Thermal Exposure Head

Mounting Conversion Procedure

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Revision History

Revision	Date	Author	Comments
1	9 July 1998	Jacob Gofman	Combines info collected from 3 documents created by Jacob
2	11 Aug 1998	Ian Williams	Additional text and formatting
3	03 May 2000	Tim Adams	Order change to sections 5.3 and 5.4
A-D pre-release	29 Nov, 2002	Kurt Shelton (Ken DeCarle - TW)	Update logo, tech review and copy edit in preparation for EOL.
A-D	21 Jan 2003	Kurt Shelton (Ken DeCarle - TW)	Final review by Kurt S. Posted on TP by KD.
A-E	01 Oct 2003	Maureen Munroe	Added new part numbers for the latch mount system.

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1. SCOPE

The method of mounting Thermal Exposure Heads on the carriage was changed in July 1998. The part number changes for the Thermal Exposure Heads mounts are shown in the table below:

	Part Number for 2400 dpi	Part Number for 3200 dpi
Latch mount	32-4005B	32-4005B
Cam mount	32-4005A-J or earlier	32-4030A-F or earlier

The newer mounting system (32-4005B) uses a system of three latches to mount the head on the carriage, and will be referred to as the *latch mounting system*.

The older mounting system (32-4005A-J or 32-4030A-F or earlier) uses a locking cam on the head, with a pre-load block mounted on the carriage, and will be referred to as the *cam mounting system*. Refer to Figures 1 and 2 to view the differences.

The mounting system securely fastens the head to the carriage. The base of the head contains either the latch mounting system or the cam mounting system, as described above. This part of the head is referred to as the *mounting box* throughout this document.

There are three possible versions for the carriage, and three upgrade kits that enable any head to be mounted on any carriage:

- Kits # 1 and # 3 are included with heads that use the latch mounting system.
- Kit # 2 is included with heads that use the cam mounting system.
- Refer to Appendix A for a more detailed explanation of which kit should be used for your particular situation.

This document describes:

1. How to upgrade a transition carriage to accept a head with a latch mounting system, described in *Upgrading a transition carriage to accept a head with the latch mounting system*.
2. How to modify a head with a latch mounting system so that it can be installed on a carriage that uses the cam mounting system, described in *Modifying a head with a latch mounting system for installation on a carriage with the cam mounting system*.
3. How to modify a carriage with the latch mounting system to accept a head with the cam mounting system, described in *Modifying a carriage with the latch mounting system to accept a head with the cam mounting system*.

2. RELATED DOCUMENTS

- *Thermal Head 1.0 Installation Procedure (77-0038)*

- *Thermal Head 1.7 Installation Procedure (77-0074)*

3. PICTURES SHOWING THE DIFFERENCES IN THE CARRIAGE MOUNTING SYSTEMS

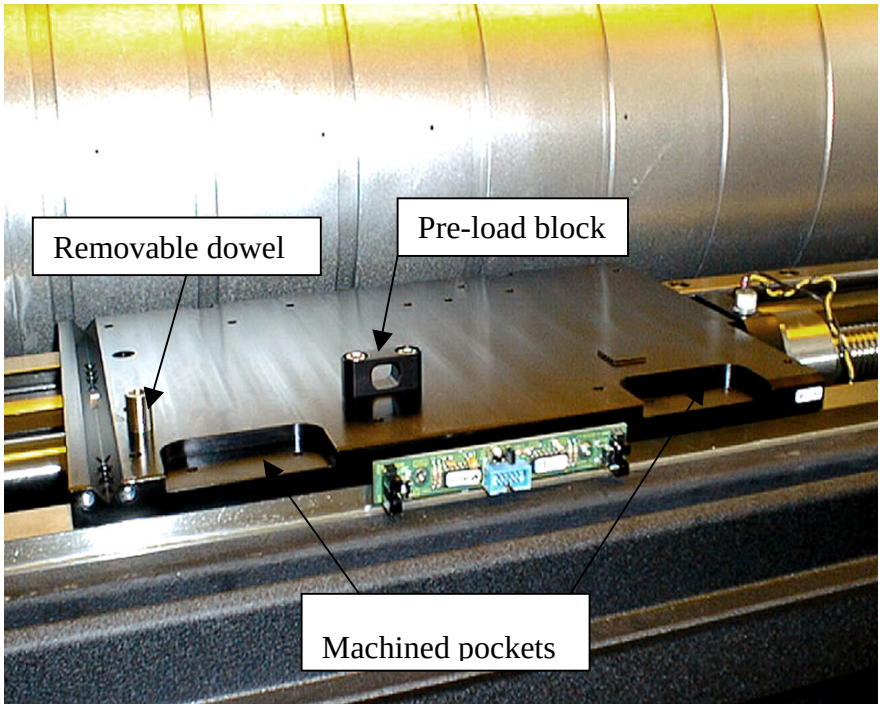


Figure 1: Transition carriage with the cam mounting system

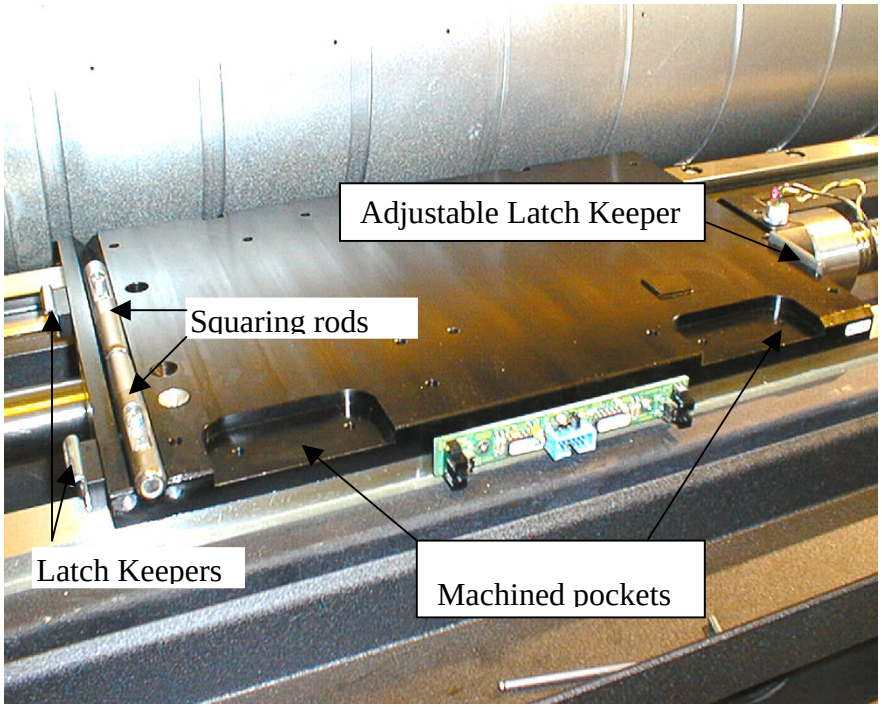


Figure 2: Carriage with the latch mounting system

4. UPGRADING A TRANSITION CARRIAGE TO ACCEPT A HEAD WITH THE LATCH MOUNTING SYSTEM

This section describes how to modify the transition carriage (50-1211B) to the latest version (50-1211C). This modification will allow you to install a Thermal Exposure Head that uses the latch mounting system on the carriage.

The transition carriage (50-1211B) can be identified by the two machined pockets on the upper surface at the rear of the carriage, but has the older cam style mounting system hardware installed (see Figure 1). Only this carriage can be upgraded to the latest version (as shown in Figure 2).

4.1. Tools and Parts Required

- 3mm Hex Key
- 5mm Hex Key
- #242 Loctite
- Upgrade kit part number 05-0051. (Kit # 3)

  Contents of the upgrade kit:

  – 2 x squaring rod (part number 57-5299A).

  Note: One of the rods has a thrust button mounted in one end of the rod.

  – 2 x washer plate (part number 57-5009A).

  – 2 x latch keeper (part number 59-3434).

  – 1 x adjustable latch keeper (part number 57-5124B).

  – 2 x keeper spacer (part number 57-5123A).

  – 4 x screw M4 * 16 socket-cap head.

  – 4 x screw M5 * 16 button-head.

  – 2 x screw M5 * 12 button-head.

  – 2 x belleville washer M5.

4.2. Overview of Upgrade

Required steps:

- Remove the removable dowel (57-5125A) and pre-load block (57-0759A)
- Install the squaring rods, latch keepers, and adjustable latch keeper contained in kit # 3

Note: Any parts that are removed during this process should be kept on-site, preferably with the machine, in case they are required in the future.

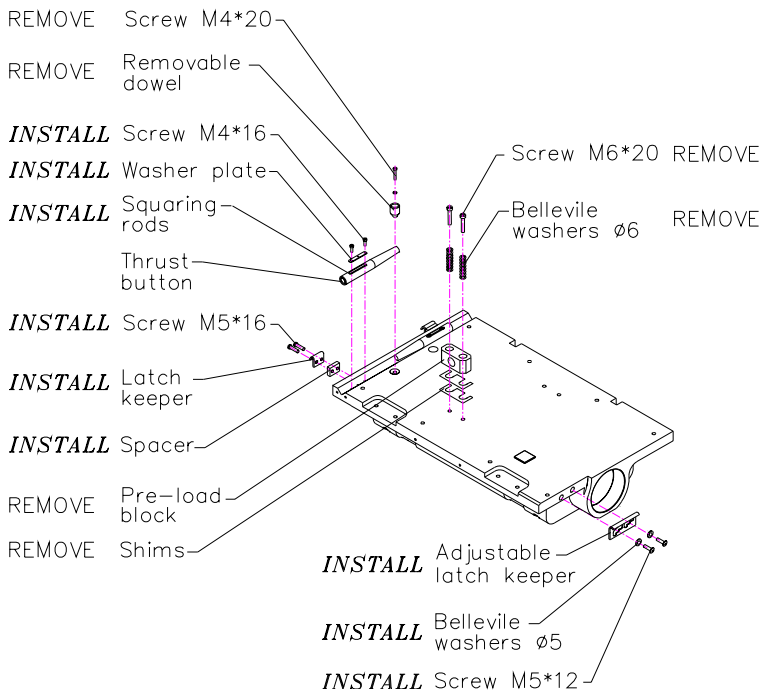


Figure 3: Upgrading a transition carriage

4.3. Procedure

1. Remove the removable dowel by unscrewing the M4*20 screw that holds it in place. Remove the pre-load block from the carriage by unscrewing the two M6*20 screws, and then remove the shims from the carriage (see Figure 3). Note that the 16 Belleville washers should be inside the pre-load block.

2. Mount the two squaring rods (57-5299A) in the V-groove on the carriage. Place the squaring rod with the thrust button at the rear of the carriage, with the thrust button facing away from the drum (see Figure 3). Fasten it using two plate washers (57-5009A) and four M4*16 screws with #242 Locktite applied to the threads.

Note: Push the squaring rod with the thrust button towards the drum while tightening down the screws.

3. Attach the two latch keepers (59-3434A) with their spacers (57-5123A) positioned between the latch keepers and the home end of the carriage, using M5*16 button-head screws with #242 Locktite applied to the threads (see Figure 3).

Note: Make sure that the keepers are pushed up when tightening the screws.

4. Attach the adjustable latch keeper (57-5124B) to the away end of the carriage using two M5*12 button-head screws and two M5 belleville washers (see Figure 3).

Note: The latch keeper can be placed in one of three positions. While this is not important for this conversion procedure, it is important when you are installing the head. Please refer to the latch keeper position label on the head and the correct head installation documentation for your platesetter model for more information.

5. MODIFYING A HEAD WITH A LATCH MOUNTING SYSTEM FOR INSTALLATION ON A CARRIAGE WITH THE CAM MOUNTING SYSTEM

This section explains how to modify a Thermal Exposure Head with the latch mounting system so that it can be installed on the earliest version of the carriage that uses the cam mounting system (part number 50-1211A). The carriage can be easily identified, as there are no machined pockets on the rear of the carriage.

Note: The earliest version of the carriage (50-1211A) cannot be upgraded to accept the latch mounting system, so the head must be downgraded to accept the cam mounting system.

5.1. Tools and Parts Required

- 3mm Hex Key
- 5mm Hex Key
- #3145 RTV Sealant
- Upgrade kit part number 05-0049 (Kit #1)

  Contents of the upgrade kit:

  - 1 x squaring rod (part number 57-4607A)
  - 1 x positioning rod (part number 57-0731A)
  - 2 x shim .02” (part number 57-0760A)
  - 2 x shim .012” (part number 57-0761A)
  - 2 x shim .005” (part number57-0761A)
  - 1 x screw M6 * 10 socket set
  - 2 x screw M4 * 20 socket cap
  - 3 x screw M6 * 20 socket cap
  - 1 x locking cam (part number 57-0765A) + 1 x locking lever (part number 57-0764A) which come pre-assembled in the kit
  - 1 x screw M4 *12 socket flat

Note: Additional shims are included in the kit in case extra shims are required to be installed under the pre-load block on the carriage during the installation of the head. Please refer to the head installation documentation for your particular platesetter model.

5.2. Overview

Required steps:

- The spring block must be removed.
- The squaring rod (part number 57-4607A) must be installed on the mounting box of the head (on the underside).
- The positioning rod (part number 57-0731A), and the locking cam (part number's 57-0765A and 57-0764A, which come pre-assembled) must be installed on the mounting box of the head.
- The latches at the home end of the head must be secured in the UP position.

Note: Any parts that are removed during this process should be kept on-site, preferably with the machine, in case they are required in the future.

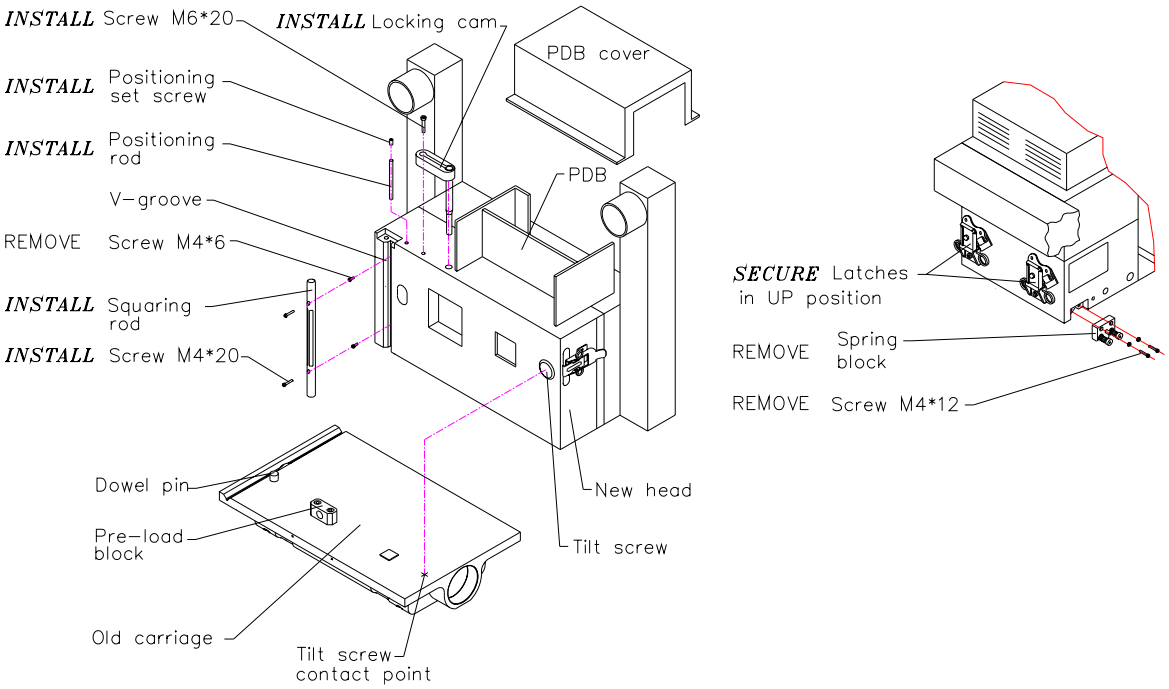


Figure 4: Mounting a head with the latch mounting system on a carriage with the cam mounting system.

5.3. Procedure

1. 1. Make sure you turn the Thermal Exposure Head so that it is positioned upside down, so that the top of the head is resting on a flat surface and the mounting box (lower part of the head) is accessible.

WARNING: Do not place the head with the weight on the nosepiece at the front of the head as shown in Figure 4. This illustration was designed to show how surfaces on the underside of the head align with the surfaces on the carriage.

2. Remove the spring block (part number 57-5123A) from the mounting box (see Figure5).

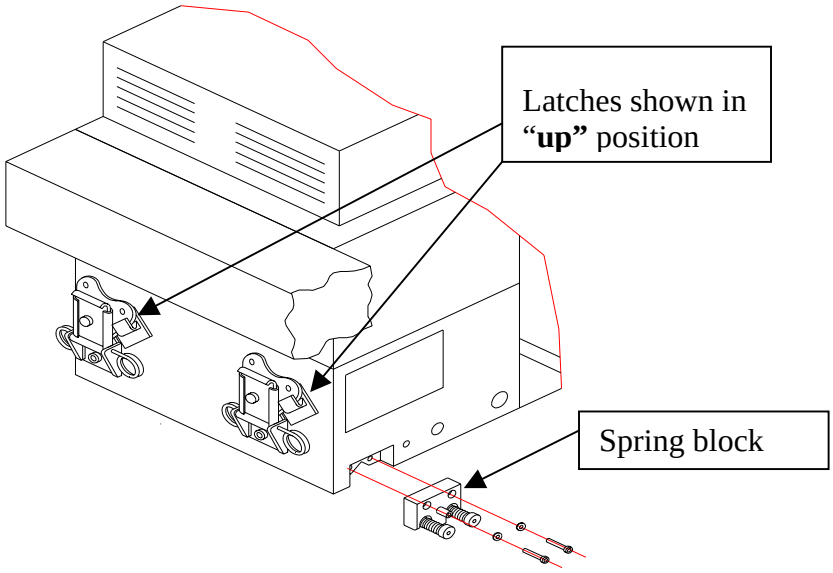


Figure 5: End latches and spring block on new head

3. On the Thermal Exposure Head, remove the two M4*6 screws from the bottom of the v-groove shown in Figure 4. Mount the squaring rod in the v-groove on the head using the two M4*20 screws supplied in the kit, ensuring you apply # 3145 RTV sealant to the threads.

Note: Do not use Locktite, as out-gassing may damage sensitive optical elements inside the head.

4. Insert the positioning rod (57-0731A) as shown in Figure 4, and install the M6*10 set screw so that it is flush with the head mounting box.

5. Insert the locking cam (57-0765A & 57-0064A) into place on the rear of the mounting box of the head as shown in Figure 4. Lock it in place with an M6 * 20 screw.

6. Secure the two latches (59-3434A) at the home end of the head in the UP position using the plastic holders attached to the head (see Figure 5).

Note: When it comes time to install the head, please follow the installation document for your particular platesetter model carefully, as the latches must be in the UP position when the head installation is complete, to prevent them hitting the lead-screw bearing housing at the home end of the engine.

6. MODIFYING A CARRIAGE WITH THE LATCH MOUNTING SYSTEM TO ACCEPT A HEAD WITH THE CAM MOUNTING SYSTEM

This section explains how to modify the latest version of the carriage (part number 50-1211C) to accept Thermal Exposure Heads that use the older cam mounting system (part numbers 2400dpi 32-4005A-K or earlier; 3200dpi 32-4030A-F or earlier).

6.1. Tools and Parts Required

- 3mm Hex Key
- 5mm Hex Key
- #242 Locktite
- Upgrade kit part number 05-0050. (Kit # 2)

  Contents of the upgrade kit:

  - 1 x removable dowel (part number 57-5125A)
  - 1 x pre-load block (part number 57-0759A)
  - 2 x shim .02” (part number 57-0760A)
  - 2 x shim .012” (part number 57-0761A)
  - 2 x shim .005” (part number57-0761A)
  - 2 x screw M4 * 6 socket set
  - 1 x screw M4 * 20 socket cap
  - 2 x screw M6 * 20 socket cup
  - 16 x Belleville washer M6

6.2. Overview

Required steps:

1. Remove the adjustable latch keeper and then install upside down.
2. Install the removable dowel pin.
3. Mount the pre-load block on the carriage and install the shims under it.
4. Remove the squaring rod from the head

Note: Any parts that are removed during this process should be kept on-site, preferably with the machine, in case they are required in the future.

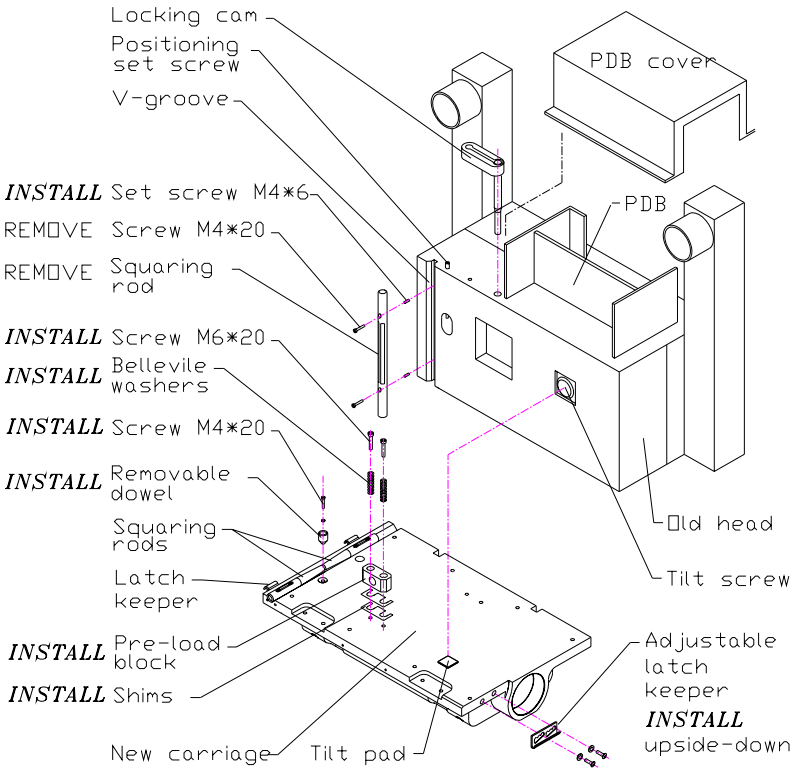


Figure 6: Mounting a head with the cam mounting system on a carriage with the latch mounting system

6.3. Procedure

1. Remove the adjustable latch keeper on the away end of the carriage, and then install it upside-down in the lowest position (see Figure 6). This will keep the adjustable latch keeper from getting lost, or interfering with the mounting box of the head when it is installed.

2. Mount the removable dowel (57-5125A) in the countersink as shown in Figure 6, using the M4*20 screw supplied in the kit, with # 242 Locktite applied to the threads.

1. Mount the pre-load block (57-0759A) using two M6* 20 screws with 8 belleville washers on each screw, but do not fully tighten the screws. Orient the belleville washers as shown in Figure 7.

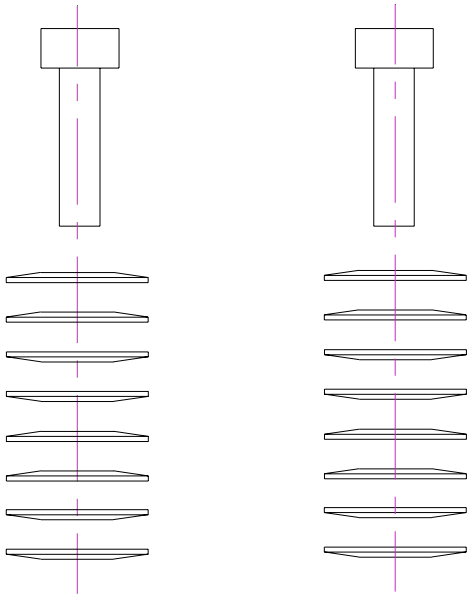


Figure 7: Bellevile washers

3. Install the shims supplied in the kit, under the pre-load block.

Note: The number of shims will require adjusting when the head is installed. Please refer to the head installation documentation for your particular platesetter model.

4. Make sure you turn the Thermal Exposure Head so that it is positioned upside down, so that the top of the head is resting on a flat surface and the mounting box (lower part of the head) is accessible.

5. Remove the squaring rod from the V-groove on the head. Seal the threaded holes with two M4* 6 set screws, applying #3145 RTV sealant to the threads.

Note: Do not use Locktite, as potential out-gassing may damage the optics in the head.