

Trendsetter 800 II/NEWS MCE

Thermal Head 1.7 to 2.x Upgrade procedure

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Revision History

Revision	Date	Author	Comments
1.0	16 Sep 2005	Andrew So	Initial Draft
1.1	04 Oct 2005	Janet Waterman	Review and formatting
A	12 Oct 2005	Ken Johnston	Repurposed procedure to apply to Trendsetter NEWS TH1.7 to TH2 upgrades as well as Trendsetter 800 II X-Speed upgrades

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1. OVERVIEW

This document describes how to replace the 40 W, 48 V Thermal 1.7x imaging head in a Trendsetter® 800 II or Trendsetter NEWS MCE output device with a Thermal 2.x head, as part of one of the following upgrades:

- Trendsetter 800 II S, F or V speed to X speed
- Trendsetter NEWS 50 or NEWS 70 to NEWS 100 or NEWS 150

The upgrade procedure lists the parts required and includes:

- Parts required (page2)
- Removing the Thermal 1.7 Head (page 3)
- Replacing power supply and existing cables (page 4)
- Mounting the TH2 carriage adapter plate (page 5)
- Installing the TH2 head (page 8)
- Upgrading the controlled release software (page 10)
- Installing the Feature License Key and finishing the firmware setup (page 11)
- Positioning the head and checking image quality (page 12)
- Checking functionality and throughput (page 12)

Before you begin, read section 2(Laser safety practices) for important laser safety information.

This procedure assumes that the new head has been preconfigured with the correct media parameters, such as write-laser power and drum speed, for the media type and imaging time. Refer to the appropriate media technical note if media parameters have not been correctly configured.

2. LASER SAFETY PRACTICES

This document is intended for field service engineers who have attended a thermal head introductory course and are, therefore, familiar with the safety precautions to be used when working with a Trendsetter.

When any interlocked access panel used for laser safety is opened, power is automatically removed from both the write laser and the focus laser. For 48 V TH1.7s and all TH2s, the service key switch in the LASER HAZARD position reenergizes only the focus laser and not the write laser.



Danger:
Never operate a Trendsetter with its enclosure open and the write laser on. The write laser *must* be disabled when the enclosure is open. Failure to do so may result in permanent eye damage. To disable the write laser in head firmware, use the appropriate command:

TH1.7:
`set head wenable 0`
OR
TH2:
`redirect enable`
(to display the TH2 prompt)
`set sys laserenable false`

3. RELATED DOCUMENTS

- *Thermal Exposure Head 1.7x, Installation Procedure for Creo Output devices (77-0074A) (http://techplanet.creo.com/output/heads/thermal/content/docs/77-0074A-D-PR01.pdf)*
- *Thermal Exposure Head Micro-banding troubleshooting procedures (77-0034A) (http://techplanet.creo.com/idoc/77/0034A/A/PR005400.pdf)*
- *TH2 Debris Removal Nozzle Installation Document (50-2331A) (http://techplanet.creo.com/idoc/50/2331A/B/50-2331A-B-PR01.pdf)*
- *Thermal 2 Exposure Head Installation for Trendsetter MCE* (719-00585A) (http://techplanet.creo.com/output/heads/thermal_2/content/docs/719-00585A-A-PR01.pdf)
- [Trendsetter NEWS only] *Upgrading the Model of a Trendsetter NEWS MCE Single-Head Output Device*
  http://techplanet.creo.com/output/computer_to_plate/trendsetter_2637/content/docs/news_mce_model_ug.htm

4. PARTS REQUIRED

- Power supply PS4: 500-02649A (750 W)
- Hot link cable: 10-5057A (to be connected to J1 on the MCE board)
- Signal cable: 10-4848A (to be connected to J2 on the MCE board)
- Power cable: 220-01030A (to be connected to PS3 and PS4)
- MCE TH1.7-TH2 conversion kit: 518-00448A
- Debris removal nozzle kit for TH2: 50-2331A
  [Not applicable to Trendsetter NEWS unless the customer is using ablative media]

- [Trendsetter 800 II only[1]] USB customer dongle: 632-00197
- [Trendsetter 800 II] MCE Trendsetter Controlled Release 5.1 or later
- [Trendsetter NEWS] MCE Trendsetter NEWS Controlled Release 4.1 or later

5. REMOVING THE TH1.7

1. Back up the existing NVS parameters. For details, refer to the appropriate MCE firmware release notes.
2. Use **`carriage moveto 500`** command to move the carriage to an easily-accessible, central location.
3. Remove the top and rear panels.

   On the AL or CL, insert a large hex key in an empty pivot pin location to hold up the load table.
4. Use the on/off power switch to turn off power to the Trendsetter.



Warning:
Wear an anti-static wrist strap plugged into the grounding socket on the frame. The autofocus laser diode is very static-sensitive. It is exposed on the thermal 1.7 head after you remove the PD board cover.

5. While holding a paper towel under the hose fittings to catch any fluid that runs out, disconnect the coolant hoses.
6. Remove the cover for the power distribution (PD) board on the head.
7. Unplug all of the head cables, including the leadscrew temperature sensor cable.
8. Disconnect the air jet from its fitting on the cable track mount bracket.
9. Disconnect the red and black tubing to the DHU.

   Adjust the needle valve to stop the airflow.
10. Remove the debris removal hose (if present) from the head.
11. Remove the screws that hold the cable track onto the bracket on the head.
12. Release latches #2 and #3, but not #1 (beside the positioning screw).
13. Use a 3-mm T-handle hex key to loosen the shoulder screws that compress the springs that hold the head in position.

    Release latch #1.
14. Gently lift the head out of the Trendsetter and place the head on a prepared antistatic surface.

[1] The USB customer dongle is required for customer feature licensing, which has not yet been implemented on Trendsetter NEWS devices.

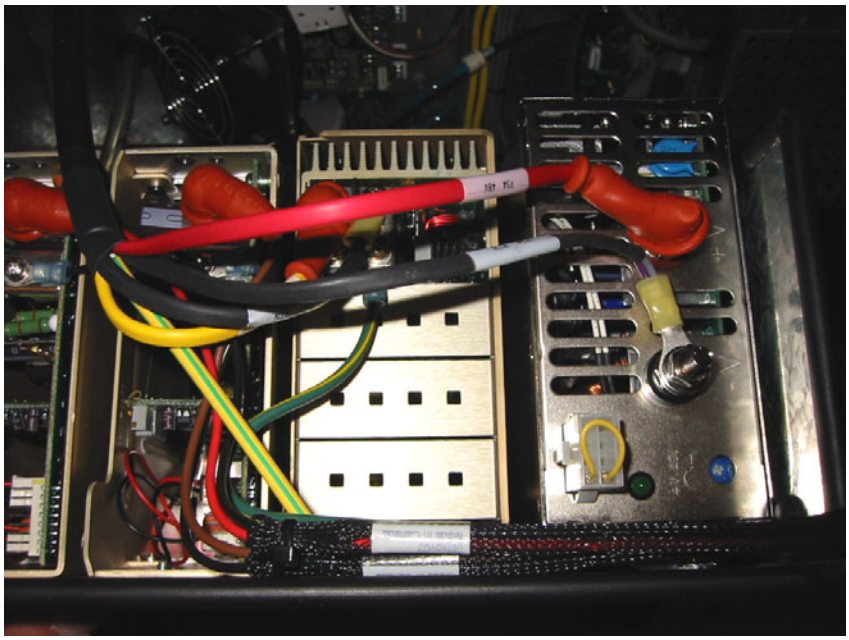
6. REPLACING THE POWER SUPPLY AND EXISTING CABLES

Because the TH2 uses a different PS4 power supply than the TH1.7, you must replace both the power supply and the existing TH1.7 power and control cables. The new cables are too bulky to fit from the power box through to the head, so you will have to feed them from the head back to the power supply.

1. Remove the debris removal hose tray (if present).
2. Remove the bracket that supports the cables entering the power box.
3. Cut all cable ties on the cables that run from the head to the power box.
4. Open up the cable track and remove:
   - PSS-Head cable 10-5085A
   - MCE-EH control cable 10-5086A
   - Hot link cable 10-4849A
   - DHU-PDB cable 10-5098A
5. Check the length of the existing cable track.

   If it has 18 links, add one more link (18-3345) to the flex track.
6. Thread the control cable (10-4848A), the power cable (220-01030A), and the hotlink cable (10-5057A) from the vicinity of the head through to the power box.

   Connect the following cables:
   - control cable to J2 on the MCE
   - hotlink cable to J1 on the MCE
   - 6-pin branch of the power cable to J32 of the PDB
7. Because the new PS4 is larger than the power supply it is replacing, the combination of PS3 and PS4 will not fit into the previous power supply position. In order for both power supply units to fit, you must install a bracket (supplied in the new PS4 kit).
   - Note the location of the wires to the PS3 and PS4 power supplies. Disconnect the wires, loosen the screws, and lift both power supplies out of the power box.
   - Attach the PS3 and the new PS4 to the new bracket and mount the bracket in the power box.
   - Reconnect the cables to the PDB.
8. Reconnect the wires on the power cable to the PS3 and PS4 according to the labels.



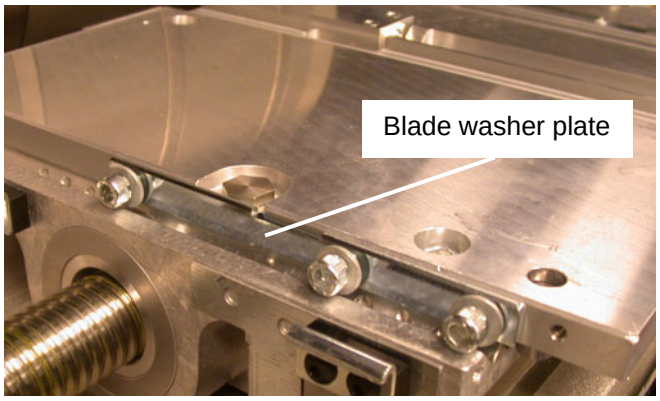
9. Straighten the cables in the cable track and ensure that the air tubes are on top before you fasten the cable tie.
10. If applicable, reinstall the debris removal hose tray and the bracket for the cables on the power box wall.

7. MOUNTING THE TH2 CARRIAGE ADAPTER PLATE

This section describes how to assemble and mount the TH2 adapter plate (57-8073) on the empty carriage. The adapter plate compensates for the smaller size of the TH2. The squaring rods are on the TH2 instead of on the carriage.

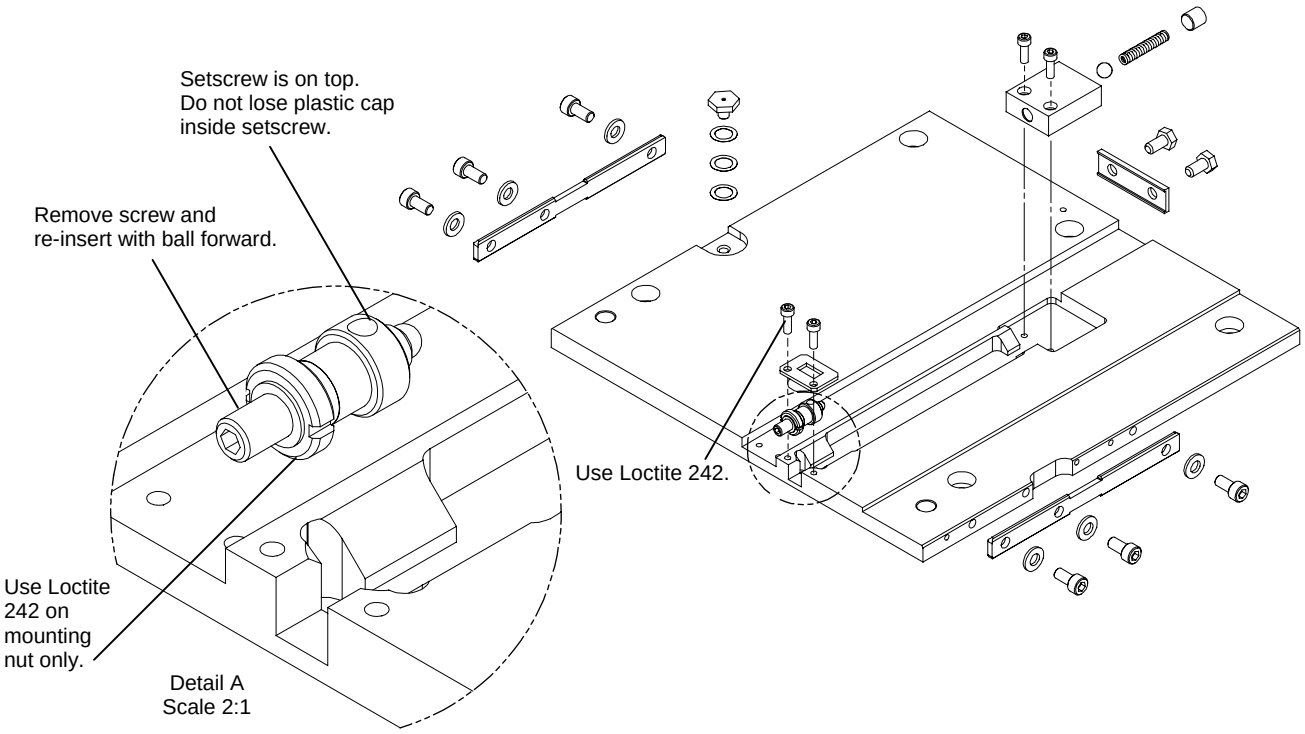
7.1 Assembling the adapter plate

1. Place four shims (52-4983) under the tilt adjust button (57-6643A) and screw in the button until it is tight.
2. Attach one blade washer plate (57-8075) to each end of the adapter plate. Because the blade washer plates are notched on two sides, it doesn't matter which way they are attached



Leave the three screws (52-4485) and washers (52-4247) on each end very loose. When the head is placed on the adapter plate, the mounting blades, which are attached to the head, fit into the space between the blade washer plate and the adapter plate.

3. Assemble the spring-loaded ball bearing block onto the adapter plate.



7.2 Preparing the carriage for the adapter plate

1. Center the carriage.

   If the carriage is not in the center, turn on the device and use the command:

   `carriage moveto 500`

   Remove the squaring rods from the carriage and store them in a clearly labeled package, in case a TH1.7 is reinstalled in the future.

   Examine the carriage surface for any raised nicks.

2. Attach the support bracket (57-8077) as shown in the following photo.



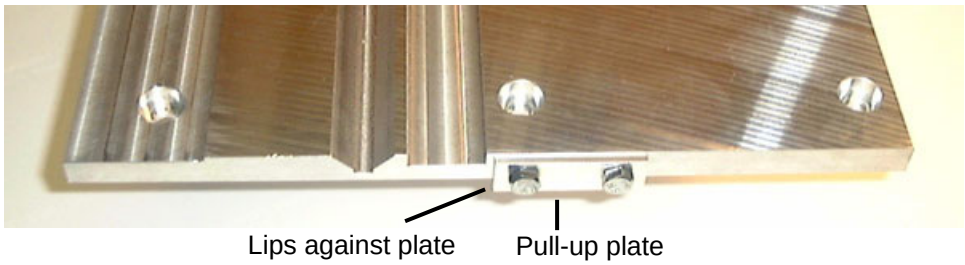
7.3 Attaching the adapter plate

1. Place the adapter plate on the carriage so that the two alignment dowels hang over the flex-track edge of the carriage.

2. Insert the six screws (52-4485) and Belleville spring washers (52-4031) through the adapter plate into the carriage and turn the screws until finger tight.

   Note: The convex side of a Belleville washer goes towards the screw head.

3. Use two hex-cap screws (52-7031) to screw the pull-up plate (57-8074) to the drum side of the adapter plate with moderate torque to pull the dowels on the adapter plate tight against the edge of the carriage. *Do not over-tighten the pull-up plate—doing so can damage the carriage or adapter plate.*



   The pull-up plate has two lips on one side of the plate (they are pressure points). One lip presses against the adapter plate, and the other lip presses against the carriage.

Note: The main purpose of the pull-up plate is to hold the adapter plate in position while the adapter plate screws are being tightened. When the adapter plate is firmly tightened, the pull-up plate becomes redundant. Leave the pull-up plate attached but firmly tighten its screws.

4. Tighten the adapter plate on the carriage, starting with the two screws in the middle of the plate and working your way outward.
5. Recheck the tightness of the screws on the pull-up plate.

8. INSTALLING THE TH2

This section describes how to mount the TH2 onto the adapter plate, connect the cables, and position the head.



Warning:
Always lift the head by the two retractable handles that slide out from each end. Always wear an antistatic wrist strap to prevent static discharge from damaging the head.

8.1 Preparing the head for mounting

1. Fasten the two mounting blades (57-8076A) to the ends of the head using M4x8 mm socket cap screws (52-4459) and 1 mm thick Belleville washers (52-4261). Slide the mounting blade under the head's black sheet metal before inserting the M4x8 screws.
2. If applicable, install the debris removal nozzle. Refer to *TH2 Debris Removal Nozzle Installation Document (50-2331A-B)*.

8.2 Mounting the head on the adapter plate

Note: Wear an antistatic wrist strap that is plugged into the grounding socket on the Trendsetter.

1. Back off the precision screw to give clearance for the rod on the head.
2. Gently place the head onto the adapter plate that is mounted on the carriage.

   The slots on the mounting blades slide over the six loose screws, between the adapter plate and the steel clamping bars, at the ends of the adapter plate.



Warning:
Be careful not to bump the lens, shutter, or autofocus actuator on any protrusions. Do not allow the head to drop down onto the carriage—the sudden impact could shift the components inside the head and cause misalignment.

3. Slowly turn the drum by hand to ensure that the head has clearance from both the leading edge and trailing edge clamps.

   Screw in the precision screw to apply force to the rod.

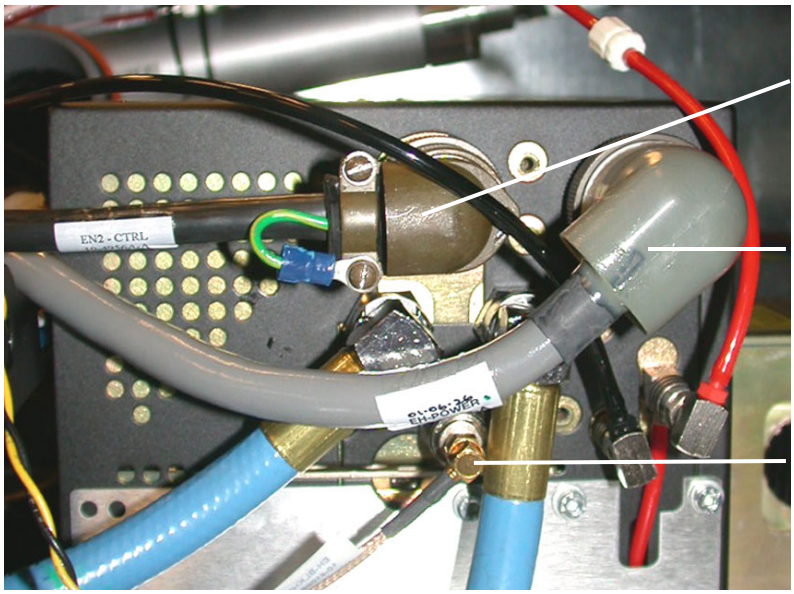
Warning:
Failure to check clamp clearance could result in severe damage to the head and clamps.

4. Leave the washer plate screws loose enough so that the head can be moved easily by the adjustment screw. If you try to adjust the positioning screw when the head is not free to move, you could strip the threads.

8.3 Connecting the cables and hoses

8.3.1 Attaching the electrical connections

Attach the cables as shown in the following photo.



8.3.2 Attaching the dehumidifier connection

1. Use the connector 50-2184A to attach the red tubing to the thermal head.
2. Adjust the needle valve to turn on the air.

   Note: When turned on, the dehumidifier makes a noise that sounds similar to air escaping. This is normal; the sleeve is semi-permeable and is releasing moist air.

8.3.3 Reconnecting the cooling system

To reconnect the cooling system:

1. Inspect the O-rings on the two cooling hose fittings.

   If there are any nicks or other damage, replace the O-rings to prevent leaking.

2. To avoid damage to the O-rings, ensure that the latches on the TH2 cooling connectors are in the released position.

3. Insert the two cooling hoses. The direction of coolant flow through the head is not important.
4. Ensure that all connectors are fully inserted and latched.
5. Check the coolant level in the reservoir, and, if required, add coolant.
6. Close all access panels.

8.4 Initializing the Trendsetter

To get the TH2 ready for positioning, you must turn on the power to initialize the Trendsetter:

1. Turn on the Trendsetter and monitor the boot-up sequence on the diagnostic terminal.

   The following messages should appear:

   ```
   >> Datalink: exposure head coming online
   ```

   ```
   >> Head initialized successfully
   ```

   If these messages do not appear, turn off the device, open the access panels, and inspect the serial communications cable (EH-BP).

   If the following message appears:

   `Incompatible head firmware detected`

   Use the **`list version`** command and identify the cause of the incompatibility.

2. To identify the head as TH2, use the following command:

   `Set hmgr type 3`

3. Use the **`head`** command to check the serial data communications.
4. Use the following commands to disable the write laser:

   `redirect enable`

   `set sys laserenable false`

9. UPGRADING THE CONTROLLED RELEASE

Install the latest Controlled Release (CR 5.1 or later for Trendsetter 800 II; CR 4.1 or later for Trendsetter NEWS). Follow the instructions in the release notes included in the Controlled Release. See the appropriate Control/settings > Controlled Releases pages on TechPlanet:

- Trendsetter 800: http://techplanet.creo.com/output/computer_to_plate/trendsetter_3244/nav/control-set.htm#cont_releases

- Trendsetter NEWS: http://techplanet.creo.com/output/computer_to_plate/trendsetter_2637/nav/control-set.htm#cont_releases

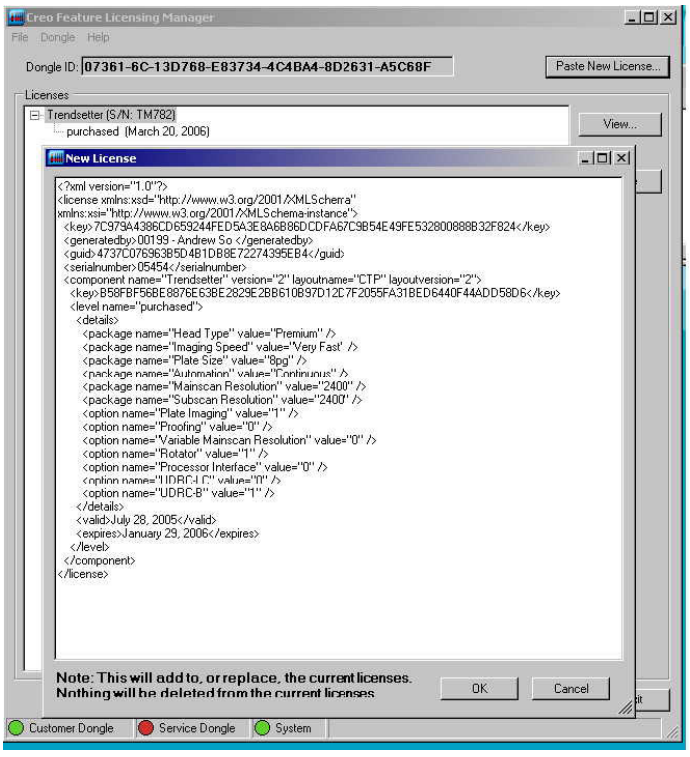
Caution:
If you are installing CR 5.1 or later on a Trendsetter 800 II, and do not have a customer dongle and customer license files, do not continue with the upgrade, as it will result in a *hard-down* situation.

10. INSTALLING THE FEATURE LICENSE KEY AND FINISHING THE FIRMWARE SETUP

10.1 Installing the Feature License Key

Note: Until customer feature licensing is implemented for Trendsetter NEWS devices, this section applies only to the Trendsetter 800 II. If you are upgrading a Trendsetter NEWS device, skip to section 10.2.

1. Start the Feature Licensing Manager.
2. Copy and paste the Feature License Key into the window as shown.



3. Click **OK** and exit the Feature Licensing Manager.

10.2 Finishing the firmware setup

Trendsetter 800 II only: Disabling the unload-offset option

Note: This step is only required for the Trendsetter 800 II X-Speed upgrade. Trendsetter NEWS devices already have the unload-offset option disabled.

To optimize throughput, use the following commands to disable the unload-offset option:

```
access dev
option unload-offset disable
```

Trendsetter NEWS only: Upgrading the model of the output device

After installing the TH2 thermal imaging head in a Trendsetter NEWS 50 or NEWS 70, you need to change the firmware parameters so that the output device "knows" whether it is now a NEWS 100 or a NEWS 150.

For instructions, refer to the procedure on TechPlanet:
http://techplanet.creo.com/output/computer_to_plate/trendsetter_2637/content/docs/news_mce_model_ug.htm

11. POSITIONING THE HEAD AND CHECKING IMAGE QUALITY

To position the thermal imaging head and check image quality, see 5.5–Positioning the Head to 6.8–Backing Up NVS Parameters in *Thermal 2 Head Installation for Trendsetter MCE* (719-00585A) (http://techplanet.creo.com/output/heads/thermal_2/content/docs/719-00585A-A-PR01.pdf).

12. CHECKING FUNCTIONALITY AND THROUGHPUT

After you complete the upgrade, ensure that the device and all applications are functional, including loading and unloading of small-, medium-, or large-size media.

Verify the throughput of the device:

1. Identify the calculated plate throughput per plate type/platesetter speed, according to the *CTP Media Imaging Performance Database* spreadsheet: http://techplanet.creo.com/consumables/media/content/docs/CTP_MediaDataBase.xls
2. Ensure that the drum speed parameter is set to 400 rpm.
3. Set the verbose level in the firmware to **`customer`**.
4. Expose four separations of the benchmark image file or customer job file.
5. Note the time of `unload started` for the first plate and fourth plate from the time stamps in the Service Shell log file.
6. Use the time (in seconds) that you measured for the three plates in the following formula:

   3600 / (Time taken to expose three plates / 3)

For example, if you image the three plates in 270 seconds, the calculation would be:

3600 / (270 / 3) = 3600 / 90 = 40 plates per hour