Thermal 1.x\TFX Exposure Head

Dehumidifier Unit (DHU) Installation Procedure

Document Number
77-0225A-E-PR01

2002-05-24

Creo Inc.
3700 Gilmore Way
Burnaby, BC
Canada V5G 4M1
(604) 451-2700

Copyright 2002 Creo Inc. All rights reserved.

Revision History

Revision	Date	Author	Comments
DRAFT	May 2001	Maureen Gill	Initial release
A	July 2001	M Gill	Updated part numbers; reorganized device-specific procedures; added power hookup instructions
	August 2001	M Gill	Added revision for handling heads with key locking brackets and M8 ports.
B	Nov 2001	M Gill	Added procedure for needle valve; Updated Part Numbers
C	Jan 2002	M Herbert	Add info for Thermoflex ECO E510
D	Mar 2002	M Gill/ I Skinner	Changed step 4 under Section 4.1, 'Hooking up the Plumbing'. Updated template and logo. Clarified cabling requirements for Thermoflex and TSV upgrades.
E	May 2002	M Gill	Added TFX step to needle valve installation

creo

Thermal 1.x\TFX Exposure Head
Dehumidifier Unit (DHU) Installation Procedure

CONTENTS

Revision History i

1. Scope 1

2. Laser Safety Practices 1

3. Tools required 2

4. Field Upgrade Procedure 2
   - 4.1 Hooking Up the Plumbing 2
     - **For TS4, TS8 machines and TS4, TS8 Autoloaders follow a – d:** 5
     - **For TS3 machines follow e - f:** 8
     - **For VLF Trendsetters, Autoloaders, and Thermoflex, follow g –h:** 9
     - **For VLF Platesetters follow i – l:** 10
     - **For Platesetter 3244s follow m - r:** 12
   - 4.2 Installing the Dehumidifier Unit (DHU) 13
   - 4.3 DHU Maintenance 17

5. Adjusting the Needle Valve 17

6. Drawings 18

1. SCOPE

This document describes the step-by-step installation procedure for the Dehumidifier Unit. This procedure applies to machines with a 1.0 or a 1.7x Thermal Exposure Head, and either a remote- or head-mounted desiccant box.

Replacing the current desiccant system with this unit helps to reduce service calls and lower customers' service costs.

2. LASER SAFETY PRACTICES

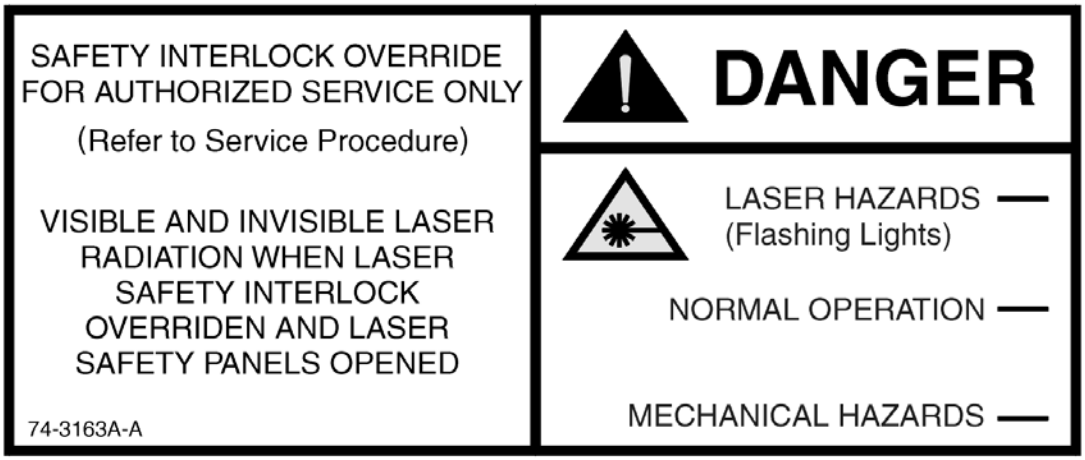
Note: Unless otherwise specified, Output Device refers to the Trendsetter 3230 (TS4), Trendsetter 3230/3244, Proofsetter Spectrum, VLF Trendsetter, ThermoFlex and VLF Platesetter.

To use this document the FSE (Field Service Engineer) must have attended and passed a thermal introductory course and be familiar with the safety precautions when working with a thermal Output Device.

When any interlocked access panel relied upon for laser safety is opened, power is automatically removed to both the write laser and the focus laser. To install a Thermal Head 1.7x, you must override the access panel safety interlock circuitry by putting the service key switch in the LASER HAZARD position. This will only re-energize the focus laser and not the write laser. When the key switch is turned to the upward position (45°), the partial access panel interlock circuitry is overridden and all focus laser and mechanical functions are restored.

The Thermal head is equipped with dual element LEDs (one on each side at the top of the head) that give a visual indication that the write laser is on. The LEDs should always be off when working inside of the machine.

The safety label below is displayed beside the key switch and inside the power box on the Output Device.



Service personnel are issued with their own key and must order a replacement key if it is lost. The service key can only be removed from the key switch when it is in the middle position (key horizontal) indicating that the interlock circuit is intact (normal operation). When the key is inserted in the key switch it cannot be accidentally left in place, since it protrudes out of the enclosure and prevents the enclosure panel from being installed.



DANGER:
Do not tamper with the key switch. The key can only be removed from the key switch while in the middle position (key horizontal).

3. TOOLS REQUIRED

- DHU Kit: PN 05-0244 or 05-0243 (for Thermoflex devices only)
- Pin Extraction Tool: PN 318851-1

4. FIELD UPGRADE PROCEDURE

This procedure consists of three steps:

- Hooking up the plumbing
- Installing the DHU
- Adjusting the needle valve (does not apply to the TFX head)

Be sure that you follow the correct steps for the device that you are working on.

4.1 Hooking Up the Plumbing

Note: This procedure applies to all devices, but contains subsections that are device-specific. Ensure that you follow the correct subsection.

1. Check the head status and note the humidity (%). Type
   `>> head status`

2. Power off the device and purge all air. Remove any panels necessary in order to access the head. For devices equipped with an autoloader you must remove the top rear panel and struts:
   a) Table down.
   b) Remove the left and right side covers.
   c) Table up. Open the back cover.

3. Ensure you are wearing a static strap and remove the old desiccant box and fittings.

Note: The brass fittings on the head must be completely removed.

4. This step only applies to devices with a remotely mounted desiccant box (TS4, 8 and Spectrums).

   a) Open the cable track.

b) Remove the two 10mm diameter tubes connecting the desiccant box to the head.

5. Hook up the power at the device end:

a) For a Trendsetter 4 or 8 page device, access the TEE board, disconnect the existing connection from J15 (J8 on a TS3 with a LUE/TIF board), plug in the cable adapter 10-4997A and reconnect the original cable to the jumper. Refer to Figure 1.

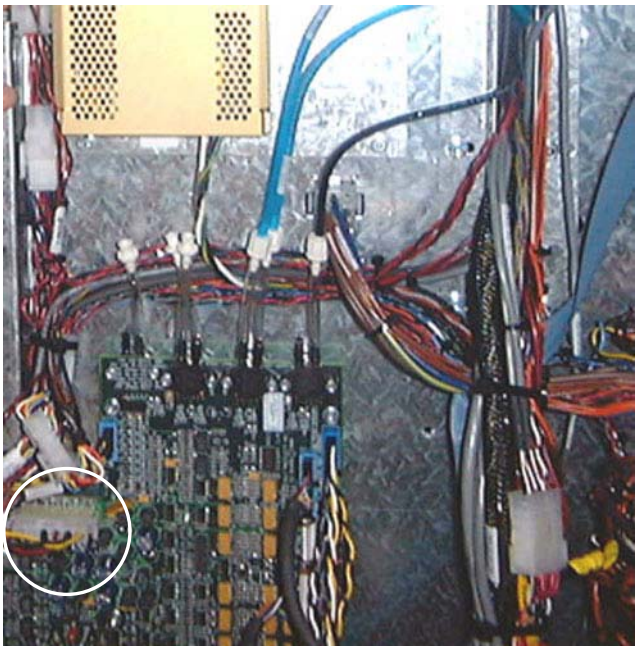


Figure 1

b) For a VLF Trendsetter , VLF Platesetter, or VLF Autoloader, disconnect the ESE power cable (10-3512A or 10-3177A) from J18. The end of cable 10-4960A has a pass-thru connection, consisting of a male plug and a female socket. Connect the male plug to J18 on the ESE board, and connect the ESE power cable (10-3515A or 10-3177A) to the female socket. Refer to Figure 2.

c) For a Thermoflex VLF, connect one end of cable 10-4973A to J6 on the Power Distribution Board (PDB) inside the powerbox. Cable 10-3840C will be plugged into this connector; remove this cable from the cable track and the machine.

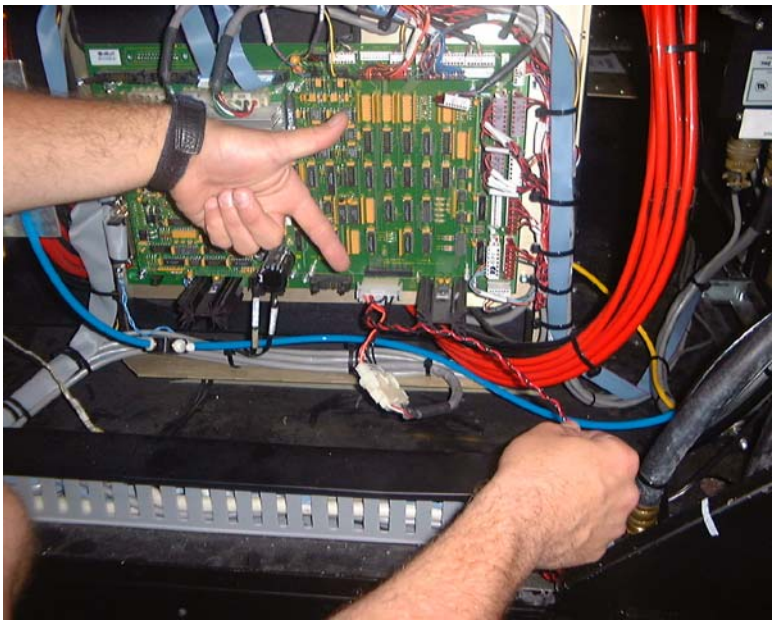


Figure 2

d) For a Platesetter 3244, access the LUE board, disconnect the existing connection from J8, plug in the cable (10-4997A) and reconnect the original cable to the jumper. Refer to Figure 3.

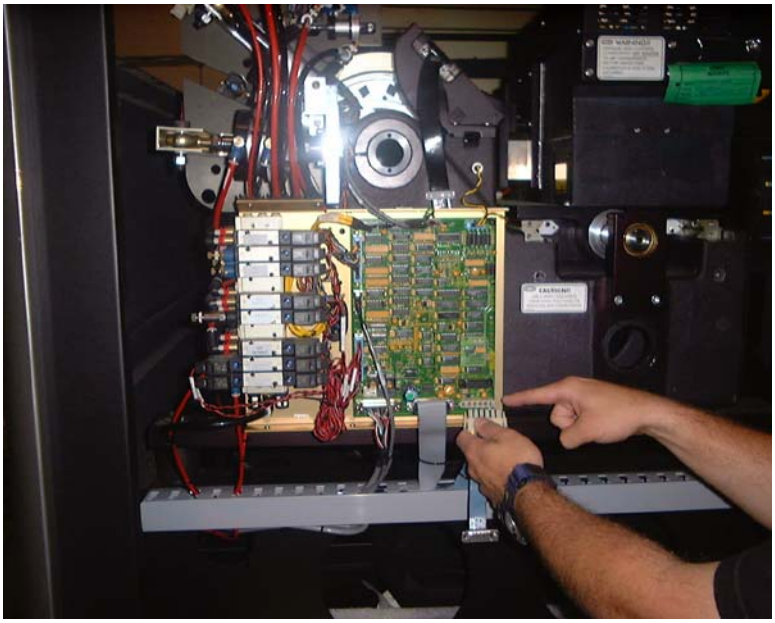


Figure 3

6. Beginning at the device end, feed one red 4mm (5/32") tube (56-1038), one blue 4mm (5/32") tube (56-1041), and the red and black power cable (10-4960A for the VLF Trendsetter, VLF Platesetter, and VLF Autloader, 10-4973A for the ThermoFlex VLF) into the track. You must remove the pins from one end of the power cable in order to do

this. For VLF devices, feed the tubing and cable into the cable conduit before feeding them through the cable track.

7. Connect the power cable (10-4960A or 10-4973A) to the appropriate power connecter (in most cases you will connect it to the jumper cable 10-4997A).

8. Hook up one tube to the appropriate connector after the Air filter regulator using the following instructions:

Device	**Steps**
TS4, TS 8, TS 4 Autoloader, TS 8 Autoloader	a - d
TS 3	e - f
VLF TS, VLF TS Autoloader, Thermoflex	g - h
VLF Platesetter	i - l
Platesetter 3244	m - r

For TS4, TS8 machines and TS4, TS8 Autoloaders follow a – d:

a) Autoloader only: Raise the unload table and support it with a large diameter allen key (10-15mm) inserted in an unused pivot hole, located in the pivot end plate (refer to Figure 4).

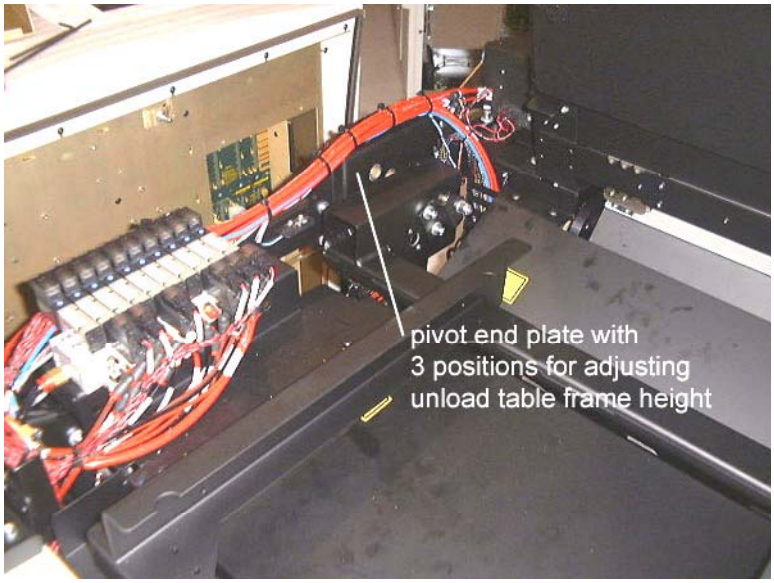


Figure 4

b) Cut the 8mm (5/16”) tube a couple of inches past the air filter regulator as per Figure 5.

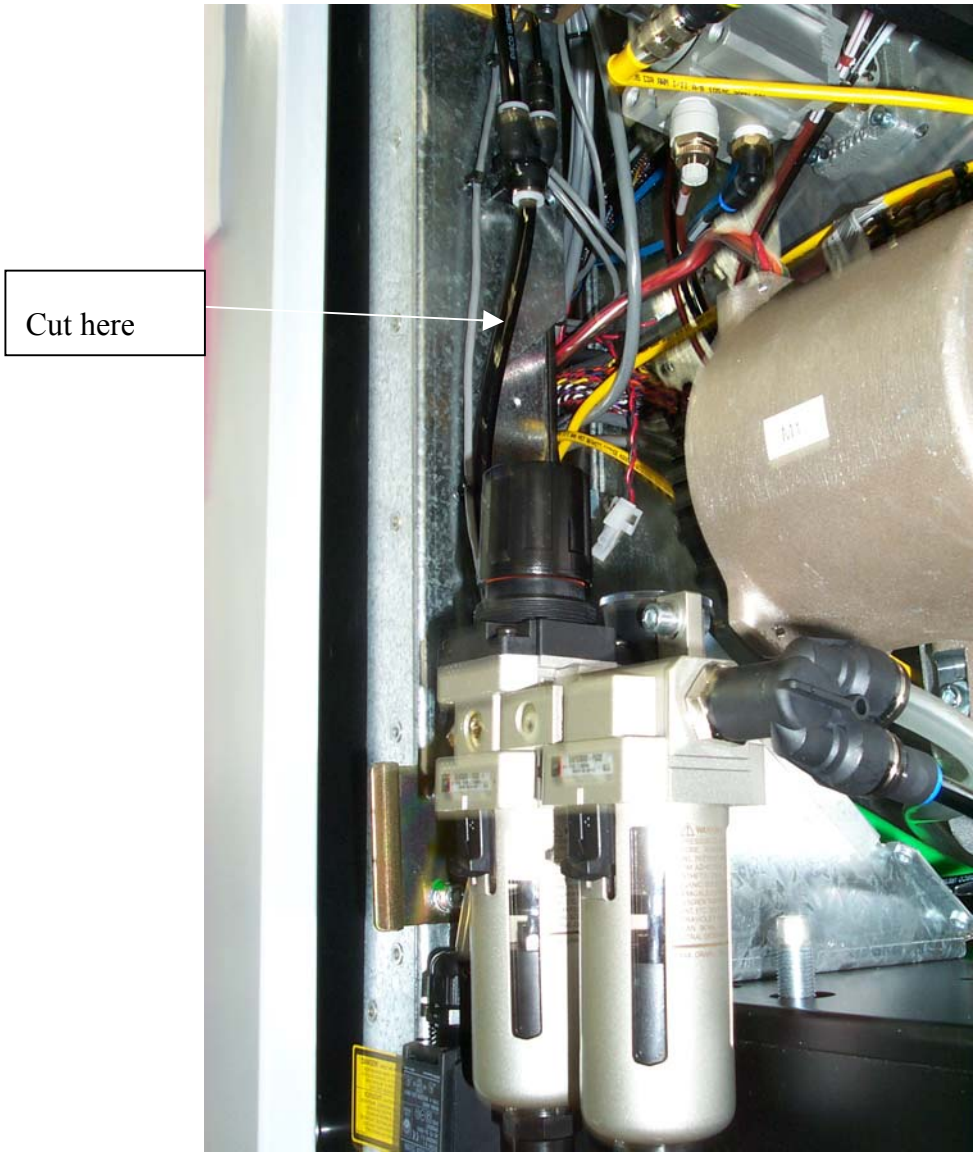


Figure 5

c) Attach the two ends of the cut tube into the 5/16" union branch (55-0108) (Figure 6).

d) Attach the red 4mm (5/32") tube to the union branch as shown in Figure 6. Seal the remaining ports using the plugs provided (55-0162).



Figure 6

For TS3 machines follow e - f:

e) Remove a 4mm (5/32") plug or loop from the 5-way Tee as per Figure 7. Devices with a separate TEE board will appear as in Figure 4. Devices with a combined TIF/LUE board will have a single air line under the LUE board.

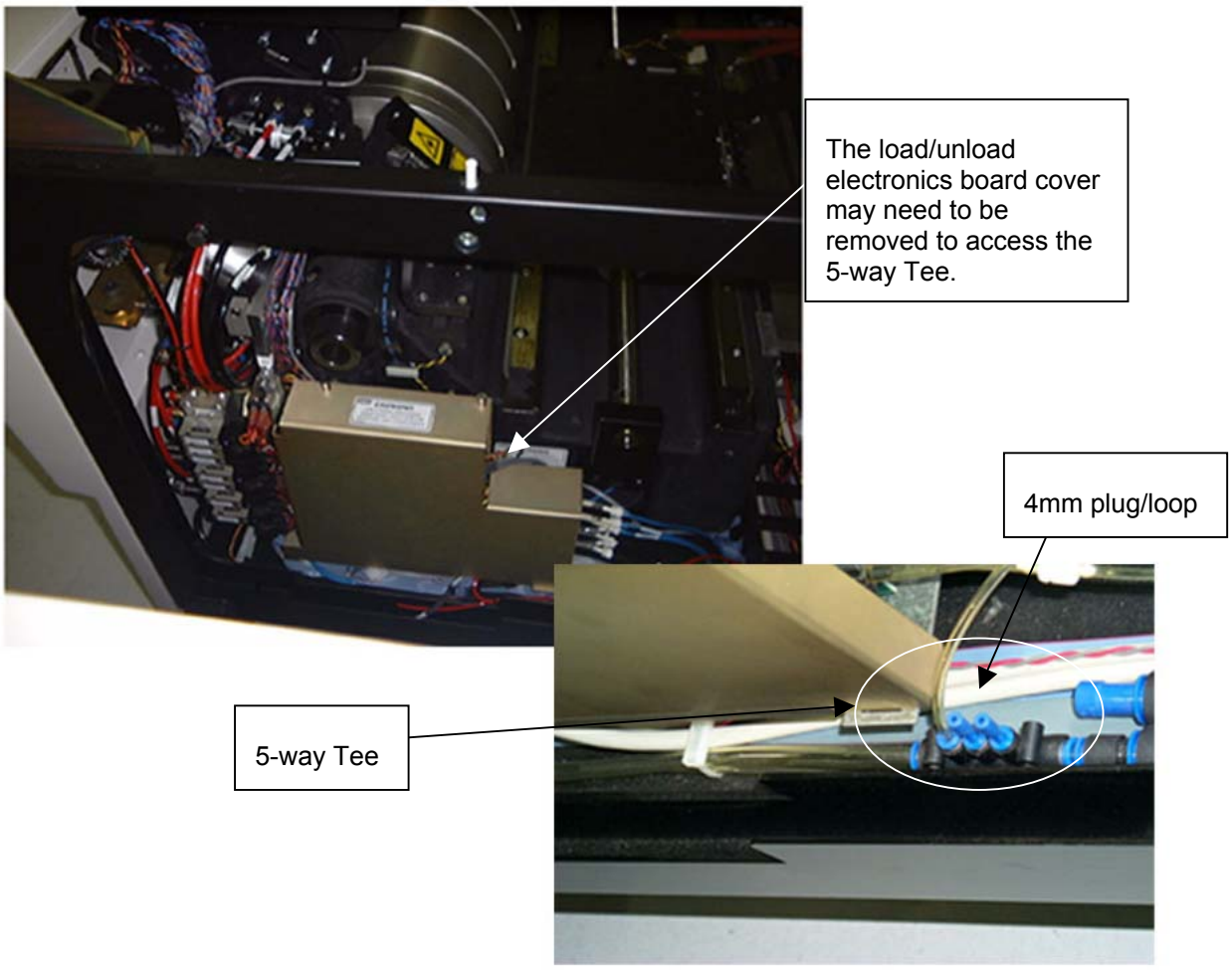


Figure 7

f) Attach the red 4mm (5/32") tube to the open port.

For VLF Trendsetters, Autoloaders, and Thermoflex, follow g –h:

g) Cut the 5/16" tube at the device end and insert the two ends of the cut tube into the 5/16" union branch (55-0108) as shown in Figure 9 (Figure 10 for Thermoflex). If the Backbone check valve kit (05-0232) has been installed, the union branch (55-0108) will have blue tubes attached as shown in Figure 9. If the blue tubes are not installed, seal the remaining ports using the plugs provided (55-0162).

h) Trim the red 4mm (5/32") tube length as required and insert into the union branch as shown in Figure 9 (Figure 10 for Thermoflex).

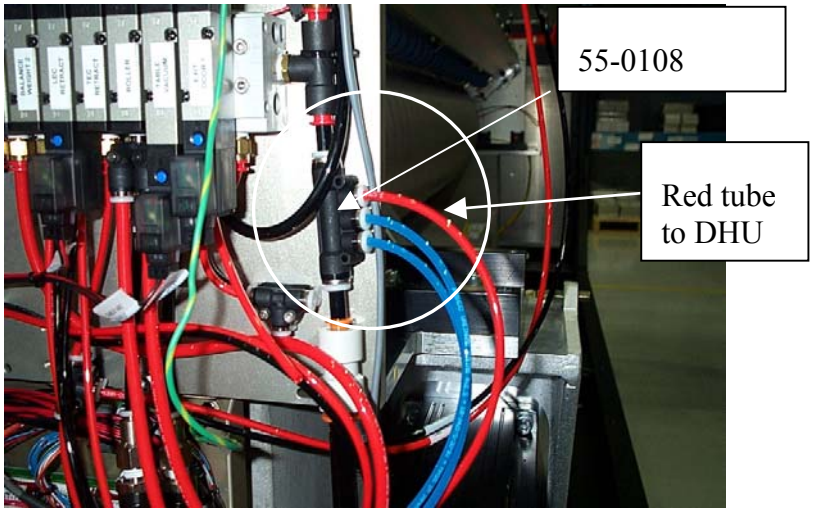


Figure 9: VLF Trendsetter

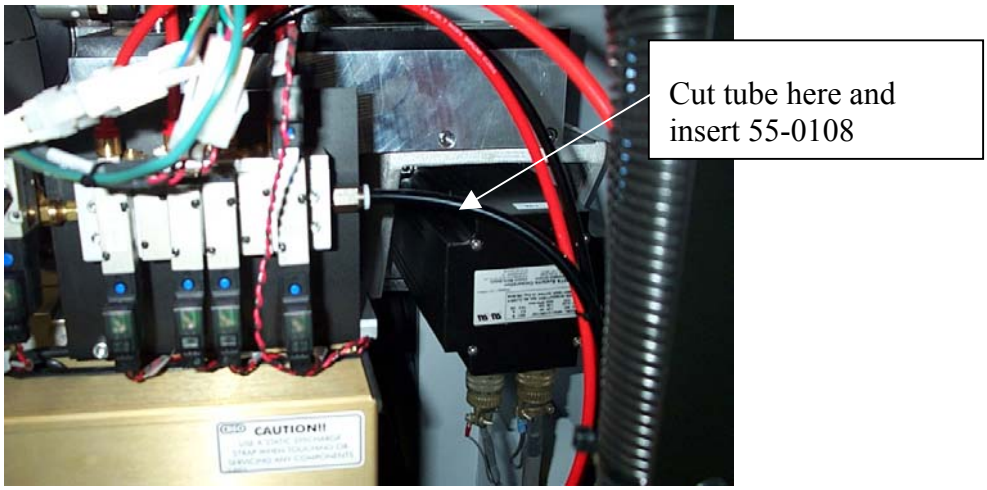


Figure 10: Thermoflex

For VLF Platesetters follow i – l:

i) Cut the 8mm (5/16") tube that feeds the upper engine manifold (behind Panel L4) as shown in Figure 11.

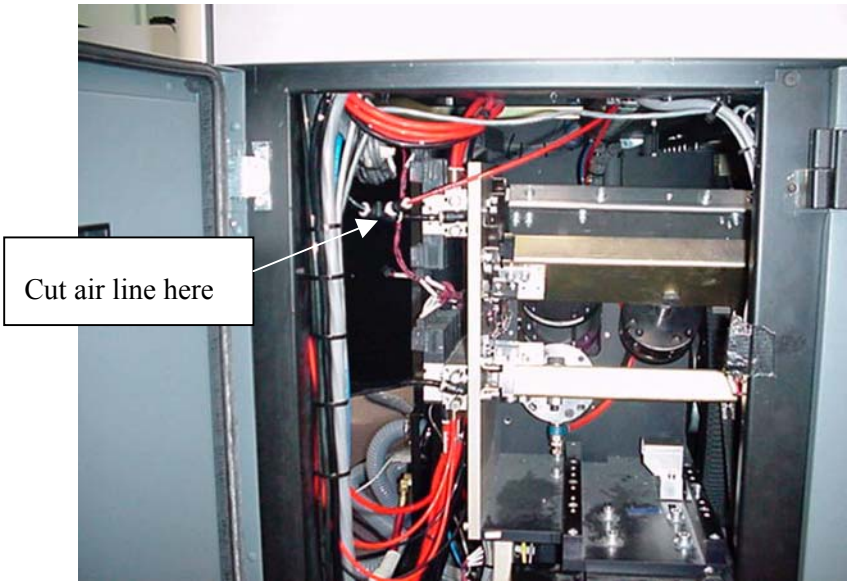


Figure 11

j) Insert the two ends of the cut tube into the 5/16" union branch (55-0108) as per Figure 12. Seal the remaining ports using the plugs provided (55-0162).

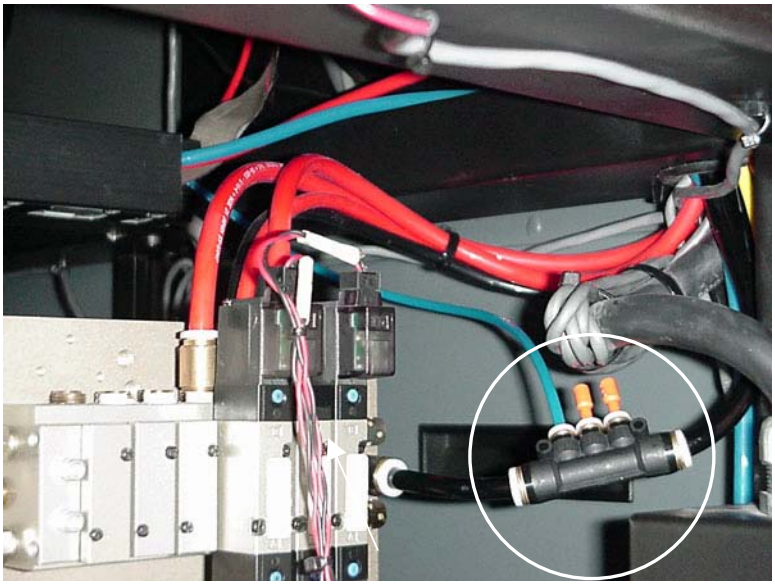


Figure 12

k) Run the red 4mm (5/32") tube from the exit of the cable track along the cable run to the engine manifold area.

l) Trim the red 4mm (5/32") tube length as required and insert into the union branch as per Figure 12.

For Platesetter 3244s follow m - r:

m) Open the Platesetter PDB/Fanbox (large gold box).

n) Cut the 8mm (5/16") tube that feeds the plate bay manifold as per Figure 13.

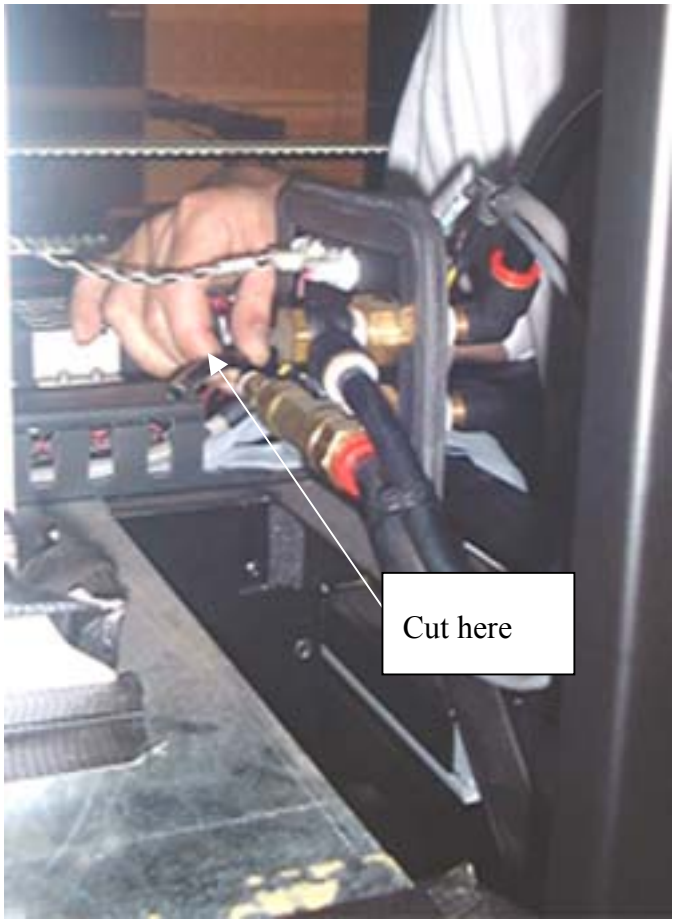


Figure 13

o) Insert the two ends of the cut tube into the 5-way union branch (55-0108).

p) Insert one end of the red 4mm (5/32") tube into one of the available ports in the union branch (seal the remaining ports using the plugs provided, 55-0162).

q) Run the red 4mm (5/32") tube from the exit of the cable track along the cable run to the plate bay manifold area.

r) Trim the red 4mm (5/32") tube length as required.

9. Choose the appropriate step:

a) **For the TS3, TS4, TS8 and the TS 3/8 machines:** Feed the blue 4mm (5/32") tube to the rear panel and out the bottom of the machine through a forklift channel. Trim the tube length as required.

b) **For the VLF Trendsetter, Autoloader, Thermoflex, and Platesetter:** Run the blue 4mm (5/32") tube from the exit of the cable track to a convenient opening in the lower frame as shown in Figure 14. It may be necessary to drill a ¼" diameter hole if there is no convenient hole available. Trim the tube length as required.

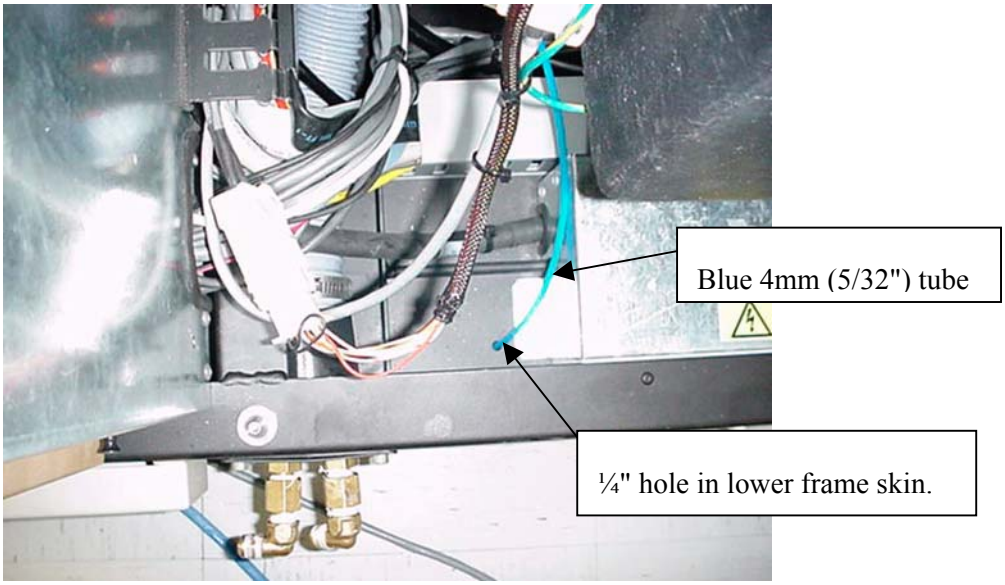


Figure 14

4.2 Installing the Dehumidifier Unit (DHU)

Note: Once the DHU has been installed, it becomes part of the device.

1. Clear all air lines prior to attaching them to the head. Run air through the new lines for approximately 30 seconds.

   Note: Refer to the drawings in **Section 6** for further detail.

2. Replace the existing handle on the home side of the head with the DHU (50-2388A) and reattach the bolts. Refer to Figure 15 (showing kit 05-0244) or 15a (kit 05-0243).

   For TS 3 and TS Autoloader devices with a 1.0 head with locking brackets, you must first attach bracket 57-8997A as per the drawing in Section 6.

   For Thermoflex with a TFX head, you must first attach mounting bracket 57-9071A as shown in Figure 15a.

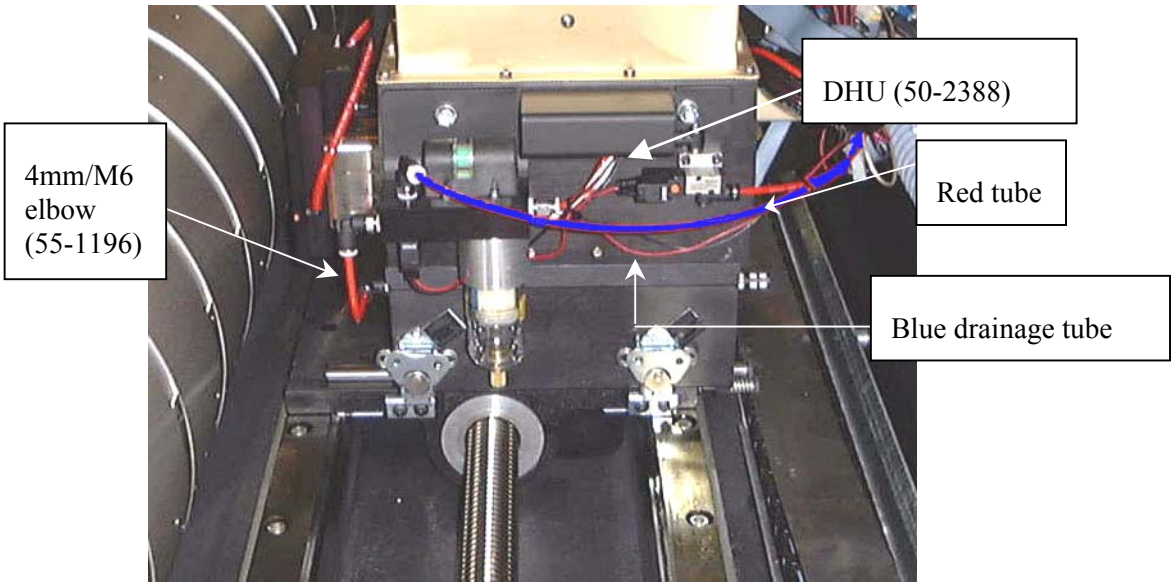


Figure 15

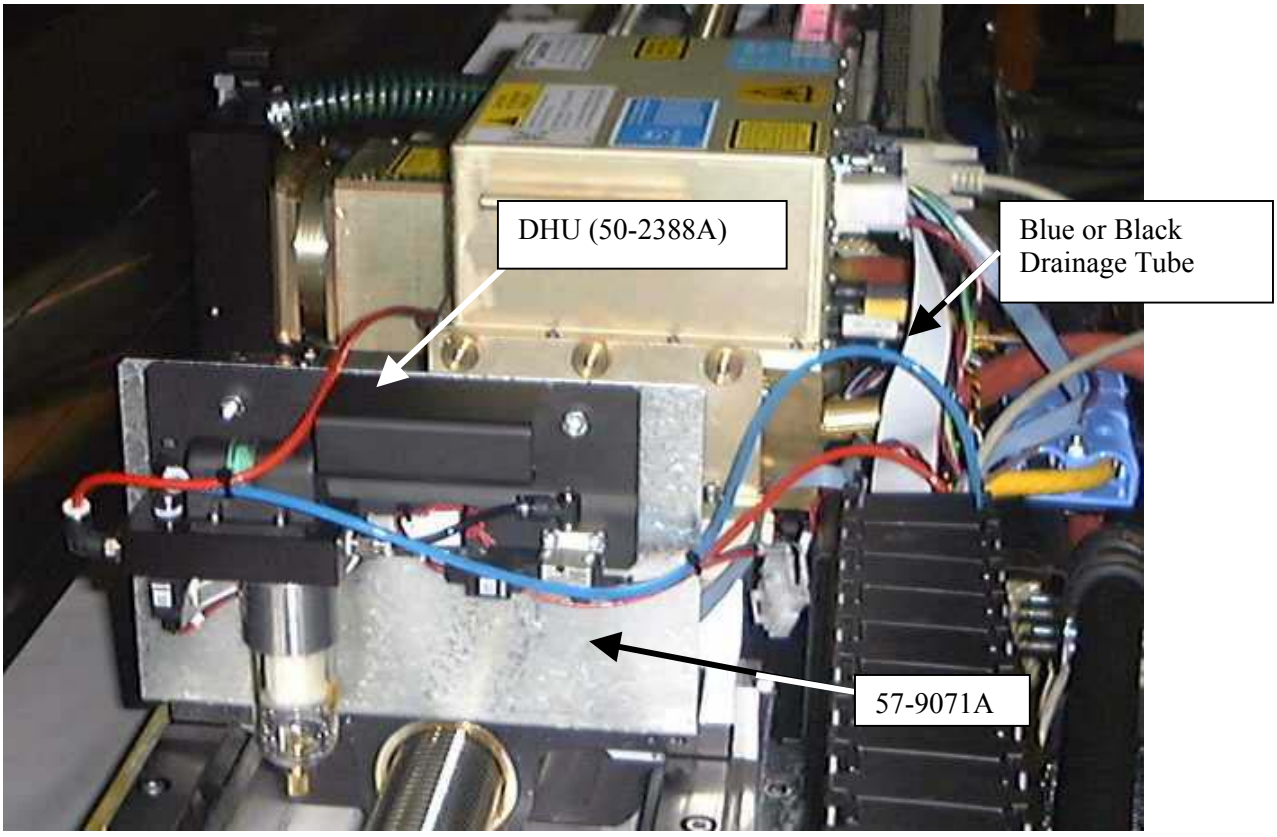


Figure 15a: TFX Head

3. Connect the DHU cable (10-4965A) to the new Power Adapter cable (10-4960A for VLF Trendsetter and VLF Platesetter, 10-4973A for ThermoFlex VLF).

Note: Ensure that the pins that were removed from the connector (in order to get the power cable through the flextrack) are installed properly. Compare the wire colors on both cables to ensure they match up.

4. Ensure that the brass fittings have been removed from the beam blocker ports. Attach the 'head' end of the red 4mm (5/32") tube to the DHU (50-2388) as per Figure 15(Figure 15a for a TFX head). Refer to the appropriate Drawing (Section 6) for more information.

5. Replace the metal washer on the 4mm/M6 (55-1196) elbow with a rubber 'O' ring (59-3414). Fit the elbow onto the drum-side beam blocker port and insert the other end of the red 4mm tube. This tube should now run from the DHU to the drum side of the head.

Note: If the head you are working on has mechanical mounting boxes with M8 ports, you must remove the M6 to 3mm hose barb and leave in the M8 to M6 bushing as per Figure 16.

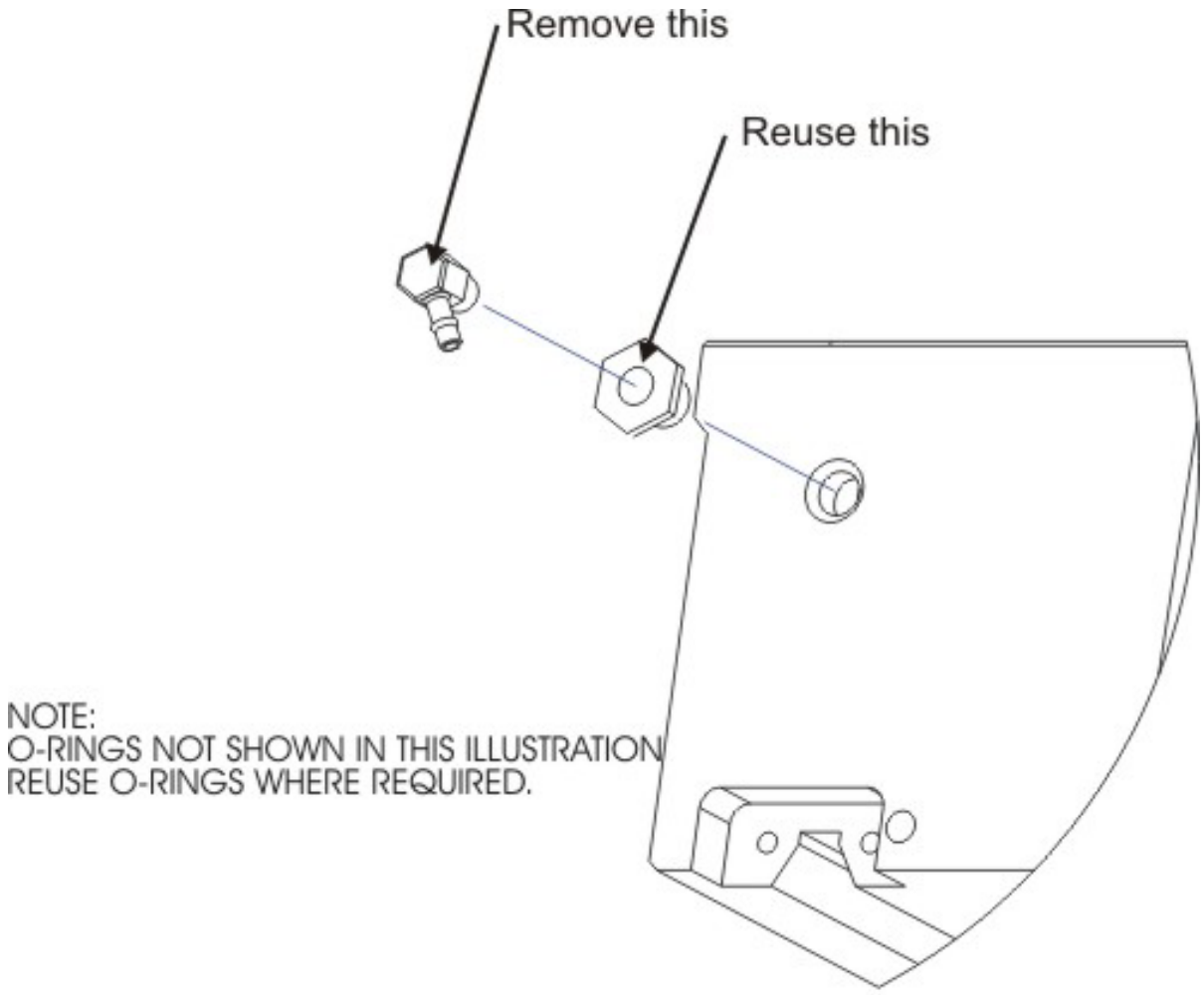


Figure 16: REUSE OF BUSHING (57-4875A-A) FOR THERMAL HEADS FITTED WITH MECHCANICAL MOUNTING BOXES WITH M8 PORTS

6. Attach the blue 4mm (5/32") hose to the appropriate elbow on the DHU (refer to Figure 15 or Figure 15a). Ensure that the tube leads to the rear panel and out the bottom of the machine through a forklift channel.

7. Replace the metal washer on the exit muffler and replace it with a rubber 'O' ring (59-3414). Attach the exit muffler (55-1192) to the non-drum-side beam blocker port. Refer to Figure 17.

Note: Do not use the DHU as a handle for lifting the head. Use only the handle provided (see Figure 15).

8. **If the DHU was mounted on the side of the head:** Loosen the carriage from the lead screw and manually check that the DHU clears the bearing block, hoses, etc.

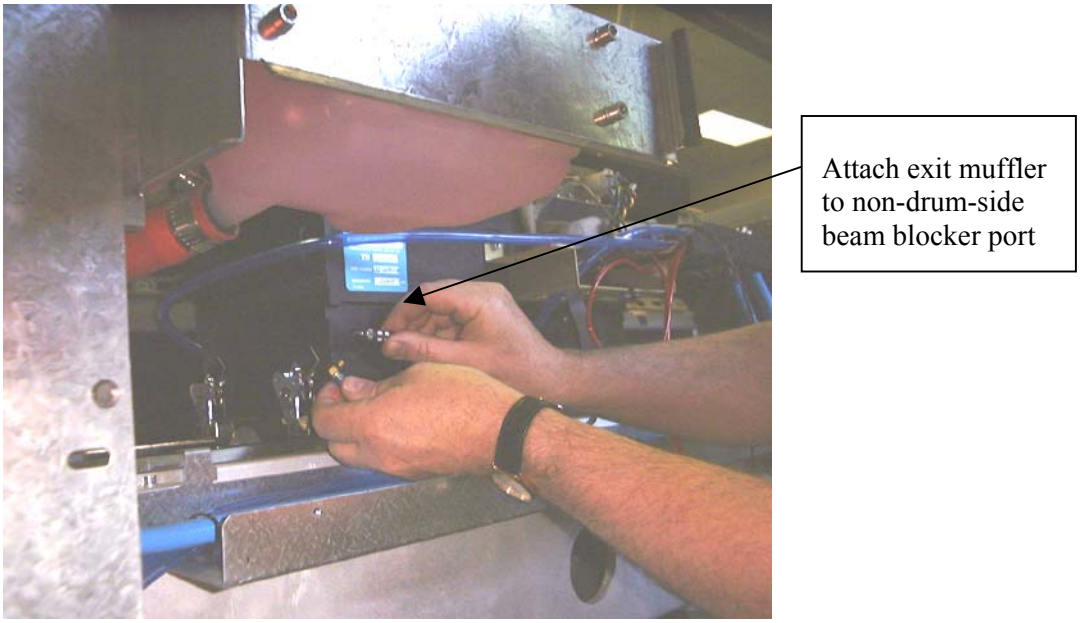


Figure 17

9. Install the needle valve. Cut into the air line and insert the valve (55-0180) as shown in Figure 18. If you are installing the valve on a TFX head, open the valve all the way (note that no flow adjustment is needed on a TFX head). For all other heads, refer to section 5 for details on adjusting the needle valve.



Figure 18

4.3 DHU Maintenance

The DHU filter (55-1219) must be replaced once per year as part of regular Head preventative maintenance. Please refer to the Preventative Maintenance document on the Maintenance site of the Thermal 1/1.7x Technical Library site.

Also note that if the differential pressure indicator displays red you need to examine the bowl to determine if the device has been tripped by moisture or oil in the line. If it has, the DHU (50-2388A) must be replaced.

5. ADJUSTING THE NEEDLE VALVE

Note: If you have installed the valve on a TFX head, open the valve all the way and leave it. No flow adjustment is needed for a TFX head because the internal orifices in the DHU are adequate.

The valve is best adjusted after the machine has been shut down for several hours or possibly over night. This will give enough time for the optical cavity's relative humidity to reach equilibrium with atmospheric conditions.

a) With the machine in this condition, ensure that the needle valve is closed. Power up the machine.

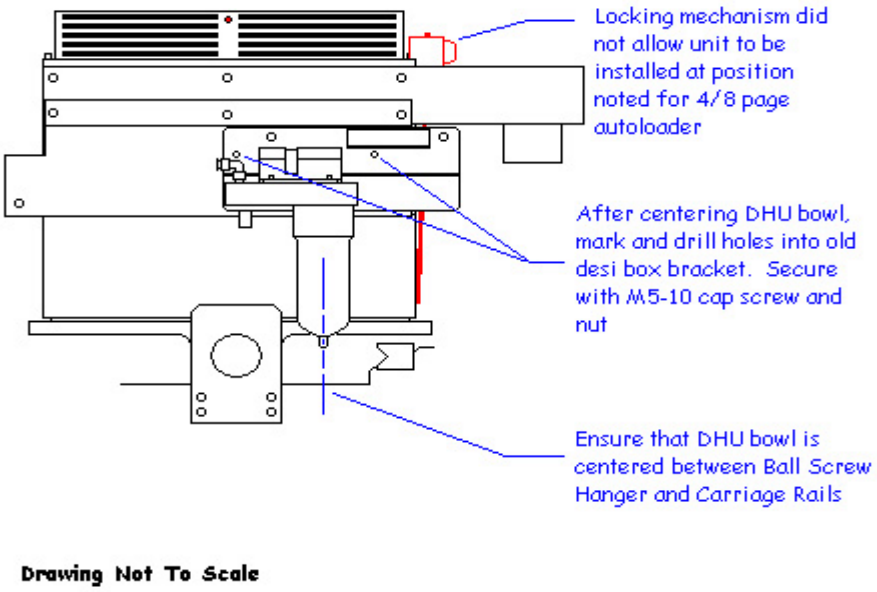
b) Once the head is running enter **`>>head status`** in the Splot terminal. Note the relative humidity.

c) Crack open the needle valve slightly and re-enter **`>>head status`** in the Splot terminal. Wait 10 minutes or until the head humidity reading stabilizes (you will have to enter **`>>head status`** repeatedly to observe this).

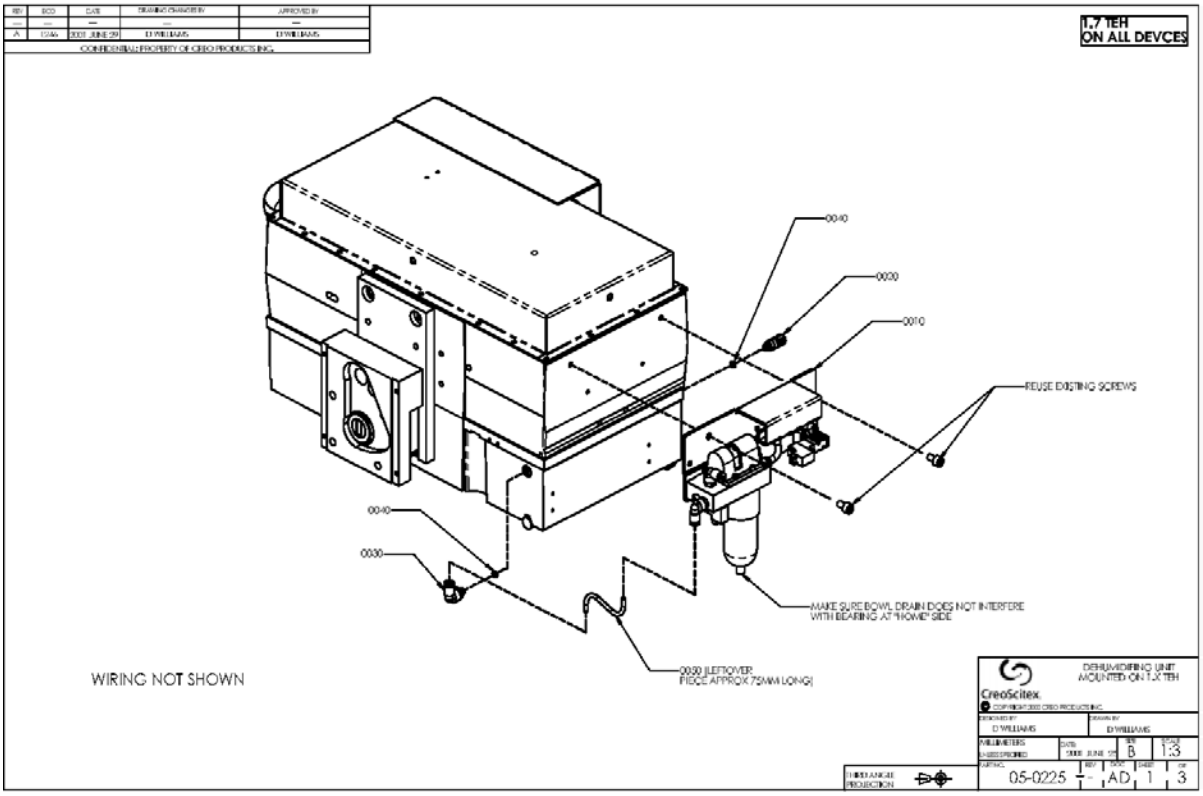
- **If the humidity has dropped to a steady 10%**, lock down the valve stem using the knurled nut located on the valve stem.
- **If the humidity has not dropped to 10%**, open the valve further and repeat the procedure until the humidity is roughly 10%.

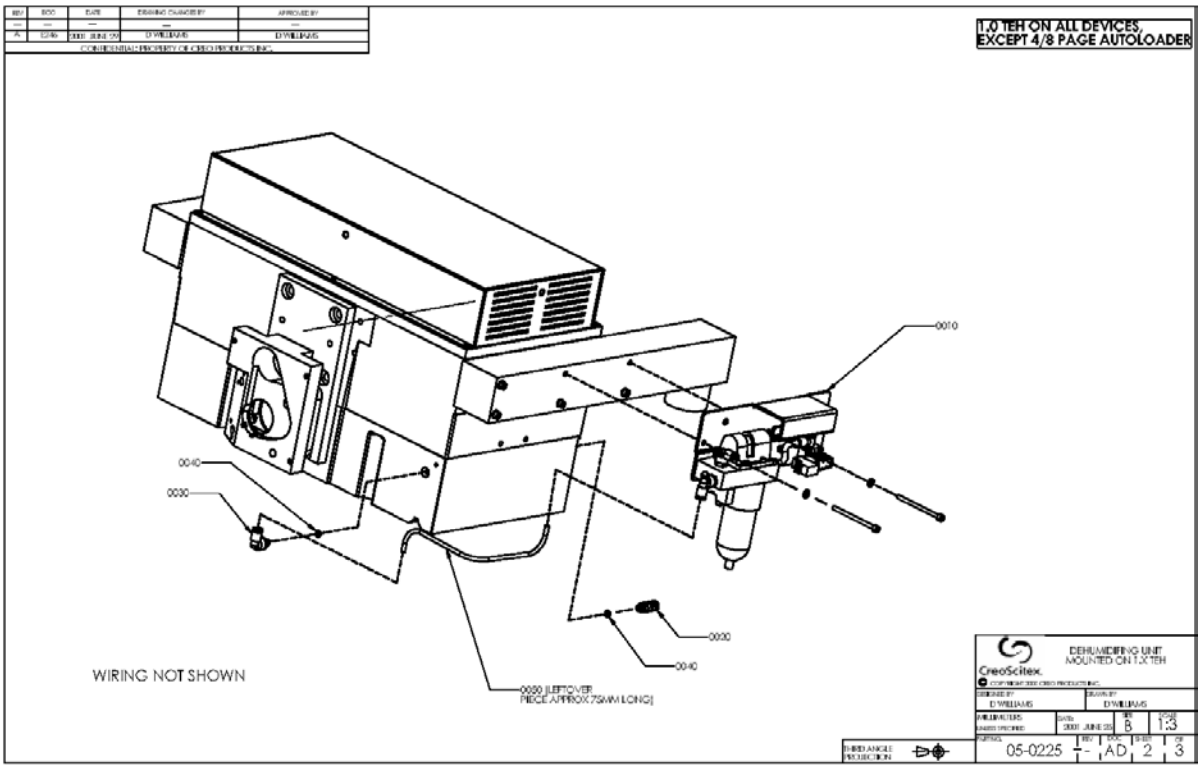
Note: If the valve is opened too far and the humidity level is below 10%, close the valve and allow the humidity to rise, then repeat steps 2 and 3 above. If the ambient humidity is already close to or less than 10% open the needle just until a drop in humidity is first observed. Lock down the valve stem.

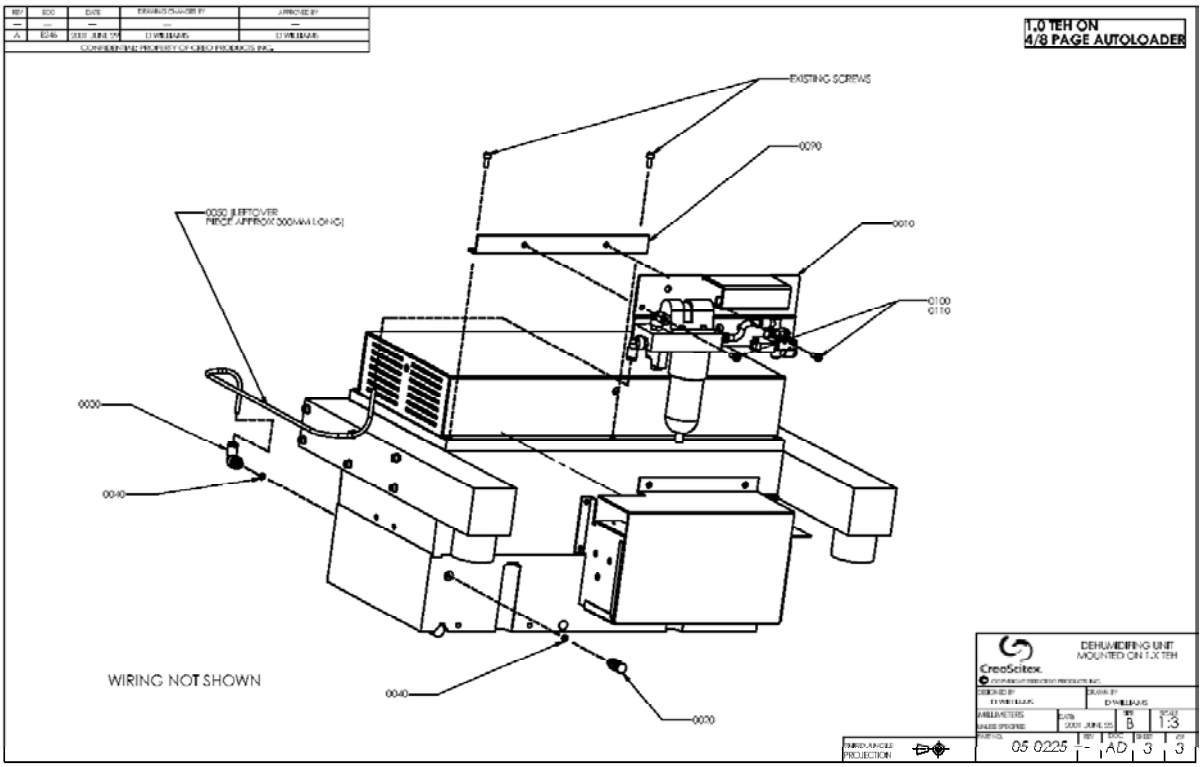
6. DRAWINGS



Thermal Head with locking brackets


1.7 TEH
ON ALL DEVCES
0040
0020
0010
REUSE EXISTING SCREWS
0040
0030
MAKE SURE BOWL DRAIN DOES NOT INTERFERE
WITH BEARING AT "HOME" SIDE
WIRING NOT SHOWN
0030 (LEFTOVER
PIECE APPROX 75MM LONG)
CreoScitex
DEHUMIDIFING UNIT
MOUNTED ON TJX TEH
D WILLIAMS
D WILLIAMS
B
1:3
05-0225
AD
1
3


1.0 TEH ON ALL DEVICES,
EXCEPT 4/8 PAGE AUTOLOADER
0010
0040
0030
0020
0040
WIRING NOT SHOWN
0030 (LEFTOVER
PIECE APPROX 75MM LONG)
CreoScitex
DEHUMIDIFING UNIT
MOUNTED ON TJX TEH
D WILLIAMS
D WILLIAMS
B
1:3
05-0225
AD
2
3


1.0 TEH ON
4/8 PAGE AUTOLOADER
EXISTING SCREWS
0070
0010
0100
0110
0030
0040
0040
0020
WIRING NOT SHOWN
DEHUMIDIFING UNIT
MOUNTED ON 1.0 TEH
CreoScitex
05 0225 - AD