creo

Trendsetter NEWS MCE (Single Head)
Functional Description

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1. SCOPE

This document describes the normal operation of the Trendsetter NEWS MCE device. It will be a guide to help understand how the machine should operate. Details about the dual-head Trendsetter NEWS 200 are not included here.

The Trendsetter NEWS MCE machine is based on the current Trendsetter NEWS MPE products, but runs on an MCE platform. The basic functionality is described here, with most attention given to the differences between a Newspaper machine and a Trendsetter 800 Autoloader.

2. FORMATTING CONVENTIONS

The formatting conventions used in this document are as follows:

all NVS parameters are in italics and

commands to be typed into the diagnostic terminal are in bold as well as the diagnostic command responses.

3. PRODUCT DEFINITIONS

The Trendsetter NEWS is a product line targeted specifically for the Newspaper market. It can load, image, and unload two plates side-by-side. This configuration cuts in half the load-unload time per plate. The two plates are imaged in sequence with a single head.

Some definitions below:

- **dual-plate loading**: the act of loading two plates at a time.
- **broadsheet plate**: a single newspaper page. Typical sizes are 500-600mm (around the drum) by 315-400mm (along the drum).
- **panorama plate**: a double newspaper page. Roughly the size of two broadsheet plates.
- **right-hand** or **home plate**: plate nearest the carriage home position (plate 1).
- **left-hand** or **away plate**: plate farthest from the carriage home position (plate 2).

4. DEVICE OPERATION FROM THE WORKSTATION

On startup, the workstation queries the device to find out what it supports. The queries include: how many heads and/or plates the device supports; the minimum/maximum plate sizes for a single stack and double stack of plates loaded from the bay; and the minimum/maximum plate sizes for a manual-bypass load.

4.1 External Connections

There will be one serial cable running between the workstation and the Trendsetter NEWS and one SCSI cable. There should be one diagnostic serial cable also connected to the workstation.

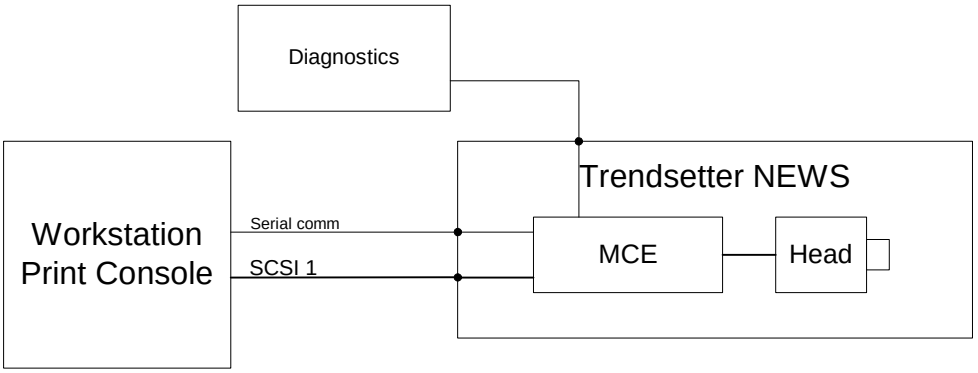


Figure 1: System block diagram

4.2 Loading the Bay

The operator will select a plate type (plate size, media type, etc. defined within that plate type) and the number of stacks to load. Broadsheet plates can only be loaded in the bay in two stacks; panorama plates will be loaded as a single stack. If two stacks are selected, the workstation will display two plates side-by-side in the load-bay window. Otherwise, a single plate will be shown.

Print Console will then verify the selection based on plate size information returned from the device (eg., prevent two stacks of 800mm plates, or one stack of 300mm plates), then sends down the new parameters to the Trendsetter.

When specifying the number of plates to load in the bay, the number of plates in each stack should be used. That number is decremented by one for each pick sequence completed.

4.3 Submitting Jobs

For any machine that supports more than one plate or head, images will be sent in groups from Print Console to the device. The workstation will send down a “Group Start” command, including the head number and plate number for each image in the group, followed by “Image Start” commands for each image in the group. Loading can start at that point, but imaging will not begin until all the required parameters are received for each image in the group.

Terminology

Separation: a single image

Group: one or more separations tied together, either manually or automatically

Job: one unit sent from the workstation

For the Trendsetter NEWS, one separation in a group will generally go onto one plate. If there is only one separation in a group, only the plate specified for that separation will be imaged.

4.4 Manual-bypass Jobs

Single-plate or dual-plate jobs can be loaded through manual-bypass. There is a check-box in Print Console, under Print Setups, that can be used to specify manual-bypass loading. Above this is a Plate Count box used to indicate if a single plate or two should be loaded. This same information can be specified over GDAPI.

If the bay is not loaded with the requested media when the job is approved, Print Console will also bring up a prompt asking if the plates should be loaded through manual-bypass.

Currently, if plates are loaded through manual-bypass, they must also be unloaded through manual-bypass.

4.5 Possible groups

All supported groupings are listed below.

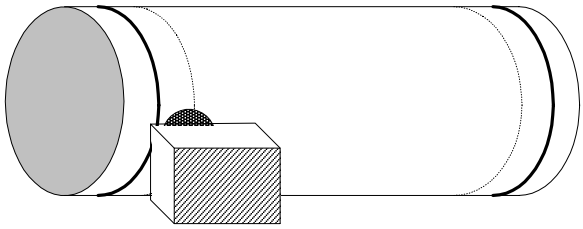
4.5.1 If two broadsheet plates are loaded:

- (plate 1 head 1) imaging home plate only
- (plate 1 head 1) & (plate 2 head 1) normal single-head operation
- (plate 2 head 1) imaging away plate only

4.5.2 If a single panorama plate is loaded:

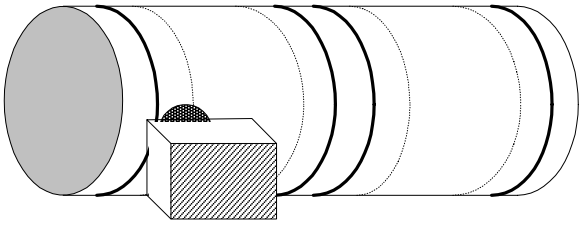
- (plate 1 head 1) single image

The following diagrams shows the possible configurations of plates on the drum:



NEWS (single-head):
1 Head
1 Plate
1 Image

Figure 2: One head one plate one image



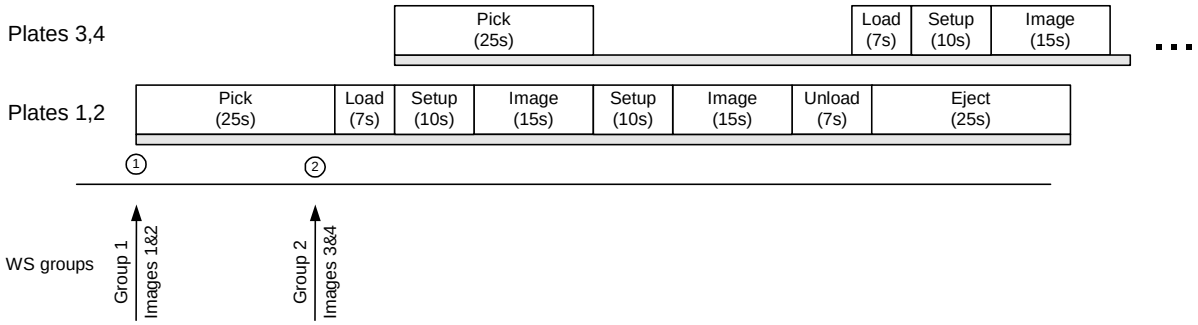
NEWS (single-head):
1 Head
2 Plates
2 Images

Figure 3: One head two plates two images

4.5.3 Imaging Sequence Examples

Following is an example of the imaging sequence:

Example 1: Groups of two images are submitted



Decision Points:

1. Group #1 is submitted to the device, the device starts picking two plates.
2. Group #2 is submitted. Picking cannot begin because the picker is busy.

Note that this timing is improved relative to what was possible with MPE. The workstation interface used with MPE devices was restrictive in that Image 3 of the example above would not have been sent to the device until Image 1 had completed imaging. The introduction of Groups removed that limitation and allows us to reach the higher throughput of the NEWS 150 machine.

4.6 Error Handling for Workstation Jobs

4.6.1 Suspends

If an error occurs during loading, the first separation in the group will suspend. If the response to the suspend is anything but Resume, both separations in the group will be recorded as having failed.

If an error occurs during plot setup or imaging, the active separation in the group will suspend. Currently, if one separation suspends and is cancelled, the other separation will also be cancelled.

If an error occurs during unload, only the second separation is still active in the device, so it will suspend. If the plates are removed, the separation that suspended will fail, and the entire group will be recorded as having failed.

4.6.2 Suspend Responses

There are six standard suspend responses for devices running MCE firmware.

Button	**Meaning**
Resume	Try the last step again. Can also be used in a “press Resume to continue”

	kind of situation where the firmware needs acknowledgement.
Release	Asks the device to release the media so that it will be easier for the operator to remove.
Media Removed	Operator has removed the media and is telling the device to continue.
Leave On	Cancel the job but leave the media on the drum. This will only be displayed if media rescheduling is enabled (see Section 5.7).
Eject	Cancel the job and unload the media.
Cancel	Cancel the job. If this is selected for an error during the load, the firmware will attempt to back out of the load. If this is selected for an error during the plot, the media will be unloaded.

4.6.3 Canceling jobs

A group can be cancelled at any time from Print Console. It is not possible to cancel individual separations in a group.

If cancelled during loading, the load will continue unless it is possible to back out. Once media rescheduling is supported (see Section 5.7), the plate(s) will be left on the drum as free plates, and can be reassigned if possible.

If cancelled during plot setup or imaging, the plot will stop. Currently, the plate(s) will be unloaded immediately.

During unload, a cancel has no effect.

5. BASIC DEVICE FUNCTIONALITY

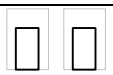
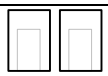
5.1 Maximum Resolution is 1200dpi

For the basic machine, the maximum resolution is 1200dpi. Upgrading the machine to plot at 2400dpi is a very expensive upgrade, so that functionality must be protected. Please refer to Section 6.3 for instructions on configuring the maximum resolution.

For diagnostic plots, 2400dpi can be used by setting the *mode* parameters for 2400dpi. However, TIFF files cannot be imaged at 2400dpi unless the Commercial option is purchased.

5.2 Maximum and Minimum Plate Sizes

The following table shows the absolute maximum and minimum plate sizes supported by the device:

	 Minimum Broadsheet	 Minimum Panorama	 Maximum Broadsheet	 Maximum Panorama
Around the drum (msz)	17” (432mm)	17” (432mm)	26” (660mm)	26” (660mm)
Along the drum (ssz)	11.4” (290mm)	17.8” (451mm)	17.8” (450mm)	37.8” (960mm)

Wide option: the maximum panorama size along the drum is 44” (1118mm).

Full option: the maximum panorama size along the drum is 44” (1118mm), and the maximum size around the drum is 33” (839mm) for broadsheet and panorama plates.

Note: the 450mm threshold between broadsheet and panorama plates is a programmable value – *set gc sscansizemax 1*.

Please refer to Section 6.2 for instructions on configuring the maximum media size.

5.3 Plate Positioning

In the default configuration, there are four registration pins in a Trendsetter NEWS drum, installed so that the two outer pins are higher than the two inner pins. If the pins are numbered one through four, starting with the one closest to the carriage home position, a broadsheet plate will sit on pins one and two or pins three and four. Small panorama plates will sit on pins one and three, while larger panorama plates will sit on pins one and four.

The pin locations are stored in NVS (*gc pinloc*). The default locations are roughly as follows:

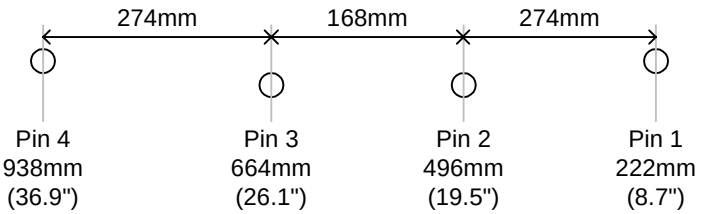


Figure 4: Default pin locations

In general, plates should be centered on these pins. However, there are some exceptions to this rule as described in the following sections.

5.3.1 Broadsheet Plates

For positioning plates in the bay, broadsheet plates should be positioned so that they are centered on pins 1 and 2; or pins 3 and 4. This means that the centre-most edges are (221mm – 1/2ssz) from the centre of the device. The centre of the device can be identified by the round hole in the load table. The following diagram shows the configuration:

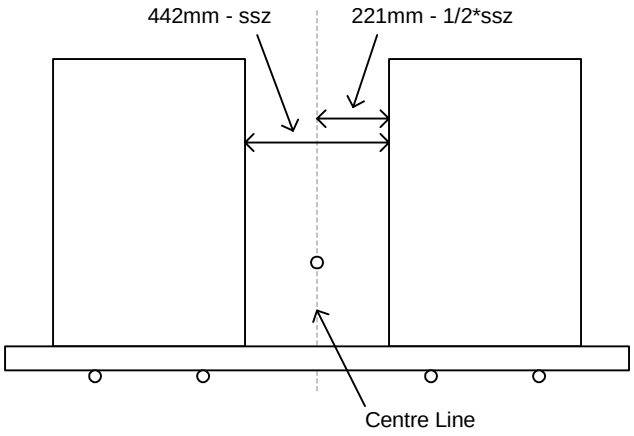


Figure 5: Plate positioning for broadsheet plates

Plate positioning stickers can then be put on the load table for reference.

Plates positioned this way will be centered on the pins. The exceptions are broadsheet plates greater than about 420mm. Broadsheet plates greater than 420mm should be positioned so that there is about 20mm between the two plates.

5.3.2 Panorama Plates

Panorama plates smaller than 750mm should be loaded so that they are centered on pins 1 and 3. This means that they are off-centre by 137mm relative to the machine, so the right-most edge should be (137mm + 1/2 ssz) from the centre position.

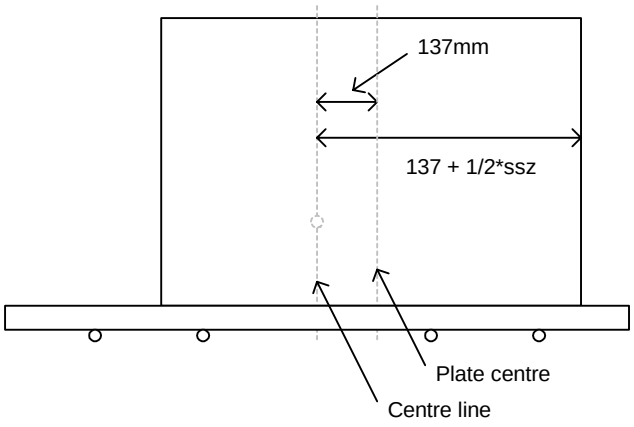


Figure 6: Plate positioning for small panorama plates

An exception to this rule is for plates that must fit through a 850mm wide processor. In that case, the home edge of the media should be positioned no more than 70mm from the home pin, or 428mm from the centre of the machine.

Panorama plates larger than 750mm should be loaded centered in the machine, on pins 1 and 4.

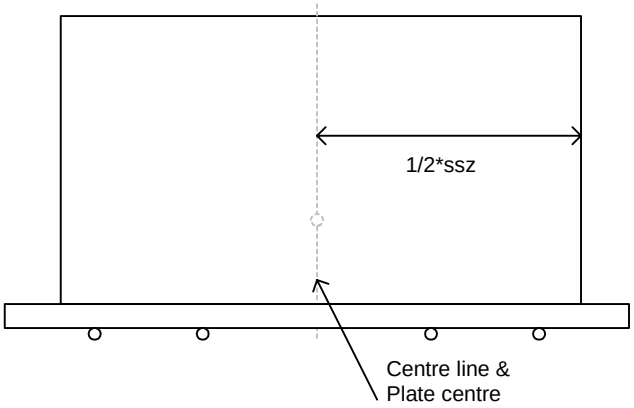


Figure 7: Plate positioning for large panorama plates

Plate positioning stickers can then be put on the load table for reference.

Note: the 750mm threshold is a programmable value – *set gc sscansizemax 2*.

5.4 Edge Detection

The firmware stores the most recent edge position. If the next media loaded is the same size, it will use that last edge as the starting point. Use the **plot edge** command to view the last edge.

When searching for the edge of the second broadsheet plate, the carriage will not search past the middle line of the device, as defined by the mid-point between pins 1 and 4. This limit is imposed to avoid having the focus laser see the first plate while searching for the second.

If, after finding the edge of the plate, the firmware determines that the plate was sitting on the wrong set of pins, the following error will be reported:

[38132: Media not on <home/away> registration pin]

Note: this error can also be reported if the carriage has stalled previously. If this error occurs and the plates are positioned properly, re-init the carriage (**carriage init** or unlock the front door to toggle the safety loop).

5.4.1 Edge detect only when needed

The Trendsetter NEWS machine can load plates repeatable within about 2mm side-to-side error. If the customer has an optical punch, then edge detection is not required if the edge has been previously detected. If the bay is opened, or the media size changes, then edge detection is required on the first set of plates, but can be remembered after that.

The operator can select the mode of operation – to do edge detection always, or only when needed. They can change the mode using a menu option on the Device menu in Print Console.

Skipping edge detect saves several seconds off the cycle time. When running broadsheet plates, it means the drum can be left spinning between the two plates. The total time savings is roughly 3s per plate, or 10% of the total cycle time for faster machines running broadsheet plates.

Note: when a Preloader is loading plates into the Trendsetter bay, the plate-to-plate repeatability error increases, so this mode is not recommended.

Note: this mode is not required to meet throughput specs on any of the models, so the settings should in general be left as “Edge detect always”.

5.5 Focus Learn

On the Trendsetter NEWS, there will nearly always be a margin of at least 6mm around the image. We don’t care too much about the focus during this part of the image, so we do only a single focus learn roughly 5mm from the edge. This is in contrast to other products which do two focus learns one swath apart, nearer to the edge of the plate. Doing only one learn saves roughly 2-3s per plate.

The focus learn position is calculated based on the edge position and the position of the first image swath. Focus learn should be done as close to the edge of the media as possible, and should be at the point of an actual image swath.

5.5.1 Focus Learn Only When Needed

To achieve faster throughput for the NEWS150, we required the ability to skip focus learn once the profile has been learned. This feature is only supported when a Thermal 2 1200dpi head is installed, as this head has a greater depth of focus. The focus learn mode is controlled by the *focus LearnSkip* NVS parameter. The operator cannot control this mode. The focus learn will be skipped if the following conditions are met:

- *focus LearnSkip* parameter is set to True
- head type is a Thermal 2 1200dpi head (this head has a greater depth of focus)
- media type is the same as the last time
- a successful focus learn has already been done
- the plate cover has not been opened, and the bay has not been re-loaded since the last plate
- the laser is still on from the last plot (i.e., less than 30s has elapsed since last plot)

If any of these parameter is not met, focus learn will be performed normally.

If these conditions are met, the MCE firmware will ask the head to re-use the previous focus profile for the first few swaths until active focus can begin. The following printout will show up in the diagnostic log:

```
S MPC:   Re-using previous focus profile
```

Skipping focus learn saves several seconds off the cycle time – roughly 3s per plate, or 10% for faster machines running broadsheet plates.

Note: this mode should only be enabled on the NEWS150 machine. It is not required to meet specifications on the other models.

5.5.2 Multiple Plate Detection

If focus learn is successful, a value indicating the thickness of the plate(s) on the drum is returned. If this thickness is more than 60% greater than expected, we suspend with the error:

```
38134 MPC: Multiple plates detected on drum
```

With Thermal 2 heads, focus learn generally fails if two plates are loaded onto the drum, so the error message simply indicates that focus learn failed.

If focus learn is not done, we read the focus lens position from the head during plotting. If the lens position indicates that the thickness of the media is 100 microns larger than expected, then the same error is reported at the end of the plot:

```
38134 MPC: Multiple plates detected on drum
```

The media thickness detected is displayed – after focus learn if focus learn is done, or at the end of the plot if focus learn was skipped:

```
S MPC:   Measured thickness = 391 microns
```

5.6 Imaging

5.6.1 Plate Rotation

As described earlier (Section 5.3, Plate Positioning), a single panorama plate will sit on either pins one and three or pins one and four, depending on its size. The two broadsheet plates will sit on the two right-hand pins or the two left-hand pins, and will be rotated towards each other.

During Integration, the following gc rotation parameters will be configured:

- *rotation 1* media sitting on pins 1 & 2 (i.e., media < 450mm; home side)
- *rotation 2* media sitting on pins 1 & 3 (i.e., media < 750mm)
- *rotation 3* media sitting on pins 1 & 4 (i.e., media > 750mm)
- *rotation 5* media sitting on pins 3 & 4 (i.e., media < 450mm; away side)

Note: the 450mm and 750mm thresholds are NVS parameters – *gc sscansizemax*

Use the **gc** command to display the current gc settings for each set of pin combinations.

5.6.2 Imaging Speeds

The throughput of the different models is determined by the head type and by the imaging speed. Refer to the table in Section 6.1 for the limits imposed for each model. The maximum drum speed supported by the Trendsetter NEWS is 360rpm.

5.7 Media Rescheduling

If a job is cancelled during loading, or before plotting begins, that media is generally still okay and can be used for the next job. Allowing that media to be re-used requires what we call "media rescheduling".

This feature has been implemented, but is not fully functional. There is an NVS parameter *prd rescheduling* that should be set to False until the feature is fully functional.

5.8 Diagnostic Commands

- **plot** – essentially the same as MPE, but if the length is specified it must be in mm.

  plot 50 10 plate 1 – means plot pattern 50 on plate 1 for 10mm

  plot 1 20 plate 2 – means plot pattern 1 on plate 2 for 20mm
- **edge test** – finds the edge of the home plate.
- **edge test plate 1** – finds the edge of the home plate.
- **edge test plate 2** – finds the edge of the away plate.
- **plot edge** – displays the most recent edge position(s)
- **mh loadawayside** – the next load will assume a plate on the away side only. This is useful when loading a single broadsheet onto the left side during Integration.
- **config** – configure the model type (i.e., NEWS 50/70/100/150/200). See Section 6.1.
- **option** – configure various options on the machine, specifically the Autoloader option, the Dual-head option, and the Dual-plate option.

6. DEVICE CONFIGURATION PROCEDURE

6.1 Setting Up a Model

There are five different models of Newspaper machines:

- Trendsetter NEWS 50
- Trendsetter NEWS 70
- Trendsetter NEWS 100
- Trendsetter NEWS 150
- Trendsetter NEWS 200

The following table shows the model name to use for each product, plus the maximum allowable imaging speed and typical settings:

Full Model Name	Internal Name	Maximum Imaging Speed	Typical Head Swath Width	Typical Drum Speed
Trendsetter NEWS 50	NEWS50	7.6 mm/s	192 pixels	205rpm
Trendsetter NEWS 70	NEWS70	14.2 mm/s	224 pixels	320rpm
Trendsetter NEWS 100	NEWS100	22 mm/s	224 pixels	255rpm (1200dpi head) 360rpm (2400dpi head)
Trendsetter NEWS 150	NEWS150	30.5 mm/s	224 pixels	345rpm
Trendsetter NEWS 200	NEWS200	30.5 mm/s	224 pixels	345rpm (1200dpi head) 360rpm (2400dpi head)

The model is configured using the **config** command, for example (command is case-sensitive):

config <password> NEWS150

After using this command, reset the machine then use the **config** command on its own to verify that the model was set correctly.

Ideally, all required NVS parameters would be configured automatically when the model is configured. This has not yet been done, in part because a single model can have different options that change its characteristics. The following list defines what settings must be verified when a model or feature is changed (do **access dev** first to gain access to commands):

- **option autoloader enable** enabled for all models
- **option dual-plate enable** if dual-plate functionality required
- **option rotator enable** if rotator installed
- **option dual-head enable** for NEWS 200
- *mode n* ensure resolutions are set correctly – for Commercial option, set mode 1 as 2400dpi and mode 2 as 1200dpi; otherwise, set both mode 1 and mode 2 as 1200dpi.

6.2 Maximum Media Size

The default configuration of each model when first configured is a maximum media size of 660mm x 960mm. These settings can be viewed using the **feature** command.

```
NEWS>> feature
Current Model
-------------
Trendsetter NEWS 150 [NEWS150]

Licensable Limits
-----------------
============================================
Tag Description
============================================
1   Maximum plate size in mainscan          :    660 mm        [Optional]
3   Maximum plate size in subscan           :    960 mm        [Optional]
19  Maximum plating throughput              :  30500 micron/s  [Optional]
25  Maximum resolution in mainscan          :   1200 DPI       [Optional]
26  Maximum resolution in subscan           :   1200 DPI       [Optional]

*** Command Complete
```

The tag number on the left identifies the feature – and is used when modifying the settings:

feature <password> 1 839 to set the maximum mainscan size to 839mm
feature <password> 3 1118 to set the maximum subscan size to 1118mm
reset

Please contact the Trendsetter NEWS core team for the password.

6.3 Maximum Resolution

The system defaults to only support 1200dpi imaging. If a 2400dpi head is installed on a machine, the system can be upgraded using the following commands:

feature <password> 25 2400
feature <password> 26 2400
reset

Please contact the Trendsetter NEWS core team for the password.

The Commercial option requires a 2400dpi head, so the faster models cannot add the option without loosing throughput:

- the NEWS50 and NEWS70 can add the Commercial option without losing throughput
- the NEWS100 drops somewhat in throughput, especially for wide plates
- the NEWS150 would be too slow with a 2400dpi head so is not supported.

6.4 Other Device Options

There are several other options that can be enabled on a Trendsetter NEWS device. In each of these cases, use the **access expert** to gain access to the **option** command, then use **option <option_name> enable** to enable the option. If necessary, use the **help option** command to determine the exact syntax of the option.

6.4.1 Rotator Option

If the long unload table with rotator is installed, the rotator option must be enabled. For mechanical reasons, the rotator option can only be enabled on devices which do not support dual-plate handling.

For the faster models, rotating the plate can reduce throughput because of the time required for the rotation plus the time for the extra length of plate to be pushed into the processor. The rotator option is only recommended for the slower models (NEWS 50, 70, and 100).

Plate rotation is controlled from Print Console. If the rotator option is enabled, then a "Rotate Plate" checkbox will show up in the Media Size settings in Print Console. If this box is checked, Print Console will tell the Trendsetter to rotate the plate during unload.

Without Print Console, rotation can be tested by typing:

- **load bay 1 r 1** to load a plate from the bay and tell it to rotate on unload, or
- **unload r 1** to unload the plate on the drum and tell it to rotate.

6.4.2 Film-guide Option

If the film-guide is attached to the leading edge clamp, this option must be enabled so the firmware can do proper error checking. With the film-guide installed, there is a potential for collisions between the LEC and the roller.

Newspaper machines are shipped from the factory without the film-guide installed.

6.4.3 Unload-offset Option

If the machine is having trouble pulling plates onto the unload table, this option can be enabled. When enabled, the firmware will over-rotate the drum during unload so that the LEC actuator comes down at a different point on the clamp, thus opening the clamp wider. The amount of over-rotation is specified in the *mhauto ClampUnloadOffset* parameter.

6.4.4 Separator-arms Option

The separator arms option must be enabled if the separator arms are physically present on the machine. The arms are an option because they are not needed for most Trendsetter NEWS machines running smaller plates.

The separator arms will only be installed for full-option machines (i.e., running large plates).

6.4.5 ProcessorInterface Option

The Processor Interface option allows a cable to be connected from the processor to the Trendsetter. This cable would carry three status signals from the processor: Ready, Busy, and Fault. Use the **processor** command to display the status of these status bits.

If the processor is not ready to accept a plate (i.e., Faulted or not Ready), then the Trendsetter will suspend before starting the unload to prevent the plate from sitting out on the table for a long period of time.

If the processor is Busy, then the unload will continue normally until it comes time to push the plate into the processor. At that point, the firmware will wait up to 30s for the Busy signal to go low. If it is still high after that time, an error will be reported.

The following table summarizes the functionality of the processor interface:

Ready	**Fault**	**Busy**	**When Imaging Completes**	**Before pushing plate into the processor**
OFF	X	X	Suspends. Does not unload.	Suspends.
ON	ON	X	Suspends. Does not unload.	Suspends.
ON	OFF	OFF	Trendsetter runs normally.	Trendsetter runs normally.
ON	OFF	ON	Trendsetter runs normally.	Trendsetter waits for Busy signal to go low. Suspends after 30s if Busy is still high.

6.4.6 Preloader Option

The Preloader option allows the Trendsetter to interface to a Preloader. A flowchart showing how the Trendsetter interfaces with the Preloader during a load command will be posted in TechPlanet. The important things to note:

- use the **preloader** command to display the current status of the Preloader
- there is a new "Use Preloader" checkbox in the Load Bay window of Print Console. If this box is selected, the *bay UsePreloader* NVS parameter will be set to True, and the Preloader will be used to load plates into the bay.
- if plates are in the bay when a load is started, and the Preloader was requested, the device will suspend with the error:

  ```
  40427 MDHPICK: Please remove all plates from the Trendsetter bay
  ```
- when using the Preloader, the air jets are not used during the pick to reduce noise.
- it is possible to test the electronic interface using two new commands:
  - **preloader test requestplate <enable|disable>**
  - **preloader test pickerclear <enable|disable>**

6.4.7 Debris Options

Two models of UDRC (Universal Debris Removal Cabinet) are supported: POC (Particulate Only Collection) and PACC (Particulate and Chemical Collection). The POC cabinet is the base cabinet, and is enabled using the **option UDRCB enable** command. The PACC cabinet uses a LIONEL board and is enabled using the **option UDRCL enable** command.

There are currently five types of debris removal available:

- Debris option 1- Air jet only. This is available by default regardless of the other options installed. The air jet is also known as the whisker jet.
- Debris option 2- POC (particulate only collection). This requires that either one of the options **debris UDRCB** or **debris UDRCL** be enabled.
- Debris option 3- POC and air jet. This is a combination of the POC and air jet options. This requires that either one of the options **debris UDRCB** or **debris UDRCL** be enabled.
- Debris option 4 - PACC (particulate and chemical collection). This is only available if the option **debris UDRCL** has been enabled.
- Debris option 5 - PACC and air jet. This is a combination of the PACC and air jet options. This is only available if the option **debris UDRCL** has been enabled.

To enable the appropriate debris removal option for a selected media, set the *media n debrisoptions* NVS parameter to be one of the debris options above. For example the command **set media 2 debrisoptions 3** would enable the debris option “POC and the air jet” for media #2.

Note: before changing the media setting, enter the command **prm hazardous media enable** to gain access.

For POC debris removal, there is a pressure sensor board mounted in the power box to measure the pressure. With this configuration, the *debris NozzleSensorType* must be set to 5.

For any type of PACC debris removal, the parameter *media n EmissionsIntensity* is also REQUIRED to be setup. This is setup using the command **set media 2 emissionsintensity <value>**. Refer to media documentation to see what value this should be set to for a particular media.

The **debris** command can be used to see which debris options are available on a particular device. Also options can be tested using the commands **debris <debris_option> on** to enable, and **debris <debris_option> off** to disable. Use the **help debris** command to show the option names.

7. DEVICE CALIBRATION PROCEDURES

The following NVS parameters may need to be calibrated in the field:

7.1 Setting the Plate Measuring Sensor Offset

The *mh DistSensorToLEC* parameter specifies the nominal distance between the Leading Edge Clamps (LEC) and the optical plate measuring sensor on the load ramp. This parameter is used by the firmware to measure the main-scan size of plates as they are being wound onto the drum. To calibrate this parameter, place a stack of plates of a known size into the bay, load the correct plate size information from the workstation, and verify that the media mainscan size is correct by entering the **bay 1** command from the diagnostic terminal.

Type **load bay 1 calibrate** through diagnostics. This will cause a plate to be picked and loaded onto the drum. The plate size will be measured and the *mh DistSensorToLEC* parameter will be calibrated as the plate is wound onto the drum. The new value is automatically saved.

7.2 Calibrating the Unload Table Cup Rotate Position

The *mhauto UtRotatorPos* parameter specifies the nominal position for the unload table traveler to move to before rotating the unload vacuum cups. The firmware moves the traveler to this position and checks the rotate position sensor before attempting to rotate the cups. If the sensor is not tripped, then the traveler is moved slowly towards the away end of the table until the sensor is tripped or the firmware gives up and suspends.

Calibrate this parameter with the unload table in the down position (use the **table down** command). Move the traveler home by typing **table home**. Then type **table move rotate**. This command will move the traveler to the position specified by *mhauto UtRotatorPos*. The center of the optical interrupter tab on the traveler should be 1-2 millimeters towards the home side of the rotate position sensor, and the sensor should be tripped (check the sensor using the **table** command). Adjust the position by changing the *mhauto UtRotatorPos* parameter and re-typing **table move rotate**. The new value is automatically saved when it is changed.

On machines with short unload tables (most Trendsetter 400 and NEWS machines), the *mhauto UtRotatorPos* parameter should be set to 500 to make sure the traveler stops in the correct place when it is dragging a plate along the unload table.

7.3 Adjusting Eject Speed and Distance

7.3.1 Eject distance

The plate will be pushed towards the processor at fast speed, then slowed down to match the processor intake speed.

The *exit FastDistance* parameter determines when the traveler slows down. This parameter should be set to the distance (in mm) from the traveler home position to the position of the far end of plate when the speed changes. To adjust this distance, enter **set exit fastdistance <nn>** where <nn> is the new value in millimeters.

To adjust the distance that the plate moves at slow speed, enter **set exit slowpush <nn>** where <nn> is the new distance value in millimeters.

The new values will be saved automatically when they are changed.

7.3.2 Eject speed

Enter **set exit velocity** to see the current slow speed setting.

Use the **table move <position> <velocity>** command to test different speeds and determine the best speed. Enter **set exit velocity <nn>** where <nn> is the new speed setting. The new value will automatically be saved.

7.4 Configuring Unload Method

Plates loaded through manual-bypass will be unloaded through manual-bypass. Plates loaded automatically from the bay will be unloaded automatically out the back of the machine. There is not currently any way to over-ride this rule when running workstation jobs.