Lotem 400 Family

creo™ | Lotem CTP family

Lotem 400 Version: 1.50.08



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Software Release Notes – 1.50.08

Table of Contents

Overview 4
Prerequisites 4
Loading Lotem 400 software version 1.50.08 4
Highlights 5
Fixed Bugs (Based on version 1.30.04) 5
Fixed Bugs (Based on version 1.50.07) 6
Known Bugs 7
New Features 9
Loading/Expose Related 9
PC Controller/GUI Related 11
Lotem 400 Quantum Related Issues 15
Important Notes 15
Firmware Versions 16
Bug Fixes 18
New Features 18
Known Bugs 19
Supplement 1 20
Supplement2 22
Supplement3 23
APPENDIX A 25
Plate Edge Detection Dialog 25
Edge Detection for Customer 25
Edge Calibration for Engineer 25
APPENDIX B 28
Advanced Media dialog 28
Perform Balance 29
Media Positioning Type 29
Use Fufu Value 29
Use Debris Removal Pump 30
Use Fast Loading 30
Specific Gravity 30
APPENDIX C 31

Plate Measurement Procedure for Lotem 400 only (Not MCU) 31
APPENDIX D 33
Loading Lotem 400software version 1.50.08 33
Appendix E 35
Lotem 400 Small Plate Option - 9”x12.5” 228 x 318 mm 35
Appendix F 36
Find and Save Features 36
APPENDIX G 39
Diagnostics 39
Overview 39
Installation & Activation 39
Diagnostics Startup Process 39
Main Test Subjects 40

Overview

This Release Note document contains the changes and additions that have been made to the Lotem 400 since version 1.30.04 (including Patch 2).

Note: This version is relates to all Lotem 400 small plate capable platesetters. It is **not** mandatory for old Lotem 400 type machines using version 1.30.04

Lotem 400 Family refers to the following configurations:

Type	Notes	Release Status
Lotem 400		Full Production
Lotem 400 with MCU		Full Production
Lotem 400 with ASC (automatic single cassette)		Early Production
Lotem 400 PS/M		Early Production
Lotem 400 Quantum		Early Production
Lotem 400 Quantum with MCU		Early Production
Lotem 400 - Small	9” x 12.5”	Early Production
Lotem 400 - Standard	12 Beams	Early Production

Prerequisites

- Lotem 400 version 1.30.04
- PSM Lotem Expose– 1.35
- Lotem 400 Small, version 1.50.07
- For Lotem 400 with MCU, perform FCO # 28818, Short Pin Assembly

Loading Lotem 400 software version 1.50.08

To load Lotem 400 software version 1.50.08 see APPENDIX D on page 33.

Highlights

- Plate Edge Detection and Calibration feature and process has improved.
- Media Definition Dialog has improved.
- Plate Length Measurement and calibration has improved.
- New version supports diagnostics for both Quantum and Fiber type machines.
- Supports **ASC** (Automatic Single Cassette)
- Supports small plate option (see Appendix E on page35)

Note: Quantum small machines needs a patch diskette, see page 15, important note # 4

Note - This version does not solve the 'Drum Free Run' problem.

Fixed Bugs (Based on version 1.30.04)

1. The log system is now much more reliable and less prone to crashes when selecting to save all messages to a file. Two C++ assertion failures were solved:
    i. Microsoft Visual C++ Debag Library
    Debug Assertion Failed
    Program:C:\LOTEM\LOTEM400\GUI.EXE
    File:Inc\CRtFifo.h
    Line:135
    ii. Microsoft Visual C++ Debag Library
    Debug Assertion Failed
    Program:C:\LOTEM\LOTEM400\GUI.EXE
    File:Wincore.cpp
    Line:980
2. SW workarounds fix the false exceptions: Drum Time Out and Carriage Time Out.
3. Fixed the GUI freeze problem.
4. Fixed the balance bug.
5. Fixed the focus bug in the media dialog: focus value changes to default when asking to save parameters
6. Include new DDB load files for VLSI configuration that solved the DDB Put and Get communications failures. For TSP configuration this bug was solved from version Lotem 400 1.40.03
7. Fixed Plate stuck on unload tray.

8. Fixed the bug: **Laser calibration fail** (that closes all Diodes).
9. Check detectors before each plate loading:
    i. Bar flag (should be OFF).
    ii. Paper / plate on disposal (should be OFF).

This will fix the bug when the **bar flag was stuck** and that didn't detect.

10. Fixed unloading problem due to conveyor (plate on conveyor).
11. A warning message will appear every 20 sec. Error time out extended to 360 sec (for support using of conveyor for external plate).
12. Saves **Old Registry** under **Old Ver**.
13. For all type of machines - **Improve Error Message**

Fixed Bugs (Based on version 1.50.07)

1. **For Lotem 400 or Lotem 400+MCU configuration** :

When connecting the Lotem 400 to conveyor. The bug prevents working with the detector 'out of conveyor detector' during the second stage of the unloading sequence.

To change the parameters:
Go to: HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\Loading System\Unload Plate\Time Out For Stop Unload Conveyor (mSec) change from 5000 to 50000 (this is for 50 sec delay).

Go to: HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\Loading System\Unload Plate\Plate TimeOut To Get Out From The Conveyor [Msec] =70000

2. **For Lotem 400 + MCU only - local2 configuration**:

To manually open the HP of each punch, for example punch number Go to: HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\LOADER\DETECTORS\Punch Motor #1 Home Pos. Detector\Open 0-->1

3. **Small/XY suction problem**:

Go to: HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\LOADER\VALVE\XY Suction Valve\Application Off time [Msec] =600

HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\LOADER\VALVE\Small Plate Suction Valve\Application Off time [Msec]=600

4. **Lotem 400 (without MCU) configuration**:
"Plate Length Tolerance (mm)" - in order to eliminate plate measurement error - change the next parameter:

HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\Loading System\Load Plate\From Drum Entry to Drum Stage\Plate Length Tolerance (mm) 2-->5

Known Bugs

1. **Paper disposal** (stage D) in the loading system dialog does not work. **Workaround**: perform stage A, B, or C which will initiate stage D if necessary.
2. Machine startup requires **Drum Init**.
3. Checking XY Vacuum detector and Drum Vacuum detector are not supported.
4. After opening cassette door from GUI, the machine status changes to **offline**.
5. Supporting **rev A on Local 3** – **note**: when using Rev A board on the Lotem Machine change the active state of the **Detector 80 – fly Off** activated from **1→0**.
6. **Focus motor** go pos - always have an error of 0.5 (e.g. going to 100 - moving to 99.5)
7. When try to startup the application (last action was shutdown while plate exposing) --> the Lotem is on ready!! It's in the wrong state (the plate already partially exposed)
8. When installing the application on PSM machine - did not set the PSM check box as a current selection.
9. The Fufu air pump default is **ON** in the Media Advanced dialog box.
10. When re-selecting stage A-C on the loading system, the ramp will remain in the 'upper position'. **This will cause a collision between the XY bar and the ramp**. To avoid this, perform Init XY before loading plates.
11. Problem with the loading motor on the Lotem 400 (manual) - only on the local 3 configuration. The stability of the loading motor at the **Go Pos** is problematic. There is a -5-7mm difference between the actual command and the result in the motor.

    This was checked and 2 critical wrong parameters were found:

    - HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\LOCAL 3\DC MOTORS\Plate Loading Motor\ Encoder Position Factor= 4(default) -->1
    - HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\LOCAL 3\DC MOTORS\Plate Loading Motor\Pos Factor=-0.0124788(default) -->-0.00301139

    It was also tested on the Lotem 400 P/SM (local3). It was found that activating the loading motor command **Go Pos** to 120 mm causes same result (120mm) on the GUI. However, the motor actually moved 140 mm. Changing the parameters to the new one (above) achieves the same result with the motor (moves 120 mm).

    The side affect of this change- the registration test improves greatly.
12. The default of the Tec Control System is closed.

13. Missing Dll's on PSM machine prevents installation of this version. Those dll's existing in the 1.50.08 CD ITSELF: msvcrtd.dll, mfc42d.dll. These are missing only for the PSM machine (NT platform). Before the software installation, insert the 1.50.08 CD and copy the dlls to C: WIN NT/ SYSTEM folder. Then install the application.
14. In the script for 'loading plate from cassette to punch entry' checks the plate thickness to decide which values for the X motor to use, it asks if the thickness is <.200. This means that .200 plates will use the same values as .300 plates. If the plate is less than .200, i.e.: .15, then the lower values will be used. It should say ≤ .200
    Change 0.2 to 0.21
15. Debug errors occur during shutdown. The debug error is triggered because CSXpose is still running when you quit Controller.
    Workaround: First quit CSXpose and then quit Controller.

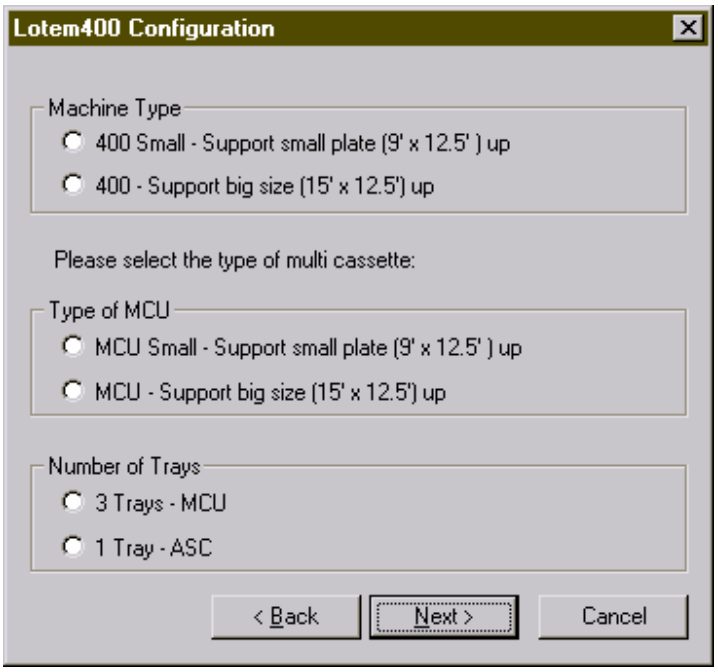
New Features

Loading/Expose Related

1. Plate Edge Detection calibration feature was added.
2. The Edge Detection process has improved greatly. (Appendix A)
3. Several changes made to the **Media Definition** dialog:
   - A Modify button that enables modification of attributes of an existing media was added.
   - The New button will now clear all media attributes and force the user to set all the attributes for the new defining media
   - The **Advanced Media** dialog was added. (Appendix B).
4. Improvement in Plate Length Measurement and Calibration (Appendix C).
5. Improved Centering task:
   - Wait distance for full size plate
   - Stop task available in case of wrong length reading.
   - Retry in case of fail (max of 3 times)
6. Supports Low speed on **All Valve/Solenoid** protector. (See Fix Bug)
7. Supports Omron interlock machines (Quantum only).
8. Supports diagnostic for both Quantum and Fiber Type machines.
9. Improved **Check Vacuum Catch Plate** (with Retry Check, Add Flag for Disable Check Option).
10. Added new parameter to extend the **Extra to Drum** Timeout.
11. Exposes with beam number according to parameters from Brisque with VC format.
12. Added specific Online Help in a new HTML format. It is accessible by pressing the **F1** key or through the **Help** button in the **Error Messages** dialog.
13. The platesetter now stores the type of measurement units last used (mm/inch), and will automatically use it during its next start-up.
14. In order to reduce the likelihood of reaching the dew point of the L-Box cold plate, the following has been done:
    - The TEC temperature to 24° c default setting was changed.
    - The boundary of the Tec temperature was changed to from18-24°c to 20-28°c.

- The target default Temp. has changed from 20 to 24° c.
- Those boundaries are use to check the Tec unit (there are 6) for proper operation temperature.
- All the checks are now done on the Tec system every X seconds.
- We use 2 "windows" for 2 modes of operation: one for Idle mode (no expose) and one for Expose mode.
- The current defaults , for both windows, set to 20-28 because of no experience with this system. An exceeded value will send a warring message on the GUI.
- Normally the Idle mode should use more tight windows then the Expose mode. This means that if the **cold plate** temperature will be 19 c (this is below the GUI warning **window**: 20 - 28 C). A warning message will appear.

15. Supports **ASC** (Automatic Single Cassette) choice between a 1 tray MCU and a 3 Tray MCU.
16. Supports small plates – 9”x12.5” (228 mm x318 mm)

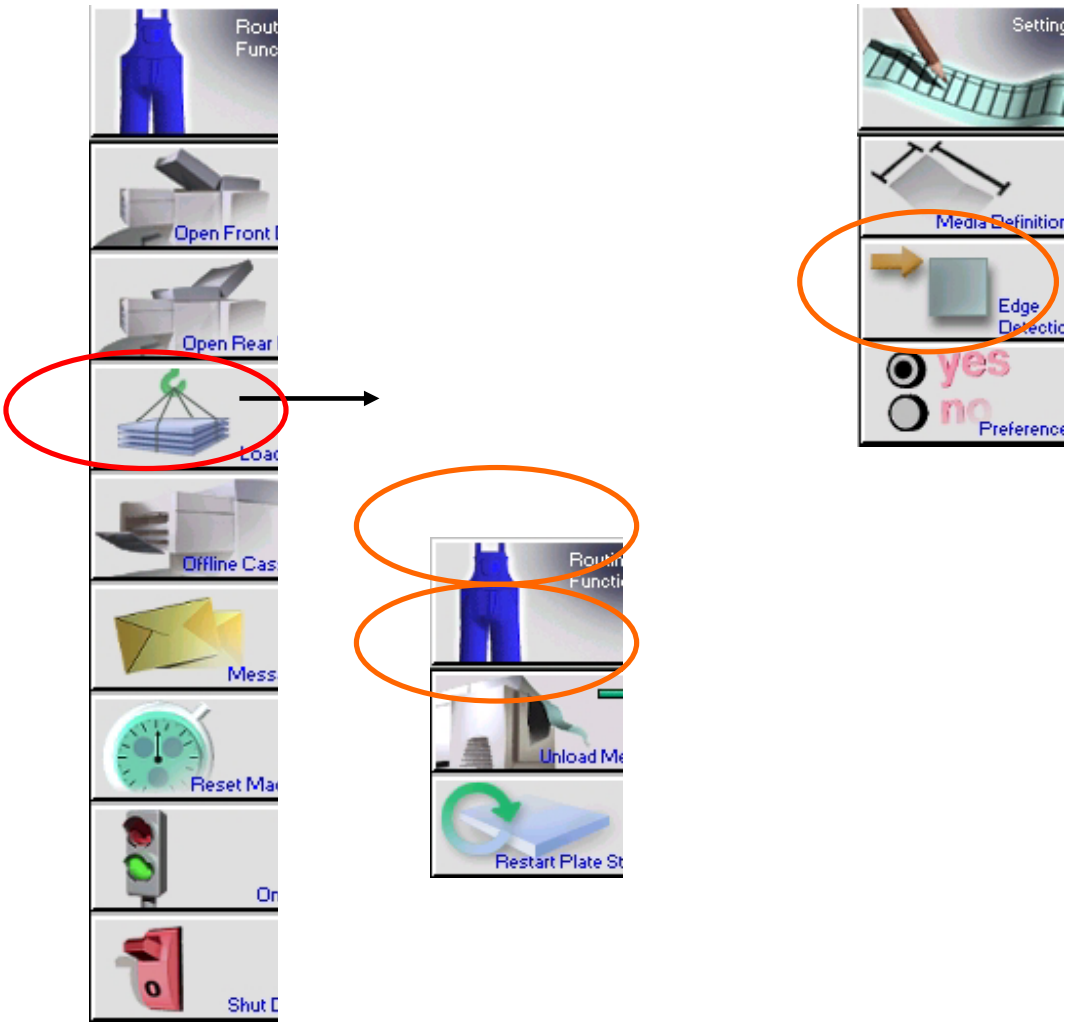


17. **Emergency stop**:
    Drum runaway is caused by one of the following: fly-off, vibration, unstable encoder, wrong synchronization between the low-speed detector and the encoder, or 12V failure causing disappearance of MCF firmware. In these cases, the **emergency stop** is activated.

PC Controller/GUI Related

New icons

- Unload Media
- Restart Plate State
- Edge Detection Calibration



1. Changed name of some icons on the GUI.
2. Added the ability to increase or decrease the font size of the **detector status** (ON/OFF) in the detector dialog. This enables enlargement the detector status indication so that it can be viewed clearly from a greater distance.

3. Changed the look and feel of the Log dialog - New feature: It now also supports saving only a selection of text. (Appendix D)
4. **Resolution Motor DB** can contain several records. (Appendix E)
5. Added extended information in the **About** dialog about electronic board versions and **hyper links** to the machine error and startup logs.
6. AVI (Plate Loading Film) file on GUI is now supported.
7. The selection of the correct machine is now part of the installation process.
8. The registry key **Machine / Type** identifies the machine.
9. The values can be **Lotem 400** or **Lotem 400 Quantum**
10. In the **Punch**, **media definition** and **cassette definition** dialogs added a **check for a valid name** when creating a new record.
11. In the Properties dialog of every object, press **<Ctrl + D>** to set the default value (instead of <**D**>). If you set an empty value, a specific error message appears (instead of a general Windows error).
12. In the Punch, Media Definition and Cassette Definition dialogs, when you create a new record, the file name is checked for validity. If an invalid character is used (\ / : * ? < > | and space), an error message appears.
13. Before performing the Preload operation in the Loading System dialog, a message appears requiring you to verify that the grippers are positioned correctly.
14. In the **Media Definition** dialog, when pressing **New** for defining a new media, all fields are now cleared and the user is required to enter values for all of them. The **Modify** button is used only for modifying values of an existing media.
15. In the **Advanced Media Definition** dialog box:
    - The **Perform Balance** and **Specific Gravity** boxes are now disabled to prevent accidental setting of these sensitive parameters.
    - **Save** button was added.
    - If the user changes a setting and closes the dialog without saving the changes, a warning message is displayed.
16. Added the ability to toggle between two display modes for **the Expose Info** dialog – **compact** and **normal.** In **compact** mode only, the expose progress bar is displayed.
17. A **new log file** is now automatically generated for all Lotem applications. It records all log messages sent during a Lotem application Startup process.
18. After activating the Lotem application, the first screen that appears is the Blue/White Lotem family. If the startup is unsuccessful the cause of the problem will display on the Lotem application.
19. The name of the file is **Startup. Log**, it is located under the **Log** directory of each application (next to the **Error. Log and Laser. Log files**).
20. During each Lotem application startup, the file is overridden with the new startup information.

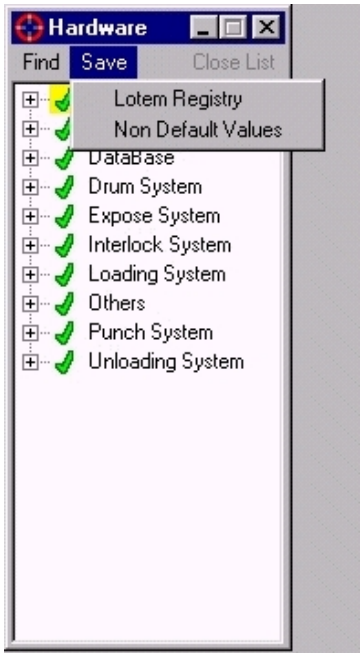
21. In order to create unique log files for each and every startup, you can alternatively enter the command line argument **-l** (meaning log).
22. In the **Task List** dialog: removed the **Abort All** and **Emergency All** buttons.
23. In the **Laser Group** dialog: right clicking on the calibration value of a diode will display an explanation of this value.
24. Ensuring the first error in the list is always visible even when a new error line is added.
25. In the **Hardware Tree** Dialog: If at least one object is in **error state**, the dialog will make this object visible upon opening.
26. Added loading operations sub-menu, containing a Restart Plate State, Unload Media
27. Improved the film display during **expose-within-expose**: it will now display mainly the progress indicator and will not interrupt it for other plate loading displays.
28. Added information to each Illegal Loading System State error about the exact problem, for example: The unloading system state is undefined.
29. Installation issue - Improved and clearer installation procedure (Appendix D).
30. Detectors that can be **closed on the registry** when there is a real need for it and still continue to works until the next engineer visit are:
    - Out of drum
    - Out of machine
    - Gripper hp/EP detector
    - Roller HP detector
    - Paper/plate on disposal.
    - Bin is empty detector

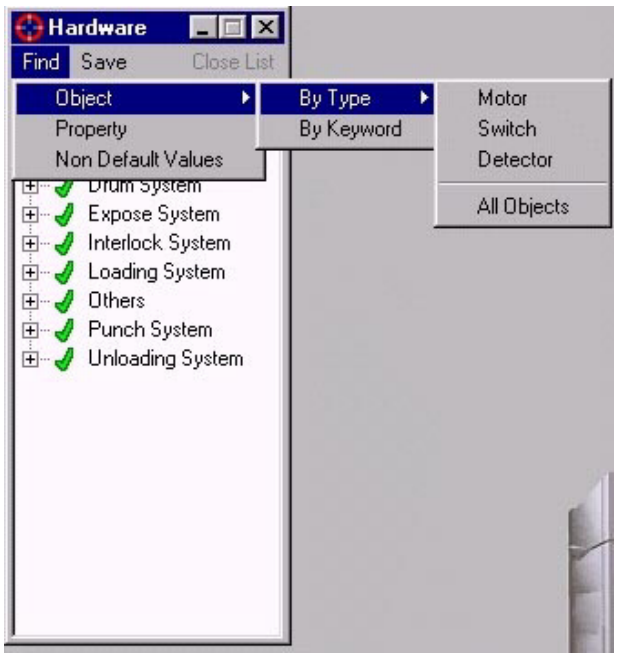
Note: In this version, the **paper/plate detector/ bar flag** cannot be **closed**.

The **paper/plate on disposal detector** will open automatically after installation.

Tec–default is closed.

31. Added in hardware tree: **Find** and **Save** for easy Registry access and handling.

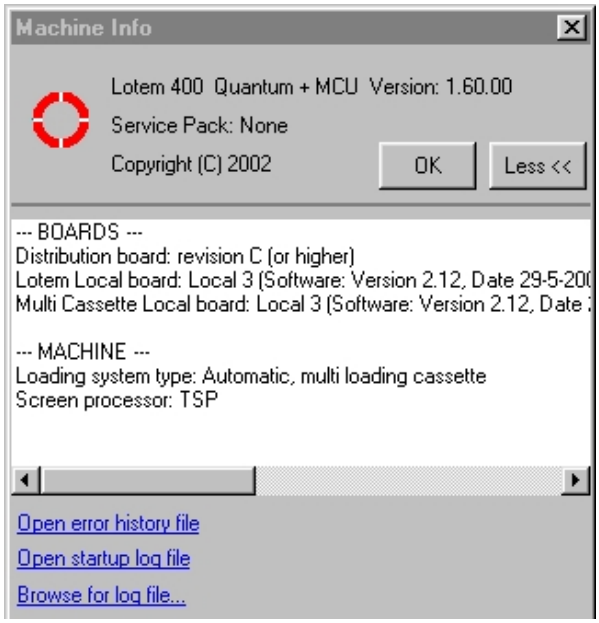




Note: For more details see Appendix F.

32. Added Board and Machine Type in Machine Info dialog.

33. Also added **Open error history file**, **Open Startup log file**, and **Browse for log file**.



Lotem 400 Quantum Related Issues

Important Notes

1. The method of detecting the position and alignment of the tail grippers has been changed in order to overcome a bug that prevented correct identification of gripper misalignment under certain circumstances.

As a result, the values for Side2Side Calib Fall Pos mm and Side2Side Calib Rise Pos mm parameters were changed, and therefore if you are upgrading the software from any version lower then 1.40.xx you must perform the side to side calibration procedure again in order to adjust these two values for your specific machine.

However, before commencing with this calibration procedure, you **must** also set these two values (found under **…\IO OBJECTS\Loading System\Loading System Set u**p) to their new default values by copying the values found under the **Default** column to the **Value** column.

Now you can perform the side-to-side calibration procedure, which will enable you to fine tune these two values to match your specific machine.

2. When using **Local3 Rev A** (verify Rev by using the Board dialog) board on the platesetter**(not MC**U) – you **must** change the active state of the **Det 80** located on registry:

   HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\LOCAL

   3\DETECTORS\Latch Fly Off Indicator Detector\ Detector Active State 1--> 0. When using Rev B – set it back to 0.

3. When you install the new version, the existing version is saved in the **Old Ver** folder and the new version, including the following, is saved to **C:\Lotem:**

   Database

   Log files

   Splot scripts (under C:\Tii\Splot\Scripts)

   New Firmware files (under C:\th2\tools)

Note: The following calibration script should be used:
Media Calibration Script: 0.9 (QuantumSeries.spt)

4. To solve the problem with exposing small plates on Lotem 400 Quantum Small, load the new firmware, version 1.20.05 " QuantumFMW120-0.F.bin ".
   Also load the improved Xilinx file, version 1.37 " mcelca0137.bin ", which solves potential data shifts and improves communication with the TSP (this Xilinx file was extensively tested in the Lotem 800 Quantum).
   To load the files to the TMCE:
   a) Type in **SPlot: QUANTUM>> reset boot close Splot**
   b) Open command prompt and type:
   cd .\th2\tools\bload f=mcelca0137.bin p=8 i=lca -> wait for completion...
   cd ..\th2\tools\bload f=QuantumFmw120-05.bin p=8 i=main -> wait for completion...
   c) Open Splot Type in **SPlot: QUANTUM>> reset**
   d) To verify the new minimum size, type in **SPlot: QUANTM>> product**

Firmware Versions

1. This controller version **REQUIRES** the following firmware versions to be loaded in the TMCE board and Thermal Head 2 (the corresponding file name is in parenthesis):
   - TMCE firmware: **1.20-03** (QuantumFmw120-03.bin, or
   - mcefirmware.bin)
   - Xilinx firmware: **1.32** (mcelca0132.bin, or mcelca.bin)
   - Head firmware: **1.01F** (th2h101f.bin, or th2firmware.bin)
   - Boot Code: **1.09** (mceboot.bin)
   - Post Code: **1.03** (mcepost.bin)

Information about firmware versions loaded in the TMCE and TH2 can be obtained by typing the following commands in SPlot or Service Shell:

QUANTUM>> fw dir (or: list version all)

QUANTUM>> th2 "ver"

After loading the correct firmware versions, the following appears:

```
QUANTUM>> fw dir
Name            Version  Start     Length    Checksum
--------------- -------  --------  --------  --------
MCE BBR Code     1.03    00000000  00001AB0  Passed
MCE BOOT Code    1.09    00060000  0001A610  Passed
MCE MAIN Code    1.20    000C0000  0011573A
Passed
MCE POST Code    1.03    00300000  0000E166  Passed
MCE Xilinx       1.32    00340000  00035760  Passed
```

```
TH2 > ver
Project:          Thermal II
Firmware:         1.01f Release
Build:            1780
Date:             Mar 20 2002 15:00:59
Control board:    4
Xilinx:           24
```

In addition, the following calibration script should be used:

Media Calibration Script: **0.9** *(QuantumSeries.spt)*

2. **Drum Speed Limitaion** - This firmware version has a built in limitation for the maximum drum speed in expose, of 180 RPM. You **must** change this value to 450, by typing several password protected commands which are not listed here, but available through the Quantum PSM.

3. If this version is installed as an upgrade in the field (over version 1.40.05), read Appendix 1: Upgrade Procedures For Lotem 400 Quantum Version 1.50.08

This version supports the Quantum v (fast) model, so a password-protected drum speed limit was introduced to control the throughput.
Note: This change requires a dongle on the TMCE board for every machine running this version.
The diagnostic command **feature** may be used to display the current maximum drum speed setting. The default maximum drum speed for expose is 180 RPM.

Imaging jobs that specify a mainscan image size larger than the imageable mainscan region of the media are rejected. To send such non-standard jobs, use the new image cropping functionality provided by the Brisque.

4. To maintain proper imaging conditions, the machine must be set to the resolutions supported by the Thermal Head. Refer to Appendix 2: Configuring Resolution Table in Lotem Quantum Machines

Bug Fixes

1. The Lotem user interface no longer freezes (as it did under certain conditions), which prevented it from communicating with its windows.
2. Data shifts and artifacts on the image are now greatly reduced, if not diminished.
3. The problem with the plot process getting stuck during imaging (displaying a "5230" error in the Brisque) was solved by combining new Xilinx firmware (1.37) and fitting nylon washers on the TMCE board.
4. Fatal errors generated by the TH2 during imaging are trapped and fail the plot. For example, a failure in the head cooling system prevents imaging the plate.
5. The Focus Learn method was modified, so that focus holds for the correct number of swaths at the start of the plot - previous firmware held incorrectly. In addition, clamp shadowing is now performed more accurately.
6. The bugs in the calibration script (QuantumSeries.spt) that prevented the script from restoring series plot parameters correctly were fixed.
7. Image misalignments when exposing multiple passes on the same plate were resolved by fixing the GC parameters Rotation, TrackProfile and OrthoAdjust.
8. Overwriting on positive media: It was possible to cause a completely solid image to be output when using an overwriting pattern on positive media. This has been fixed.

New Features

1. Edge detection begins 5mm before the expected edge, rather than 12.5 mm as before. The width of the initial search range remains the same. This change was made for throughput reasons.
2. The carriage amplifier is checked for faults. If a fault occurs during initialization or movement of the carriage, movement stops immediately, and an appropriate error message is generated.
3. **Head Install On** command uses the thickness of media loaded on the drum (set mds command), rather than leaving the zstage at its current position. When adjusting the screws for a 0.3 mm plate, the zstage should be in forward position; type zstage forward command after head install on.
4. The value of the Carriage **Steps** parameter was changed to 200.
5. The value of the Drum **MaxAcc** parameter was automatically changed to 8.000.

6. The font size for the detector status (ON/OFF) in the Detector dialog can be increased or decreased. For example, the detector status indication can be enlarged to be viewed clearly from a greater distance away from the PC monitor.

7. Different stroke shift parameters are used for each separation (CMYK) in order to reduce the banding seen on the press in multiple separation jobs. This feature requires front-end support. It is supported by Prinergy Version xxx, and will be supported by Brisque version 4.05.

8. In the About dialog, information was added regarding electronic board versions and hyper-links to all machine log files.

Known Bugs

1. When trying to expose an image, the Expose Progress Indicator may get stuck at 0% followed by an error message on the controller: Rcon error: Timeout waiting for image data. The current plot fails, but the next ones are exposed successfully. This occurrence is very rare.

2. Some expose-related error messages may not reflect the original cause of the error, only a derivative of it. An example is the error message "Rcon error: The current command has been pre-empted". This is a derivative of the original error message, which can only be seen if you scroll up the SPlot log: "Rcon error: Image too small: Not enough focus samples."
   Therefore, you may need to look at the diagnostic monitor log SPlot or ServiceShell) in order to understand the original cause or error.

3. When calibrating the machine from Splot, the Drum Motor on the GUI, must be activated. If not, a message appears in the Splot:
   "exit with error code set. In quantumseries.spt line 1206 col 12".

4. No thermal compensation.

5. In a configuration of Lotem 400 Small with MCU of the earlier version that does not support small plates, the suction cups for large plates are activated for small plates (381x457mm), which causes loading problems.
   Workaround: Change the **Min Plate Height Operation Middle Value** parameter from 330 to **381**.

Hardware Related Notes

An Air Pressure Sensor was added to monitor the air pressure. It is not yet supported by the software.

Supplement 1

Upgrade Procedures For Lotem 400 Quantum Version 1.40.05

This appendix describes software procedures and changes that must be made when upgrading Lotem 400 Quantum in the field, from version to version 1.50.08

First: Load the new version with all the new firmware files.

Second: Perform the Firmware Version procedures (see item 1 at the top of this document).

Third: Perform ATP or customer tests.

Adjusting Maximum Expose Drum Speed

For the Quantum "V" (fast) model, you must increase the maximum drum speed from the default 180 RPM to 450 RPM.

For this purpose, the TMCE board must be equipped with a dongle. Contact the Local Quantum PSS for the exact procedure.

Verify Default Values of Head Parameters

Certain TH2 parameters may have been changed in the field to resolve problems with previous firmware versions. Since the new firmware resolves most of the original problems, these parameters must be reset to their default values.

Check the following values:

QUANTUM>> th2 "eng"

QUANTUM>> th2 "sys parm"

17 Swaths To Learn True 3 N/A

19 Swaths To Hold True 10 N/A
24 LEC Shadow True 975 N/A

25 TEC Shadow True 308 N/A

The third column is the enable status of the parameter. Verify that the enable status of the above four parameters is True. The values in the 4th column are automatically corrected when sending the first plot as with a plot 1 command or when performing calibration tests.

To change the enable status, perform, for example:

QUANTUM>> th2 "sys parm access 17 enable"

Re-calibrate Drum Position for Edge Detection

Re-calibrate the drum position for edge detection to verify that the drum is set to move to the correct position (center of the edge detection channel) during the edge detection stage.

Re-calibrate GC Track Profile Parameters

Firmware 1.20 now uses the track profile data correctly, though it used the data incorrectly in the past. To compensate for this new behavior, perform the following procedure:

Save the GC configuration of the device by saving the diagnostic log responses to the "set gc" and "set gc trackprofile" commands. Keep this information handy in case you have to downgrade.

If any of the track profile data is non-zero, run the upgrade script, TrackProfileUpgrade.spt, using either SPlot or ServiceShell. After installation, this script can be found in C:\Tii\SPlot\Scripts\Tests on the machine PC. The script modifies the TrackProfile values by subtracting the first entry from all of the entries.

After running the script, a dialog box appears with one of the following messages:

The track profile data has been updated

The track profile did not need to be updated

Note: If the machine has track profile data configured, and you do not run this script, a constant main scan image shift compared to the previous version of firmware could occur.

If any other message appears, restore the GC trackprofile data to the values obtained in step 1.

Re-calibrate GC Scale and Offset Parameters

The new firmware uses the Mainscan Offset parameter differently. In addition, the default leading edge clamp size was reduced from 8 to 6 mm in the firmware. This might be especially relevant in the field for Mainscan Offset in positive plates. You must check the Mainscan and Subscan offsets, as well as the image size in both directions. If required, apply the relevant changes to the following 4 GC parameters:

Mshift

Sshift

Mscale

Sscale.

Supplement 2

Configuring Resolution Table in Lotem Quantum Machines

Description:

This appendix describes how to correctly configure the Resolution Table in Lotem Quantum machines. The Resolution Table contains information about the resolutions that the Thermal Head can support. Thermal Heads can support only one of the following two options: 2400 DPI (and 1200 DPI) or 2540 DPI (and 1270 DPI).

It is highly important to configure the Resolution Table correctly, since both the Lotem controller and the Brisque/Prinergy use this information during the expose process.

Following this procedure prevents errors caused by using resolutions that are not supported by the Thermal Head.

Relevant Commands

Use the **Mode** command to display the Resolution Table:

QUANTUM>> **mode**

Current Mode = 2540 DPI by 2540 DPI

Available Modes:

1: 2540 DPI by 2540 DPI

2: 1270 DPI by 1270 DPI

Use the **Set Mode** command to set the entries in the Resolution Table:

QUANTUM>> set mode X mscanresolution Y

QUANTUM>> set mode X sscanresolution Y

X represents the entry number in the table and Y represents the Main Scan resolution or Sub Scan resolution, respectively.

After you type the **Mode** command, your resolution table must look like one of the following examples, depending on the type of resolution the machine supports (2400 or 2540 DPI):

For 2400 DPI head:	For 2540 DPI head:
Current Mode = 2400 DPI by 2400 DPIAvailable Modes: 1: 2400 DPI by 2400 DPI 2: 1200 DPI by 1200 DPI	Current Mode = 2540 DPI by 2540 DPIAvailable Modes: 1: 2540 DPI by 2540 DPI 2: 1270 DPI by 1270 DPI

To change the table entries, use the **Set Mode** command:

Update the first entry with the value of the resolution supported by the Thermal Head. This value must be 2400 or 2540. For example:

QUANTUM>> set mode 1 mscanresolution 2540

QUANTUM>> set mode 1 sscanresolution 2540

Update the second entry with a value that is half of the value you used in the first entry (1200 or 1270, respectively).

QUANTUM>> set mode 2 mscanresolution 1270

QUANTUM>> set mode 2 sscanresolution 1270

Supplement 3

Loading Firmware

TMCE Main Firmware:

Quantum>> reset boot

A Boot>> prompt appears.

Quit the terminal (Splot) to free the serial port.

Open Dos prompt, load it by typing the following:

C:\th2\tools\bload f=filename.bin p=8 i=main

File name: QuantumFmw120-03.bin, or mcefirmware.bin

Wait until it finishes loading successfully.

Start Splot.

Type Boot>> **reset**

Type Quantum>> scan eh_&Logicpower bon

Type Quantum>> **reset**

Xilinx Firmware

Quantum>> **reset boot**

A Boot>> prompt appears.

Quit the terminal (Splot) to free the serial port.

Open Dos prompt, load it by typing the following:

C:\th2\tools\bload f=filename.bin p=8 i=lca

File name: mcelca0132.bin, or mcelca.bin

Wait until it finishes loading successfully.

Boot>>**reset**

Head Firmware

Quantum>>set head type 3

Ignore any warning messages.

Quantum >>head program

Wait for the message "Datalink exposure head coming online", ignore warning messages.

Quantum >>head boot

Wait for the message: "EH boot command (3) completed successfully"

Ignore any error messages .

Quit the terminal (Splot) to free the serial port.

Open Dos prompt, load it by typing the following:

C:\th2\tools\tehload p=8 filename.bin

File name: th2h101e.bin, or th2firmware.bin

Wait until it finishes loading successfully.

Quantum>> **reset**

Boot Code

Quit the terminal (SPlot) to free the serial port.

Open Dos prompt, load it by typing the following:

C:\th2\tools\bload f=mceboot.bin i=boot p=8

Wait until it finishes loading successfully.

Post Code

Quit the terminal (SPlot) to free the serial port.

Open Dos prompt, load it by typing the following:

C:\th2\tools\bload f=mcepost.bin i=post p=8

Wait until it finishes loading successfully.

APPENDIX A

Plate Edge Detection Dialog

The main feature in **version 1.50.08** is the **Edge Detection Process** improvement for customer as well as for engineer.

Edge Detection for Customer

On the GUI, an **Edge Detection icon** will activate the Edge Detection process for the customer.

This process requires the loading of a plate. From that point on, the process will continue automatically. The drum will spin, the focus value will be changed according to the plate thickness and the vacuum will turn on.

According to the plate size, the edge detection process will start checking for the plate location. If the edge detection fails to find the plate, a calibration process will start and at that point the laser power for edge detection will be increased until a plate is detected.

After plate detection, a sequence of 20 tests will run to assure plate edge detection is working properly. If no error is detected during this stage, a message will appear on the screen and ask for the customer's approval for the new laser power value.

If the customer accepts the laser power recommendation, the answer **YES** will update the tables in the registry automatically.

As you can see, no engineer involvement is needed during this process. This is big advantage for all of us, especially for the customer.

Edge Calibration for Engineer

The advantage of the new edge detection testing and calibration is that by having all the parameters in one dialog box, there is no need to open multiple dialog boxes (vacuum, drum, focus, carriage, laser group, slave sproc.).

In this dialog box, you can see the following information:

- Plate size
- Carriage location
- Drum speed
- Strip 2 parameter
- Laser power

- Maximum Error
- Focus position
- Laser power

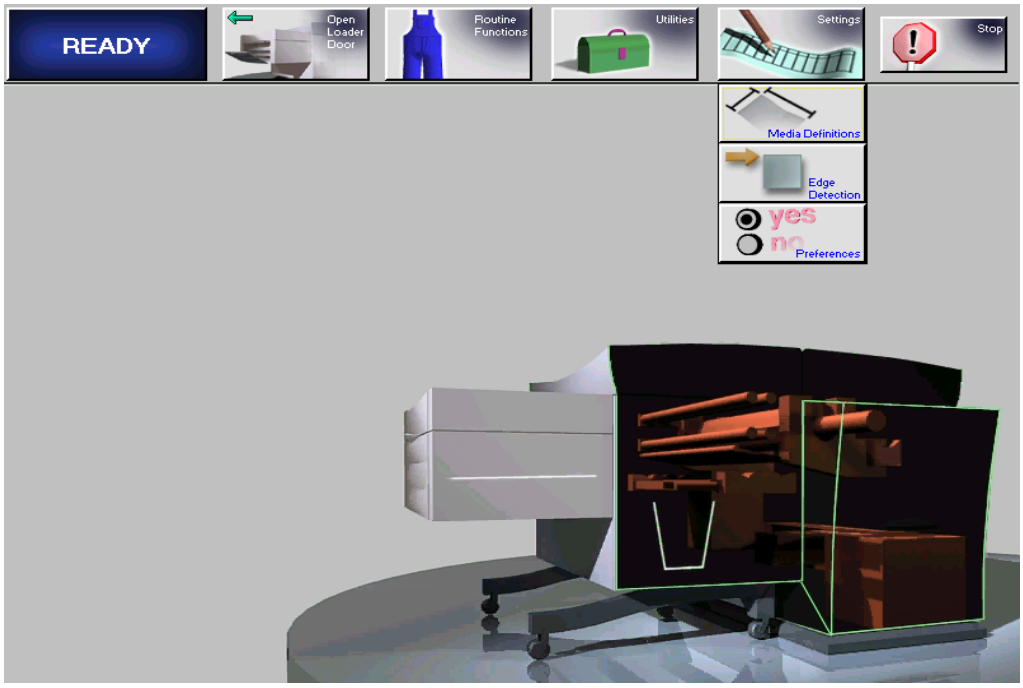
You can choose from one of two processes:

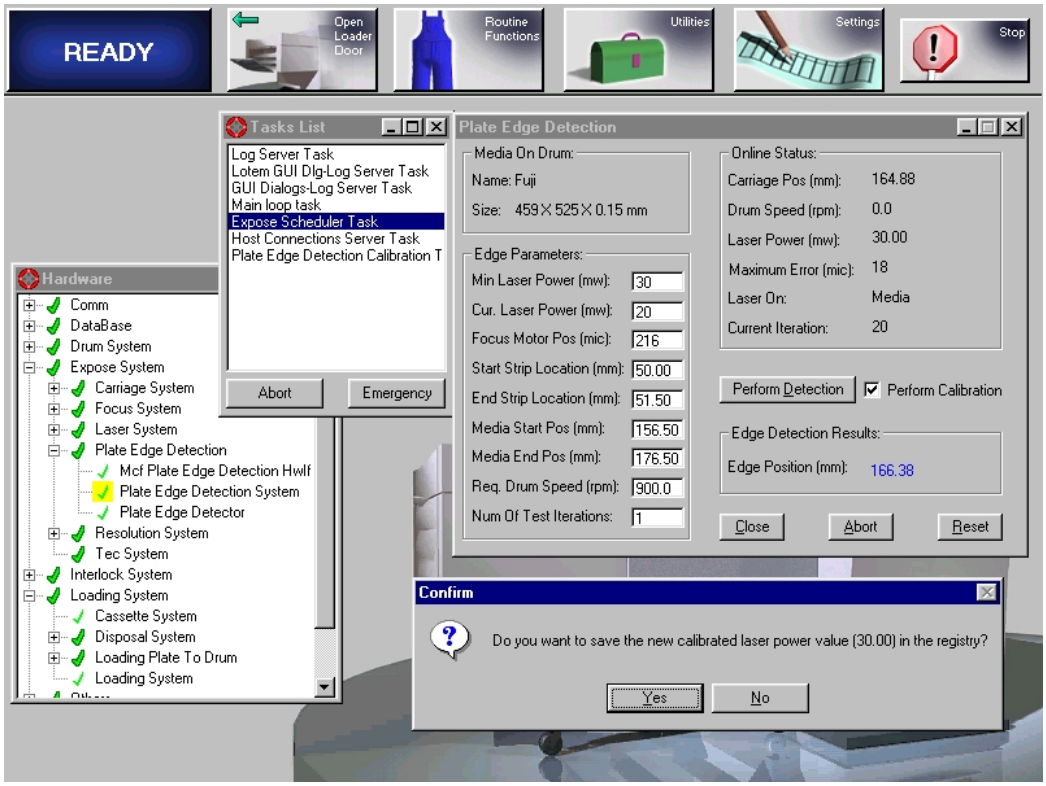
Perform Detection – During this process, the edge detection will check for plate detection and will inform on the plate location. If not found an error message will appear indicating for edge detection fail. This process repeats as many times as indicated in the **Num Of Test Iterations** box.

- The calibration procedure will be published on Tech Planet Perform Calibration – During this process, a calibration of edge detection will take place while laser power is being changed automatically in order to detect plate.

  The advantage of this dialog box is that you choose can any parameter you need in order to have the system working properly.

- If you change any parameter other than laser power manually, Please **MAKE SURE TO UPDATE THE REGISTRY**.
- There is no need to switch off to the vacuum pump at the end of the test.
- The default Drum speed for the test is 900 RPM. If a different speed is required, you can define another speed.
- The laser power changes and is updated automatically.


READY
Open Loader Door
Routine Functions
Utilities
Settings
Stop
Media Definitions
Edge Detection
yes
no
Preferences


READY
Open Loader Door
Routine Functions
Utilities
Settings
Stop
Tasks List
Log Server Task
Lotem GUI Dlg-Log Server Task
GUI Dialogs-Log Server Task
Main loop task
Expose Scheduler Task
Host Connections Server Task
Plate Edge Detection Calibration T
Abort
Emergency
Hardware
Comm
DataBase
Drum System
Expose System
Carriage System
Focus System
Laser System
Plate Edge Detection
Mcf Plate Edge Detection Hwlf
Plate Edge Detection System
Plate Edge Detector
Resolution System
Tec System
Interlock System
Loading System
Cassette System
Disposal System
Loading Plate To Drum
Loading System
Plate Edge Detection
Media On Drum:
Name: Fuji
Size: 459 X 525 X 0.15 mm
Edge Parameters:
Min Laser Power (mw): 30
Cur. Laser Power (mw): 20
Focus Motor Pos (mic): 216
Start Strip Location (mm): 50.00
End Strip Location (mm): 51.50
Media Start Pos (mm): 156.50
Media End Pos (mm): 176.50
Req. Drum Speed (rpm): 900.0
Num Of Test Iterations: 1
Online Status:
Carriage Pos (mm): 164.88
Drum Speed (rpm): 0.0
Laser Power (mw): 30.00
Maximum Error (mic): 18
Laser On: Media
Current Iteration: 20
Perform Detection
Perform Calibration
Edge Detection Results:
Edge Position (mm): 166.38
Close
Abort
Reset
Confirm
Do you want to save the new calibrated laser power value (30.00) in the registry?
Yes
No

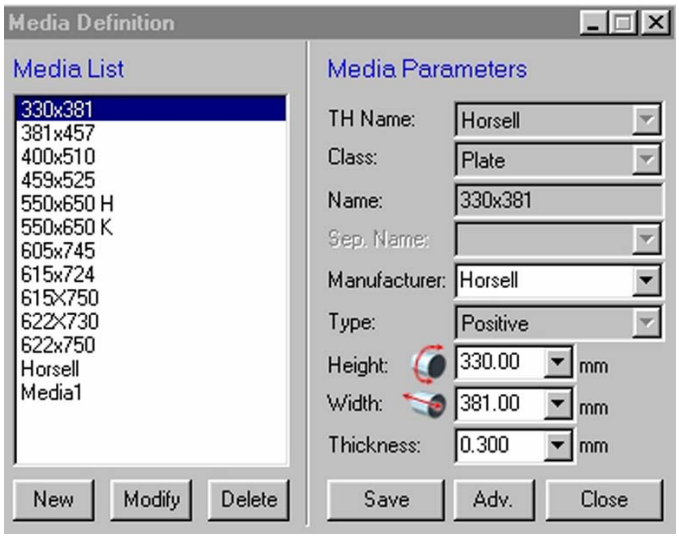
APPENDIX B

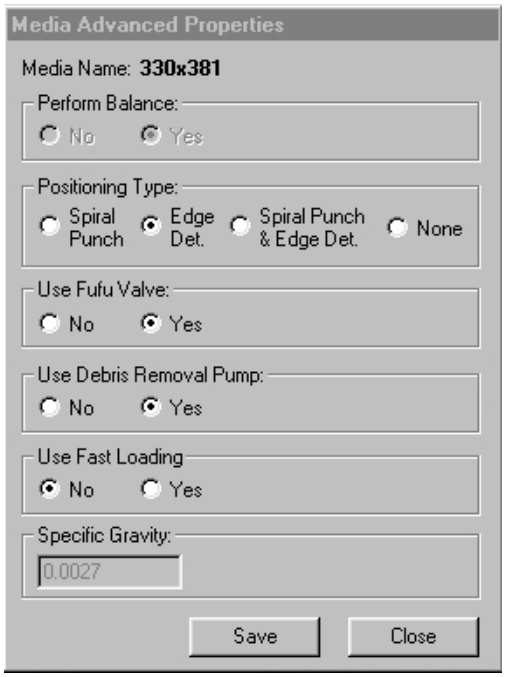
Advanced Media dialog

The range of attributes available for media used in Lotem machines was expanded. As a result, the media data base files have undergone a change and several advanced media attributes were added to each media file.

In order to view and edit these new attributes you must first change to **Expert** mode.

1. Go to **Utilities > Users >Experts** and type the password 'Lotempro'.
2. Open the **Media Definition** dialog box.
3. Click the **Adv.** button.
4. The **Media Advance Properties** dialog will prompt up:





Perform Balance

Determines whether the drum needs to be specifically balanced for the media before loading it. For Lotem 400 machine, the value is always dimmed.

Media Positioning Type

Determines the method by which the location of the edge of the media is found before the exposure process commences. Several methods are available: **Edge detection**, **Spiral Punch**, **both** or **none**.

For the Lotem 400, Lotem 400 PSM, Lotem 400 Quantum, and Lotem 400 with MCU machine the value is **Edge Detection**.

The value depends on whether the specific machine supports spiral punch or not.

Use Fufu Value

Determines whether to operate an air valve for diverting media debris from the laser lens during the expose process.

For the Lotem 400 and PSM machine the value is **TRUE**.

For the Lotem 400 with MCU machine the value is **TRUE**.

For the Lotem 400 Quantum machine the value is **FALSE**.

Use Debris Removal Pump

Determines whether to operate a vacuum pump for collecting media debris the laser lens area during the expose process.

For the Lotem 400 and PSM machine the value is **FALSE**.

For the Lotem 400 + MCU machine the value is **FALSE**.

For the Lotem 400 Quantum machine the value is **TRUE**.

Use Fast Loading

For the Lotem 400 and PSM machine the value is **FALSE**.

For the Lotem 400 + MCU machine the value is **FALSE**.

For the Lotem 400 Quantum machine the value is **TRUE**.

Specific Gravity

Represents the specific gravity of the media in grams per cubic mm. Used primarily for the drum balancing process. This value is dimmed.

Note: When done, return the Mode to **User** mode.

APPENDIX C

Plate Measurement Procedure for Lotem 400 only (Not MCU)

1. Before loading a plate, change the next parameter:
   HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\Loading System\Load Plate\From Drum Entry to Drum Stage\ Plate Length Tolerance (mm) = 50 (default 2).

2. Open the **Log Dialog** and select the **debug** option.

3. Using the loading system dialog , select the plate size to load and load the plate.

4. In the log, a message indicates the next numbers:

5. Expect plate size [mm], Actual Plate size [mm] and the differences between them [error on measurement].

6. Copy the differences number and add it to the:
   HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\Loading System\Load Plate\From Drum Entry to Drum Stage\

7. Length from Head Gripper To Right Preset Det (mm) = 132.53 (default)

8. Return the Tolerance to **default**:
   HKEY_LOCAL_MACHINE\SOFTWARE\Scitex\Projects\LOTEM400V\IO OBJECTS\Loading System\Load Plate\From Drum Entry to Drum Stage\ Plate Length Tolerance (mm) = 2.

Note: Verify the accuracy /reputability of the plate measurement by loading each plate size several times.

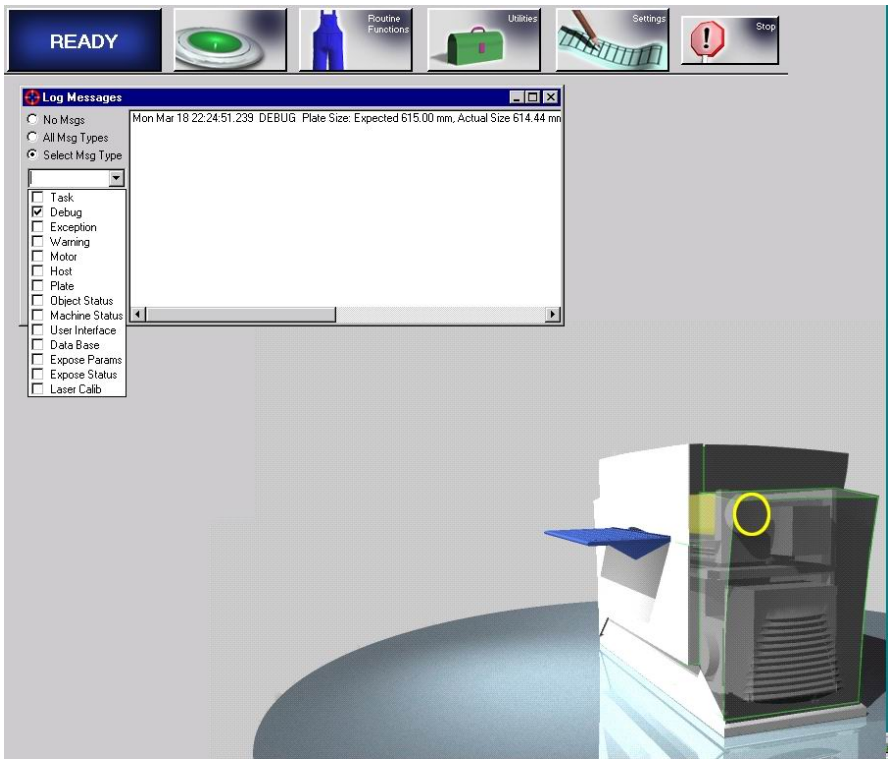
Note: The correct way to adjust it is by the following 3 steps:

1. Perform the plate length procedure
2. Check the image quality and change the registry parameters:

- Load Plate Extra To Drum (default 17)
- Load Plate to Drum Position (default 96.5)

3. Perform the plate length procedure again and correct if it needed.

Note: Performing steps 1 and 2 without step 3 can cause problems in plate measurement.



APPENDIX D

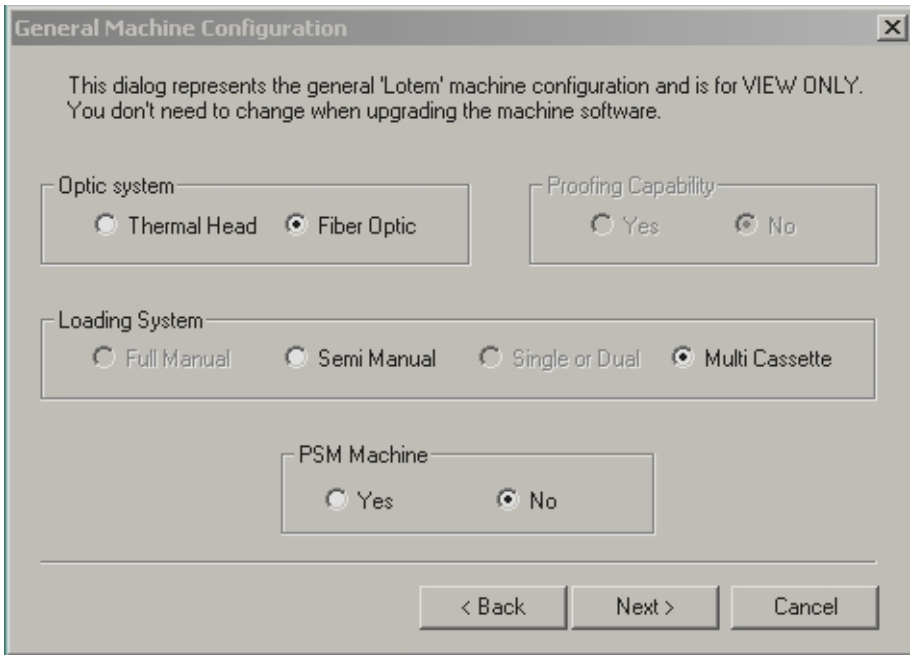
Loading Lotem 400 software version 1.50.08

Note: When loading software version 1.50.08 on the Lotem 400 with MCU, verify that New Short Pins Assembly is installed (if not, perform FCO # 510F28818 or 507A4E235).

Configuration Options Selection Dialogs

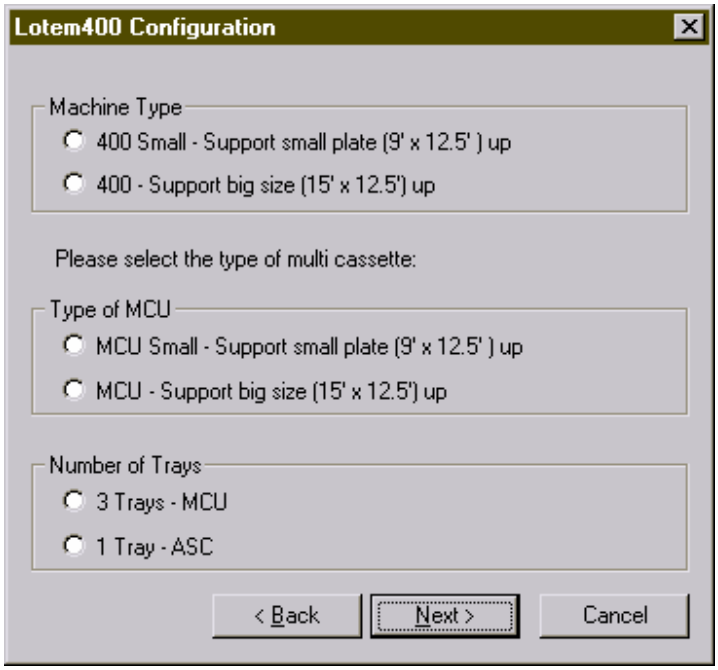
The Lotem Install Setup Wizard guides you through the setup process.

Following are new windows in the setup procedure of version 1.50.08



Select the Loading system. If you choose **Multi Cassette,** the following window appears.

Note: Pay attention to the machine configuration before you select the configuration in the next window.


Lotem400 Configuration
Machine Type
400 Small - Support small plate (9' x 12.5') up
400 - Support big size (15' x 12.5') up
Please select the type of multi cassette:
Type of MCU
MCU Small - Support small plate (9' x 12.5') up
MCU - Support big size (15' x 12.5') up
Number of Trays
3 Trays - MCU
1 Tray - ASC
< Back
Next >
Cancel

Appendix E

Lotem 400 Small Plate Option - 9”x12.5” 228 x 318 mm

Wide range of plate sizes supported

The Lotem 400 images IR 830nm sensitive aluminum plates of any size between 228 mm x 318mm and 622 mm x 750 mm (9” x 12.5” to 24.5”x 29.5”).

Important Note: You must verify if the machine is small-plate ready before changing any Registry parameters. (6 head grippers).

Note: Check with the customer that their processor can handle this plate size.

Note: Check that the customer has the proper conveyor to support small size plates (part number 507E2D665A).

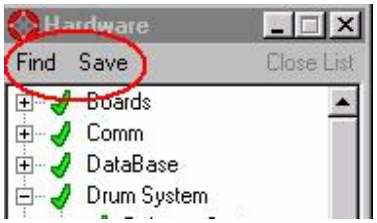
Appendix F

Find and Save Features

Hardware Tree Menu Options

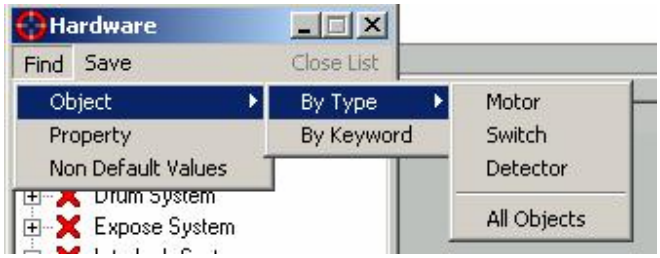
The Hardware Tree dialog has been enhanced by adding several searching tools and save functions.

All tools are accessed from a new menu line in the dialog:



Find an object by its type:

1. Go to **Find -> Object -> By Type** and select whether you are looking for a motor, switch, detector or generally all-available objects.
2. Left-click your choice, a list specifying all the objects that exist in the system and match the filter you requested appears.
3. Double-click one of the entries in the list and it will automatically be visible and selected on the hardware tree.



Find an object by a keyword:

1. Go to **Find -> Object -> By Keyword**. A box in which you can enter any keyword that is part of the object name appears.

2. Click the **Go** button. A search is launched and all objects that contain the target keyword are displayed. For example, entering the keyword “vac” will display objects such as “Drum Vacuum OK Detector”, “Drum Vacuum Pump” and “XY Vacuum Pump”.
3. Double-click one of the entries in the list and it will automatically be visible and selected in the hardware tree.

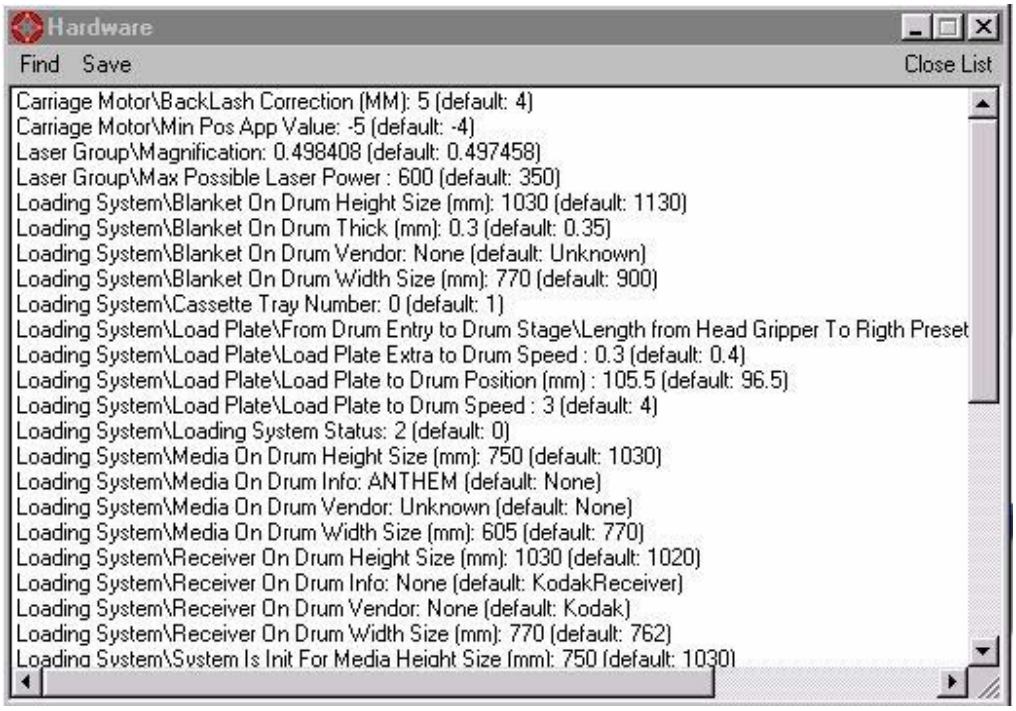


Find an object property by a keyword:

1. Go to **Find -> Property**. A box in which you can enter any keyword that is part of a property of some object appears.
2. Click the **Go** button. A search is launched, and all properties that contain the target keyword is displayed. For example, entering the keyword “direc” will display properties and current and default values, such as “Focus Motor\Go H.P Direction: 0 (default: 0) ”, or “X Motor\Go Detector Direction: 1 (default: 0) ”.
3. Click the **Close List** menu option on the top right side of the dialog to dismiss the list.
4. Alternatively, double-click one of the entries in the list and the correct properties dialog with the target property selected will automatically open.

Find non-default values:

1. Go to **Find -> Non Default Values**. A list containing all object properties in the system that contains values that differ from their default appears.
2. Click the **Close List** menu option on the top right side of the dialog to dismiss the list.
3. Alternatively, double-click on one of the entries in the list to automatically open the correct properties dialog with the target property selected.



Save the Lotem registry section:

1. Go to **Save -> Lotem Registry** to open a dialog box for entering the file name and location in which to save the Lotem registry information.
2. Click the **Save** button to start the registry saving operation.

Save all non-default values:

1. Go to **Save -> Non Default Values** to open a dialog box for entering the file name and location in which to save all object properties in the system that contains values that differ from their default.
2. Click the **Save** button to start the information saving operation.

APPENDIX G

Diagnostics

The Lotem 400 Diagnostics - Version 1.50 is a software package that enables testing the Lotem 400 hardware locally as well as from remote. The diagnostics package is included in the official Lotem 400 version 1.50.08 CD-ROM.

Overview

The JOIND - Java Over the Internet Diagnostics - is a Creo Client/Server diagnostics controller that runs locally or over a TCP/IP connection. It is an online diagnostics tool for running tests on local and remote nodes connected over the Internet or a modem. The JOIND is the engine for running the Lotem Diagnostics.

The user interface of the JOIND includes two main components:

- A hierarchical tree control that represents the functionality of the application activated on the server computer. Functions of the application are selected and executed from this tree. The tree content is dynamic and is suited to the application and to the environmental conditions that may change between sessions.
- Menu options enable the control of operations that are done on the tree. The menus are composed of fixed options, relevant for all applications, and of dynamic options that vary between applications.

Installation & Activation

The official Lotem 400 version 1.50.08 CD-ROM includes both Expose & Diagnostics applications. The size of the Diagnostics software is about 56 MB and it is located under the Expose application environment.

When the CD installation is complete, the Diagnostics icon is located on the PC desktop and in the 'Start' button (similar to the Expose Application). To activate the Diagnostics application, double-click the Diagnostics icon.

Note: Expose and Diagnostics applications cannot run together. Before activating the Diagnostics, verify that the Expose Application is off.

Diagnostics Startup Process

The startup process of the diagnostics, once it is initiated, includes:

- Verification of communication between the PC and the Machine.
- Embedded software is initialized and loaded (if needed). The DDB is initialized only when accessing the DDB chapter in the test tree.
- Electronic boards are initialized.
- Hardware configuration is identified.

The failure results of these sub processes (if exist) are summarized in the Startup Process window that is shown automatically when the startup is completed. In addition, a red/green indicator is shown in the right side of the diagnostics main screen.

Note: During the startup process, the Plate Location dialog is displayed. Since the existence of the plate in the machine limits the tests, it is very important to select the correct location of the plate (if it exists). Otherwise, the machine may be damaged. If the plate is loaded, it is recommended to use the "Unload Plate" button to unload the plate.

Main Test Subjects

The following components are tested:

- Power Supply
- Boards
- Machines with Fibers Head and Local-3 boards: Drum system, Loading system, (excluding the Loader Vacuum system), Carriage system and Unloading system
- Machines with Thermal Head and Local-3 boards: Loading system, (excluding the Loader Vacuum system), and Unloading system
- The machine hardware coverage is done by the bottom-top approach (an integrated approach).

Bottom-Top Approach

- The default test sequence goes from the simple and basic hardware (P.S. and communication) through the machine boards (opto-mechanic drivers) to the main machine units (motors, detectors, etc.). Fixing the problems in the sequence they appear in the diagnostics test tree is recommended.

An Integrated Approach

- Every machine unit receives input and sends output. When selecting a unit (FRU) to be tested, the diagnostics automatically checks these connections in order to maximize the coverage of the selected unit. In advance, it is possible to change (through the JOIND menu) the 'integrated' mode to the 'stand alone' mode.

Coverage Level

The following list includes those units that are not tested in this version:

- DSM Board
- MCF Revision C
- Optic Head
- L-Box (Laser Box)
- Punch System
- Loader Vacuum subsystem in Lotem400VA
- Machine - In Lotem400v with Local-2 boards
- Drum system, Carriage system and MCE board - In Lotem400v Quantum (Thermal head)
- Machine Detectors Utility

Note: When testing boards in the Boards category, the parts that cause the machine movements are not tested. Only in the Machine categories, is everything checked without any limitations.

Feedback and Contact

Diagnostics tools are developed for all Creo devices and platforms. We will continue to be in close contact with the field in order to improve the hardware coverage testing and the user interface. Your feedback on the Diagnostics is extremely important to us. Therefore, a special report template is available on the Diagnostics root directory:

- Bug Report.doc (in Word 97 format)
- Bug Report.txt (in plain text format)

A filled bug report, and any other comment/request/remark/question, can be e-mailed to diagnostics@creo.com