

08768

ZPrinter™310 Plus Bench Work Manual

Rev C – 2/6/08

Custodian: Valeriy Zolotych



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Revision History:

Rev 1			9/14/2005	Release Bench Work Manual
Rev A	ECN 1963	BWH	2/23/07	Update for oilless bearing and RoHS
Rev B	ECN 2055	BWH	3/14/07	E-Box changes
Rev C	ECN 2247	BWH	2/6/08	Change flash drive part number

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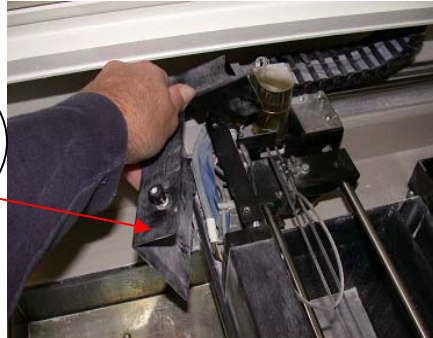
Section 1: ZPrinter 310 Plus Fast Axis Module Removal

1. Turn off Heater Module power switch and unplug the ZPrinter 310 Plus.
2. Slide gantry to middle of print area and remove cable enclosure cover (Picture 1-2)



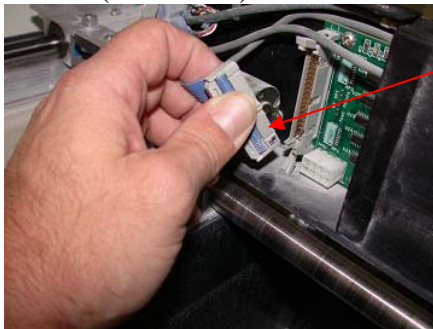
Picture 1

Cable
Enclosure
Cover



Picture 2

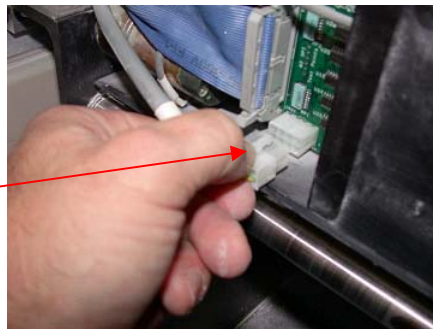
3. Disconnect head card power and ribbon cables. Twist to disconnect fluid supply tubing. (Picture 3-5).



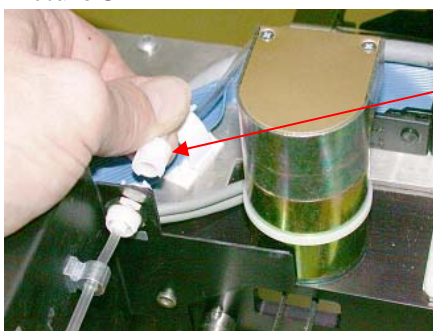
Picture 3

Ribbon
Cable

Power
Cable



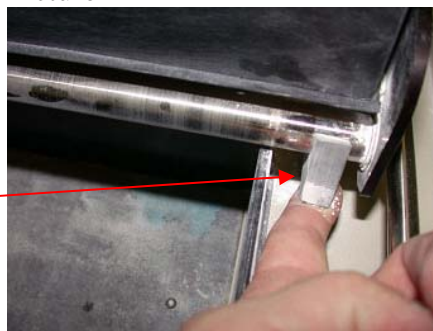
Picture 4



Picture 5

Fluid
Supply

Snow
plow



Picture 6

4. Remove the snowplows from both sides of the printer module. Slide the snowplow away from the edge of the build box until it disengages from the retaining tab. Press on the top edge of the snowplow until it pops off of the spreader roller. (Pictures 6-8)



Picture 7



Picture 8

5. Using the hex wrench, remove the two printer module mounting screws. Be sure to support the printer module by hand when removing the second mounting screw. Pivot the front of the printer module up while lifting from the rear and remove. (Pictures 9-12)



Picture 9



Picture 10



Picture 11



Picture 12



ZPrinter 310 Plus Fast Axis Module Replacement

To reinsert the Fast Axis Assembly, go backwards through the steps.

1. Remove the cable enclosure cover. Install the fast axis onto the ZPrinter. (Pictures 1 and 2)



Picture 1



Picture 2

2. Using the hex wrench, reinstall the screws. (Pictures 3 and 4)

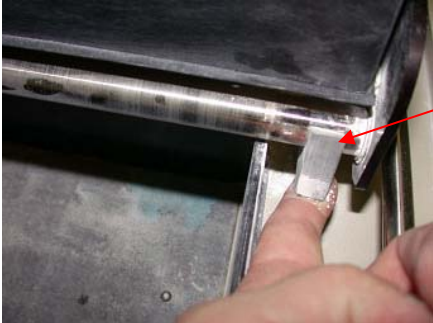


Picture 3

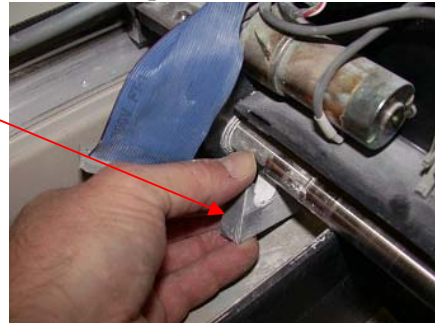


Picture 4

3. Reinsert the snowplows. (See pictures 5 and 6). Be sure to push the snowplows into the slots.



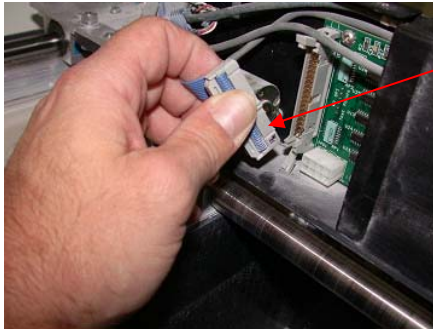
Picture 5



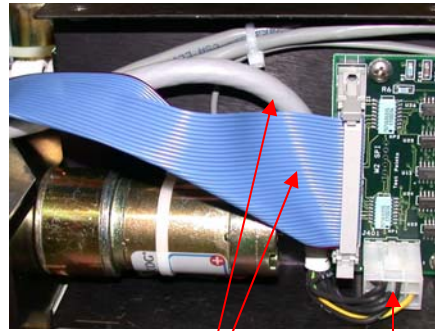
Picture 6

Snow
plows

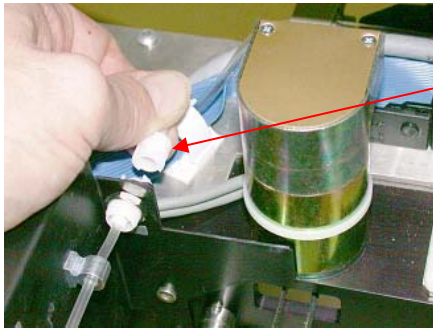
4. Reinsert the ribbon cable, power cable and fluids connector (Pictures 7, 8, 9). Reinstall the cable enclosure cover. Note in Picture 8 that the gray cable goes behind the blue ribbon cable.



Picture 7



Picture 8



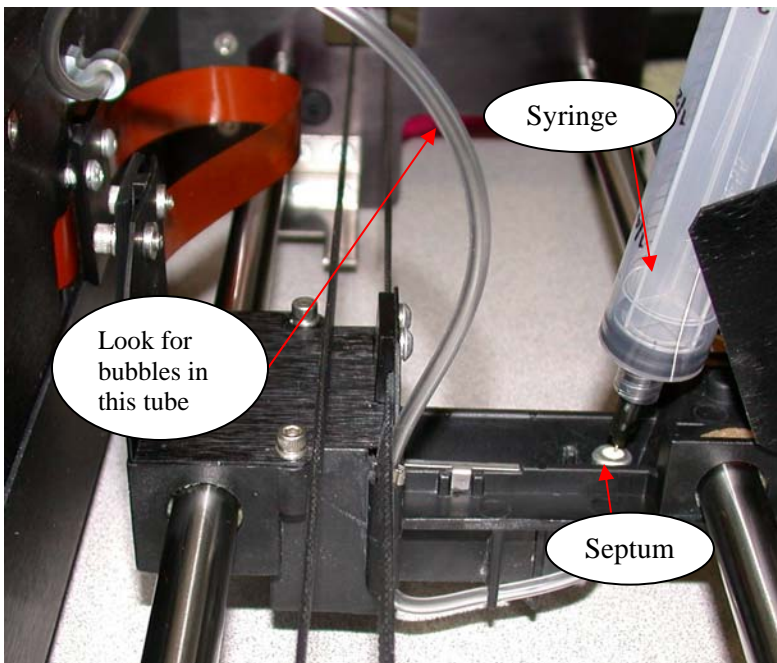
Picture 9

Fluid
Supply

Gray cable
must be
behind blue
cable

Power
cable

5. Using the syringe provided in the user tool kit, place the needle into the septum and slowly draw binder through the system, until no bubbles are present in the binder tube. (Picture 10)



Picture 10

Syringe

Look for
bubbles in
this tube

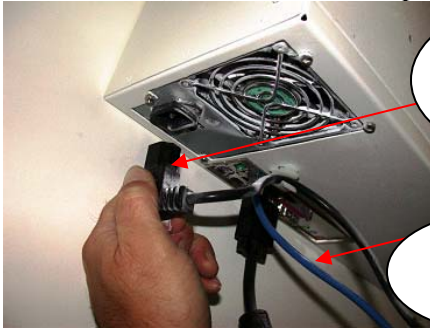
Septum

Section 2: ZPrinter 310 Plus Electronics Box Removal



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1. Turn off main power switch and unplug power cable from the heater box.
2. Unplug serial and network cables, PS/2 and internal power cable. (Picture 1)
3. Remove (6) screws from rear panel and remove. (Picture 2)



Picture 1

Internal
Power Cable

Network
Cable



Picture 2

4. Unplug wiring harnesses and ribbon cables from electronics panel. (Picture 3)
5. Loosen the captive Phillips head screw on the top middle of the E box. Lift E box up and away from standoffs to remove.



Picture 3

Unplug all
4 cables

Phillips
screw



Picture 4



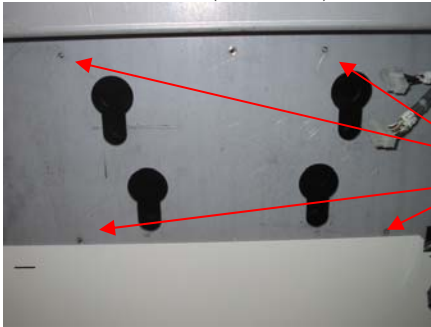
Picture 5

ZPrinter 310 Plus Electronics Box Reinstallation



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1. Place the electronics box onto the four studs on the back of the Z Printer 310 (Picture 1). Ensure that the Electronics box is seated on all four studs. Tighten the Philips screw on the top of the E Box (Picture 2).



Picture 1



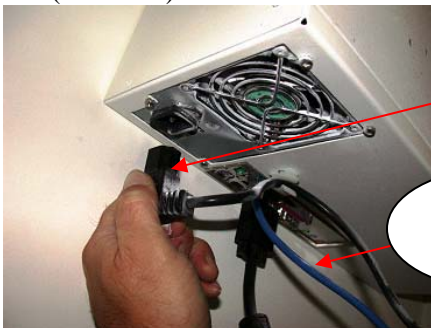
Picture 2

2. Plug wiring harnesses and ribbon cables into electronics panel. (Picture 3).



Picture 3

3. Replace the rear panel (7 screws) (Picture 5) and reinsert the power cable and network cable (Picture 4).



Picture 4



Picture 5

4. While the printer is booting, the pistons will re-zero. The pistons will make noise for a period of 5-60 seconds. This is normal and will happen only this one time.
5. The Electronics box should be pre-configured to your network. If the printer is not able to be found on the network, call Z Corporation Service Department at 781 852 5050.

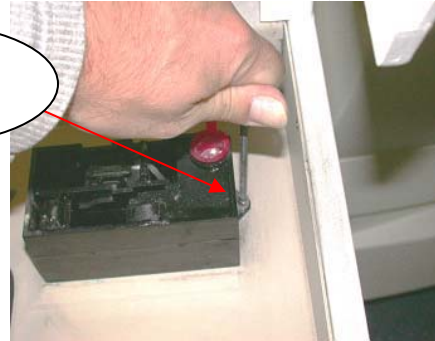


Section 3: ZPrinter 310 Plus Service Station Replacement

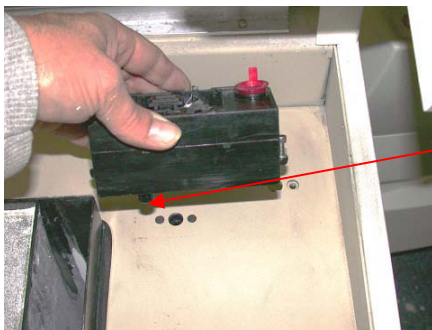
1. Remove left and right mounting screws from service station and lift to remove. (Pictures 1-3).



Picture 1



Picture 2



Picture 3

2. Reinstall the service station by placing the drain fitting on the service station over the hole in the deck. Push down until the fitting snaps into place. (Picture 3)
3. Reinstall the two mounting screws. (Pictures 1 and 2)
4. Install new cleaning fluid supplied with service station.
5. Dispose of the old service station in accordance with local regulations.



Section 4: ZPrinter 310 Plus Service Station Wiper and Cap Replacement

Wiper replacement. Using the screwdriver, gently lift the tab on the wiper body to remove. (Fig.1)

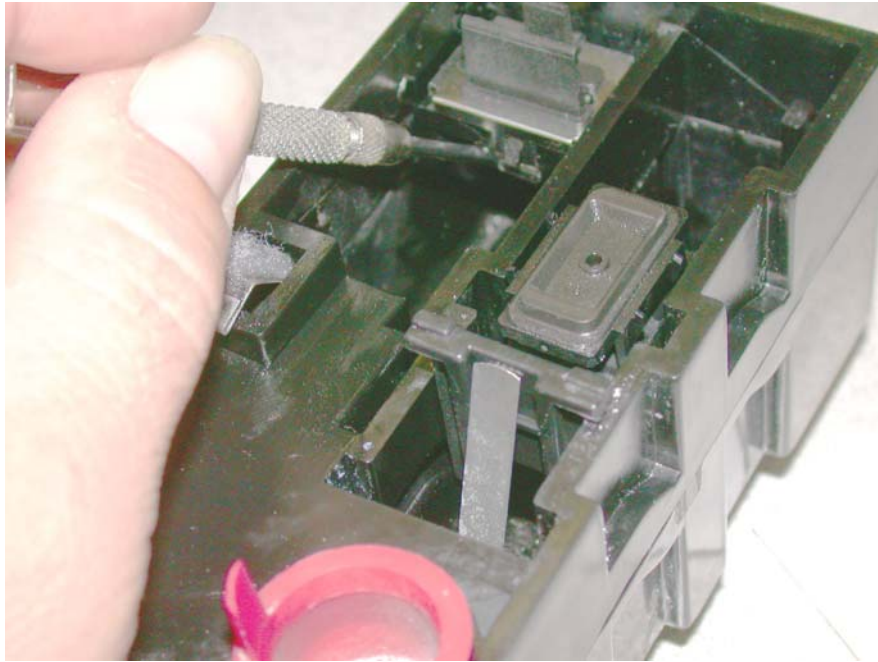


Figure 1

Cap replacement. Using the screwdriver, carefully lift the cap legs away from tabs and remove. (below)



Figure 2



Section 5: ZPrinter 310 Plus Carriage Replacement

Step 1. Remove fast axis module. (See Section 1)

Step 2. Remove head card cover. (Figures 1, 2)

Step 3. Unplug the carriage flex cable from the head card. (Figure 3)

Step 4. Loosen screws on the fast axis able clamp to release ribbon cable. (Fig.4, 5)



Figure 1



Figure 2

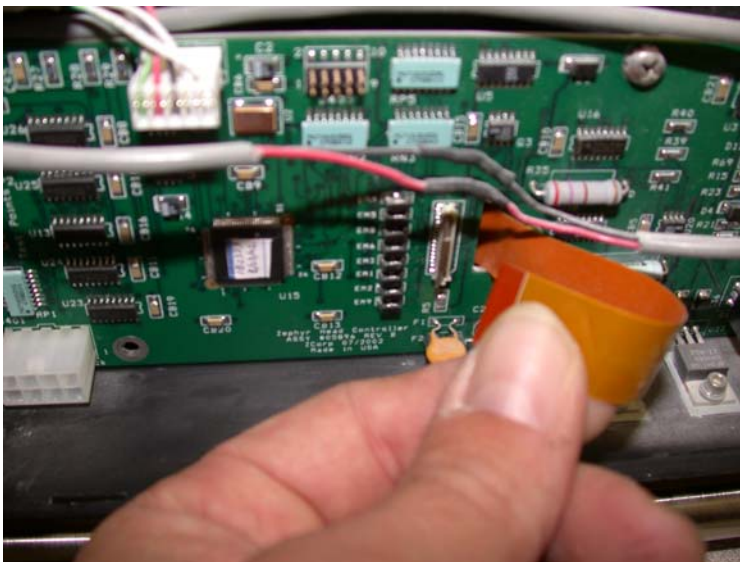


Figure 3

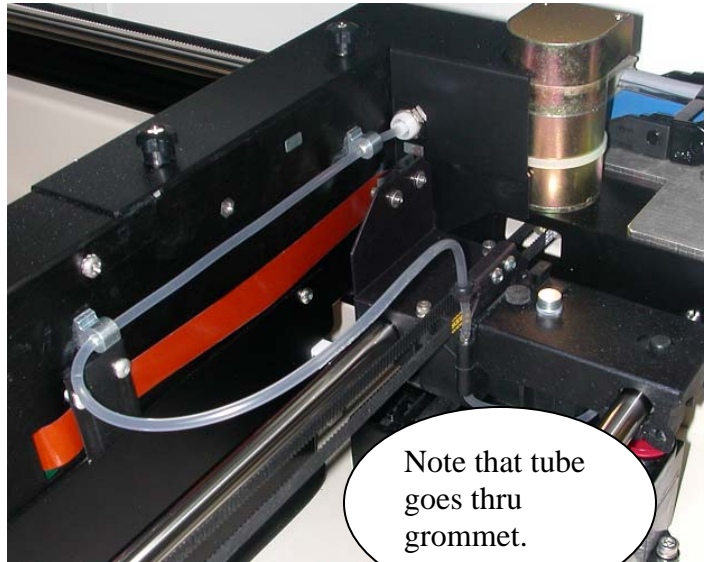


Figure 4

Step 5. Disconnect fluid supply tubing from carriage. (Figure 6)

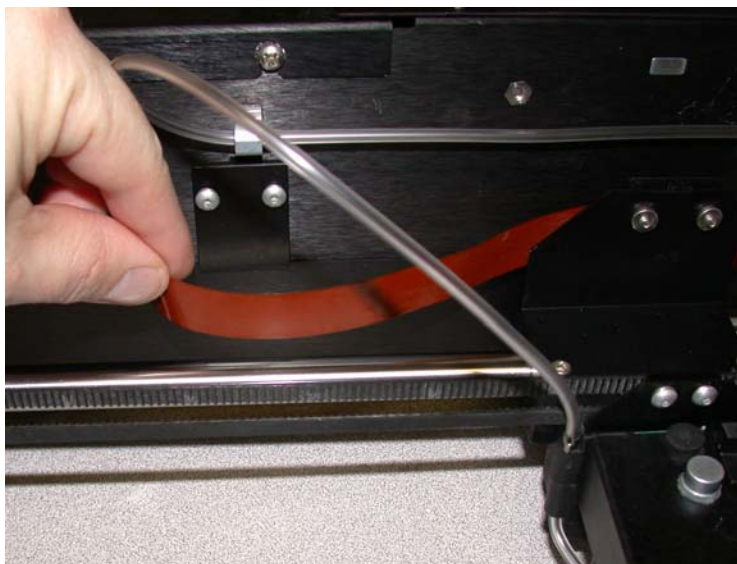


Figure 5

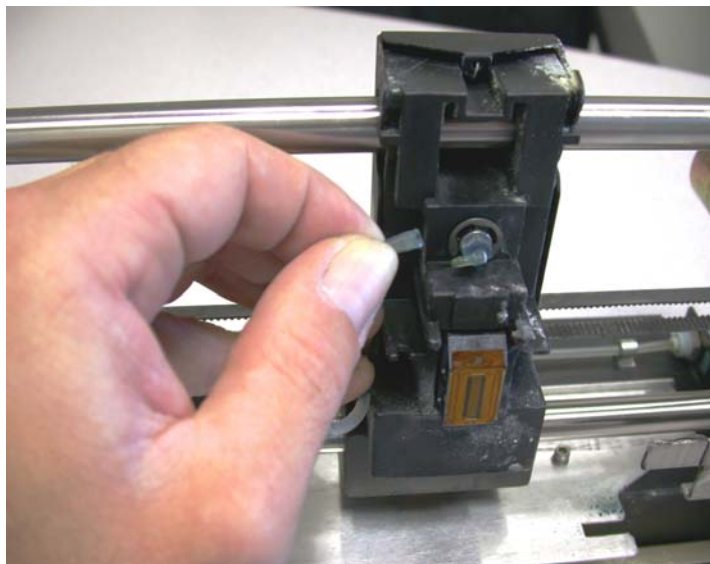


Figure 6

Step 6. Loosen fast axis belt tensioner. Remove the carriage belt retainer (Fig. 7, 8)

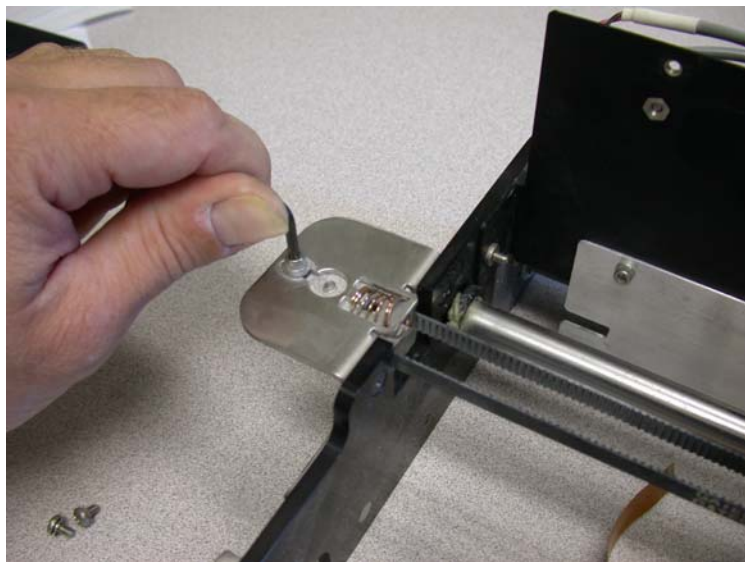


Figure 7



Figure 8

Step 7. Remove the two head card bracket mounting screws and the roller scraper mounting screw
Remove the mounting screws from the front ends of both fast axis bearing shafts. (Figure 9-12)



Figure 9

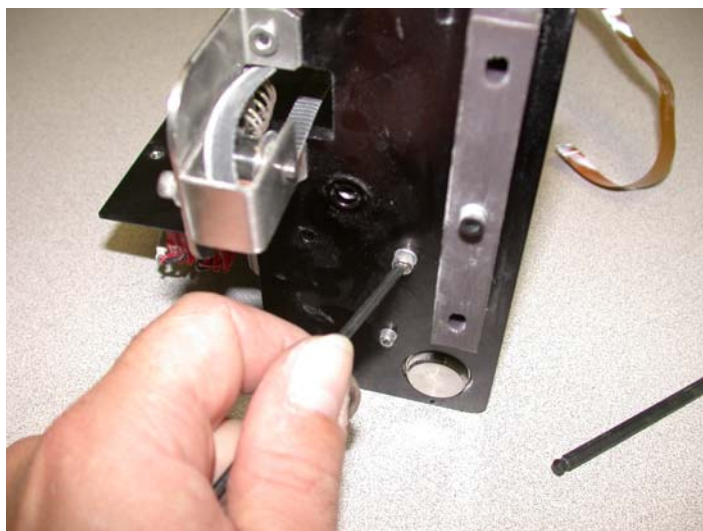


Figure 10



Figure 11

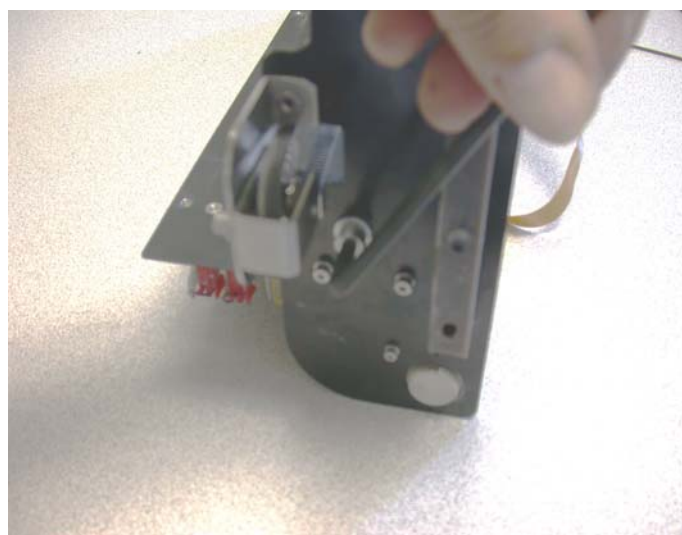


Figure 12

Step 8. Turn the front gantry plate to expose the ends of the fast axis shafts, remove the o-ring, and slide the carriage off. (Figure 13, 14)

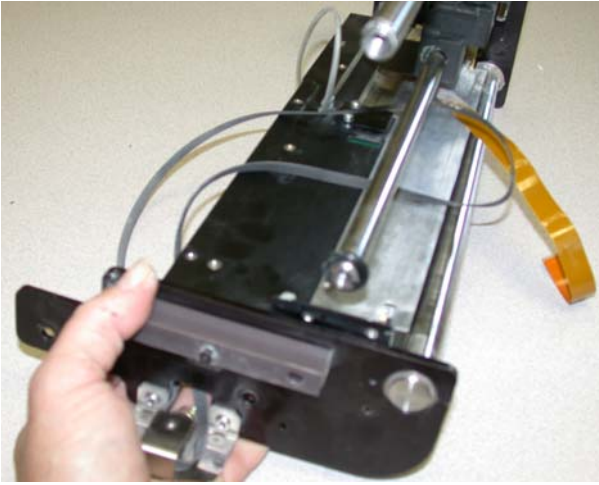


Figure 13



Figure 14

Carriage re-installation: Follow steps in reverse order to install the new carriage. If using a new carriage flex cable, see section 6 for folding and connection instructions. **IMPORTANT:** Go through all of the quality checks listed in Section 19.

Section 6: ZPrinter 310 Plus Pogo Card and Cable Replacement



Step 1. Remove the carriage (see section 5)

Step 2. Remove the cable clamp from the back of the carriage (figure 1-2)

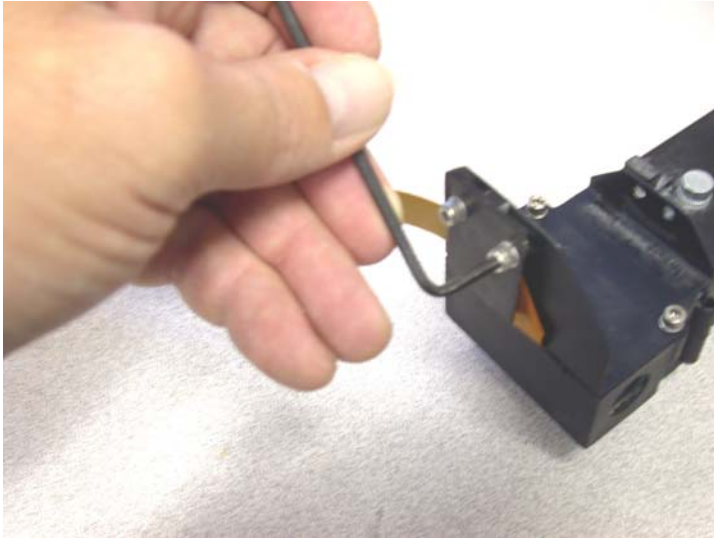


Figure 1



Figure 2

Step 3. Remove the carriage bearing cover. Grip top of pogo card and lift to remove. (Figure 3-6)

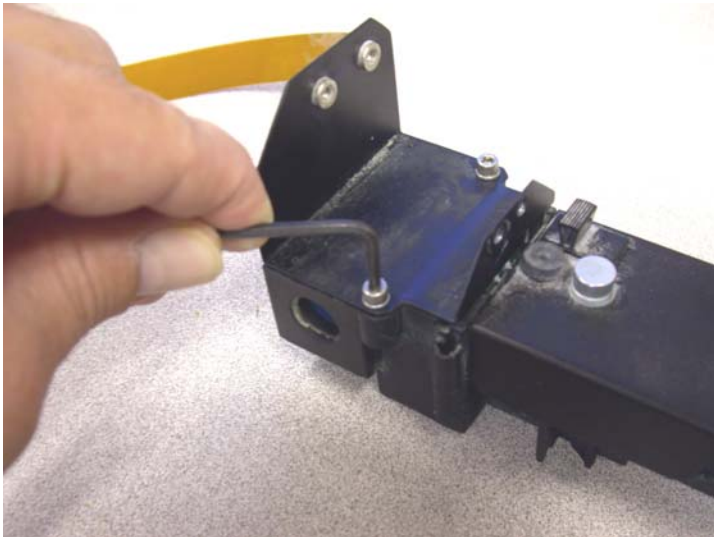


Figure 3

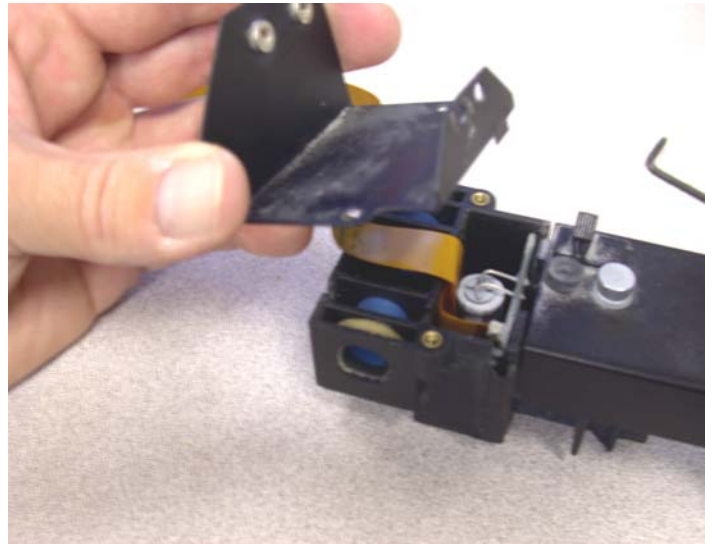


Figure 4



Figure 5



Figure 6

Step 4. Unlatch the ribbon cable connector and remove ribbon cable (Figure 7-8)

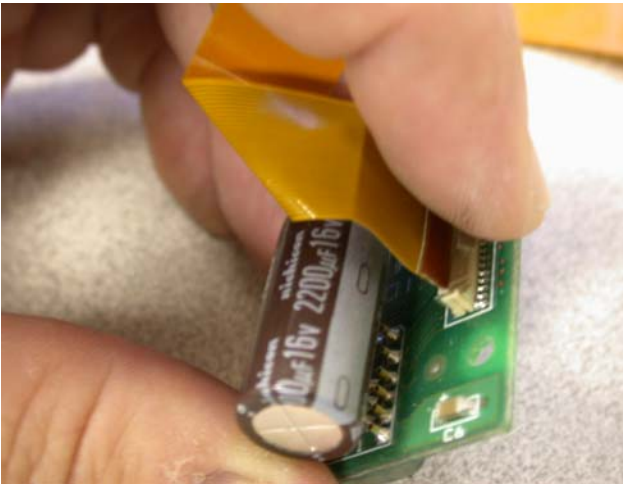
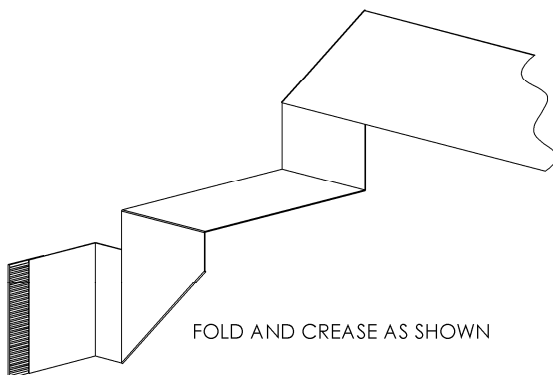
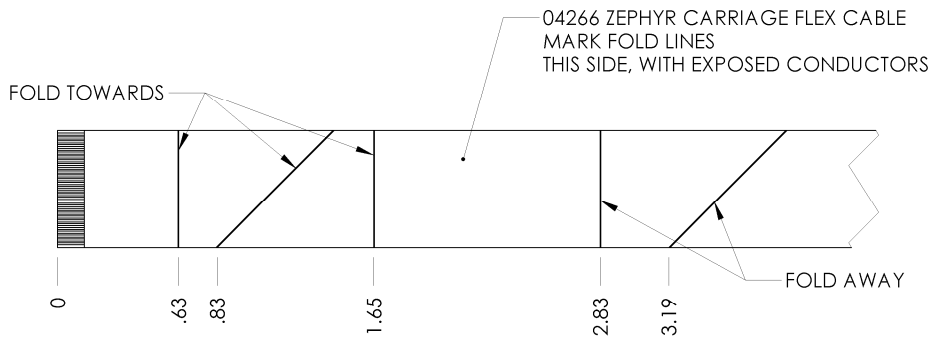


Figure 7



Figure 8



NOTE: IF USING A NEW FLEX CABLE, FOLD ACCORDING TO THIS DIAGRAM.

Section 7: ZPrinter 310 Plus Septum Replacement

Step 1. Remove fast axis module (Section 1). Disconnect the carriage tube from the barb on the septum. Place the tip of a screwdriver onto the retaining ring and pull away from septum base. (Fig.1-2)

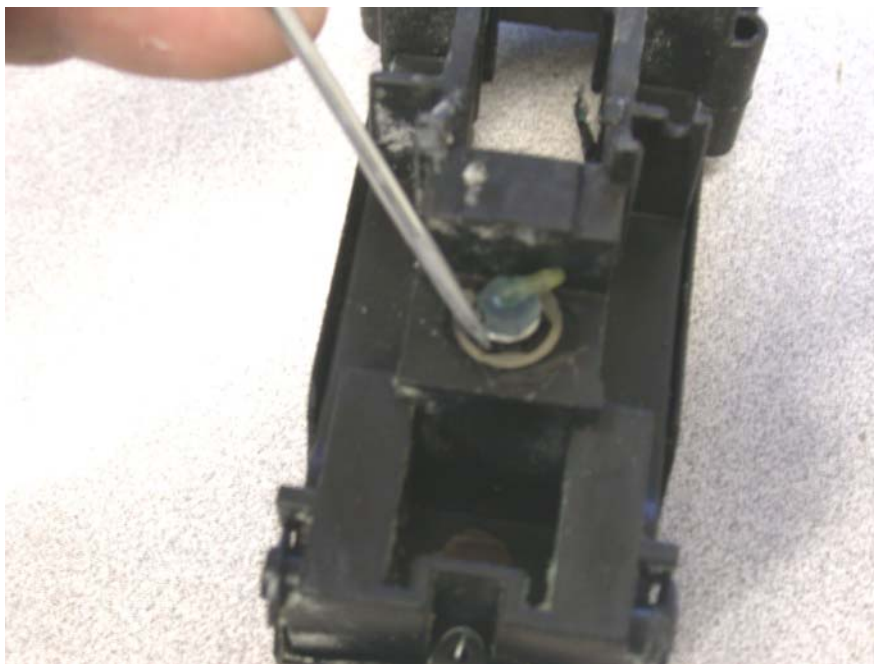


Figure 1

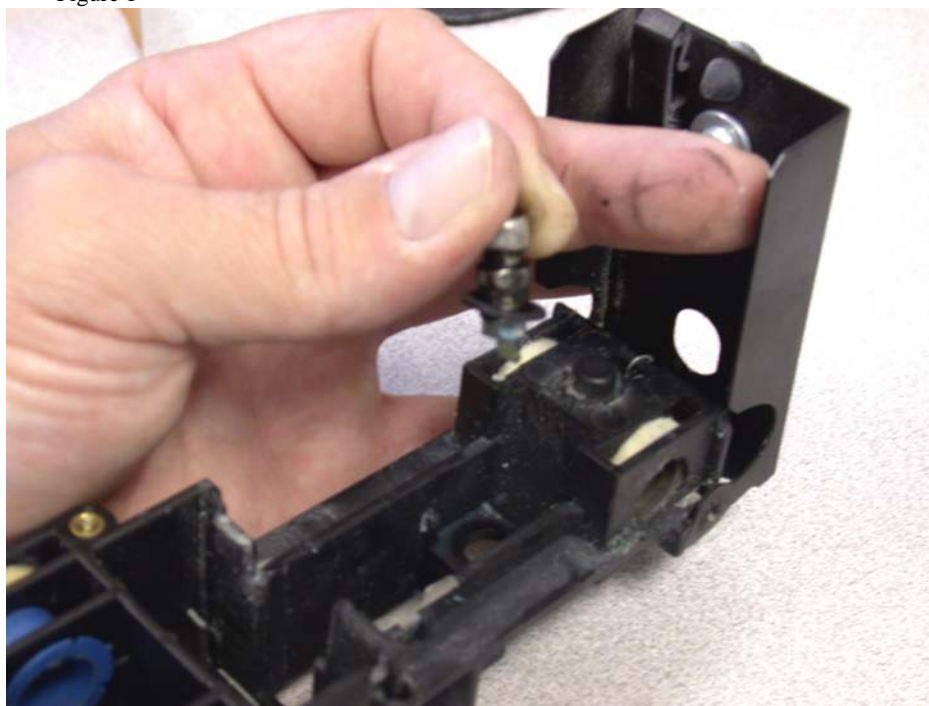


Figure 2

Section 8: ZPrinter 310 Plus Spreader Roller Scraper Replacement

Scraper replacement: Remove the fast axis module (see section 1). Remove the four ¼" hex nuts and the scraper blade retainer and remove blade.

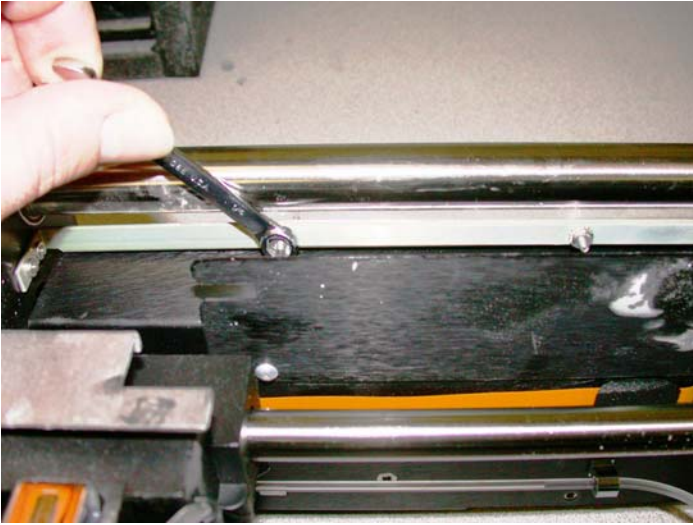


Figure 1



Figure 2

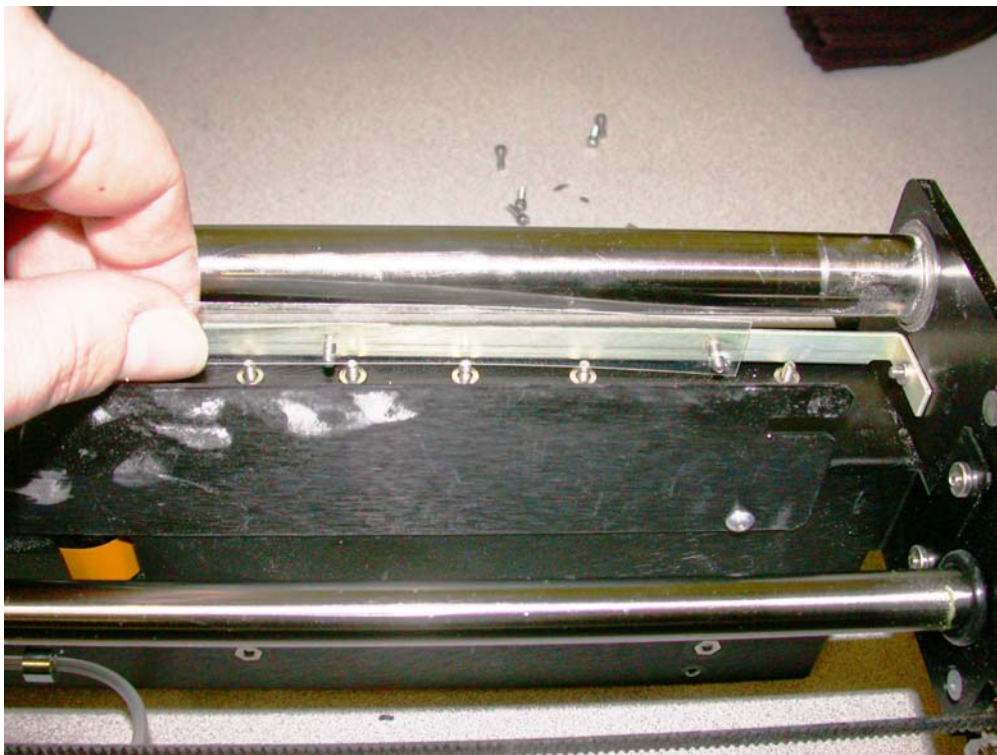


Figure 3

Section 9: ZPrinter 310 Plus Spreader Roller Motor and Belt Replacement



Step 1. Remove the fast axis module (section 1)

Step 2. Remove the head card/cable cover and spreader motor cable (Figure 1-2)



Figure 1

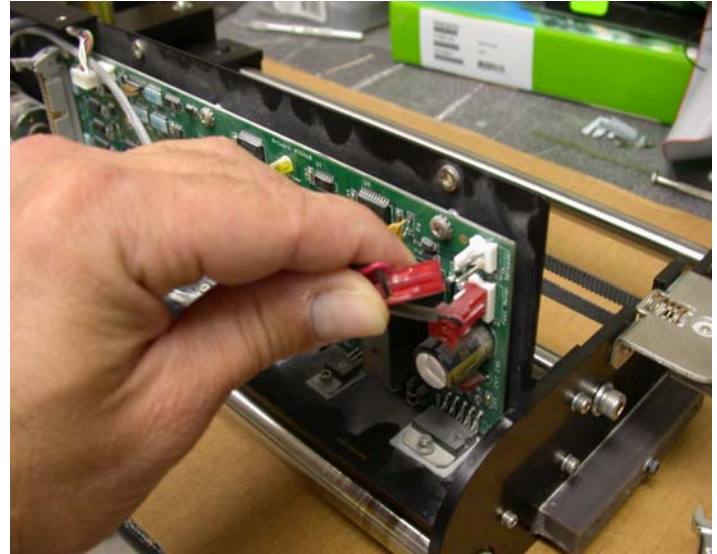


Figure 2

Step 3. Remove the spreader motor mounting screws and tilt motor to detach. (Figure 3-4)

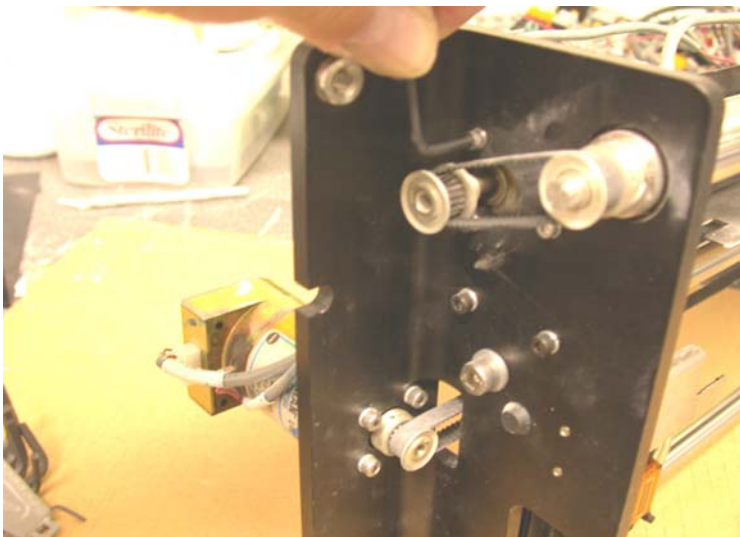


Figure 3



Figure 4



Section 10: ZPrinter 310 Plus Fast Axis Motor and Belt Replacement

Step 1. Snip the cable tie holding the fast axis motor cables and disconnect both cables from the head card. (Figures 1-3)

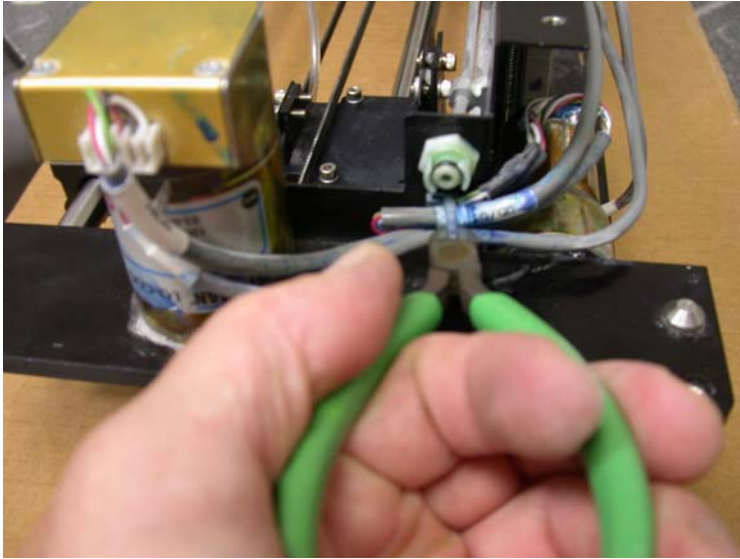


Figure 1

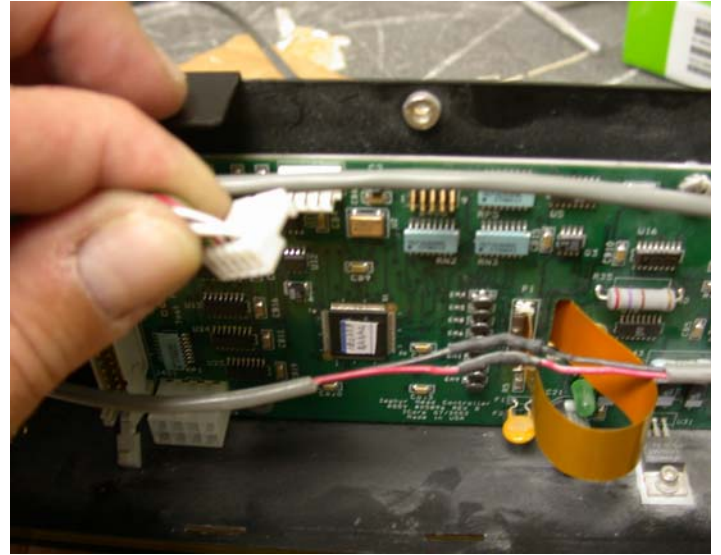


Figure 2

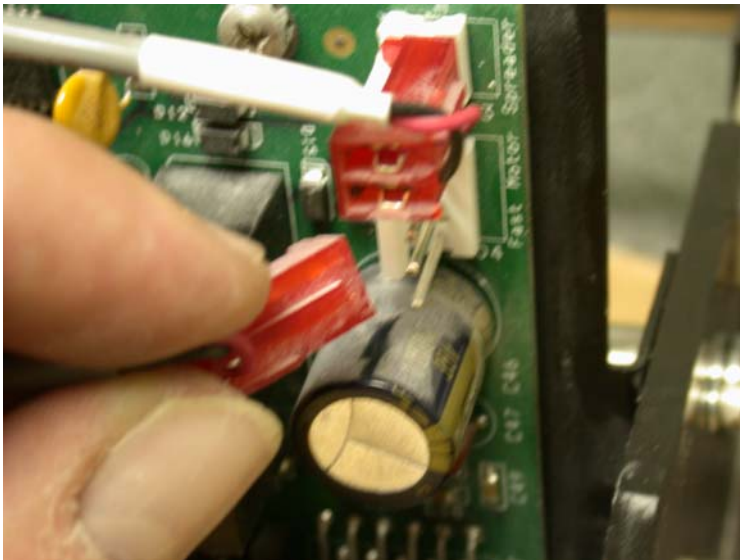


Figure 3

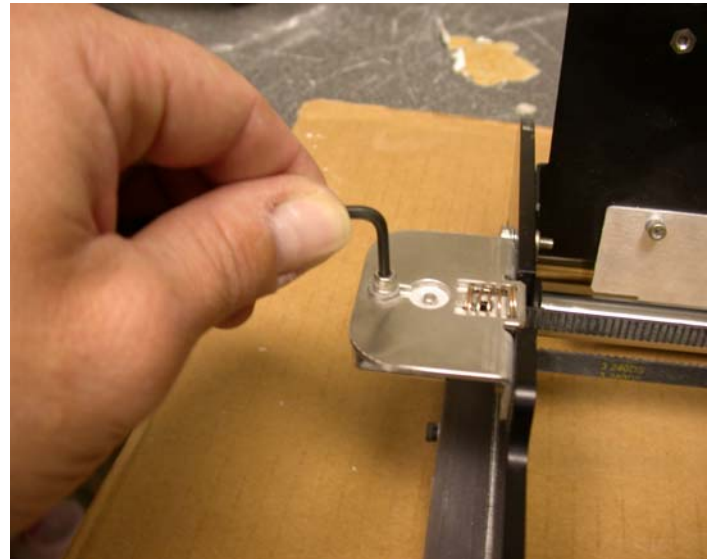


Figure 4

Step 2. Loosen and remove the screw on the fast axis belt tensioner. Remove the tensioner assembly from the tensioner bracket by pulling back the spring. (Figure 4-6).

Step 3. Loosen the belt keeper screws and remove belt from carriage. (Figure 7)

Step 4. Remove motor mounting screws and motor. (Figure 8-9)



Figure 5

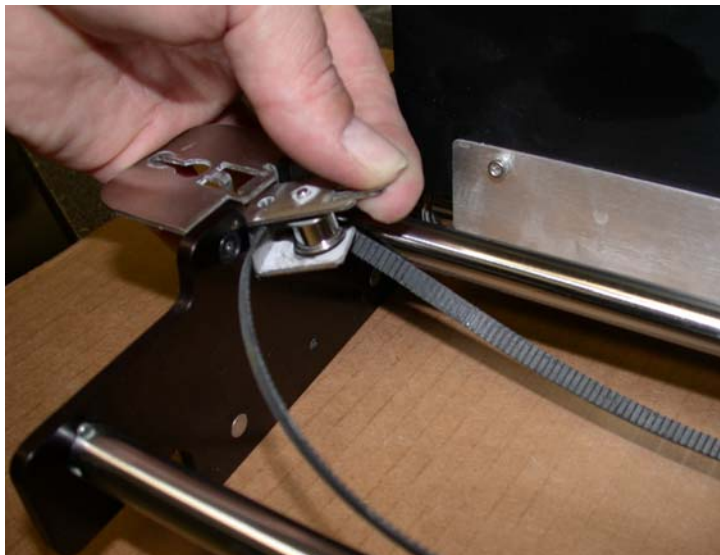


Figure 6



Figure 7



Figure 8



Figure 9

Step 5. Tensioning procedure: Re-install the fast axis motor and belt and connect the fast axis belt back onto the carriage. Place the tensioner spring onto the tab on the idler assembly and align with the tab on the idler bracket. Compress the tensioner spring while rotating the idler assembly up. Release the tensioner spring onto the outer tab on the tensioner bracket and allow the assembly to tension freely before securing with the mounting screw. (Figure 10-12)

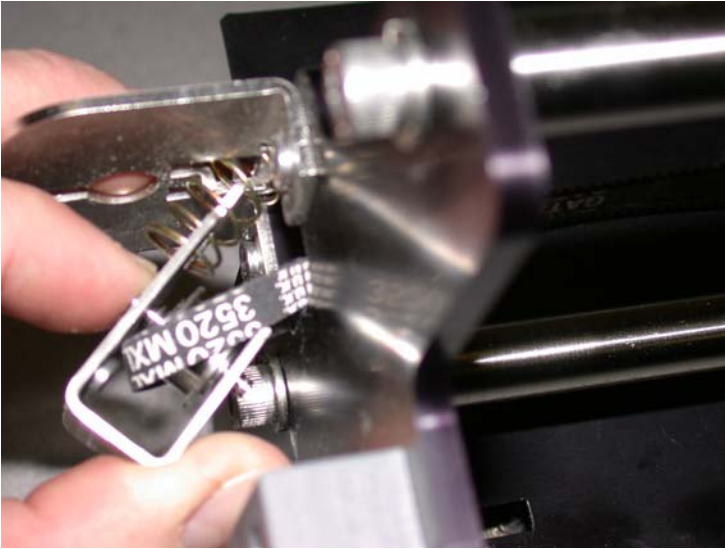


Figure 10



Figure 11

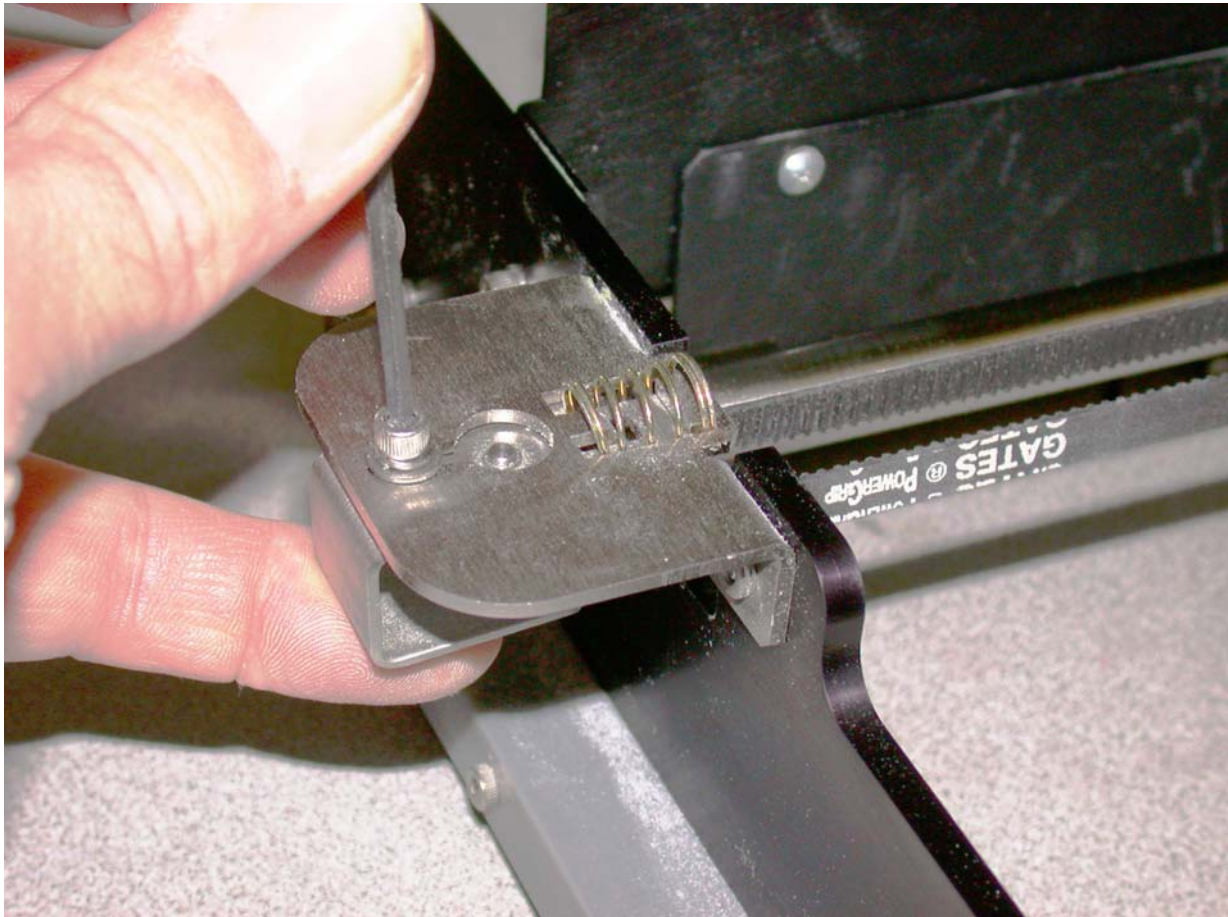


Figure 12

Section 11: ZPrinter 310 Plus Slow Axis Motor, Belt and Idler Replacement

Step 1. Loosen the screws on the slow axis belt keepers and remove the belt. (Figure 1-2)

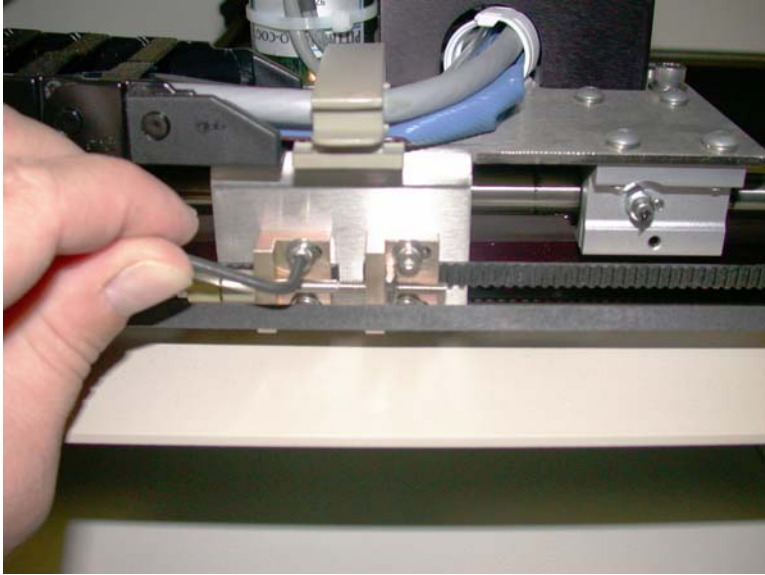


Figure 1

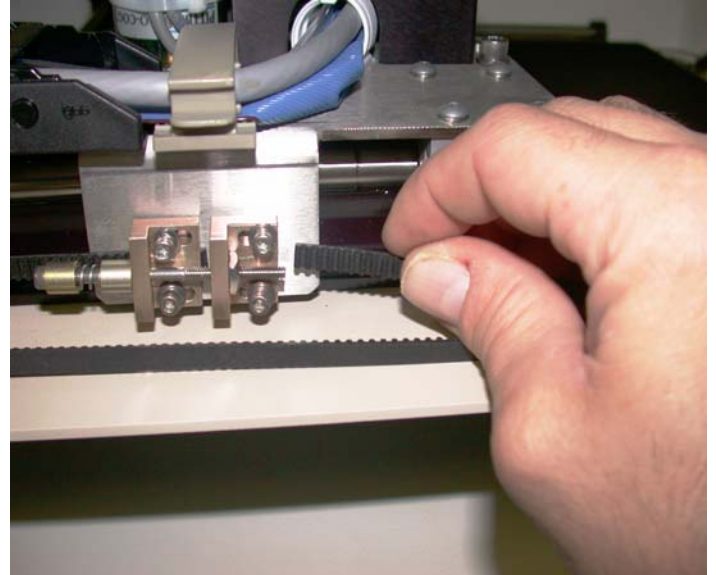


Figure 2

Step 2. Remove the screw from under the slow axis idler pulley and remove pulley assembly. (Figure 3-4)



Figure 3



Figure 4

Step 3. Disconnect the power leads and the encoder cable from the slow axis motor. (Figure 5-6)

Step 4. Loosen and remove the motor mounting screws. (Figure 7)



Figure 5



Figure 6



Figure 7

Belt replacement and tensioning:

Step 1. Loosen the mounting screws on the left side belt keeper and slide the belt under it, teeth facing out, until the belt end is flush with the inner edge of the belt keeper. Tighten the mounting screws lightly (Fig.8-9).

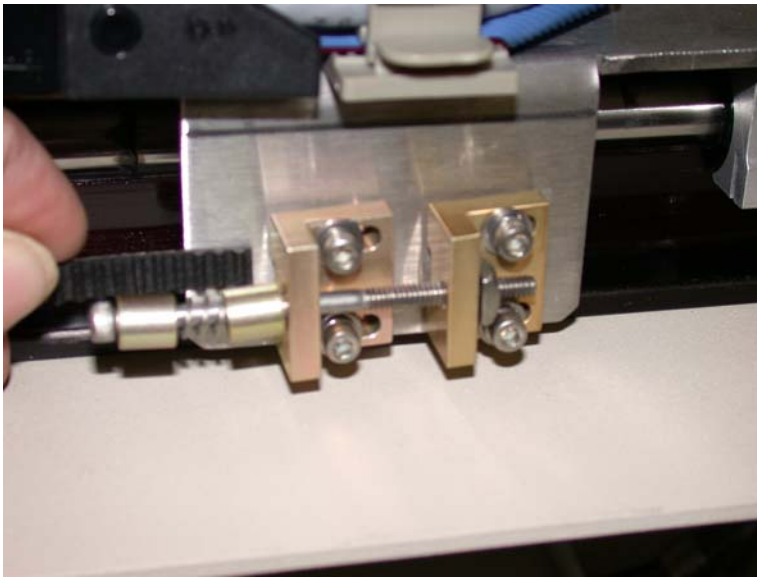


Figure 8

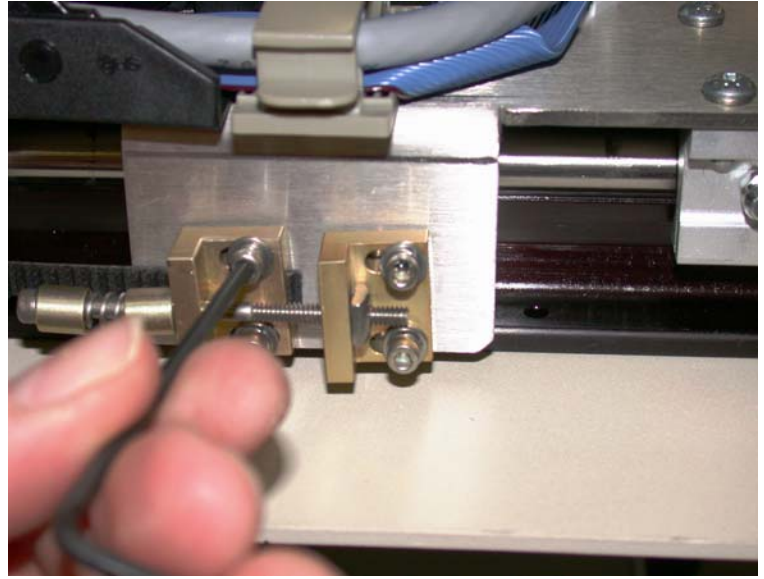


Figure 9

Step 2. Bring the belt around the drive pulley and the idler pulley and insert the belt end under the right side belt keeper. Mounting screws on the belt keeper should be loose enough so that belt can slide easily under the keeper. Insert belt so that the belt end becomes flush with the inner edge of the belt keeper and tighten mounting screws slightly to hold belt in place. (Figures 10 –13)

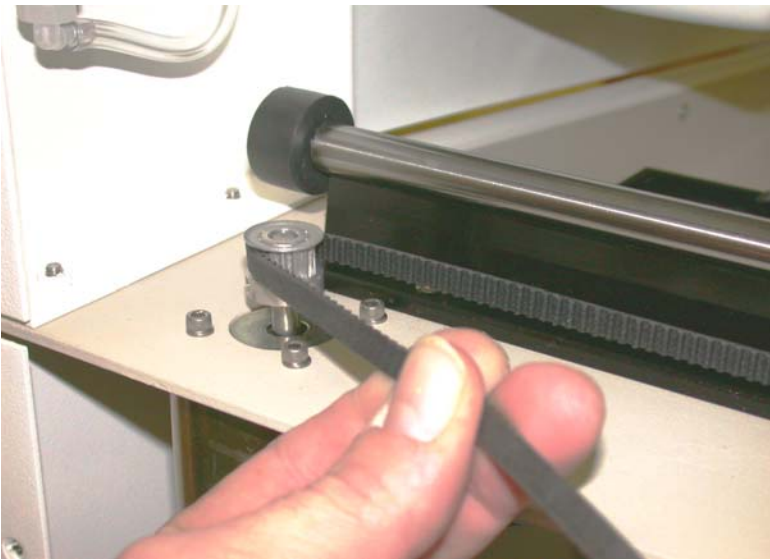


Figure 10

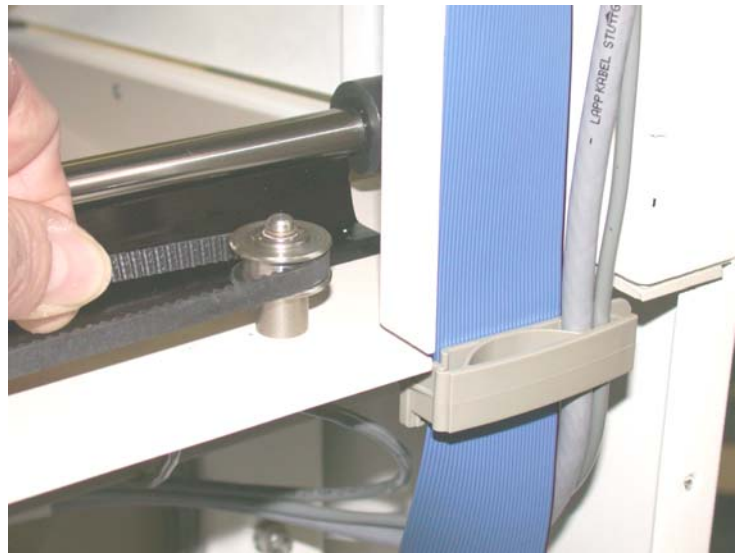


Figure 11

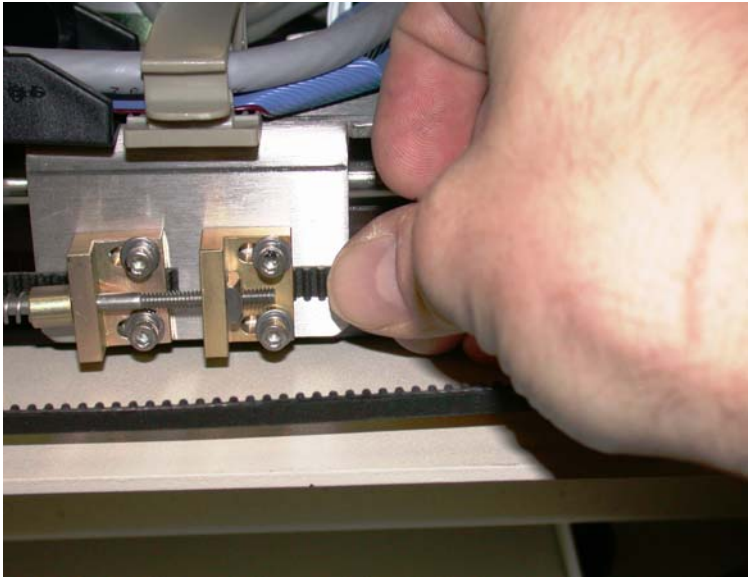


Figure 12

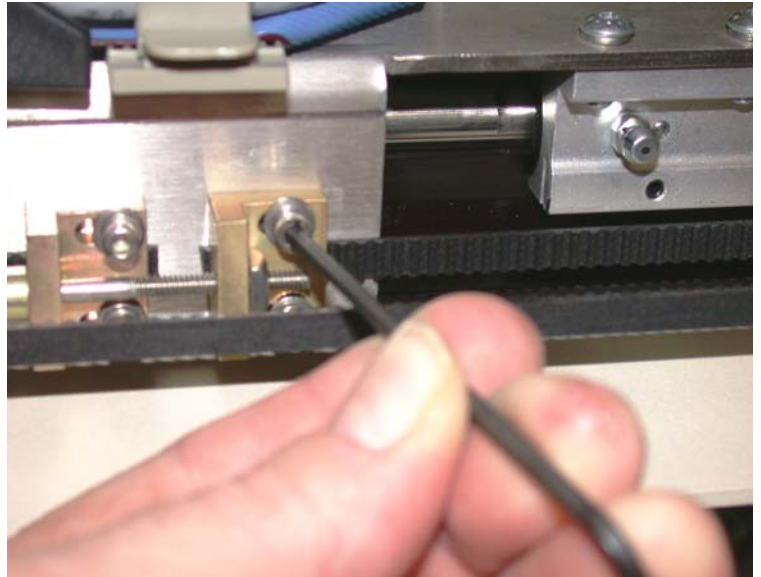


Figure 13

Step 3. Adjust the tensioning screw until the two aluminum adjustment barrels are approx .030" apart and tighten the mounting screws. (Figure 14)

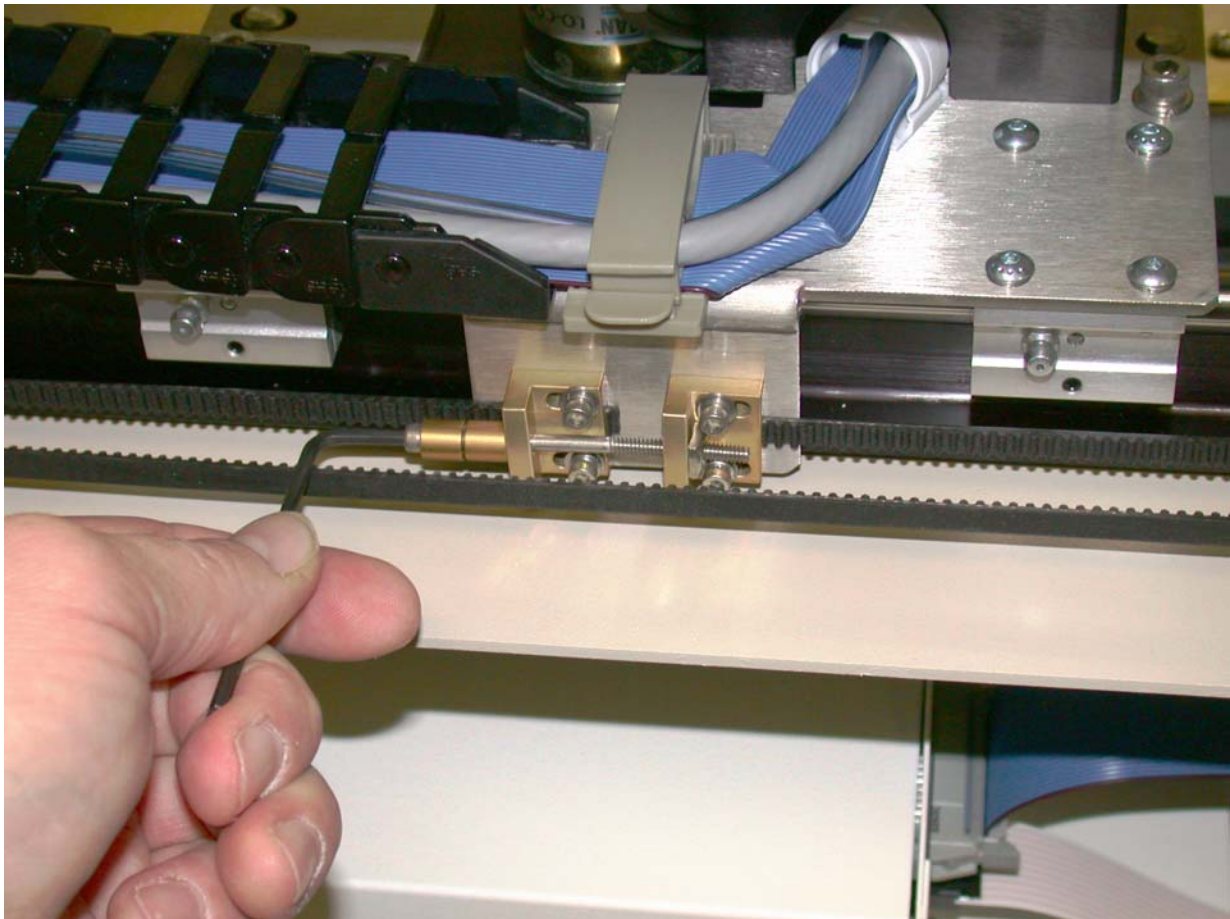


Figure 14

Section 12: ZPrinter 310 Plus Fluid System Tubing and Filter Replacement



Step 1. Disconnect the fluid supply tubing from beneath the carriage. Pull the tubing out through the (2) tubing guides and disconnect the tubing end from the bulkhead fitting on the fast axis frame. Disconnect the tubing from the opposite side of the bulkhead fitting and remove from the Igus chain (Figures 1-4)

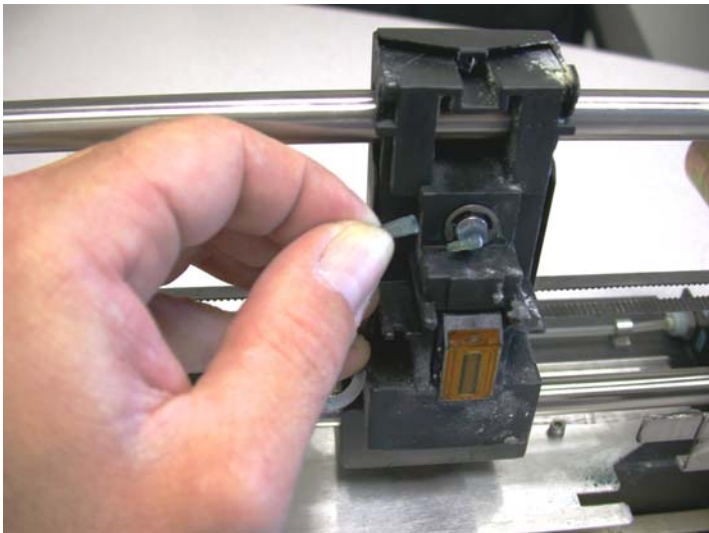


Figure 1



Figure 2

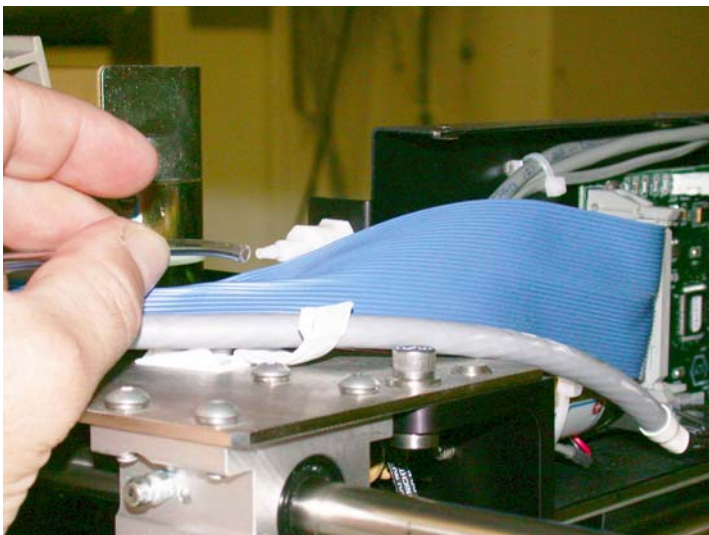


Figure 3

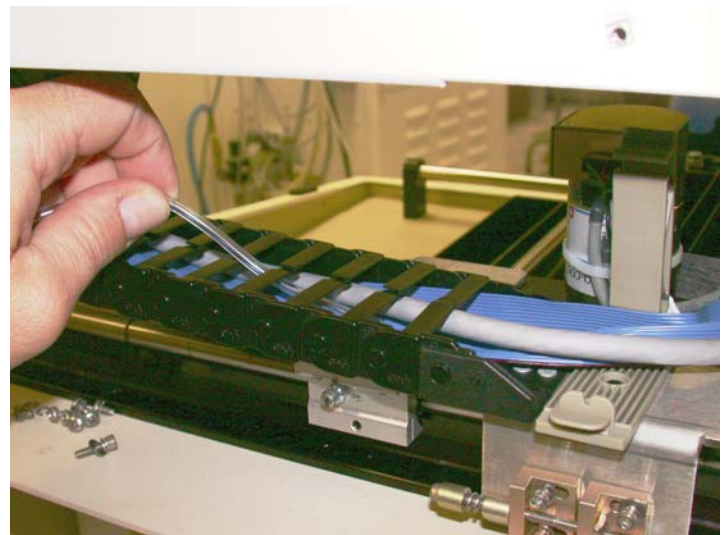


Figure 4

Step 2. Disconnect the tubing from both sides of the fluid filter. Snip the cable tie that secures the filter to remove and replace. Disconnect the tubing from the binder supply bottle. (Figure 5-7)

Step 3. Remove the (2) retaining screws from the top of the front panel located on the front top deck wall. Lift the front panel up and out to remove and disconnect the drain tube. (Figure 8-10)

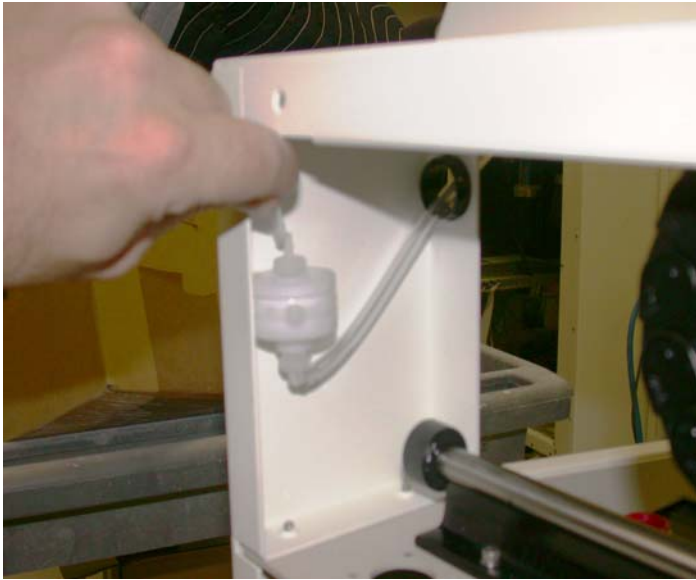


Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10

Step 4. Remove the (3) retaining screws from the top of the right side panel, located on the top right side of the top deck. Remove the side panel by sliding back and out and remove the service station drain hose. (Figure 11-13)



Figure 11



Figure 12



Figure 13

Section 13: ZPrinter 310 Plus Piston Seal Replacement

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Note: This procedure shows the build piston seal replacement. Procedure is the same for the feed piston.

Step 1. Remove the (2) retaining screws from the top of the front panel located on the front top deck wall. Disconnect the control panel ribbon cable. Lift the front panel up and out to remove and set to the right side of the printer with drain tube still connected. (Figure 1-4)

Step 2. Remove the retaining screws, acme nut and lock washer from the piston bottom plate. (Figure 4-6)



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6

Step 3. Push the guide rods up thru the piston bearings. Grab guide rod on the other side of the bearing and push up until the piston is out of the build box. Pull piston out of build box. (Figure 7-9)



Figure 7



Figure 8



Figure 9

Step 4. Remove the (8) screws from the piston bottom plate and remove the bottom plate. Remove and replace the piston seal. Re-install in reverse order. (Figure 10-12)

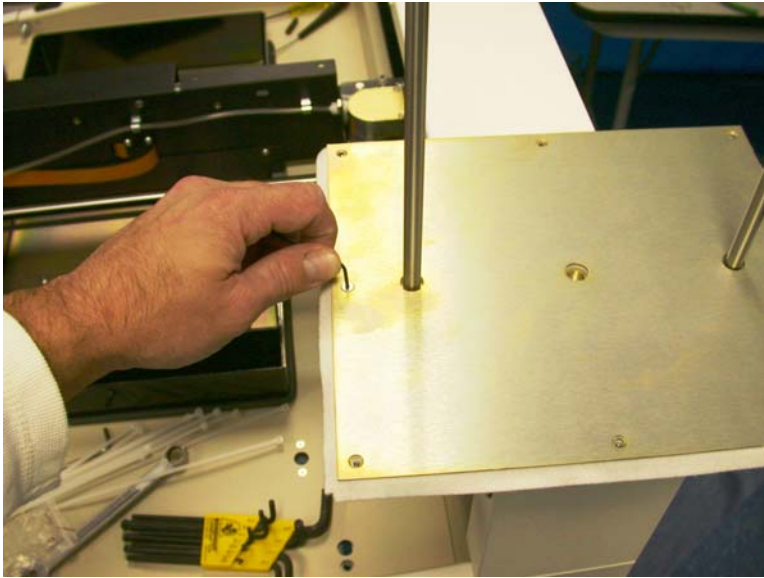


Figure 10

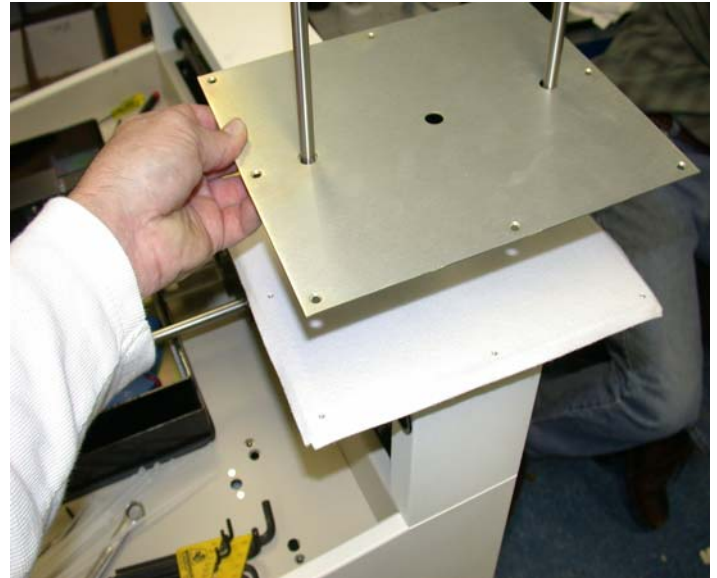


Figure 11

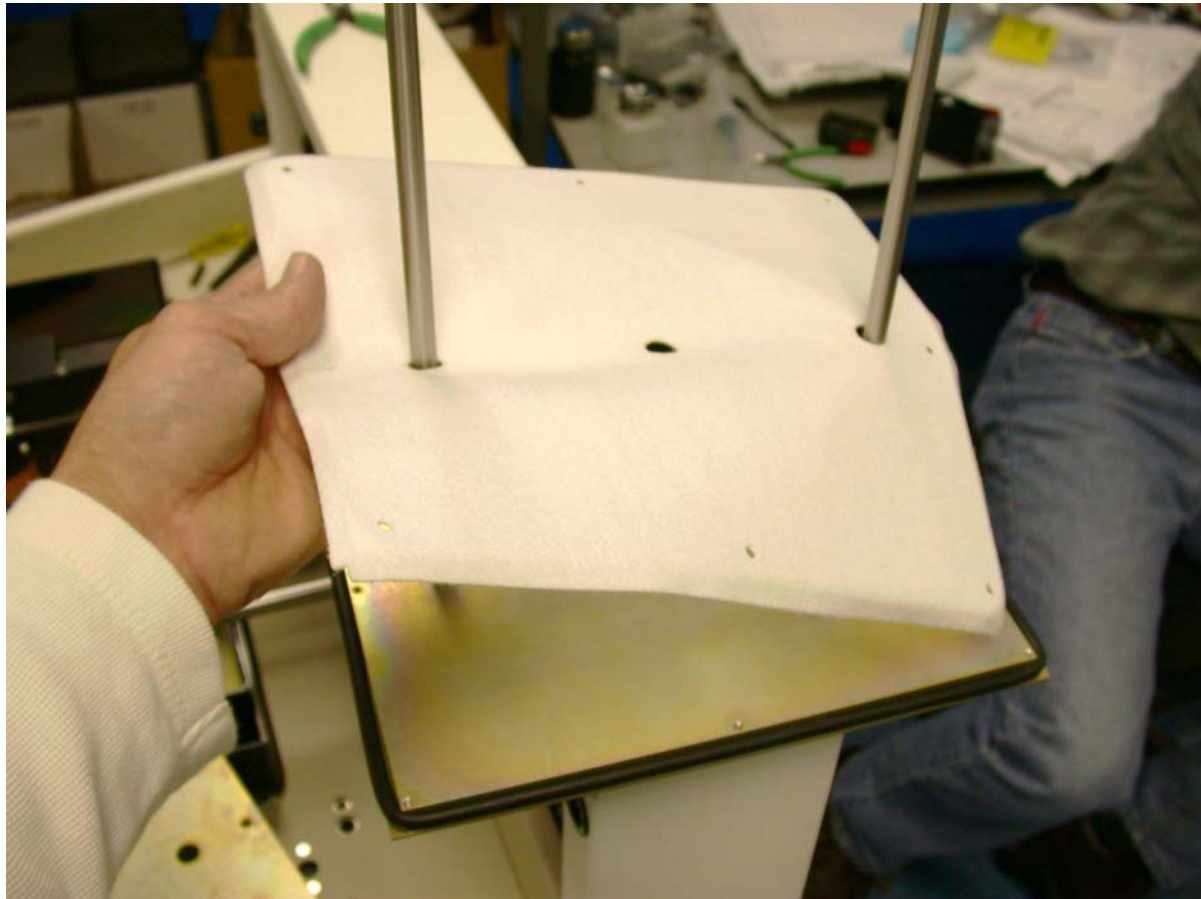


Figure 12

Section 14: ZPrinter 310 Plus Machine Cables Replacement***Turn machine power off**

Step 1. Remove the back cover. Disconnect all cable harnesses and ribbon cables from the electronics box. Remove Electronics box (see section 2). Remove the bottom tray. Snip the cable ties that secure the cables to the back of the printer. Follow the steps in section 11 to remove the slow axis motor cables. (Figure 1-4)



Figure 1



Figure 2



Figure 3



Figure 4

Step 2. Disconnect the build and feed motor cables after cutting the cable tie. (Figure 5-6)



Figure 5



Figure 6

Step 3. Unclip the strain reliefs that carry the ribbon cable and main wiring harness. Remove the ribbon cable and main harness from the Igus chain. (Figure 7-10)



Figure 7



Figure 8

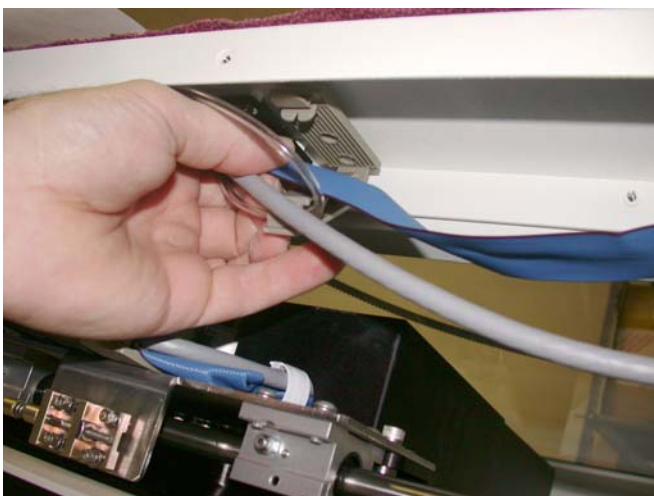


Figure 9

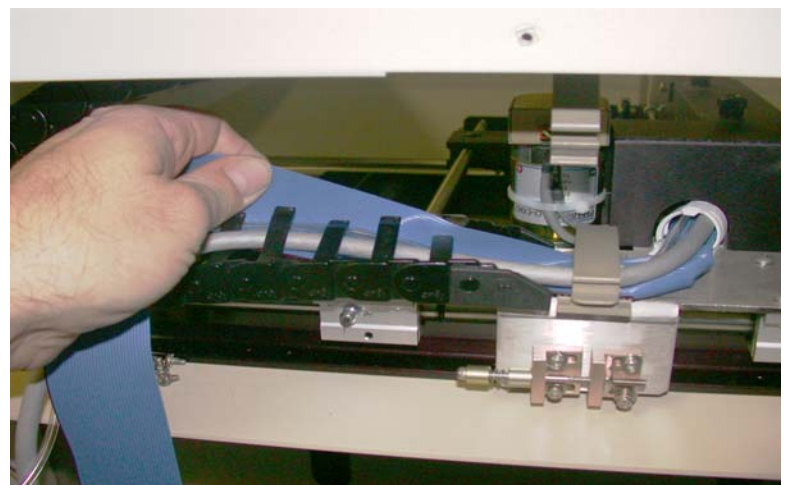


Figure 10

Step 4. Unclip the strain reliefs on the slow axis plate. Remove cable cover on the fast axis module and disconnect the ribbon cable and power cable. (Figure 11-14)



Figure 11



Figure 12

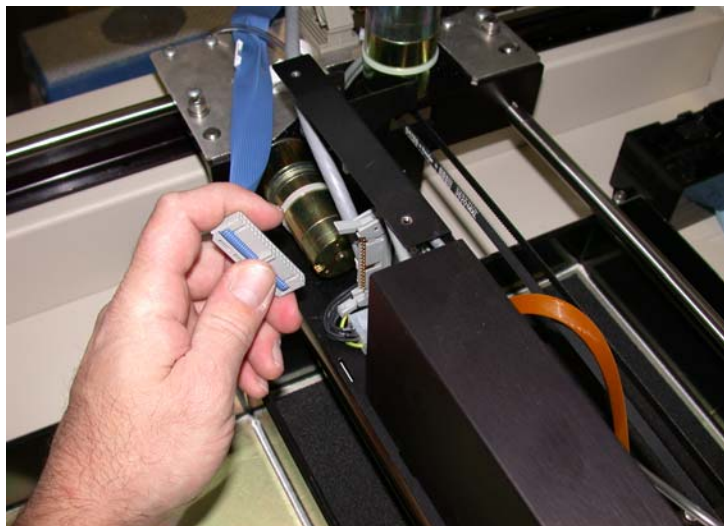


Figure 13



Figure 14

Step 5. Remove the cover interlock switch access panel and disconnect the spade terminals. (Figure 15-16)

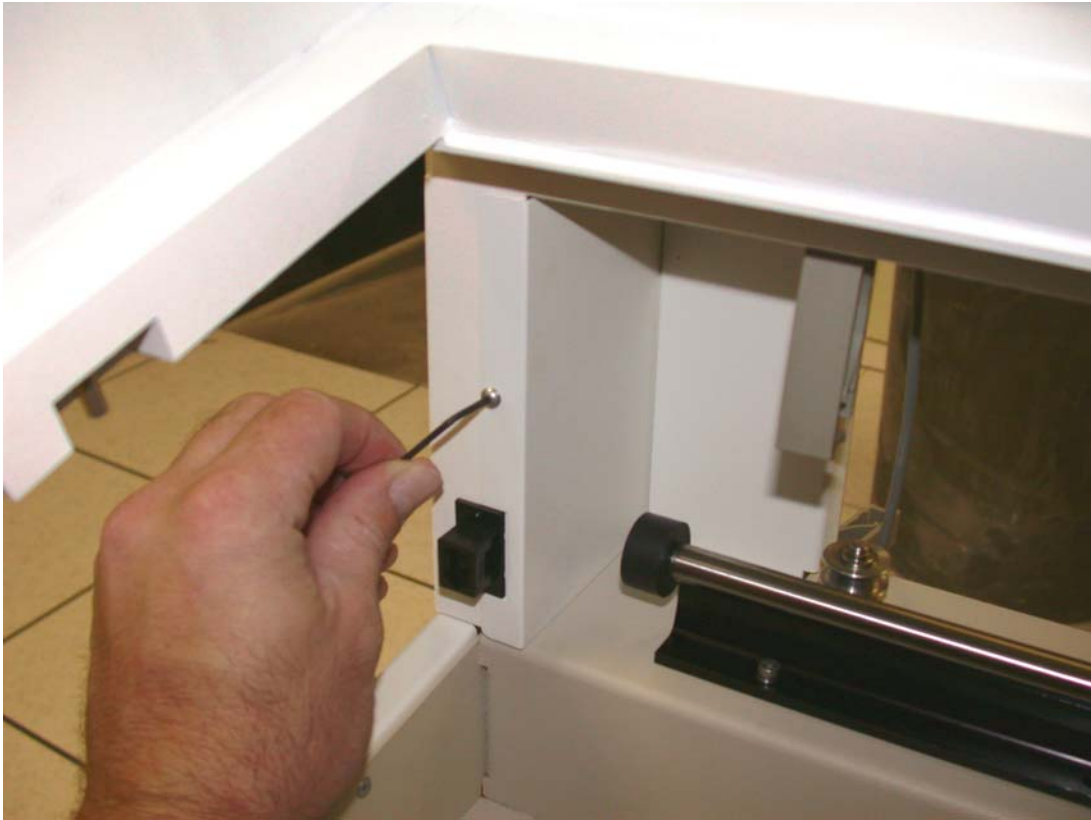


Figure 15



Figure 16

Note: When reinstalling the wires to the fast axis, refer to **Section 1, ZPrinter 310 Fast Axis Module Replacement, Step 4.**

Section 15: ZPrinter 310 Plus Head Card Replacement***Turn machine power off**

Step 1. Remove the cable cover and head card cover. (Figure 1-2)

Step 2. Disconnect all (6) cables from the head card. (Figure 3-6)

Step 3. Remove the (5) heatsink retaining screws and spacers (Figure 7-8)

Step 4. Remove the (4) head card mounting screws and remove head card. (Figure 9-10)

Note: When reinstalling the wires to the fast axis, refer to **Section 1, ZPrinter 310 Plus Fast Axis Module Replacement, Step 4.**



Figure 1

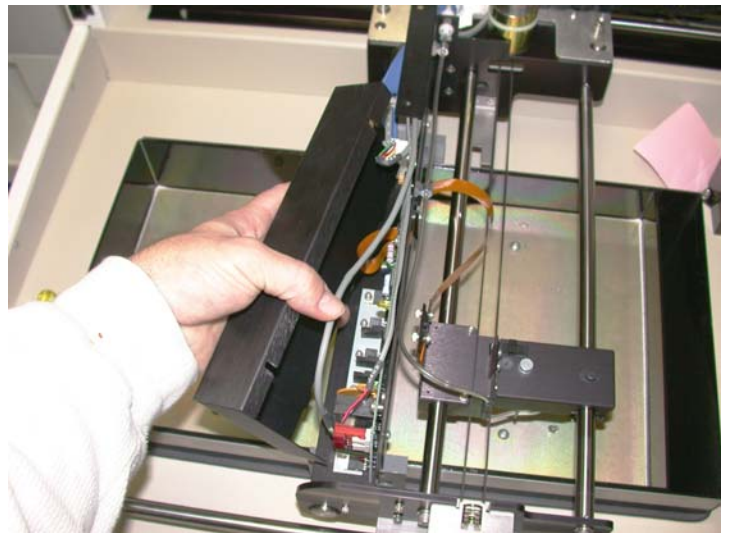


Figure 2



Figure 3

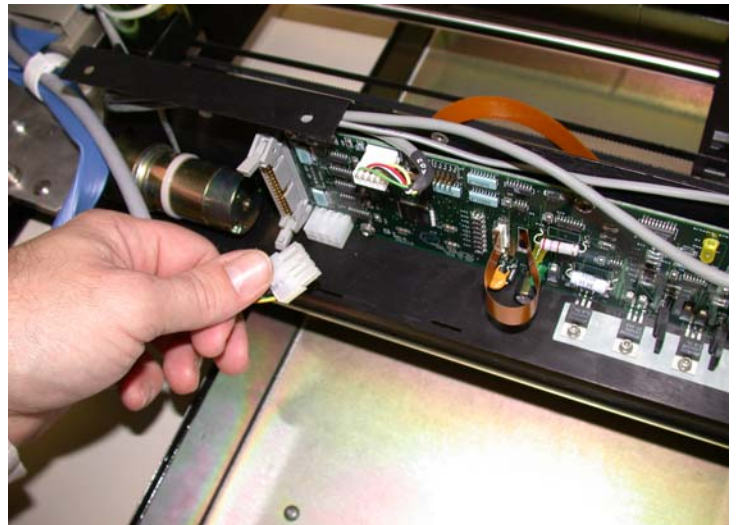


Figure 4



Figure 5



Figure 6

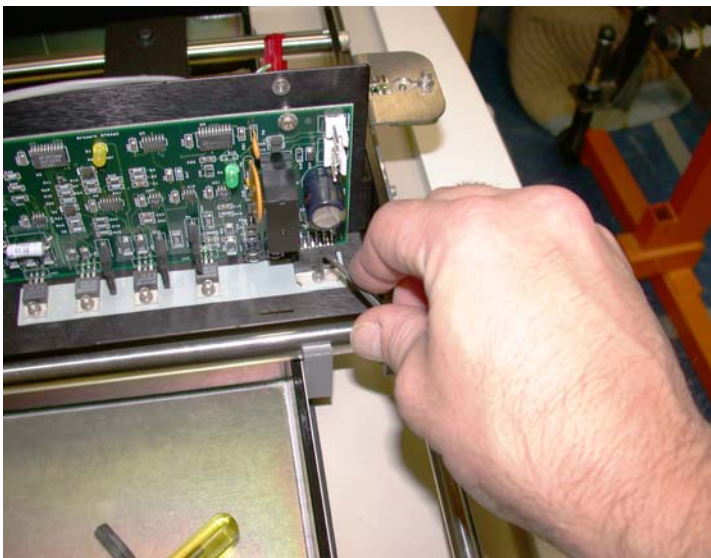


Figure 7

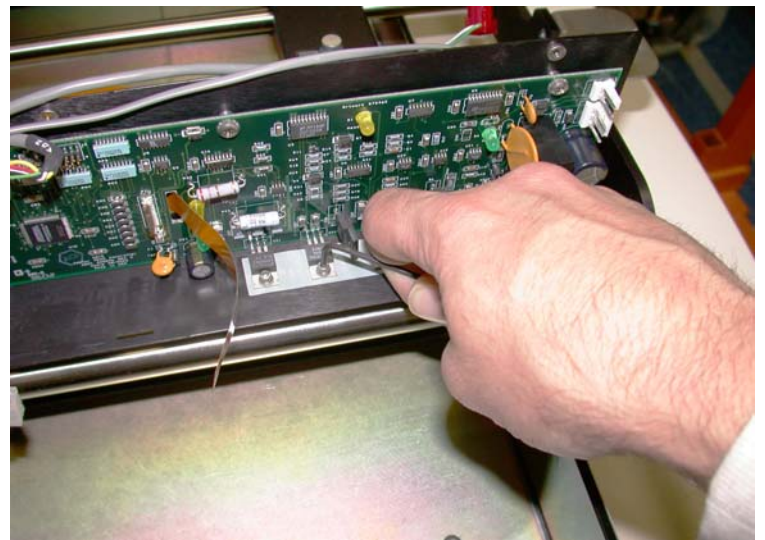


Figure 8

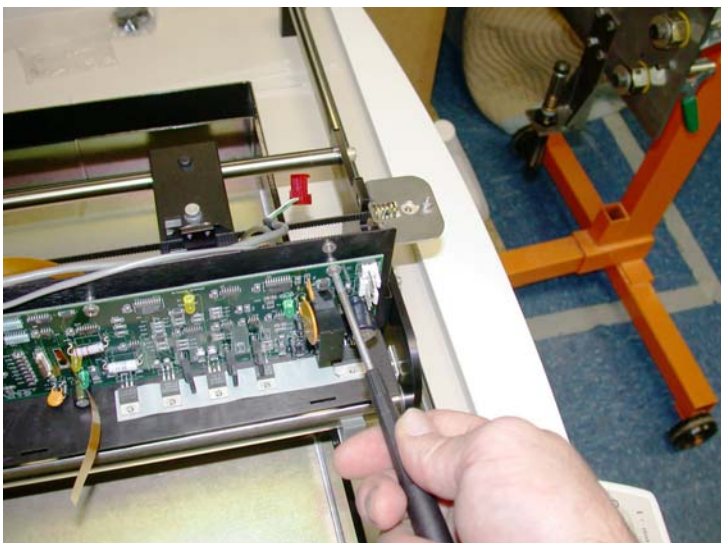


Figure 9



Figure 10

Section 16: ZPrinter 310 Plus PCI Card Replacement***Turn machine power off**

Step 1. Remove detachable AC power cord. Remove the 4 mounting screws and remove the heater box.

Step 2. Disconnect three cables attached to the Heater Box and put Heater Box aside.

Step 3. Remove back panel.

Step 4. Remove the electrical box cover and disconnect all cables. (Figure 1-2)

Step 5. Disconnect the (2) power supply cables leading to the PCI card. (Figure 3-4)

Step 6. Remove the PCI card retaining bezel by removing the mounting screws. (Figure 5-6)

Step 7. Remove and replace PCI card. (Figure 7)



Figure 1



Figure 2



Figure 3

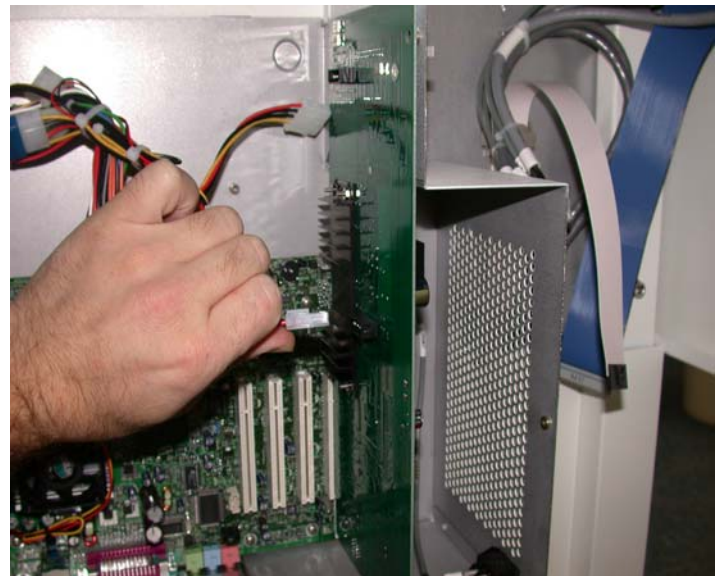


Figure 4



Figure 5



Figure 6

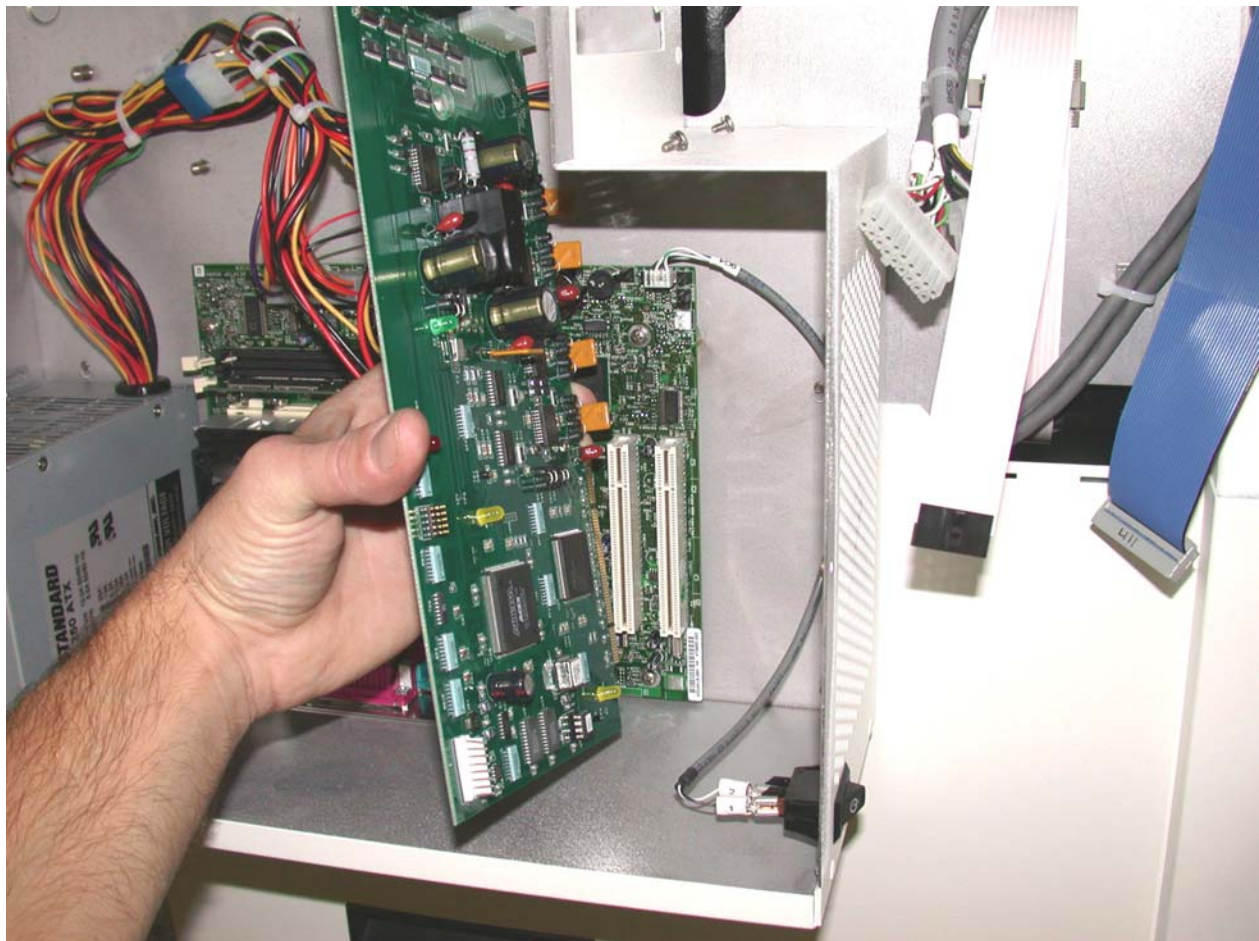


Figure 7

Section 17: ZPrinter 310 Plus Top Cover Interlock Switch Replacement



Remove the cover interlock switch access panel and disconnect the spade terminals. Unclip switch from cabinet wall and remove.



Figure 1



Figure 2

Section 18: ZPrinter 310 Plus Control Panel Replacement



*Follow **Step 1** in **Section 13** to remove the front panel and disconnect control panel. After control panel is disconnected, carefully peel off the panel and replace.

Section 19: ZPrinter 310 Plus Fast Axis Module Refurbishment

Step 1. Remove and discard the print head, if one is installed.

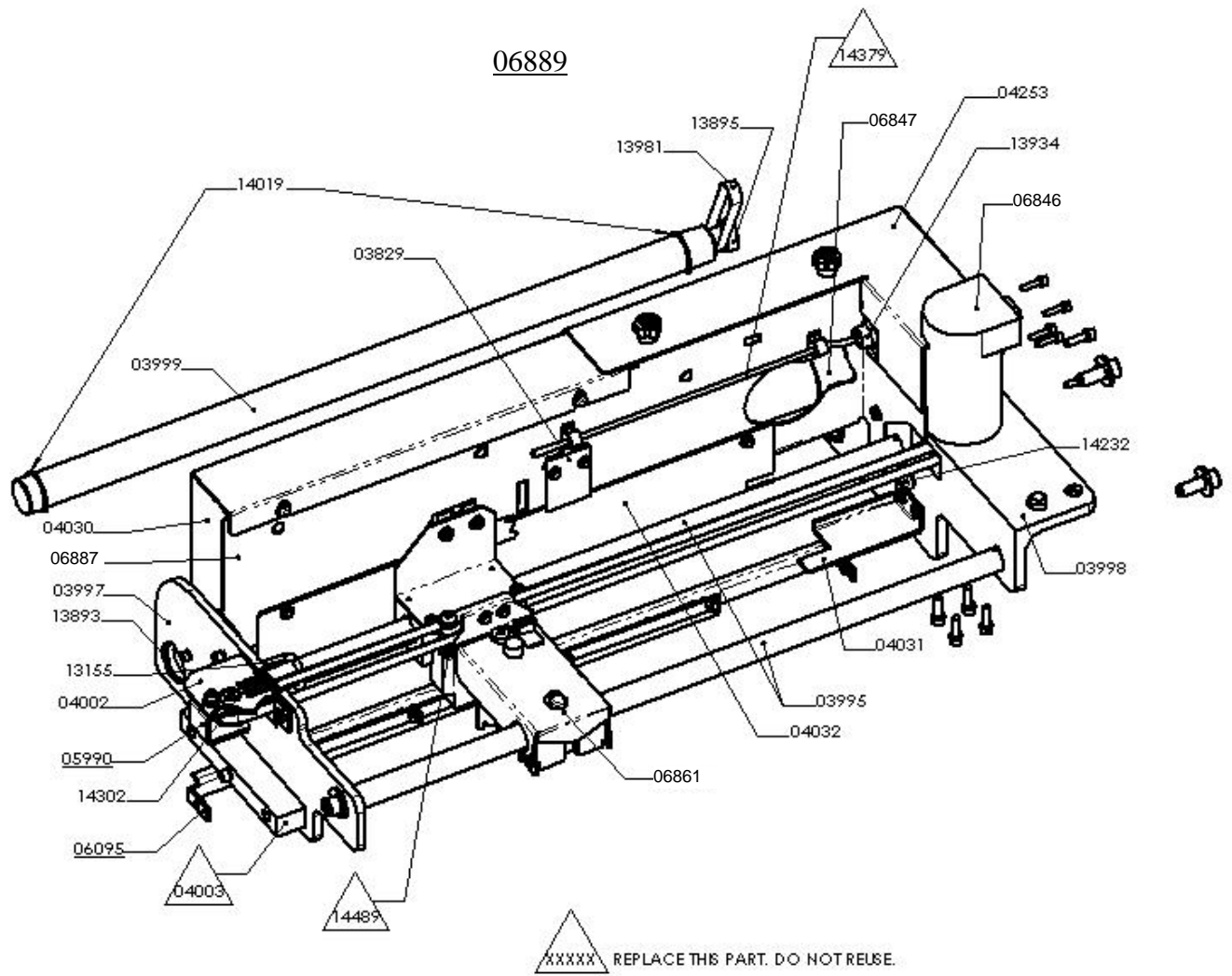
Step 2. Disassemble and clean the fast axis module thoroughly. All parts may be cleaned with running water except for the motors and head card. Be sure to dry all parts carefully.

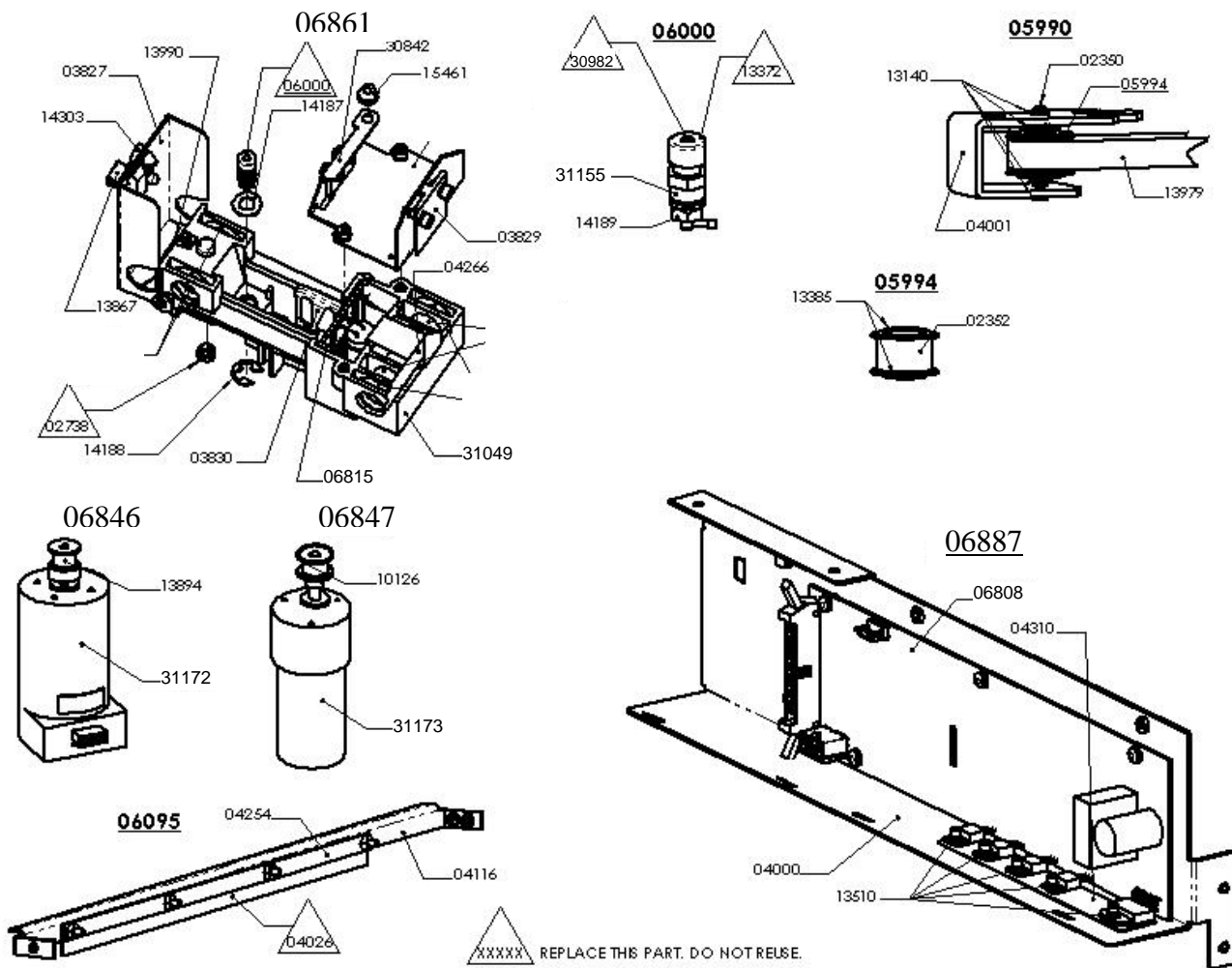
Step 3. The following parts must be replaced. Refer to the following two pages for diagrams showing all parts of the fast axis module. A kit containing all of these parts is available as Z Corp. p/n 06204.

- 02738 Carriage Anti-Rotate Bearing
- 04003 Gantry Anti-Rotate Bearing
- 04026 Spreader Roll Scraper
- 06000 Septum Assembly
- 31049 Zephyr Carriage Base With Bearings
- 14379 Carriage Tube – Cut to 19 1/4 inches
- 14489 (x2) Carriage Tube Clamp

Inspect 04266 Carriage Flex Cable. Replace if it shows any sign of wear or damage. See section 6.

06889





Quality checks: The following inspections must be made before the fast axis module is placed in operation.

Step 4) O-Ring End Stop Quality Check: Verify that the O-ring end stop (13155) is installed.



Figure 1

Step 5) Carriage Anti Rotate Bearing Quality Check: Make sure the carriage anti-rotate bearing is installed. Look for the gap between the fast axis shaft and the hole through the carriage.

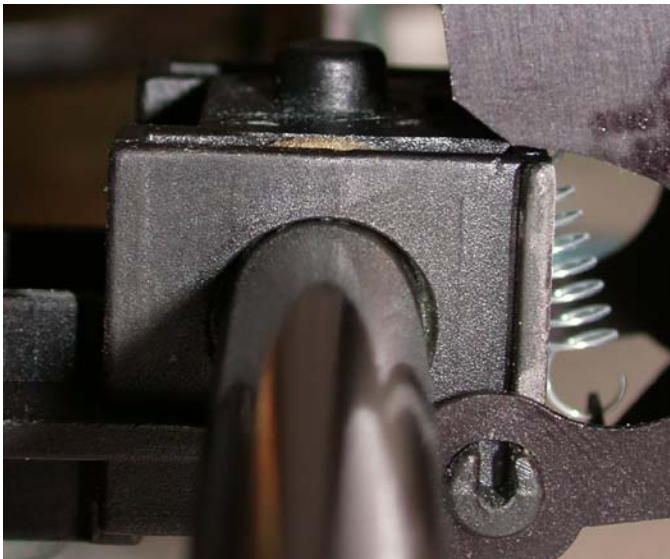


Figure 2: WRONG – BEARING IS MISSING

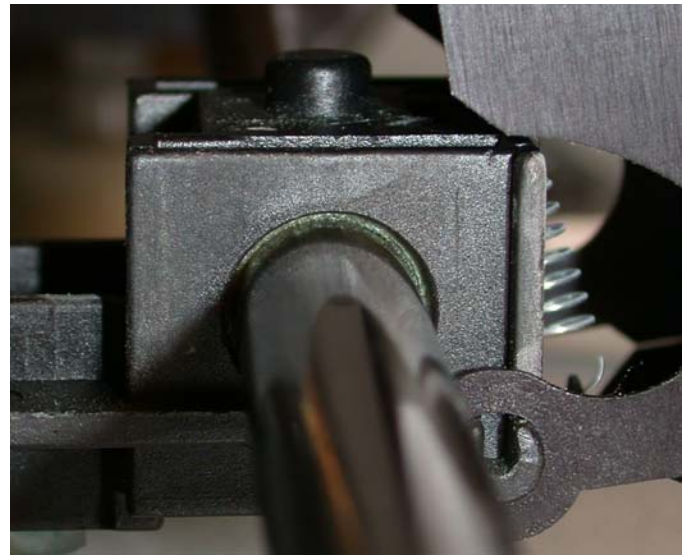


Figure 3: GOOD

Step 6) Squareness Check: Place the fast axis module on a flat surface (a granite surface plate is ideal), and check that the end plates lay flat against the surface. If any corner is raised by .015" or more, loosen the shaft screws and adjust until the assembly is square.

Step 7) Carriage Cable Quality Check: The length of the carriage loop must be set so that the end of the loop has about .05" clearance with the rear gantry plate at its travel limit (Fig. 4). Make sure the cable runs horizontally and does not sag or rise. Make sure the cable does not touch the belt at any point (Fig. 5).

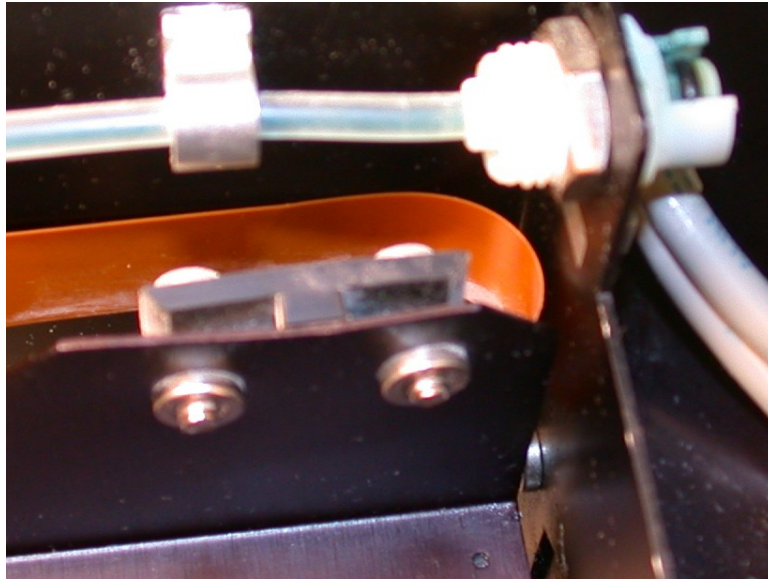


Figure 4



Figure 5

Step 8) Carriage Tube Quality Check: The length of the carriage tube must be $19 \frac{1}{4} \pm \frac{1}{16}$ inch. It should not be stretched when the carriage is at the front end of travel. The tube must not be twisted in such a way that it can catch on the carriage. One of the tube clamp must be installed just above the carriage to prevent slack from developing near the barb. The other goes next to the tube support holder (Figure 9).



Figure 6: WRONG – TOO TIGHT

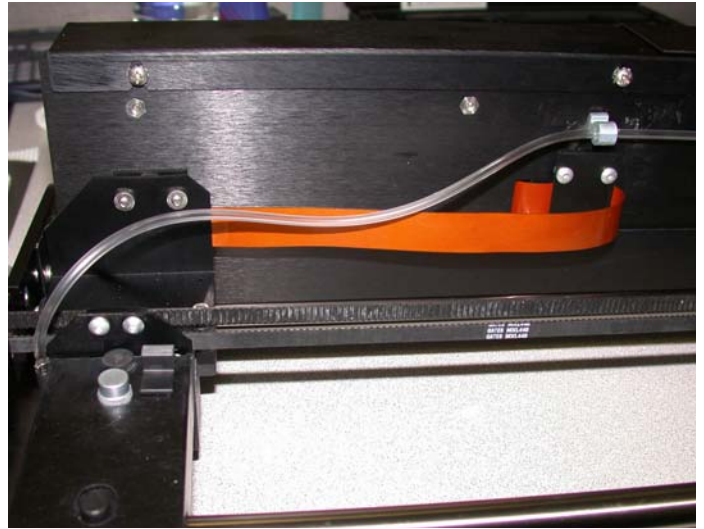


Figure 7: WRONG – TWISTED



Figure 8: GOOD

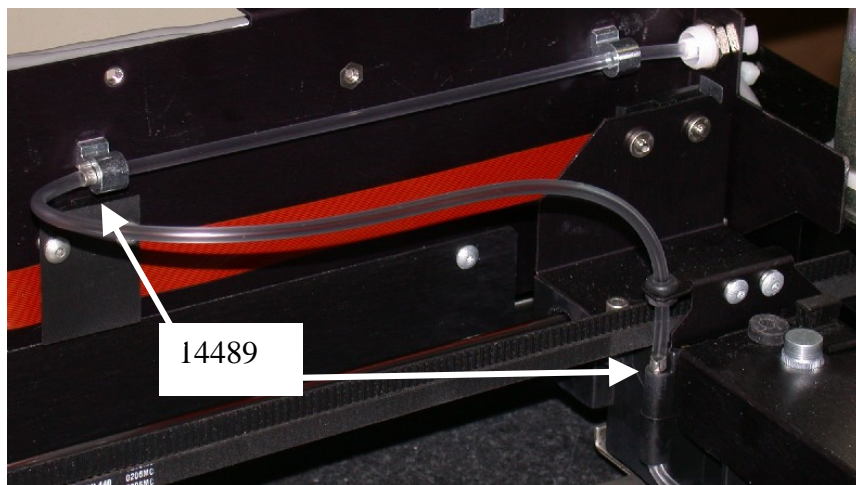


Figure 9

Step 9) Belt Tension Quality Check: Make sure that the belt tension is correct. The tensioner bracket must move freely against the spring before tightening the locking screw. (Figure 10)

Figure 10



Step 10) Cable Dressing Quality check: Make sure the motor cables are properly attached to the head card mount with cable ties.



Figure 11

Step 11) Burn-in: Mount the fast axis module to a printer (see Section 1 of this Bench Work manual). Print a part of at least 250 layers and 3 billion pixels. Verify that the part is of good quality and that no errors occurred during printing. Verify that no binder has dripped onto the deck during printing, Verify that the septum does not leak.

Section 20: ZPrinter 310 Plus Electronics Box Module Refurbishment

Z CORPORATION

Step 1. Wear an ESD Protective wrist strap while handling all electronics.

Step 2. Remove the cover. Clean the components of any powder or debris. Use dry, clean compressed air.

Step 3. If possible, retrieve the Z406FW.INI, Z406.LOG and STICKY.DAT files from the flash drive. If the customer is using a static IP address, it will be listed in the .INI file. Preventative maintenance information is contained in STICKY.DAT.

Step 4. Troubleshoot the module. Presumably, the electronics box needs refurbishment because something is broken. Refer to 08634 ZPrinter 310 Troubleshooting Guide for more information.

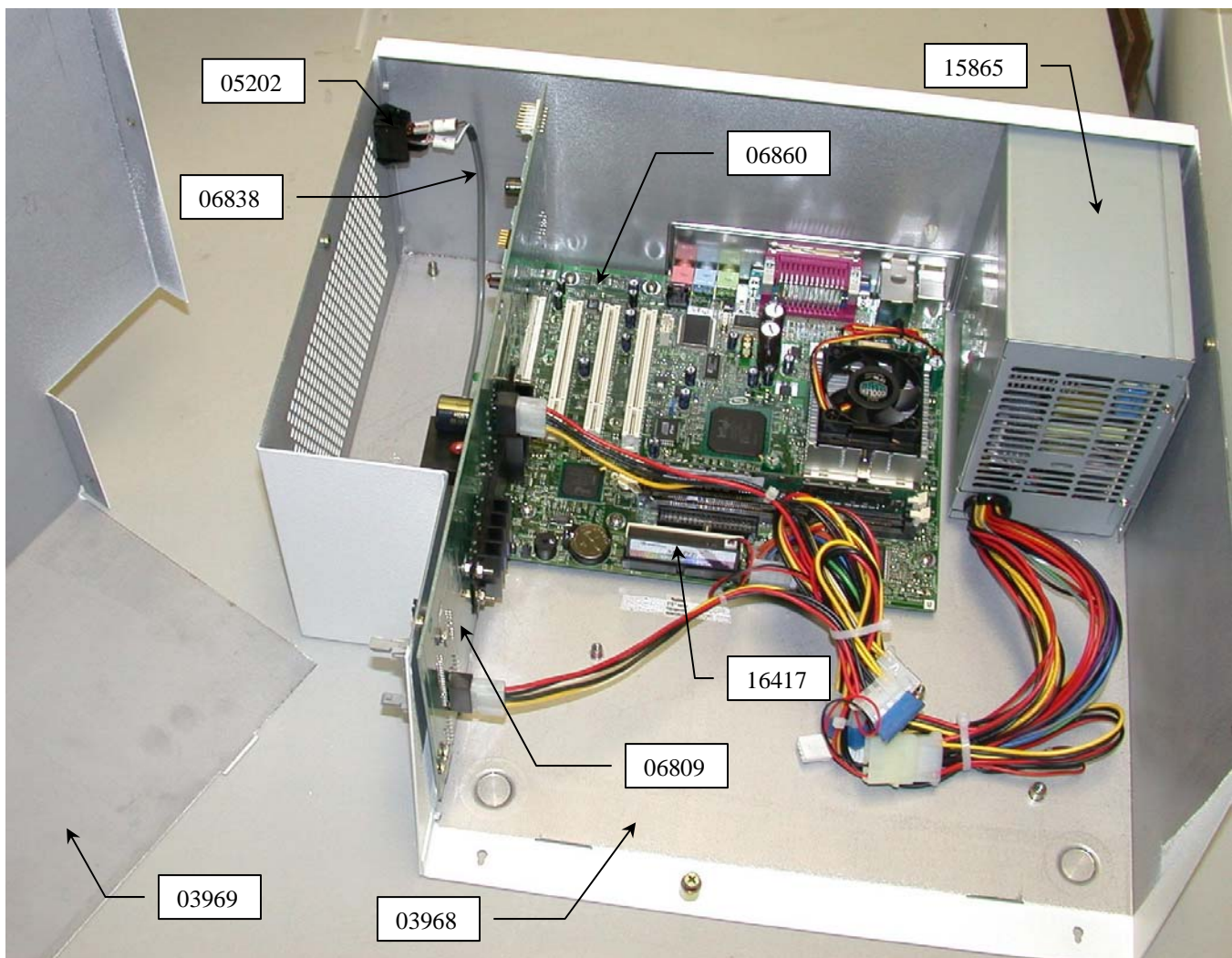


Figure 1

Step 5. Quality checks: The following inspections must be made before the Electronics Box module is placed in operation.

- Verify the fan and heat sink are securely attached to the CPU.
- Verify that the fan operates when the module is powered on.
- Verify that the power switch turns system power on and off.
- Verify that the Master/Slave switch on the flash drive is set to Master.
- Verify that all connectors are firmly seated.
- Verify that the PCI card is firmly seated in its slot, and that the two screws holding it to the box are tight.
- Verify that the motherboard bezel is fully snapped into place.
- Verify that all cables are neatly dressed, as depicted in figure 1.
- Verify that all screws securing the motherboard to the box are present and tight.
- Install the cover. Verify that all screws are tight.
- Gently shake the box. Verify that nothing is rattling.
- Verify that there are no cosmetic blemishes, scratches or chips on the outside of the box.
- Verify that all of the connectors are undamaged. Look for bent or broken pins.
- Verify that the firmware is the latest version.
- Verify that the date and time are set correctly in the BIOS.
- Verify that the serial port is working correctly. Connect 14417 Serial Loopback plug, DB9 female to the serial port. Execute a loopback test by selecting 'm' to enter the manufacturing menu and 's' to check the port.
- Burn-in the electronics box module by installing it on a ZPrinter 310 and printing a test part. Verify that the part prints correctly. Once this burn-in is complete, do not reopen the box!

Step 6. Edit the Z406FW.INI file by selecting 'Edit .INI File' from the '310Service' menu in ZPrint. Following is a list of all variables that you might wish to set in the .INI file:

Variable	Default Value	Description
SKIP_REZERO	0	If non-zero, don't rezero the fast and slow axis on power-up
HARD_REZERO_PISTONS	0	If non-zero, drop the pistons upon reboot. This should be set to 1 for all replacement electronics box modules.
LOG_LAYERS	0	If non-zero, record state after every layer
USE_NETWORK	1	If non-zero, use network instead of COM port
PRINTER_NAME		If using network, the printer's ZDNS name. This should be set to 'ZCORP1XXXXR' for replacement electronics box modules. Make sure that no two electronics box modules have the same printer name!
PRINTER_ADDRESS		Printer's IP address; must be blank for DHCP (To be blank, there must be no trailing spaces!)
SUBNET_MASK		Printer's subnet mask; must be blank for DHCP (To be blank, there must be no trailing spaces!)
GATEWAY_ADDRESS		IP address of gateway; must be blank for DHCP (To be blank, there must be no trailing spaces!)

Typically, the .INI file for a refurbished electronics box module should read:

```
USE_NETWORK 1
PRINTER_NAME ZCORP1XXXXR (where XXXX is serialized)
HARD_REZERO_PISTONS 1
```

Note that HARD_REZERO_PISTONS will revert to 0 after the first time the module is booted. After you set this variable to 1, you must turn the module off and not boot it again, else you will have to reset the variable.

For a detailed explanation of network settings, see procedure 08605 Ethernet Connection Setup.

Section 21: ZPrinter 310 Plus Heater box Removal



Z CORPORATION

Step 1. Locate the heater box on the right rear of the ZPrinter 310 Plus. (Figure 1)



Figure 1

Step 2. Switch power off at the power entry to heater box. (Figure 2)



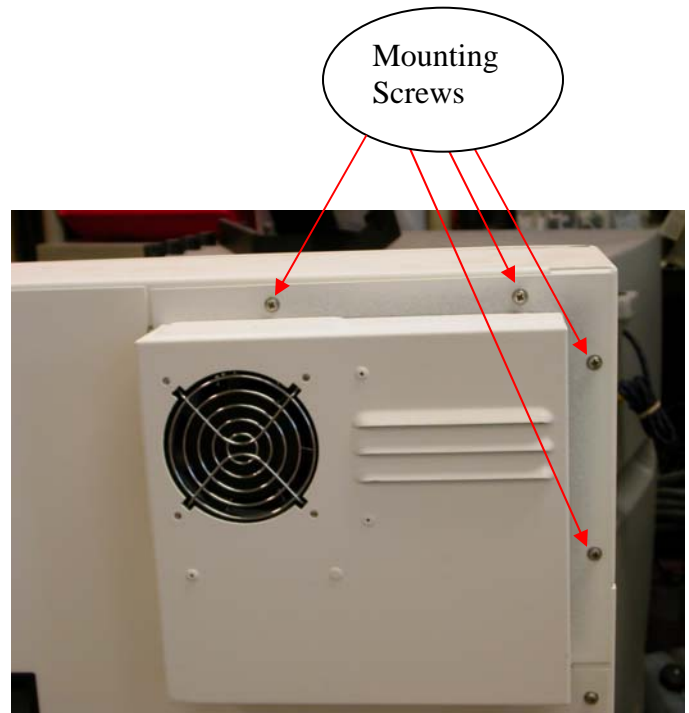
Figure 2

Step 3. Remove detachable AC power cord. (Figure 3)

Step 4. Remove the 4 mounting screws to remove heater box. (Figure 4)



Figure 3



Step 5. Pull heater box up and to the right to remove from unit. (Figure 5)

Step 6. Remove the 3 remaining cables. (Figure 6)



Figure 5

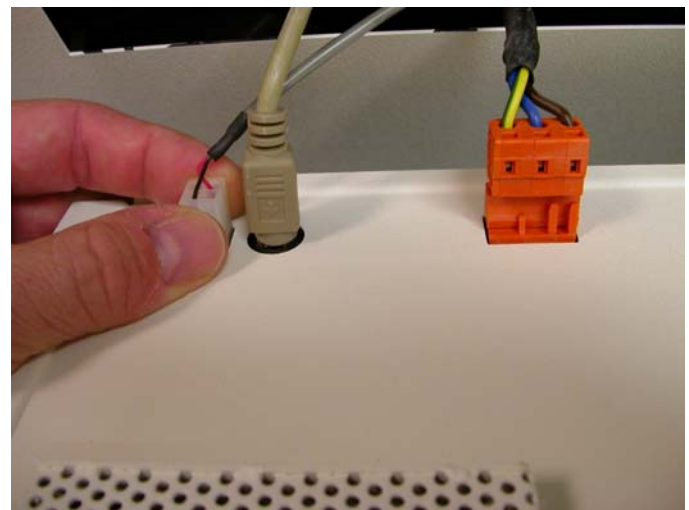
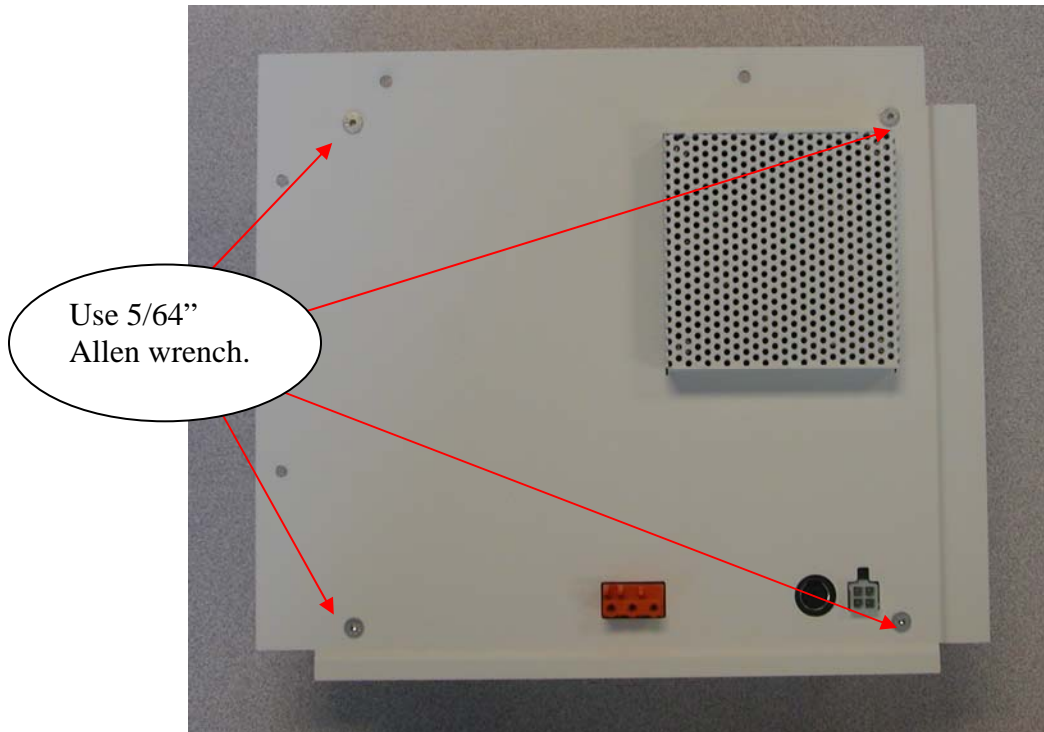


Figure 6

Section 22: ZPrinter 310 Plus Heater Box PCB Removal

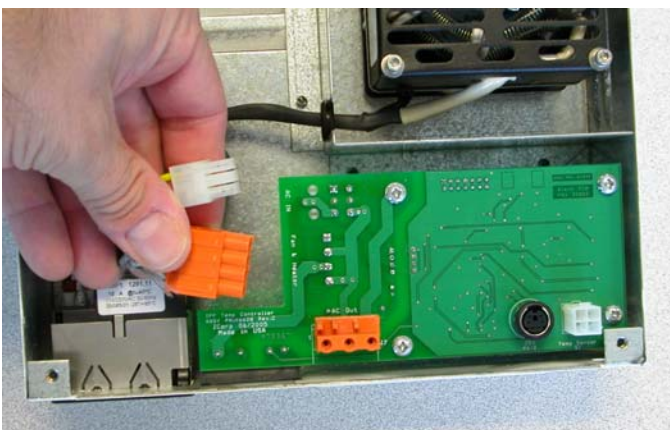
Z CORPORATION

Step 1. Open Heater box by removing 4 screws. (Figure 1)

**Figure 1**

Step 2. Unplug AC power and Heater/Fan connectors from PCB. (Figure 2)

Step 3. Remove the SSR mounting screw from heater box. (Figure 3)

**Figure 2****Figure 3**

Step 4. Remove the PCB mounting screws to remove PCB. (Figure 4)

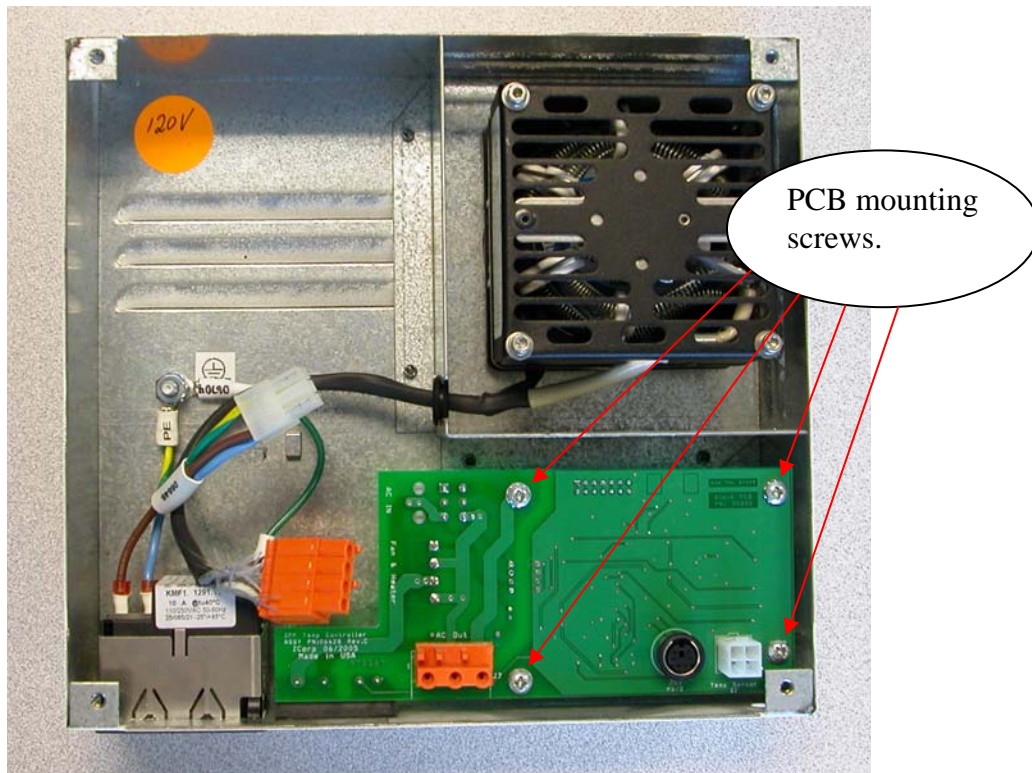


Figure 4

Section 23: ZPrinter 310 Plus Heater Box Heater and Fan Removal



Z CORPORATION

Step 1. Remove heater/fan mounting screws. (Figure 1)

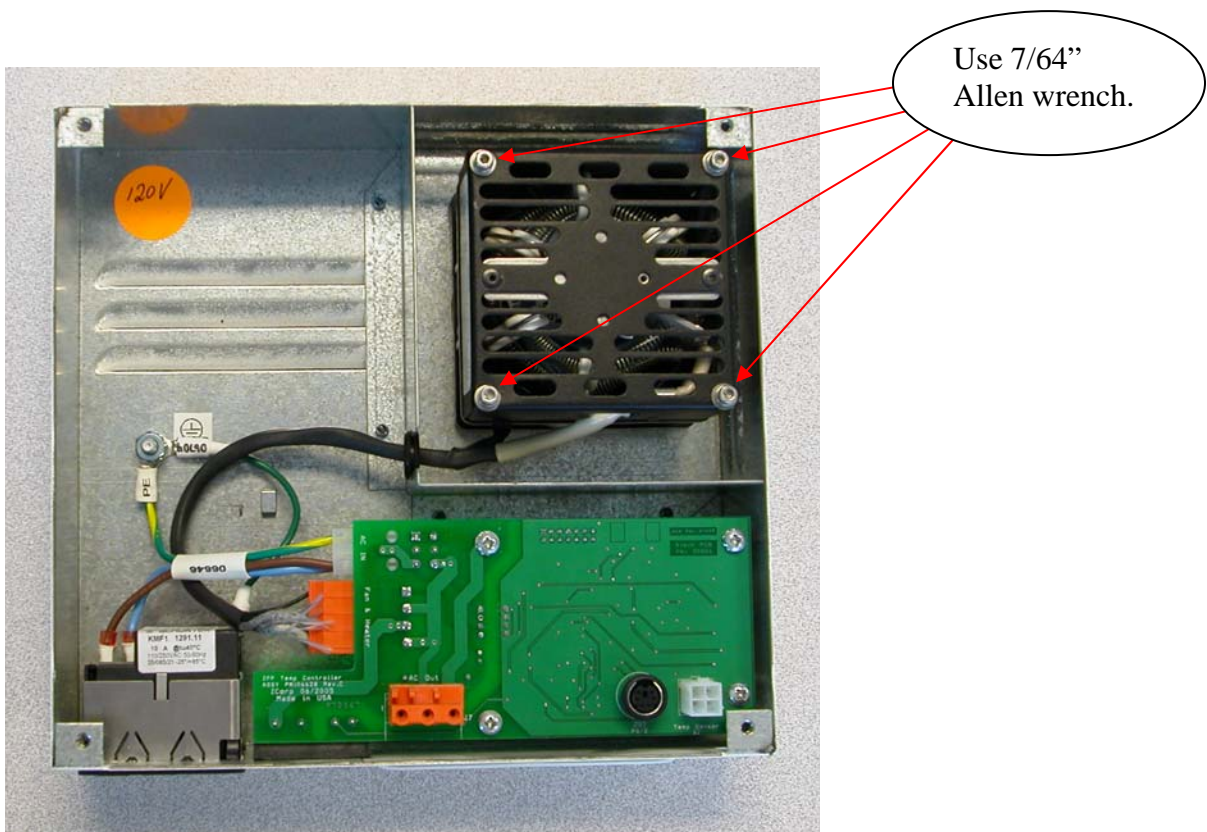


Figure 1