when mounting to this stand.**

➔ Secure the support rod to the side plates of the LPA using the four 0.40 dia. holes (two each side) and fasten into place using the screws provided. (If the U-Arm was purchased with your LPA, this may already be done.)

➔ Secure the U-arm to the stand, or other mounting device, using the Mounting Hole provided in the base of the U-arm and a 3/4" bolt.

➔ Insert the Support Rods of the Offset Arms into the recessed section of the U-arm and hold into place. Secure the LPA into place using the 3/8-16nc" bolts provided with the two U-arm Clamps. Torque the bolts to 36 ft-lbs in increments of 6 ft-lbs each bolt.

CAUTION	Use extreme caution when lowering the LPA onto the U-ARM. The LPA is a heavy unit and may be difficult to lift by one individual. Once the LPA is supported by the U-ARM, it must be held into place until it is secured with the U-ARM CLAMPS. The weight distribution of the LPA is not balanced, therefore, it would tend to pivot on the support rods. The U-ARM CLAMPS will supply enough pressure to hold the unit into place.

9.3.2 MOUNTING STAND

An optional Mounting Stand can be purchased with the LPA that utilizes a standard U-arm configuration. Offset arms are provided with all stands, that mount directly to the sides of the LPA, for easy assembly to the U-arm. Once mounted on the stand, the LPA can be rotated and locked into various positions for printing. .

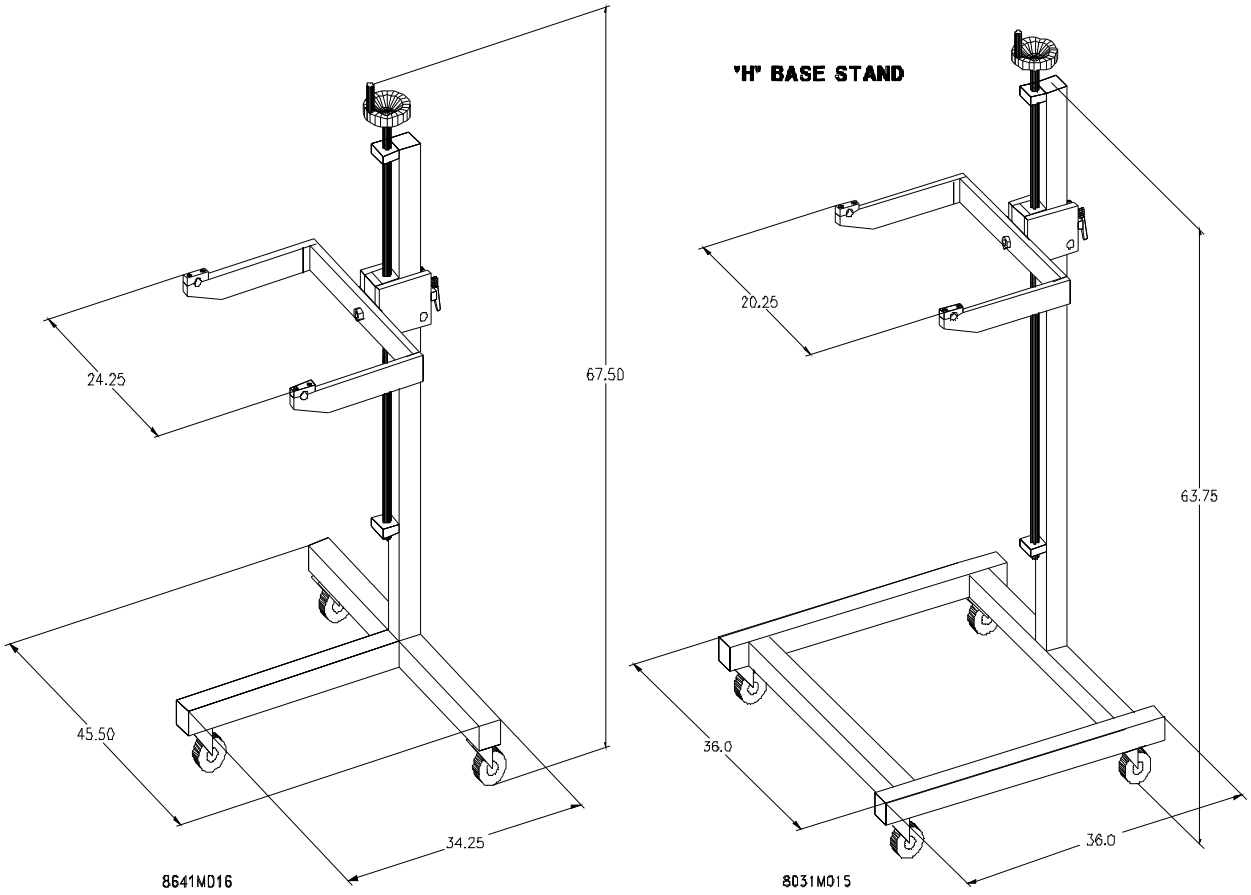


FIGURE 9C
MOUNTING STAND

9.4 LOW LABEL SENSOR

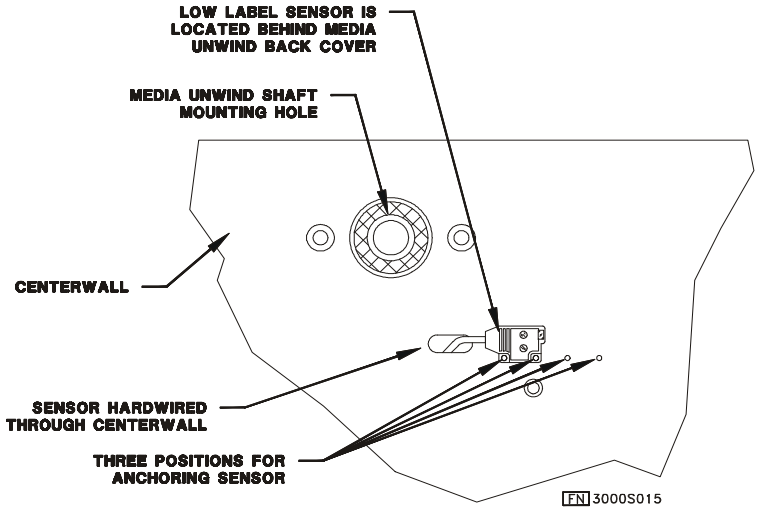
The Label Low Sensor activates the Warning Beacon to alert the operator of a low label situation. This photo-eye sensor is typically not adjusted after manufacturing as it is located behind the media unwind assembly. It's position may be moved to allow more or less media stock on the unwind roll before signal activation. Proceed as follows

➔ Remove the front and back media unwind hubs.

➔ Remove the two #2 screws, relocate the sensor in one of the three possible sensor hole locations, and replace the #2 anchoring screws.

➔ Replace the front and back media unwind hubs. .

FIGURE 9D
LOPW LABEL SENSOR
ADJUSTMENT



When the label stock is running low, the Low Label signal state should be **ON**. To test the Label Low input:

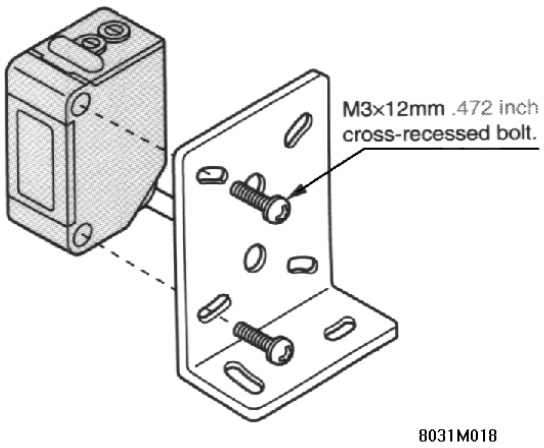
➔ While monitoring this signal state, remove the label stock from the Unwind Hub.

➔ Turn the Unwind Hub so that the sensor is <u>not</u> visible through one of the slots in the Unwind Back Plate.

➔ Clear the Fault condition by feeding label/ribbon stock through the Printhead as noted by the display instructions.

➔ Once the error is cleared, rotate the Unwind Back Plate until the Low Label Sensor visibly aligns with one of the open slots in the plate. The input state should change from **OFF** to **ON** (a very small red LEDon the sensor illuminates) as the slot passes in front of the sensor. If the signal state does not change, the sensor and it's wiring may need maintenance.

9.5 PRODUCT SENSOR



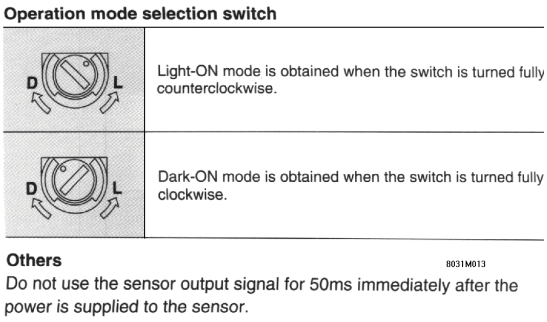


FIGURE 10A
PRODUCT SENSOR
ADJUSTMENT

The Product Sensor detects the presence of the product and activates the "print cycle". The print cycle begins by printing a label and feeding it to the applicator. The system then waits the designated Delay Time (see Section 6.2.1.3: Product Delay (Set Time) Key), after which the applicator extends to place the label, then returns to await the beginning of the next Print command. The mounting position of the Product Sensor determines the rough placement of the label on the product (see Section 7.1: Label Application (Positioning) Adjustments). The "DB9" Connector located on the back of the printer connects the Product Sensor to the LPA. (Note that other devices can be used to trigger the apply cycle.)
Product Sensors of the following type may be used:

TYPE	PIN NUMBER	PIN DESCRIPTION
12 - 24 VDC Photoeye (Provided)	1	100mA max current allowed
	2	GND
	6	Signal
Device using NPN Transistor w/open collector output	2	GND
	6	Signal
Mechanical Switch	2	GND
	6	Signal

CAUTION	
⚠	**The internal signal is pulled up to +5VDC.** **Use shielding cables which should be grounded at the LPA end. It is also recommended that a 200 Ω ferrite be attached to the cable for adequate EMI shielding.**

The Product Sensor supplied by FOX IV has a range of 12"(300mm) and has a sensitivity adjustment for different sensing levels. This sensor has two modes of operation, Light Operate and Dark Operate. When an object is in front of the Product Sensor, the LED, located on the back of the sensor is lit. When in Light Operate mode, the factory preset mode, the sensor will trigger when the LED turns on (is lit). This mode would therefore apply a label when the leading edge of the product is detected by the sensor. When in Dark Operate mode, however, the sensor will trigger when the LED turns off (is not lit). This mode would therefore apply a label when the trailing edge of the product is detected by the sensor.:

NOTE:	**For "standard" LPA, the sensor should be set to Light Operate Mode. If the Dark Operator Mode is required, custom work is needed and must therefore be specified prior to order placement.** **If the sensor is set to Dark Operator Mode for a "standard" unit, the cylinder will always cycle one time on power-up.**

To adjust the Product Sensor Delay to the correct time for the size of the product.

➔ Adjust the sensitivity by turning the Gain on the top of the Product Sensor. The red LED located on the top of the Product Sensor is provided to aid in setting the sensitivity.
To adjust to a lower sensitivity, turn the Gain counter-clockwise. To adjust to a higher sensitivity, turn the Gain clockwise.

NOTE:	**The PRODUCT SENSOR should be set to a lower sensitivity if it is being triggered by background objects. If the PRODUCT SENSOR does not trigger when the product passes in front of the SENSOR, it should be set to a higher sensitivity.**

9.6 APPLICATION OPTIONS

NOTE:	**The following application options require custom work and must therefore be specified prior to order placement.**

9.6.1 CYLINDER STROKE LENGTHS

In order to customize the LPA to meet individual application requirements, applicators are available in the following Cylinder Stroke lengths:

- 8.0" (203mm)
- 14.0" (357mm)
- 20.0" (508mm)

NOTE:	**The lengths specified above do not reflect the actual distance that the LPA can be positioned from the product. The Applicator Pad must travel 2.50" (63.5mm) from the peel point (point at which the label is applied) before reaching the bottom of the LPA. Therefore, an LPA that has a cylinder length of 14", for example, can be positioned no more than 11.50" (292mm) from the product in order to make contact.**

9.6.2 SOFT PAD

For applications requiring cushioned application, a soft Applicator Pad is available. This pad is manufactured from foam rubber rather than hard plastic, as the standard Applicator Pad. This option is useful for applying labels to fragile products or products that have irregular surfaces.

9.6.3 RANDOM STROKE SENSOR

The Random Stroke Regulator controls the trip point at which the applicator will return to its home position, once it makes contact with the product. This allows products of different sizes to be marked without concern of the applicator crushing objects which require a shorter stroke of the applicator.

There are several sensor types which may be used with the Random Stroke function, depending upon the customer's application. If this option is purchased, additional information on the sensor's operation will be located in text found after this chapter. Regardless of the type of sensor used, all Random Stroke sensors will interface with the LPA via the Auxiliary connection on the Interface Panel.

Model 4600 Standard - TECHNICAL DRAWING LIST

STANDARD ASSEMBLY

F0153-916-00	4600S Thermal Transfer Main Assembly (203 dpi)
F0153-502-00	4600 Air Jet Assembly
F0153-514-00	4600S Electrical Assembly
F0153-516-00	Control Panel Assembly
F0153-517-00	Idler Pulley Assembly
F0153-519-00	4400S/4600S Series Pneumatic Assembly (24VDC)
F0153-538-00	4600 Print Engine Assembly (203 dpi)
F0113-507-00	Rewind Motor Assembly
F0088-533-00	Rewind Shaft Assembly
F0088-532-00	Unwind Shaft Assembly
C4228-501-00	Media Unwind Rear Cover Assembly
C4229-501-00	Media Unwind Front Cover Assembly
C4288-503-00	Rewind Hub Sub-Assembly

OPTIONAL ASSEMBLIES

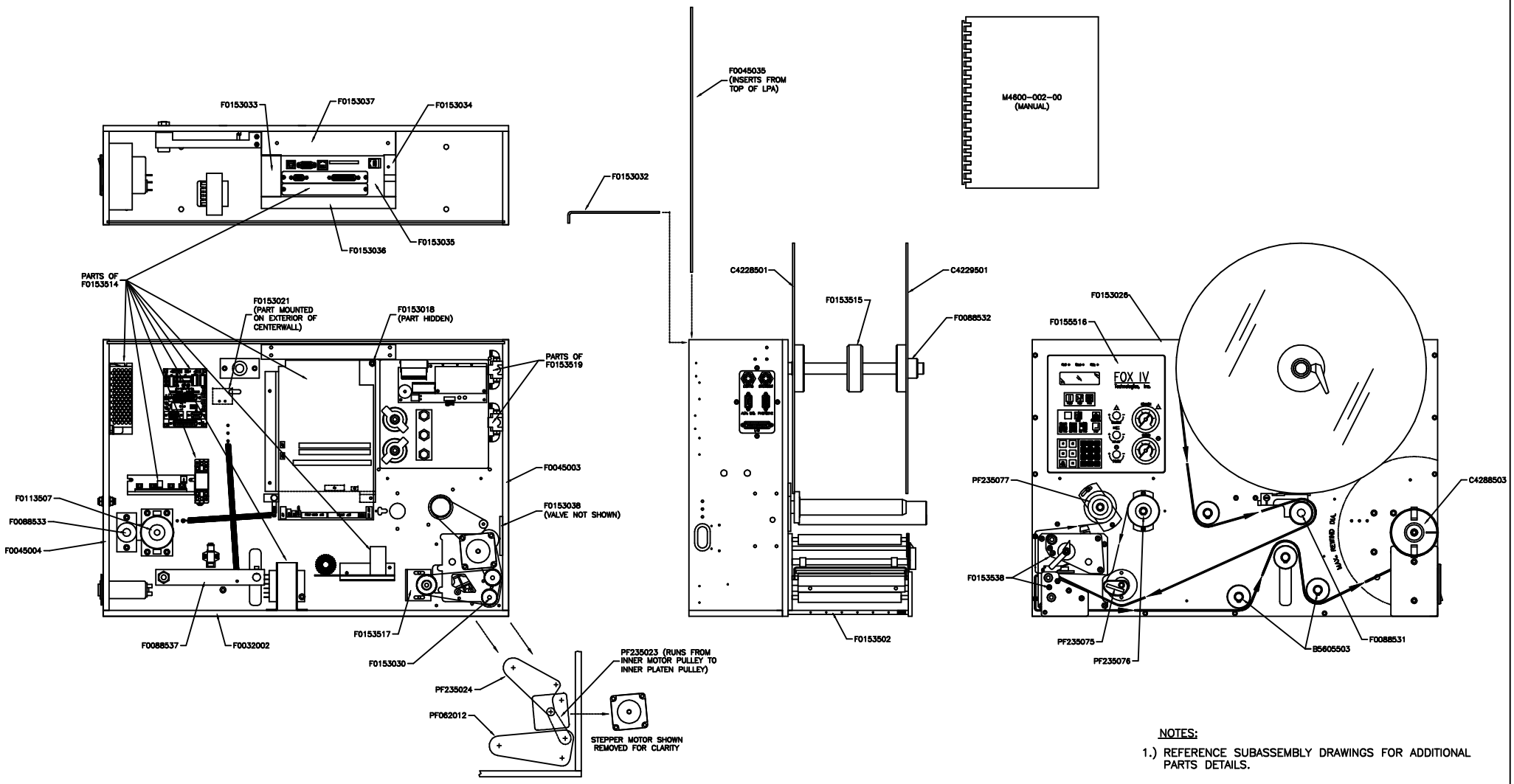
F0010-507-00	Repeater Applicator Assembly
F0058-532-00	8-inch Cylinder Assembly w/ Swing Arm
F0058-537-00	14-inch Cylinder Assembly w/ Swing Arm
F0058-533-00	20-inch Cylinder Assembly w/Swing Arm

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:38 AM

Parent Item Number: F0153-916-00 4600 STANDARD TT 203DPI Type: A

Component	Description	Qty Required	UM	Type
B5605-503-00	MEDIA ROLLER SUB-ASSEMBLY	3.00	EA	A
C4228-501-00	UNWIND REAR COVER ASSEMBLY	1.00	EA	A
C4229-501-00	UNWIND FRONT COVER ASSEMBLY	1.00	EA	A
C4288-503-00	REWIND HUB SUB-ASSEMBLY	1.00	EA	A
F0032-002-00	BASE PLATE	1.00	EA	A
F0045-003-00	FRONT PANEL	1.00	EA	A
F0045-004-00	REAR PANEL	1.00	EA	A
F0045-035-00	BACK COVER	1.00	EA	R
F0088-531-00	BRAKE ASSEMBLY 7"	1.00	EA	B
F0088-532-00	UNWIND SHAFT ASSEMBLY, 7"	1.00	EA	B
F0088-533-00	REWIND SHAFT ASSEMBLY, 7"	1.00	EA	A
F0088-537-00	DANCER ARM ASSEMBLY, 7"	1.00	EA	A
F0113-507-00	REWIND MOTOR ASSEMBLY	1.00	EA	A
F0153-018-00	SPACER	1.00	EA	A
F0153-021-00	PHOTOEYE BRACKET	1.00	EA	A
F0153-026-00	4400/4600 STANDARD CENTERWALL	1.00	EA	A
F0153-030-00	4400 PLATEN DRIVE PULLEY	1.00	EA	A
F0153-032-00	4400/4600 STANDARD TOP COVER	1.00	EA	R
F0153-033-00	COVER BLOCK, LEFT	1.00	EA	A
F0153-034-00	COVER BLOCK, RIGHT	1.00	EA	A
F0153-035-00	4400 PANEL, SIGN'L I/O, REWORK	1.00	EA	A
F0153-036-00	BLOCK END BRACKET	1.00	EA	R
F0153-037-00	POWER ENTRY COVER	1.00	EA	R
F0153-038-00	VALVE BRACKET	1.00	EA	A
F0153-045-00	FRONT PANEL REWORK	1.00	EA	R
F0153-502-00	4601 AIR JET ASSEMBLY	1.00	EA	B
F0153-514-00	4400/4600 STD ELECTRICAL ASS'Y	1.00	EA	B
F0153-515-00	UNWIND SHAFT 3" CORE SPACER	1.00	EA	A
F0153-516-00	CONTROL PANEL ASS'Y	1.00	EA	B
F0153-517-00	MXL IDLER PULLEY ASS'Y	1.00	EA	B
F0153-519-00	4400/4600 PNEUMATIC ASS'Y	1.00	EA	B
F0153-538-00	4600 PRINT ENGINE ASSY, 203DPI	1.00	EA	B
M4600-002-00	4600 STANDARD MANUAL	1.00	EA	R
PF010-028-00	SPRING,EXTENSION .38"ODx3.75"L	1.00	EA	R
PF062-012-00	TIMING BELT	1.00	EA	R
PF235-047-00	TIMING PULLEY, 42 TEETH	1.00	EA	R
PF235-070-00	PX6i EASYCODER PRINTER 203DPI	1.00	EA	R



NOTES:

1.) REFERENCE SUBASSEMBLY DRAWINGS FOR ADDITIONAL PARTS DETAILS.

REVISION

DRFTSMN	RPF	10/8/07
CHKD		
APPD		

TOLERANCES
UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH: 125

FOX IV
Technologies, Inc.

MODEL 4600S
TT ASS'Y (203 dpi)

DRAWING NO.
F0153-916-00

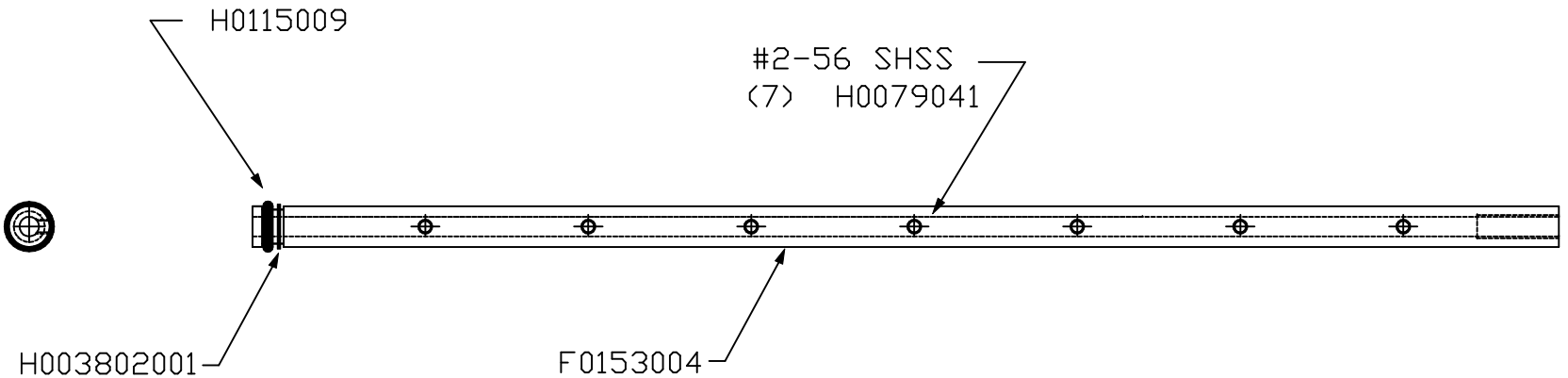
SCALE: N.T.S. | SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:38 AM

Parent Item Number: F0153-502-00 4601 AIR JET ASSEMBLY Type: B

Component	Description	Qty Required	UM	Type
F0153-004-00	4601 AIR JET TUBE	1.00	EA	A
H0115-009-01	"O" RING 7/32ID X 11/32OD	1.00	EA	R
H0038-020-01	RETAINING RING	1.00	EA	R
H0079-041-02	SHSS #2-56 X .125 LG CUP PT	5.00	EA	R



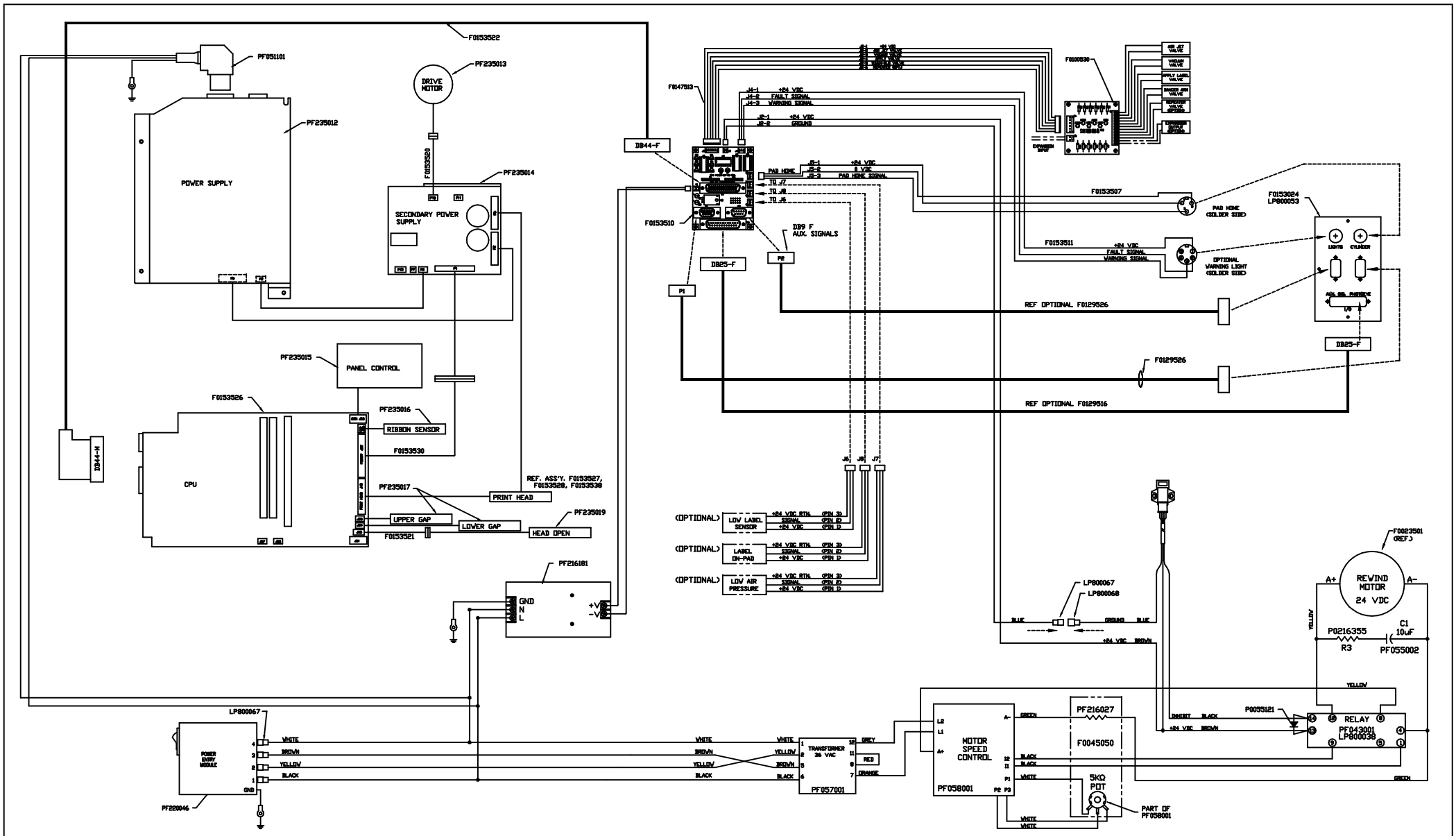
REVISION		DRFTSMN	DJM	8/13/03	FOX IV Technologies, Inc.
		CHKD			4601 AIR JET ASSEMBLY
		APPD			DRAWING NO. F0153-502-00
		TOLERANCE UNLESS OTHER WISE SPECIFIED 3 PLACE DECIMAL ± .005 2 PLACE DECIMAL ± .01 1 PLACE DECIMAL ± .06 CHAMFERS ± 5° ANGLES ± 1/2° FINISH: 125			SCALE: N.T.S. SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:38 AM

Parent Item Number: F0153-514-00 4400/4600 STD ELECTRICAL ASS'Y Type: B

Component	Description	Qty Required	UM	Type
F0045-050-00	POT & RESISTOR MNTNG BRKT	1.00	EA	A
F0100-530-00	VALVE CONNECTION ASSEMBLY	1.00	EA	A
F0129-513-00	BEACON-PLC BOARD CABLE ASS'Y	1.00	EA	B
F0129-526-00	PROD SENSOR/AUX SIGNAL CABLE	1.00	EA	A
F0147-513-00	VALVE CONTROL/SIGNAL INTERFACE	1.00	EA	B
F0153-024-00	INTERFACE CONNECTOR PANEL	1.00	EA	A
F0153-507-00	PAD HOME/INTERFACE CABLE ASS'Y	1.00	EA	B
F0153-510-00	SIGNAL INTERFACE BOARD ASS'Y.	1.00	EA	A
F0153-520-00	MOTOR CABLE EXTENSION 14"	1.00	EA	B
F0153-521-00	HEAD OPEN CABLE EXTENSION 10"	1.00	EA	B
F0153-522-00	44 TO 44 PIN V2 CABLE ASS'Y	1.00	EA	A
F0153-526-00	4400 CPU ASS'Y (WITH SOFTWARE)	1.00	EA	A
F0153-530-00	CONNECTOR CABLE 34 PIN ASS'Y	1.00	EA	B
LP800-038-00	RELAY SOCKET	1.00	EA	R
LP800-053-00	FEMALE SCREW LOCK	6.00	EA	R
P0051-974-00	3 PIN PANEL SOCKET CONNECTOR	1.00	EA	R
P0051-977-00	5 PIN PANEL SOCKET CONNECTOR	1.00	EA	R
P0055-121-00	DIODE 1N4001	1.00	EA	R
P0216-355-00	RESISTOR 1 OHM 1/2 WATT 350V	1.00	EA	R
PF043-001-00	24VDC COIL RELAY	1.00	EA	R
PF051-101-00	POWER CORD W/RIGHT ANGLE	1.00	EA	R
PF055-002-00	10 uF CAPACITOR	1.00	EA	R
PF057-001-00	TRANSFORMER 36VAC OUTPUT	1.00	EA	R
PF058-001-00	MOTOR SPEED CONTROL & 5K POT	1.00	EA	R
PF216-023-00	PHOTO-ELECTRIC SENSOR	1.00	EA	R
PF216-026-00	CONNECTOR W/ CABLE	1.00	EA	R
PF216-027-00	1 OHM 50 WATT RESISTOR	1.00	EA	R
PF216-181-00	POWER SUPPLY 24VDC 1.8amp	1.00	EA	R
PF220-046-00	A.C. POWER ENTRY MODULE	1.00	EA	R
PF220-047-00	FUSE 2A S/B 250V	1.00	EA	R
PF235-012-00	PX4i POWER SUPPLY	1.00	EA	R
PF235-013-00	PX4i DRIVE MOTOR	1.00	EA	R
PF235-014-00	PX4i SECONDARY POWER SUPPLY	1.00	EA	R
PF235-015-00	PX4i PANEL CONTROL	1.00	EA	R
PF235-016-00	4400 RIBBON SENSOR	1.00	EA	R
PF235-017-00	PX4i LABEL GAP SENSOR /	1.00	EA	R
PF235-019-00	PX4i HEAD OPEN SENSOR	1.00	EA	R



1.) THE GROUND WIRE FROM THE POWER ENTRY MODULE MUST BE PLACED AT THE BASE OF THE GROUNDING STUD, AND IS HELD BY IT'S OWN HEX NUT.

REVISION		DRFT/DSGN	DJH 3/9/05
CONNECTORS P1 & P2 WERE P3 & P4. RVE 8-2-06		CHKD	
REMOVED PART#s PF220-105-00, PX41 PF220-105-00, 4' PX41 RVE 8-13-06		APPD	

TOLERANCES UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH 125

FOX IV Technologies, Inc.

4400/4600 STD ELEC. ASSY

DRAWING NO. F0153-514-00

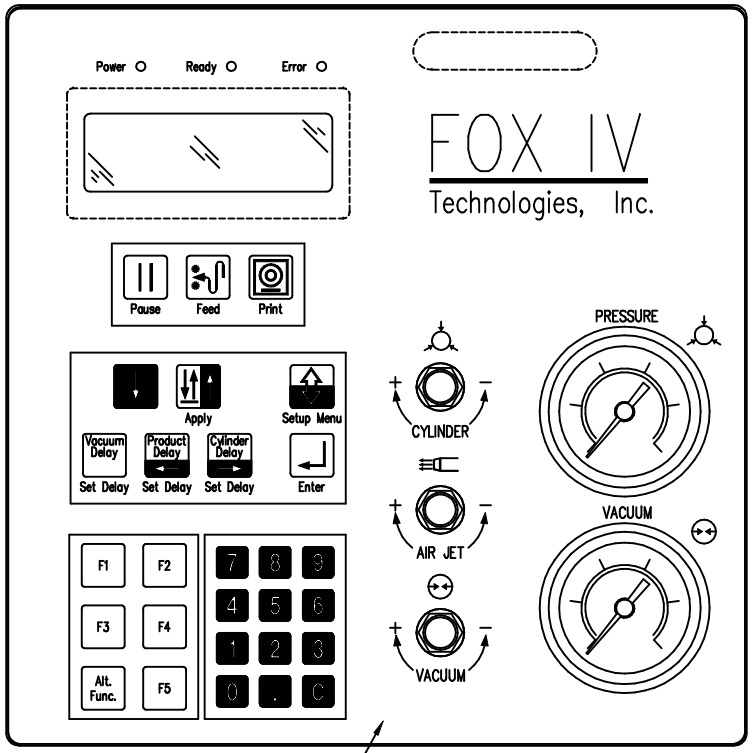
SCALE: N.T.S. SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

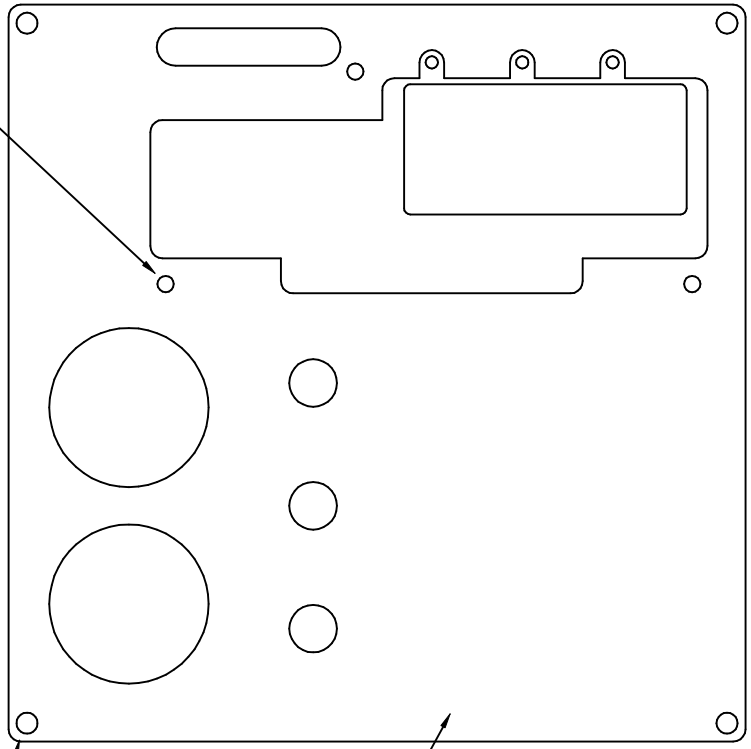
Wednesday October 10, 2007 09:39 AM

Parent Item Number: F0153-516-00 CONTROL PANEL ASS'Y Type: B

Component	Description	Qty Required	UM	Type
H0026-210-01	LOCK NUT, #6-32	4.00	EA	R
H0054-071-01	SHCS #4-40 X .125" LG	3.00	EA	R
F0153-010-00	CONTROL PANEL PLATE	1.00	EA	R
F0153-011-00	CTRL. PANEL MEMBRANE	1.00	EA	R



F0153011



H005407101

H002621001

F0153010

REVISION		DRFTSMN	DJM	3/31/05
		CHKD		
		APPD		

TOLERANCES
UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH: 125

FOX IV
Technologies, Inc.

4400/4600 CONTROL
PANEL ASSEMBLY

DRAWING NO.
F0153-516-00

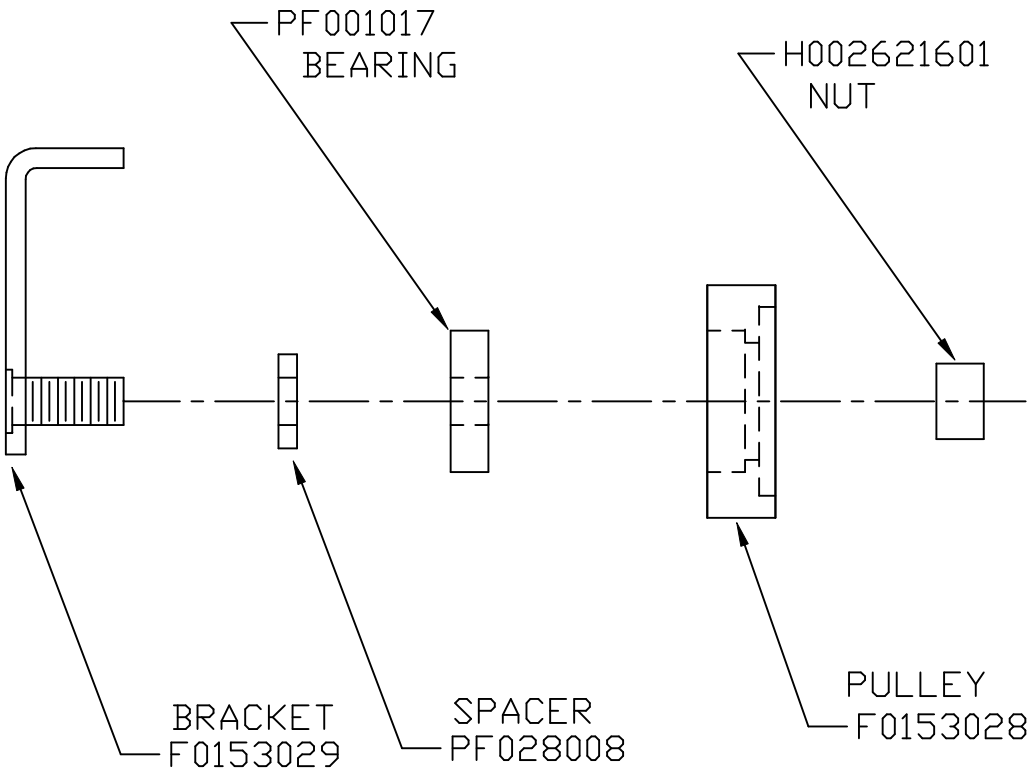
SCALE: N.T.S. SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:39 AM

Parent Item Number: F0153-517-00 MXL IDLER PULLEY ASS'Y Type: B

Component	Description	Qty Required	UM	Type
F0153-028-00	MXL IDLER PULLEY	1.00	EA	A
F0153-029-00	IDLER PULLEY BRACKET	1.00	EA	R
PF001-017-00	BALL BEARING .25ID X .63 OD	1.00	EA	R
H0026-216-01	NUT ELASTIC SIZE 1/4-20	1.00	EA	R
PF028-008-00	SHIM .252ID X .511OD X .100THK	1.00	EA	R



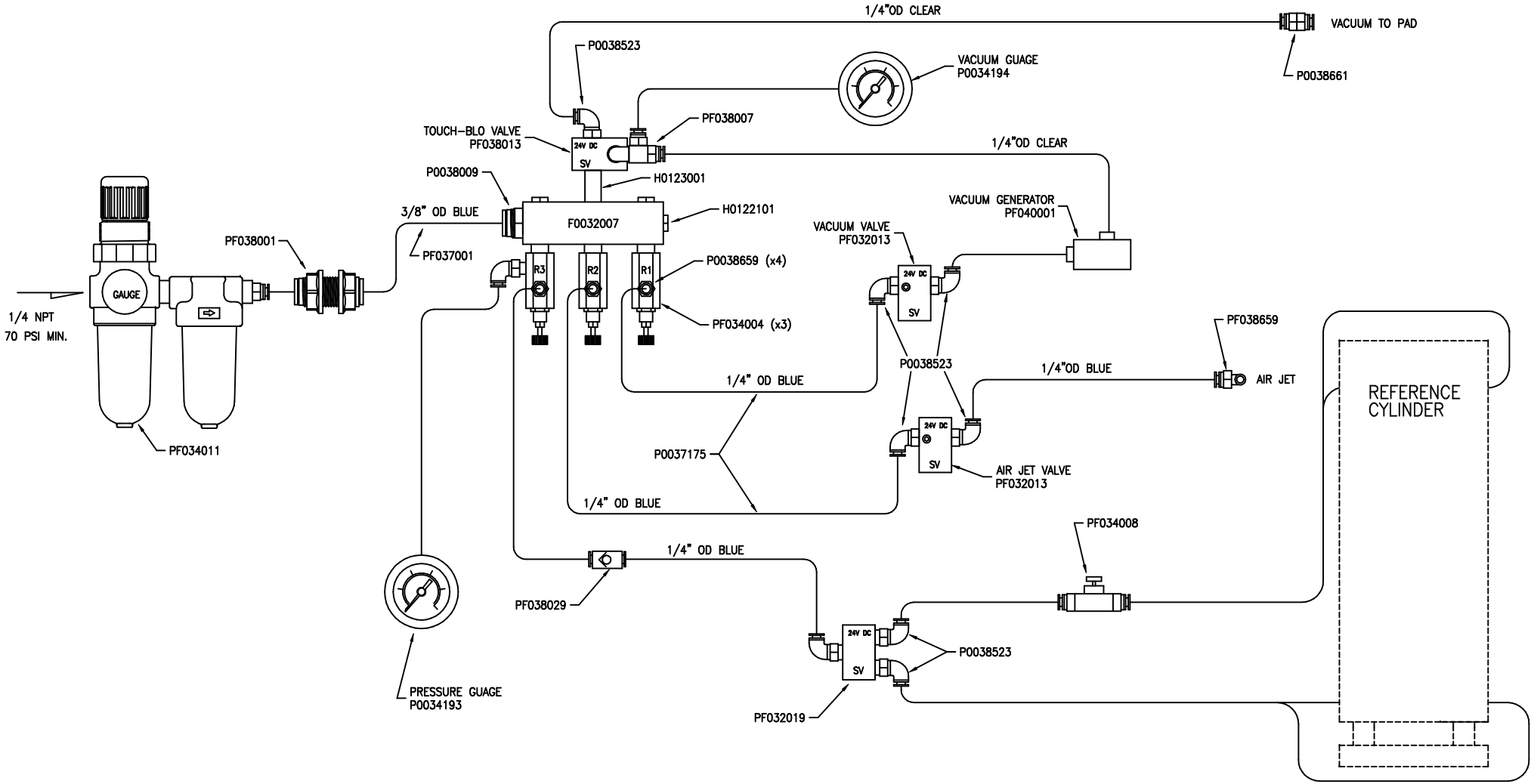
REVISION					
		DRFTSMN	DJM	4/1/05	FOX IV Technologies, Inc.
		CHKD			
		APPD			
		TOLERANCES UNLESS OTHERWISE SPECIFIED 3 PLACE DECIMALS ± .005 2 PLACE DECIMAL ± .01 1 PLACE DECIMAL ± .06 CHAMFERS ± 5° ANGLES ± 1/2° FINISH: 125			MXL IDLER PULLEY ASSEMBLY
					DRAWING NO. F0153-517-00
△					SCALE: NTS SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:39 AM

Parent Item Number: F0153-519-00 4400/4600 PNEUMATIC ASS'Y Type: B

Component	Description	Qty Required	UM	Type
F0032-011-00	MANIFOLD (1.37"/1.25" SPACING)	1.00	EA	A
H0122-101-03	1/8 NPT PIPE PLUG - SOCKET H	3.00	EA	R
H0123-001-03	CLOSE NIPPLE 1/8 NPT	1.00	EA	R
P0034-193-00	PRESSURE GUAGE 100 PSI	1.00	EA	R
P0034-194-00	VACUUM GUAGE 30 HG	1.00	EA	R
P0037-175-00	1/4 X .159 TUBING-BLUE POLYU	1.00	IN	R
P0038-523-00	1/4TUBE 1/8 NPT ELBOW	8.00	EA	R
P0038-659-00	#10 MALE ELBOW FOR 1/4" TUBING	5.00	EA	R
P0038-661-00	#10 MALE FITTING	2.00	EA	R
PF032-013-00	3 WAY VALVE 24VDC	3.00	EA	R
PF032-019-00	CYLINDER VALVE 4 WAY, 24VDC	1.00	EA	R
PF034-004-00	REGULATOR	3.00	EA	R
PF034-008-00	FLOW CONTROL, INLINE	1.00	EA	R
PF034-011-00	FILTER/MIST/REG COMBO	1.00	EA	R
PF038-001-00	BULKHEAD UNION 1/4 OD TUBE	1.00	EA	R
PF038-007-00	BRANCH TEE 1/4 TUBE 1/8NPT	1.00	EA	R
PF038-029-00	CHECK VALVE IN LINE 1/4 TUBE	1.00	EA	R
PF040-001-00	VACUUM GENERATOR	1.00	EA	R



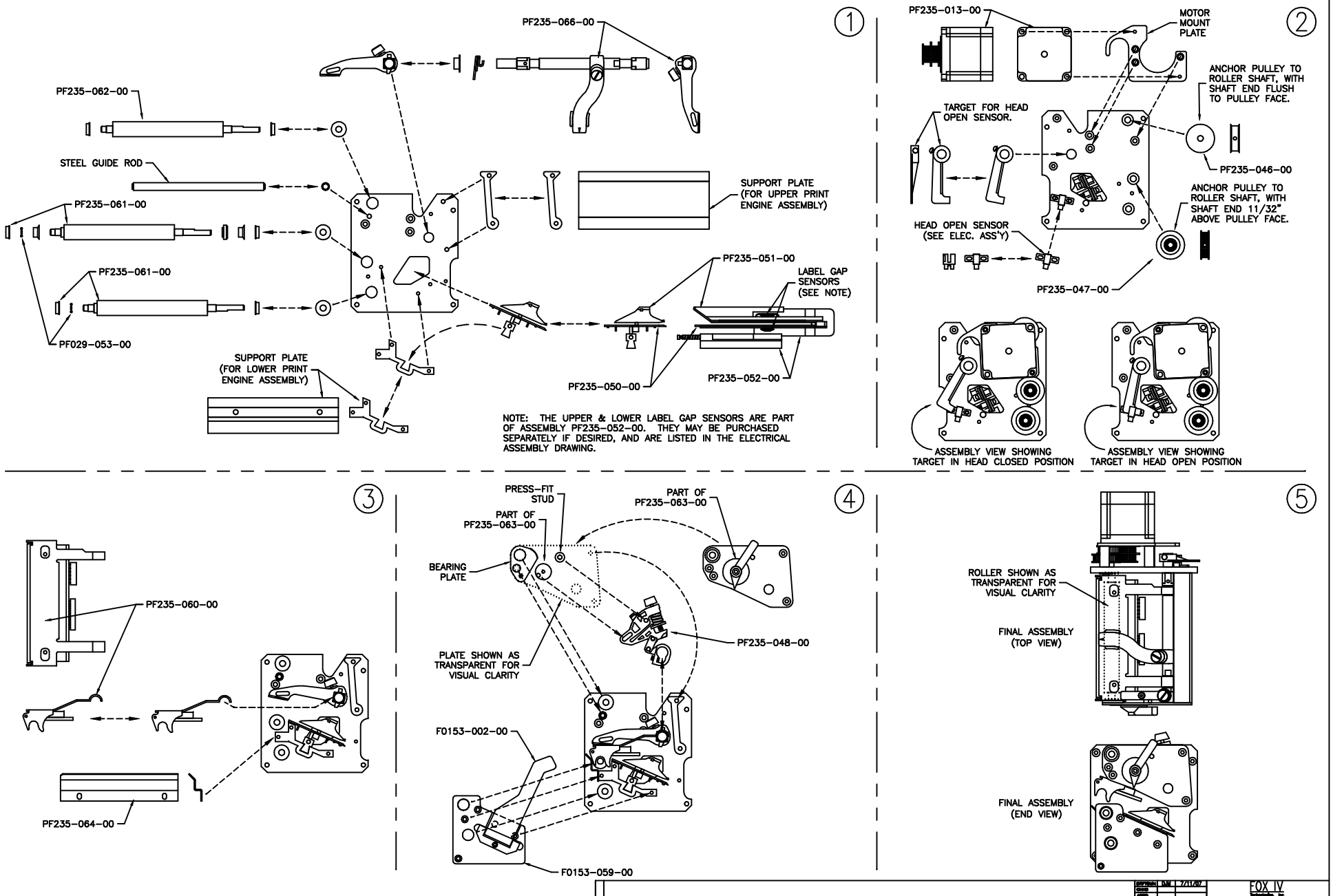
REVISION	DRFTSMN: DJM 4/26/05 CHKD APPD TOLERANCE UNLESS OTHER WISE SPECIFIED 3 PLACE DECIMAL ± .005 2 PLACE DECIMAL ± .01 1 PLACE DECIMAL ± .06 CHAMFERS ± 5° ANGLES ± 1/2° FINISH: 125	FOX IV Technologies, Inc. 4400/4600 SERIES PNEUMATIC ASSEMBLY (24 VDC) DRAWING NO. F0153-519-00	SCALE: N.T.S. SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:39 AM

Parent Item Number: F0153-538-00 4600 PRINT ENGINE ASSY, 203DPI Type: B

Component	Description	Qty Required	UM	Type
F0153-002-00	4601 LATCH REWORK	1.00	EA	A
F0153-059-00	4600 END PLATE	1.00	EA	A
PF029-053-00	WAVE WASHER .262IDx.385ODx.010	2.00	EA	R
PF235-046-00	TIMING PULLEY, TOOTHLESS	1.00	EA	R
PF235-047-00	TIMING PULLEY, 42 TEETH	1.00	EA	R
PF235-048-00	PRINTHEAD PRESSURE LINK ASS'Y	1.00	EA	R
PF235-050-00	GUIDE, MEDIA, LOWER ASS'Y	1.00	EA	R
PF235-051-00	GUIDE, MEDIA, UPPER ASSEMBLY	1.00	EA	R
PF235-052-00	LABEL STOP SENSOR ASSEMBLY	1.00	EA	R
PF235-061-00	4601 PLATEN ROLLER w/ BEARINGS	1.00	EA	R
PF235-062-00	4601 RIBBON ASSIST ROLLER	1.00	EA	R
PF235-063-00	4601 HANDLE w/ CAM ASS'Y	1.00	EA	R
PF235-064-00	4601 PEEL BAR	1.00	EA	R
PF235-066-00	4601 PRINTHEAD PRESSURE ARM	1.00	EA	R
PF235-067-00	4601 STEPPER MOTOR	1.00	EA	R
PF235-071-00	PX6i PRINTHEAD 203 DPI	1.00	EA	R



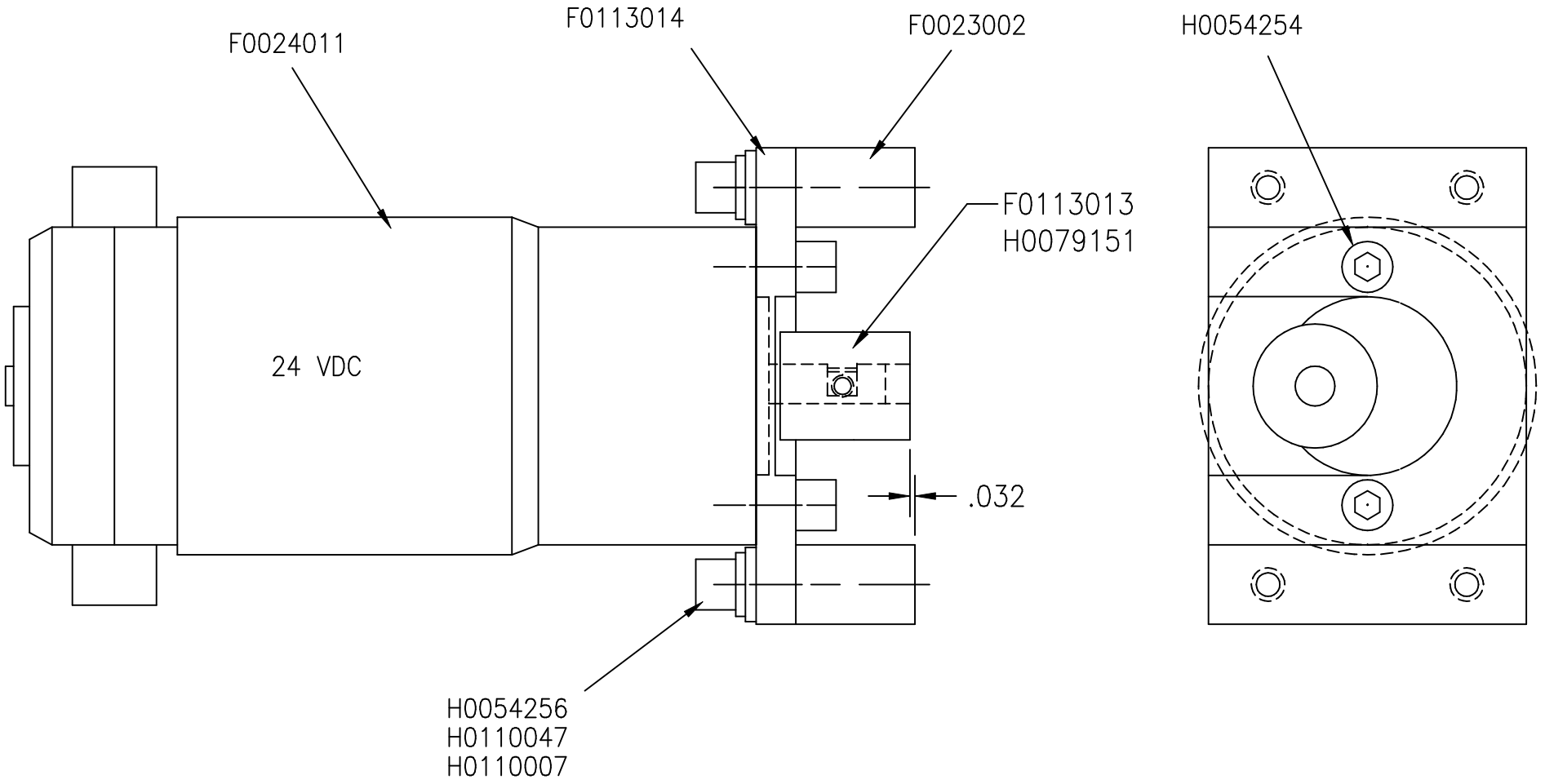
REVISION	DRAWN 7/11/07	FOX IV Technologies, Inc.
	UNLESS OTHERWISE SPECIFIED: 2 PLACE DECIMAL ± .010 3 PLACE DECIMAL ± .005 ANGULAR ± 0° FRACTIONAL ± 1/32 FINISH 125	4600 PRINT ENGINE ASSEMBLY (203 dpi, TT)
		DRAWING NO. F0153-538-00
		SCALE NTS SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:40 AM

Parent Item Number: F0113-507-00 REWIND MOTOR ASSEMBLY Type: A

Component	Description	Qty Required	UM	Type
F0024-011-00	REWIND MOTOR	1.00	EA	R
F0113-014-00	MOTOR PLATE	1.00	EA	R
F0023-002-00	MOTOR FEET	2.00	EA	A
F0113-013-00	MOTOR PULLEY	1.00	EA	R
H0079-191-01	SHSS #8-32 X .125 LG	2.00	EA	R
H0054-254-01	SHCS #10-32 X .375 LG	2.00	EA	R
H0054-256-01	SHCS #10-32 X .625 LG	4.00	EA	R
H0110-047-01	WASHER SPLITLOCK #10	4.00	EA	R
H0110-007-01	WASHER FLAT #10	4.00	EA	R



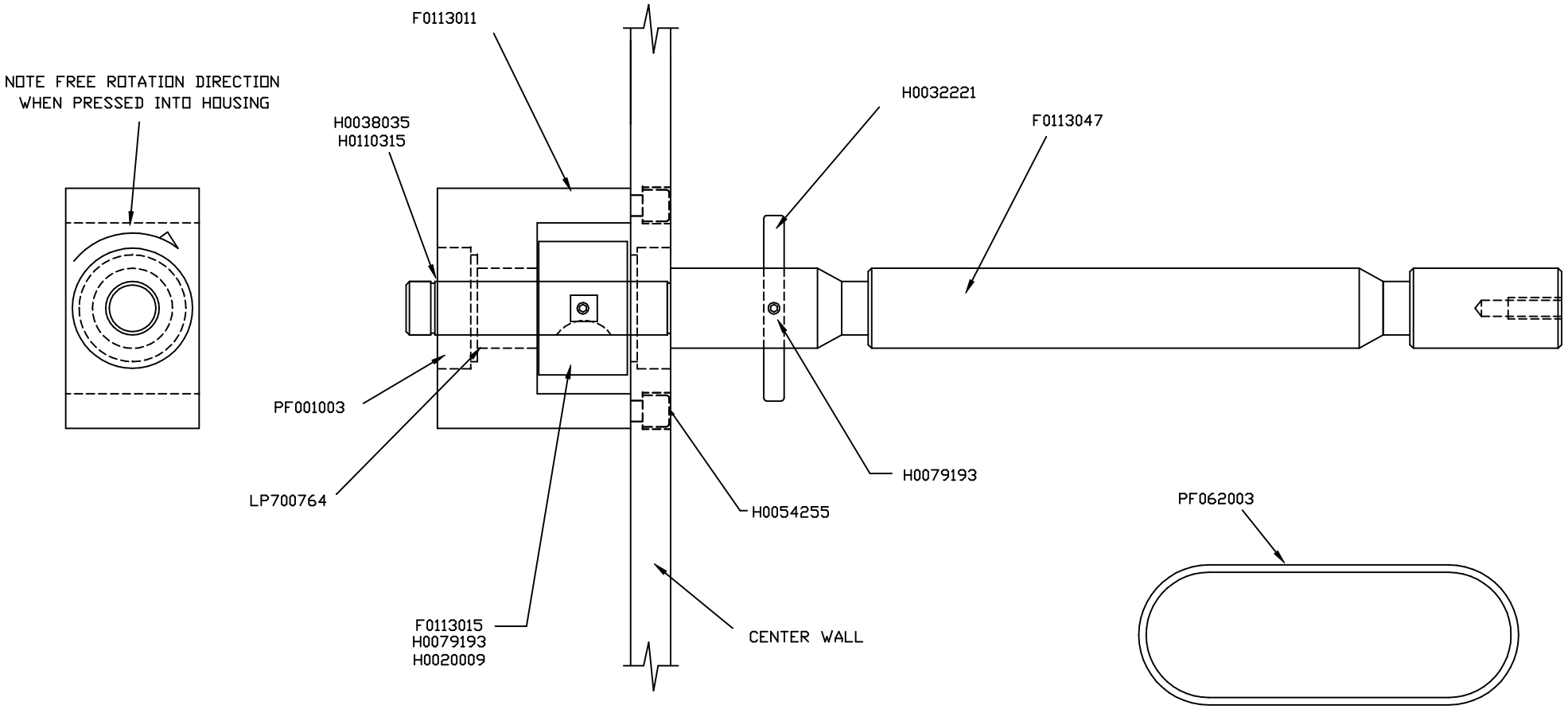
REVISION		DRFTSMN	DJM	10/26/98	FOX IV Technologies, Inc.
		CHKD			
		APPD			
		TOLERANCE UNLESS OTHER WISE SPECIFIED 3 PLACE DECIMAL ± .005 2 PLACE DECIMAL ± .01 1 PLACE DECIMAL ± .06 CHAMFERS ± 5° ANGLES ± 1/2° FINISH: 125			REWIND MOTOR ASSEMBLY
					DRAWING NO. F0113-507-00
					SCALE: SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:40 AM

Parent Item Number: F0088-533-00 REWIND SHAFT ASSEMBLY, 7" Type: A

Component	Description	Qty Required	UM	Type
F0113-011-00	HUB	1.00	EA	R
F0113-015-00	SHAFT PULLEY	1.00	EA	R
F0113-047-00	REWIND SHAFT (5173)	1.00	EA	R
H0020-009-01	KEY WOODRUFF .125 X.491	1.00	EA	R
H0032-221-01	SPRING PIN 3/16" DIA. X	1.00	EA	R
H0038-035-01	RING RET EXT SER 5100 .500 D	1.00	EA	R
H0054-255-01	SHCS #10-32 X .500 LG	2.00	EA	R
H0079-193-01	SHSS #8-32 X .250 LG	2.00	EA	R
H0110-315-02	STAINLESS STEEL WAVE WASHER	1.00	EA	R
LP700-764-00	ROLLER CLUTCH	1.00	EA	R
PF001-003-00	BALL BEARING .50ID X 1.12OD	2.00	EA	R
PF062-003-00	TIMING BELT XL	2.00	EA	R



REVISION			

DRFTSMN	RGB	10 OCT 00
CHKD		
APPD		

TOLERANCE
UNLESS OTHER WISE SPECIFIED
3 PLACE DECIMAL ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH: 125

FOX IV
Technologies, Inc.

REWIND SHAFT ASS'Y (5173)

DRAWING NO.
F0088-533-00

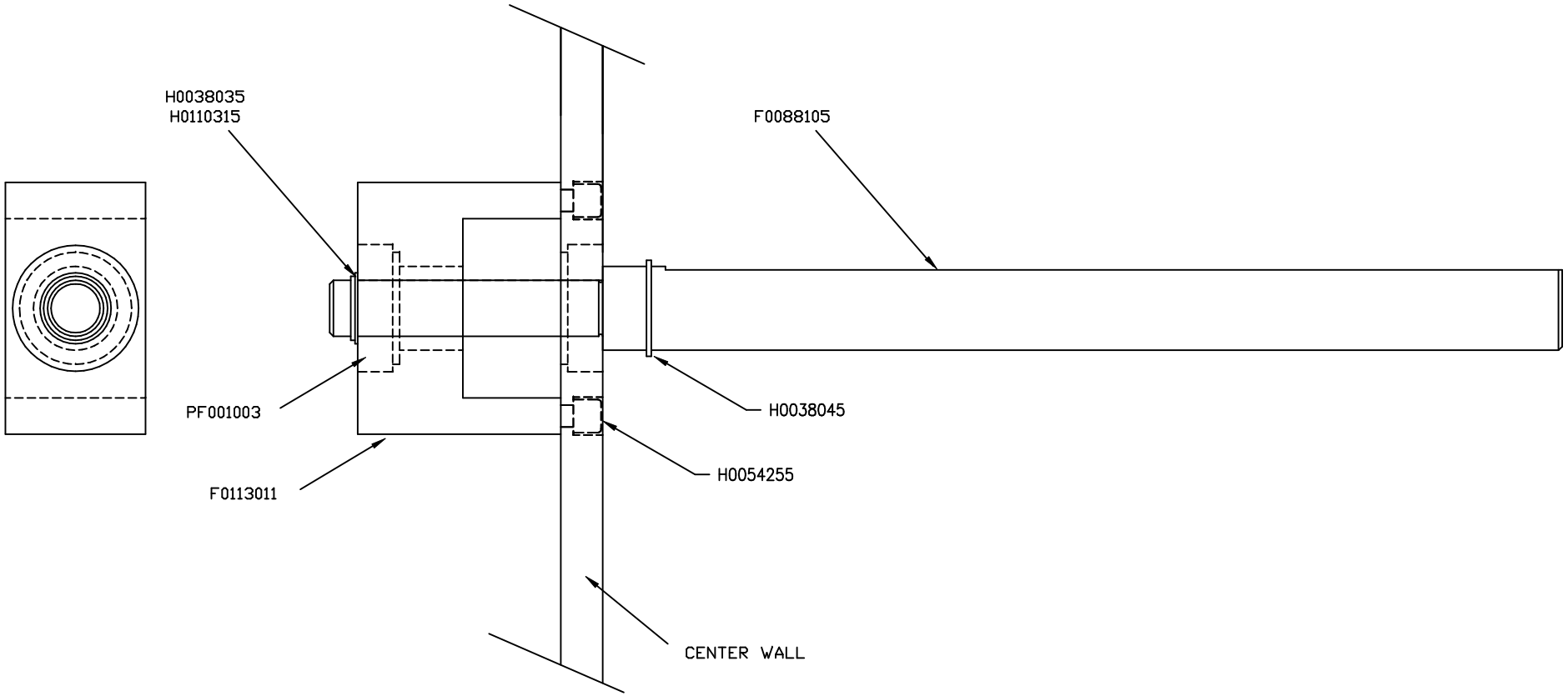
SCALE: NTS | SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:41 AM

Parent Item Number: F0088-532-00 UNWIND SHAFT ASSEMBLY, 7" Type: B

Component	Description	Qty Required	UM	Type
H0038-045-01	RETAINING RING .75 EXTERNAL	1.00	EA	R
F0088-105-00	UNWIND SHAFT	1.00	EA	R
F0113-011-00	HUB	1.00	EA	R
PF001-003-00	BALL BEARING .50ID X 1.12OD	2.00	EA	R
H0110-315-02	STAINLESS STEEL WAVE WASHER	1.00	EA	R
H0038-035-01	RING RET EXT SER 5100 .500 D	1.00	EA	R
H0054-255-01	SHCS #10-32 X .500 LG	2.00	EA	R



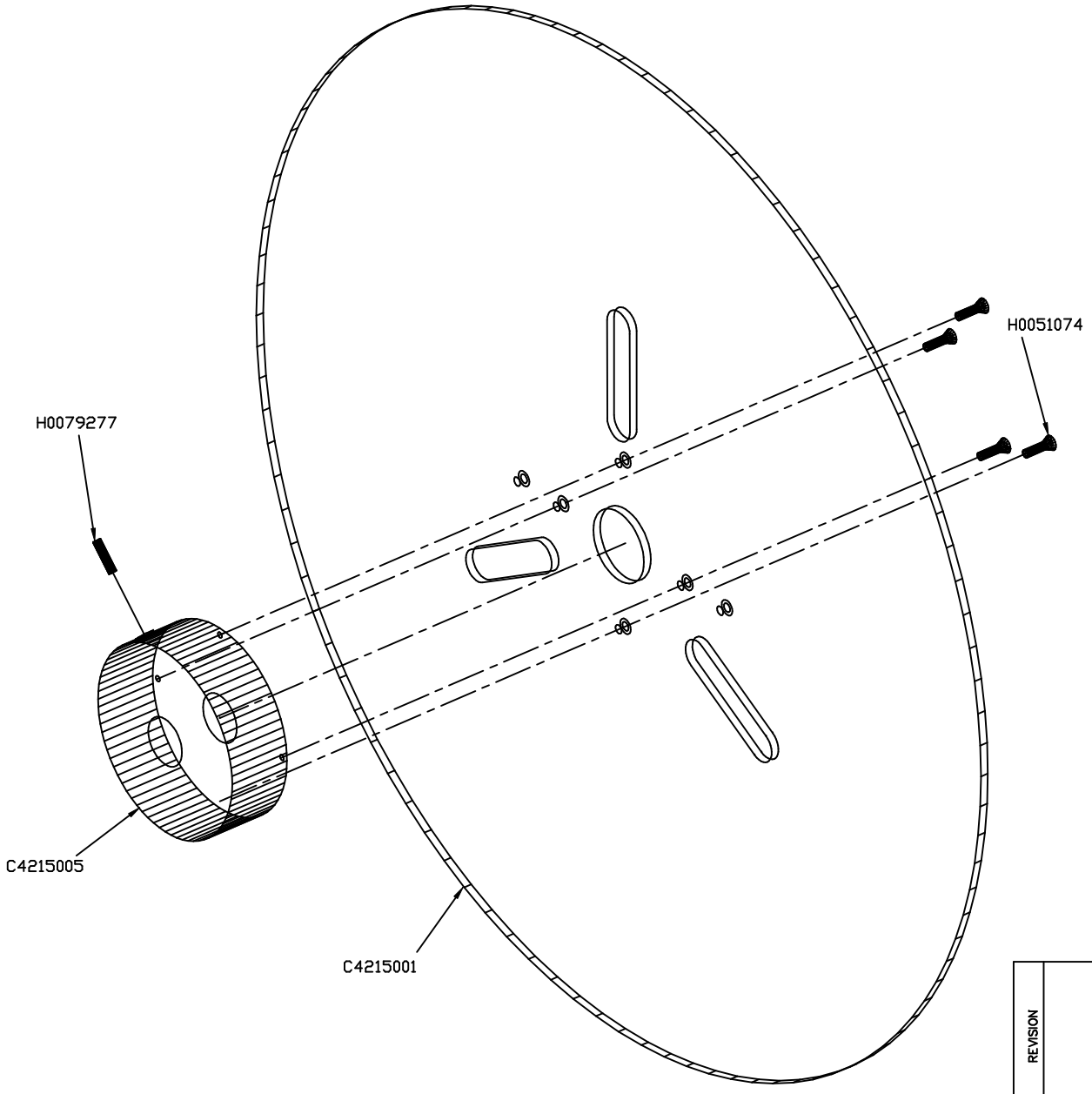
REVISION		DRFTSMN	DJM	9/19/00	FOX IV Technologies, Inc.
		CHKD			
		APPD			
		TOLERANCE UNLESS OTHER WISE SPECIFIED 3 PLACE DECIMAL ± .005 2 PLACE DECIMAL ± .01 1 PLACE DECIMAL ± .06 CHAMFERS ± 5° ANGLES ± 1/2° FINISH: 125			UNWIND SHAFT ASS'Y
					DRAWING NO. F0088-532-00
◁					SCALE: SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:41 AM

Parent Item Number: C4228-501-00 UNWIND REAR COVER ASSEMBLY Type: A

Component	Description	Qty Required	UM	Type
C4215-001-00	LABEL UNWIND BASE PLATE	1.00	EA	R
C4215-005-00	INNER UNWIND COVER HUB	1.00	EA	A
H0051-075-01	FHSCS #4-40 X .500 LG	4.00	EA	R
H0079-277-01	SHSS 1/4-20 X .750 LG	1.00	EA	R



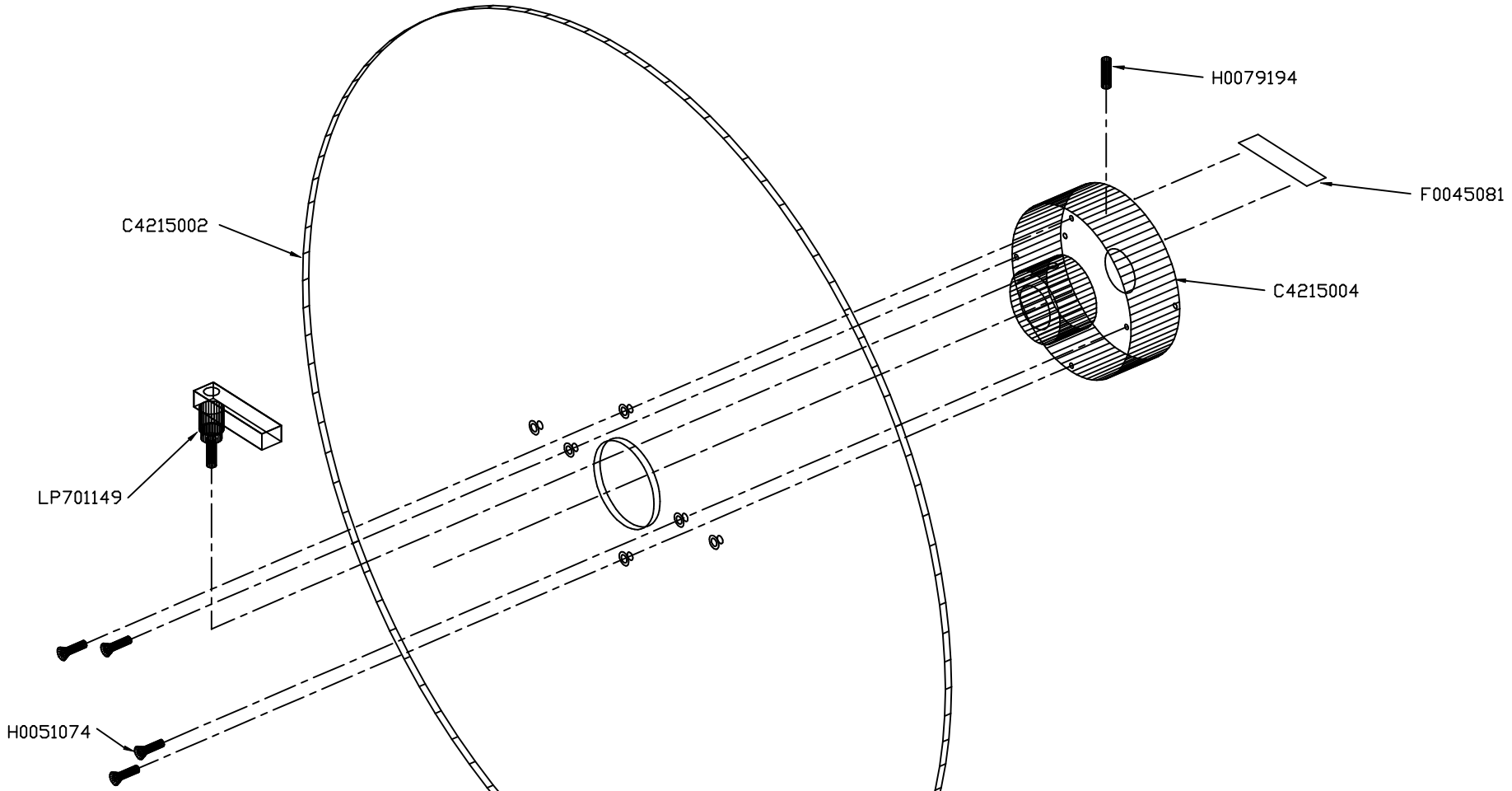
REVISION				
		DRFTSMN KWL 5-25-95	FOX IV Technologies, Inc.	
		CHKD CHJK 5-26-95		
		APPD	UNWIND REAR COVER ASSEMBLY	
		TOLERANCE UNLESS OTHER WISE SPECIFIED 3 PLACE DECIMAL ± .005 2 PLACE DECIMAL ± .01 1 PLACE DECIMAL ± .06 CHAMFERS ± 5° ANGLES ± 1/2° FINISH: 125	DRAWING NO. C4228-501-00	
△			SCALE: NTS	SHEET 1 OF

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:42 AM

Parent Item Number: C4229-501-00 UNWIND FRONT COVER ASSEMBLY Type: A

Component	Description	Qty Required	UM	Type
F0045-081-00	UNWIND PINCH PLATE	1.00	EA	R
H0079-194-01	SHSS #8-32 X .375 LG	1.00	EA	R
C4215-002-00	16 OD LEXAN UNWIND COVER	1.00	EA	R
C4215-004-00	OUTER LEXAN UNWIND LOCK HUB	1.00	EA	A
H0051-074-01	FHSCS #4-40 X .375 LG	4.00	EA	R
LP701-149-00	UNWIND LEVER	1.00	EA	R



REVISION			
△	1	F0045081 AND H0079194 ADDED DJM 4/30/98	

DRFTSMN	KWL	5-25-95
CHKD	CHK	5-26-95
APPD		

TOLERANCE
UNLESS OTHER WISE SPECIFIED
3 PLACE DECIMAL ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH: 125

FOX IV
Technologies, Inc.

UNWIND FRONT
COVER ASSEMBLY

DRAWING NO.
C4229-501-00

SCALE: NTS | SHEET 1 OF

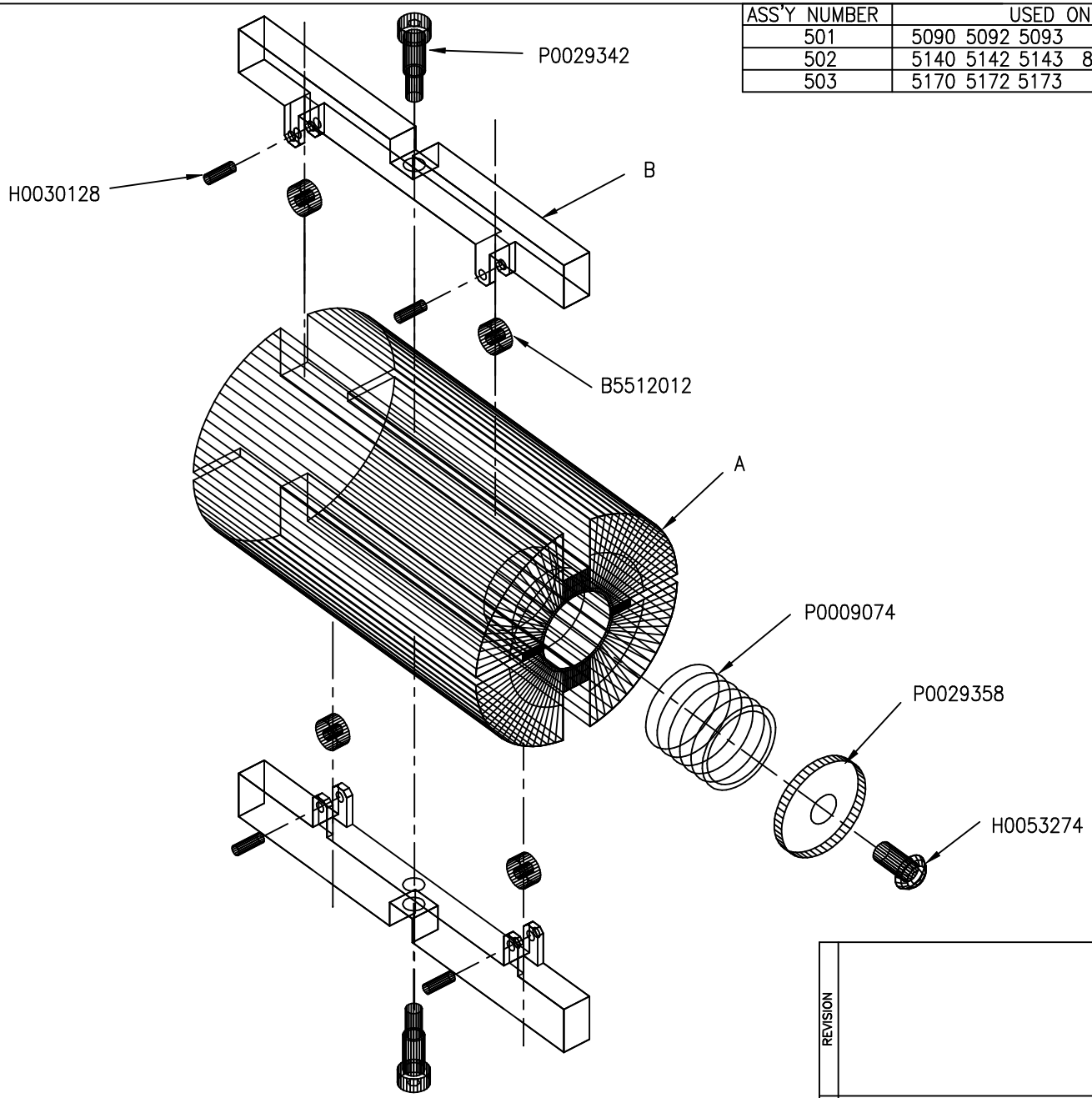
SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:42 AM

Parent Item Number: C4288-503-00 REWIND HUB SUB-ASSEMBLY Type: A

Component	Description	Qty Required	UM	Type
B5512-012-00	HUB ROLLER STAINLESS STEEL	4.00	EA	R
B5607-003-00	REWIND HUB INSERT	2.00	EA	A
B5608-003-00	REWIND HUB	1.00	EA	R
H0030-128-01	PIN DOWEL .125 DIA X .38 LG	4.00	EA	R
H0053-274-01	BHCS 1/4-20 X .375 LG	1.00	EA	R
P0009-074-00	REWIND HUB SPRING	1.00	EA	R
P0029-342-00	10-24 SHOULDER SCREW STAINLE	2.00	EA	R
P0029-358-00	FENDER WASHER, .28"id, 1.25"od	1.00	EA	R

ASS'Y NUMBER	USED ON	"A"	"B"
501	5090 5092 5093	B5608001	B5607001
502	5140 5142 5143 8231S 8031S 8041S	B5608002	B5607002
503	5170 5172 5173	B5608003	B5607003



REVISION

DRFTSMN	WJE	12-6-95
CHKD	RMC	12/18/95
APPD		

TOLERANCES
UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH: 125

FOX IV
Technologies, Inc.

REWIND HUB SUBASSEMBLY

DRAWING NO.
C4288-5XX-00

SCALE:

SHEET OF

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:42 AM

Parent Item Number: F0010-507-00 REPEATER APPLICATOR ASSEMBLY Type: A

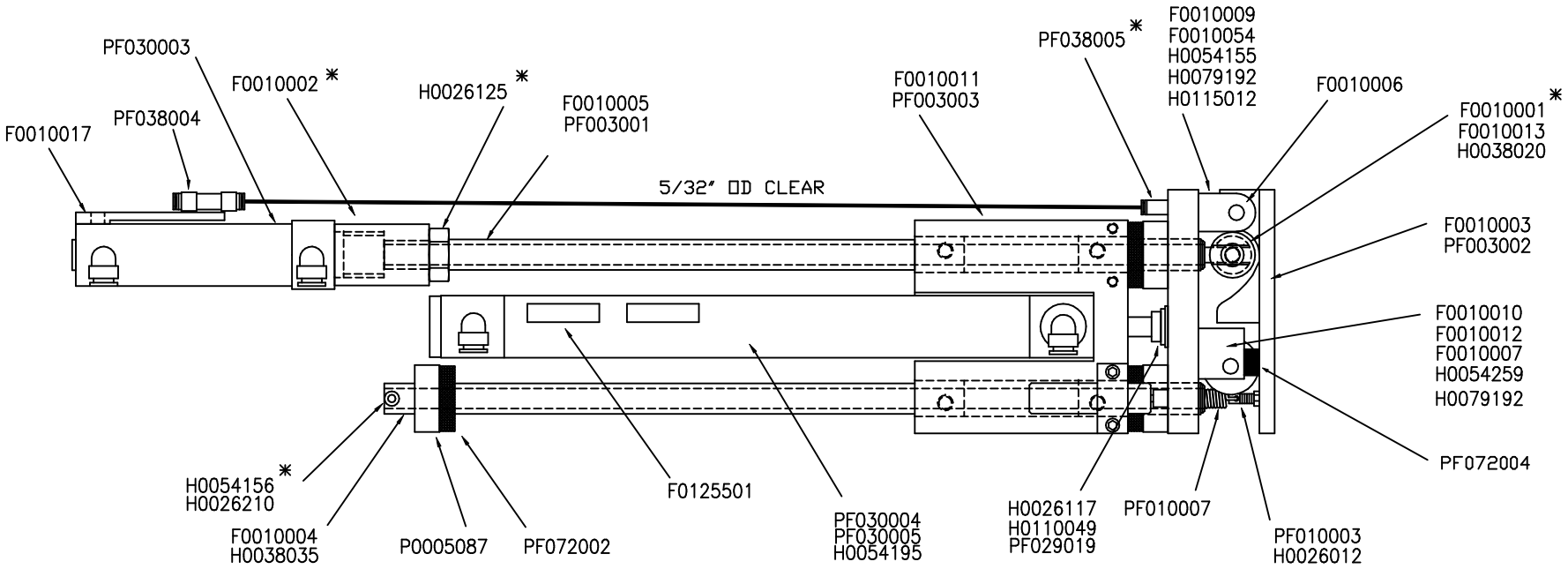
Component	Description	Qty Required	UM	Type
F0010-054-00	GASKET	1.00	EA	A
F0010-074-00	GASKET SPACER	1.00	EA	A
F0010-075-00	REPEATER AIR HOSE BRACKET	1.00	EA	A
F0010-078-00	SHOCK MOUNT	1.00	EA	A
F0010-520-00	PAD GROUND STRAP 4"	1.00	EA	B
F0010-521-00	PAD GROUND STRAP 24"	1.00	EA	B
H0030-130-01	PIN DOWEL .125 DIA X .50 LG	2.00	EA	R
H0054-199-01	SHCS #8-32 X 1.000 LG	2.00	EA	R
PF031-002-00	SHOCK ABSORBER 1/2-20 THD	1.00	EA	R
PF032-035-00	VALVE, EXHAUSTING MANUAL 3 WAY	1.00	EA	R
F0010-017-00	Y HOLDER	1.00	EA	A
F0125-501-00	CYL. DUAL SWITCH ASS'Y 8"	1.00	EA	A
F0010-001-00	SPINDLE	1.00	EA	A
F0010-002-00	CYLINDER ADAPTER	1.00	EA	A
F0010-003-00	PAD SUPPORT	1.00	EA	A
F0010-004-00	GUIDE ROD (SPRING)	1.00	EA	A
F0010-005-00	GUIDE ROD / ROD	1.00	EA	R
F0010-006-00	PIVOT ROD	1.00	EA	A
F0010-007-00	PIVOT ROD	1.00	EA	A
F0010-008-00	ROD BLOCK	1.00	EA	A
F0010-009-00	PIVOT SUPPORT	2.00	EA	A
F0010-010-00	SPRING GUIDE	1.00	EA	A
F0010-011-00	GUIDE HOUSING	1.00	EA	A
F0010-012-00	PULLEY	1.00	EA	A
F0010-013-00	ROLLER	2.00	EA	A
F0010-014-00	CLAMP	2.00	EA	A
F0010-016-00	CYLINDER NUT	1.00	EA	A
H0026-012-01	NUT HEX SIZE #8-32	1.00	EA	R
H0026-125-01	NUT JAM SIZE 1/2-20	1.00	EA	R
H0026-210-01	LOCK NUT, #6-32	1.00	EA	R
H0038-020-01	RETAINING RING	2.00	EA	R
H0038-035-01	RING RET EXT SER 5100 .500 D	2.00	EA	R
H0054-155-01	SHSC #6-32 X .500 LG	4.00	EA	R
H0054-156-01	SHCS #6-32 X .625 LG	1.00	EA	R
H0054-195-01	SHCS #8-32 X .500 LG	4.00	EA	R
H0054-259-01	SHCS #10-32 X 1.000 LG	2.00	EA	R
H0079-192-01	SHSS #8-32 X .187 LG	4.00	EA	R
H0115-012-01	O-RING .38ID X .50OD X .06	2.00	EA	R
P0005-087-00	SHAFT COLLAR .500 BORE	1.00	EA	R
P0038-518-00	#10 MALE ELBOW FOR 5/32" TUBE	2.00	EA	R
P0038-523-00	1/4TUBE 1/8 NPT ELBOW	4.00	EA	R
P0038-659-00	#10 MALE ELBOW FOR 1/4" TUBING	1.00	EA	R
PF003-001-00	BEARING, SLEEVE .312ID	1.00	EA	R
PF003-002-00	BEARING,SLEEVE .25ID	1.00	EA	R
PF003-003-00	BEARING,SLEEVE .500ID	4.00	EA	R
PF010-007-00	EXTENSION SPRING 1/4OD	1.00	EA	R
PF010-003-00	SPRING ANCHOR 8-32 THDS	1.00	EA	R
PF029-006-00	BOLT SHIM 1/2" ID	2.00	EA	R
PF030-003-00	AIR CYLINDER 20mm BORE	1.00	EA	R
PF030-004-00	AIR CYLINDER 20mm BORE	1.00	EA	R

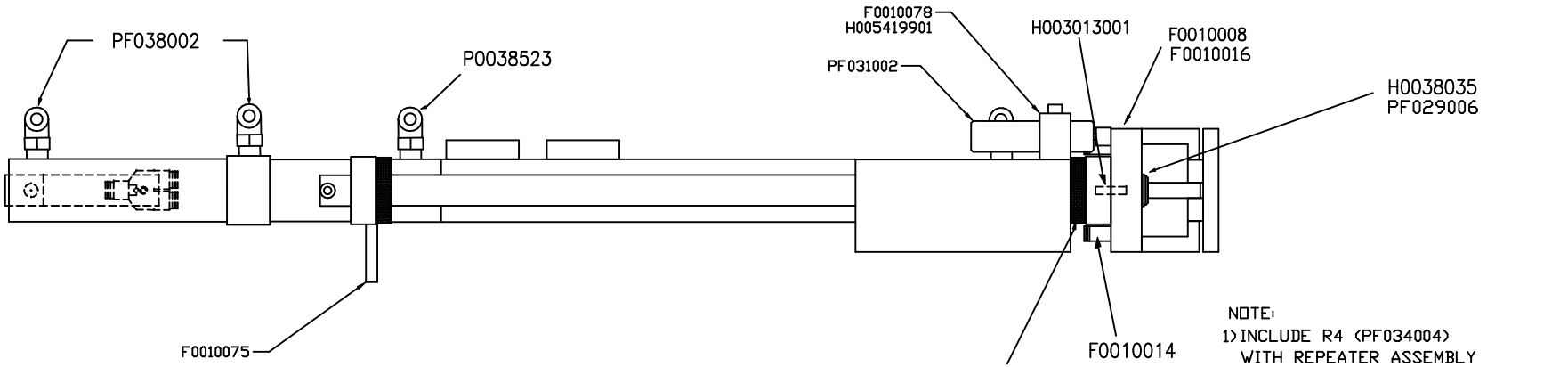
SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:42 AM

Parent Item Number: F0010-507-00 REPEATER APPLICATOR ASSEMBLY Type: A

Component	Description	Qty Required	UM	Type
PF034-004-00	REGULATOR	1.00	EA	R
PF038-002-00	5/32 TUBE 1/8 NPT ELBOW	2.00	EA	R
PF038-004-00	5/32 TUBE Y-FITTING	1.00	EA	R
P0038-519-00	AIR FITTING 5/32 TUBE #10-32	4.00	EA	R
PF072-002-00	BUMPER,RUBBER .50ID X .25THK	3.00	EA	R
PF072-004-00	RUBBER BUMPER .5"	2.00	EA	R
PF032-020-00	CYLINDER VALVE 4 WAY, 24VDC	1.00	EA	R





NOTE:
1) INCLUDE R4 (PF034004) WITH REPEATER ASSEMBLY
2) LOCATE SV INSIDE LABEL PRINTER
3) LOCATE THESE ASSEMLIES

REVISION		
1	F0010054 ADDED DJM 12/3/03	
2	UPGRADED DRAWING FOR PROPER SCALE AND TO CORRECT DETAILS. RWE 3-18-04	
3	F0010075 ADDED F0010078 ADDED PF031002 ADDED H005419901 ADDED DJM 2/15/05	

DRFTSMN	DJM	9/9/99
CHKD		
APPD		

TOLERANCES UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH: 125

FOX IV Technologies, Inc.

REPEATER ASS'Y

DRAWING NO. F0010-507-00

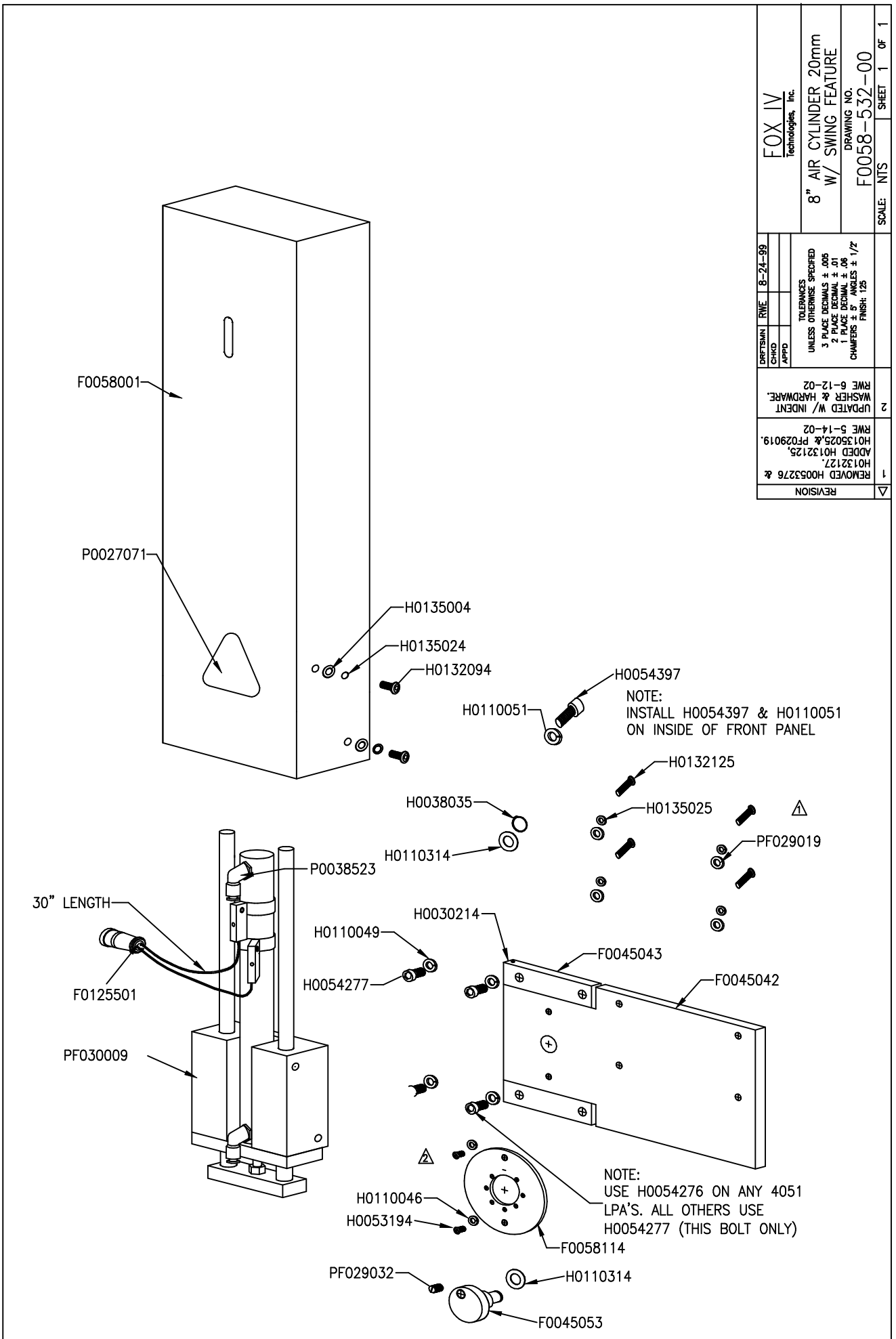
SCALE: NTS | SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:43 AM

Parent Item Number: F0058-532-00 8" SWING CYL.DUAL SENSOR 20 MM Type: A

Component	Description	Qty Required	UM	Type
F0058-114-00	INDENT WASHER	1.00	EA	R
H0053-194-02	BHCS #8-32 X .375 LG	2.00	EA	R
H0054-277-01	SHCS 1/4-20 X .750 LG	4.00	EA	R
H0110-046-02	WASHER SPLITLOCK #8	2.00	EA	R
H0110-049-01	WASHER SPLITLOCK .250	4.00	EA	R
H0110-051-01	WASHER SPLITLOCK .375	1.00	EA	R
H0132-094-02	BHCS M5 X .08 X 10mm LG	4.00	EA	R
H0132-125-02	BHCS M6 X 1.00 X 12MM LG SS	4.00	EA	R
H0135-004-02	FW M5 SS	4.00	EA	R
H0135-024-02	LW M5 SS	4.00	EA	R
H0135-025-02	FSTR M6 LOCK WASHER SS	4.00	EA	R
PF029-032-00	BALL PLUNGER 1/4-20 X .53LG	1.00	EA	R
F0045-042-00	CYLINDER PLATE	1.00	EA	A
F0045-043-00	CYLINDER PLATE GUIDE	2.00	EA	A
F0045-053-00	KNOB	1.00	EA	A
F0058-001-00	8" CYLINDER COVER	1.00	EA	R
F0125-501-00	CYL. DUAL SWITCH ASS'Y 8"	1.00	EA	A
H0030-214-01	PIN DOWEL .188 DIA X 1.00 LG	2.00	EA	R
H0038-035-01	RING RET EXT SER 5100 .500 D	1.00	EA	R
H0054-397-01	SHCS 3/8-16 X .750 LG	1.00	EA	R
H0110-314-01	STEEL WAVE WASHER	2.00	EA	R
P0027-071-00	PINCH POINT WARNING LABEL	1.00	EA	R
P0038-523-00	1/4TUBE 1/8 NPT ELBOW	2.00	EA	R
PF030-009-00	SLIDE ASSEMBLY 200mm STROKE	1.00	EA	R
PF029-019-00	WASHER 1/4" (GRADE 8 STEEL)	4.00	EA	R

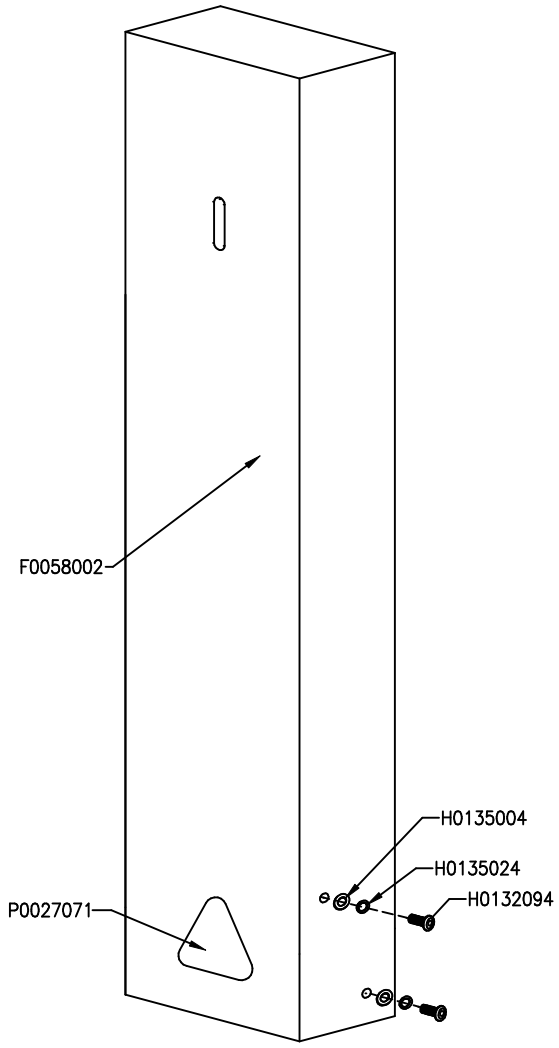

FOX IV Technologies, Inc.
8" AIR CYLINDER 20mm W/ SWING FEATURE
DRAWING NO. F0058-532-00
SCALE: NTS
SHEET 1 OF 1
DRFTSMN RWE 8-24-99
CHKD
APPD
TOLERANCES UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH: 125
REVISION
1 REMOVED H0053276 & H0132127. ADDED H0132125, H0135025,& PF029019. RWE 5-14-02
2 UPDATED W/ INDENT WASHER & HARDWARE. RWE 6-12-02
F0058001
P0027071
H0135004
H0135024
H0132094
H0054397
H0110051
NOTE: INSTALL H0054397 & H0110051 ON INSIDE OF FRONT PANEL
H0132125
H0038035
H0135025
H0110314
PF029019
P0038523
30" LENGTH
H0030214
H0110049
F0045043
H0054277
F0045042
F0125501
PF030009
NOTE: USE H0054276 ON ANY 4051 LPA'S. ALL OTHERS USE H0054277 (THIS BOLT ONLY)
H0110046
H0053194
F0058114
PF029032
H0110314
F0045053

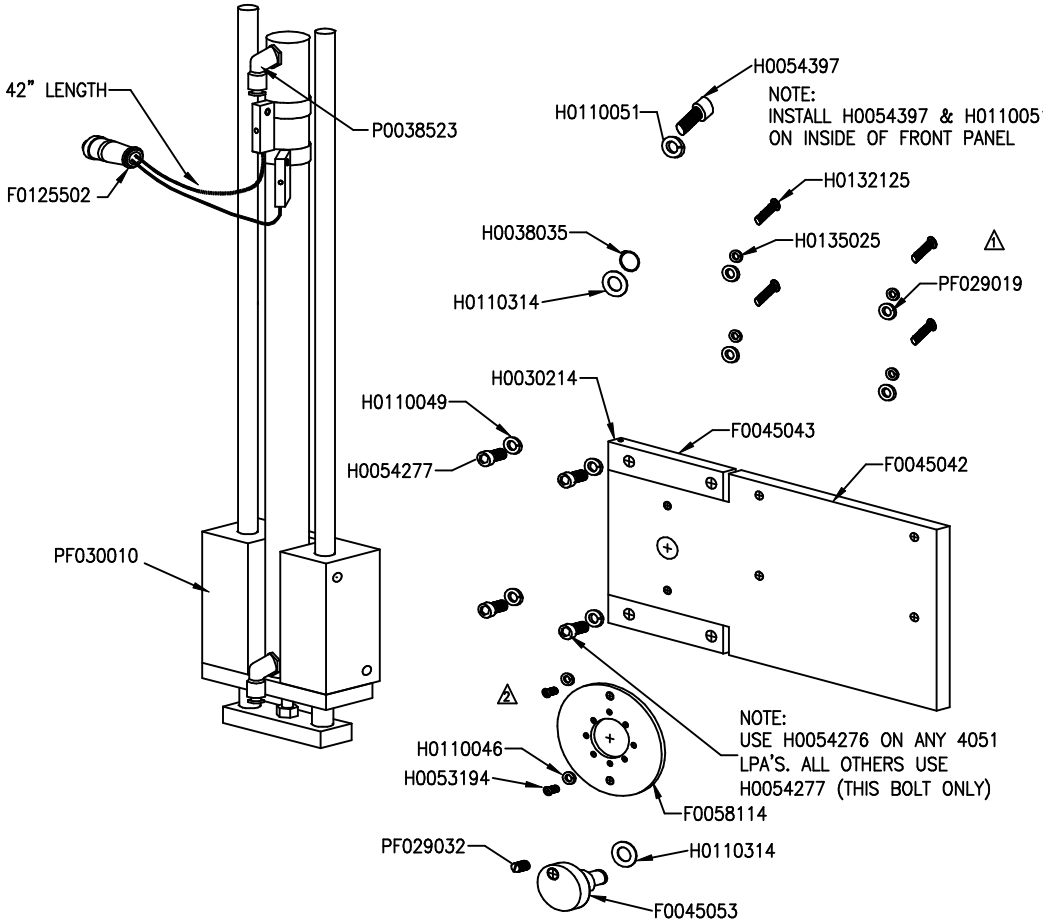
SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:44 AM

Parent Item Number: F0058-537-00 14" SWING CYL DUAL SENSORS Type: A

Component	Description	Qty Required	UM	Type
F0058-114-00	INDENT WASHER	1.00	EA	R
H0053-194-02	BHCS #8-32 X .375 LG	2.00	EA	R
H0054-277-01	SHCS 1/4-20 X .750 LG	4.00	EA	R
H0110-046-02	WASHER SPLITLOCK #8	2.00	EA	R
H0110-049-01	WASHER SPLITLOCK .250	4.00	EA	R
H0110-051-01	WASHER SPLITLOCK .375	1.00	EA	R
H0132-094-02	BHCS M5 X .08 X 10mm LG	4.00	EA	R
H0132-125-02	BHCS M6 X 1.00 X 12MM LG SS	4.00	EA	R
H0135-004-02	FW M5 SS	4.00	EA	R
H0135-024-02	LW M5 SS	4.00	EA	R
H0135-025-02	FSTR M6 LOCK WASHER SS	4.00	EA	R
PF029-032-00	BALL PLUNGER 1/4-20 X .53LG	1.00	EA	R
F0045-042-00	CYLINDER PLATE	1.00	EA	A
F0045-043-00	CYLINDER PLATE GUIDE	2.00	EA	A
F0045-053-00	KNOB	1.00	EA	A
F0058-002-00	14" CYLINDER COVER	1.00	EA	R
F0125-502-00	CYL. DUAL SWITCH ASS'Y 14"	1.00	EA	A
H0030-214-01	PIN DOWEL .188 DIA X 1.00 LG	2.00	EA	R
H0038-035-01	RING RET EXT SER 5100 .500 D	1.00	EA	R
H0054-397-01	SHCS 3/8-16 X .750 LG	1.00	EA	R
H0110-314-01	STEEL WAVE WASHER	2.00	EA	R
P0027-071-00	PINCH POINT WARNING LABEL	1.00	EA	R
P0038-523-00	1/4TUBE 1/8 NPT ELBOW	2.00	EA	R
PF030-010-00	SLIDE ASSEMBLY 350mm STROKE	1.00	EA	R
PF029-019-00	WASHER 1/4" (GRADE 8 STEEL)	4.00	EA	R





REVISION		
1	REMOVED H0053276 & H0132127. ADDED H0132125, H0135025, & PF029019. RWE 5-14-02	
2	UPDATED W/ INDENT WASHER & HARDWARE. RWE 6-13-02	

DRFTSMN	RWE	8-30-99
CHKD		
APPD		

TOLERANCES
UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± 5° ANGLES ± 1/2°
FINISH: 125

FOX IV Technologies, Inc.

14" SWING CYL. ASS'Y W/ DUAL SENSORS

DRAWING NO. F0058-537-00

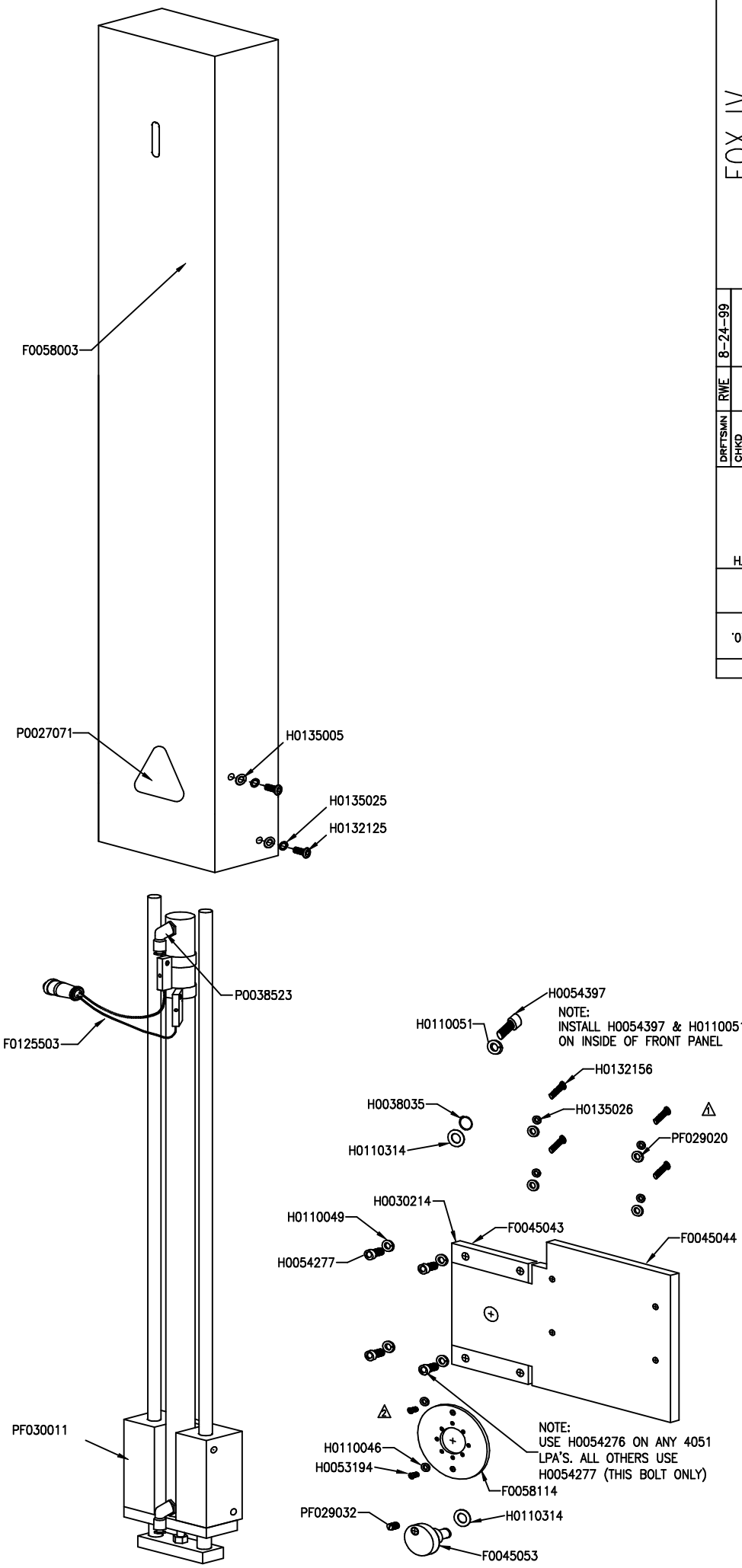
SCALE: NTS | SHEET 1 OF 1

SUMMARIZED BOM - SINGLE LEVEL

Wednesday October 10, 2007 09:44 AM

Parent Item Number: F0058-533-00 20" SWING CYL DUAL SENSORS Type: A

Component	Description	Qty Required	UM	Type
F0058-114-00	INDENT WASHER	1.00	EA	R
H0053-194-02	BHCS #8-32 X .375 LG	2.00	EA	R
H0054-277-02	SHCS 1/4-20 X .75 LG SS	4.00	EA	R
H0110-046-02	WASHER SPLITLOCK #8	2.00	EA	R
H0110-049-02	WASHER SPLITLOCK .250	4.00	EA	R
H0110-051-01	WASHER SPLITLOCK .375	1.00	EA	R
H0132-125-02	BHCS M6 X 1.00 X 12MM LG SS	4.00	EA	R
H0132-156-02	M8 X 1.25 X 16 BHCS SS	4.00	EA	R
H0135-005-02	M6 FLAT WASHER SS	4.00	EA	R
H0135-025-02	FSTR M6 LOCK WASHER SS	4.00	EA	R
H0135-026-02	M8 LOCK WASHER	4.00	EA	R
P0037-148-00	COILED TUBING 1/4 OD X .159	1.00	EA	R
PF029-020-00	WASHER 5/16" (GRADE 8 STEEL)	4.00	EA	R
PF029-032-00	BALL PLUNGER 1/4-20 X .53LG	1.00	EA	R
F0045-043-00	CYLINDER PLATE GUIDE	2.00	EA	A
F0045-044-00	CYLINDER PLATE	1.00	EA	A
F0045-053-00	KNOB	1.00	EA	A
F0058-003-00	20" CYLINDER COVER	1.00	EA	R
F0125-503-00	CYL. DUAL SWITCH ASS'Y 20"	1.00	EA	A
H0030-214-01	PIN DOWEL .188 DIA X 1.00 LG	2.00	EA	R
H0038-035-01	RING RET EXT SER 5100 .500 D	1.00	EA	R
H0053-277-01	BHCS 1/4-20 X .750 LG	4.00	EA	R
H0054-397-01	SHCS 3/8-16 X .750 LG	1.00	EA	R
H0110-314-01	STEEL WAVE WASHER	2.00	EA	R
P0027-071-00	PINCH POINT WARNING LABEL	1.00	EA	R
P0038-523-00	1/4TUBE 1/8 NPT ELBOW	2.00	EA	R
PF030-011-00	SLIDE ASSEMBLY 500mm STROKE	1.00	EA	R



FOX IV Technologies, Inc.

20" AIR CYLINDER W/ SWING FEATURE

DRAWING NO. F0058-533-00

SCALE: NTS | SHEET 1 OF 1

DRFTSMN	RWE	8-24-99	
CHKD			
APPD			

TOLERANCES
UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .005
2 PLACE DECIMAL ± .01
1 PLACE DECIMAL ± .06
CHAMFERS ± .5° ANGLES ± 1/2°
FINISH: 125

REVISION	
ADDED H0132156, H0135026, & PF029020. RWE 5-15-02	1
UPDATED W/ INDENT WASHER & HARDWARE. RWE 7-5-02	2
54" ON SENSOR LENGTH REMOVED DJM 8/19/02	3