CHAPTER 5 DIAGNOSTICS

INTRODUCTION

The diagnostic function is an aid to the user to allow individual access and control of motors and modules. It allows the user to control the sequence of the machine so that a particular module can be exercised.

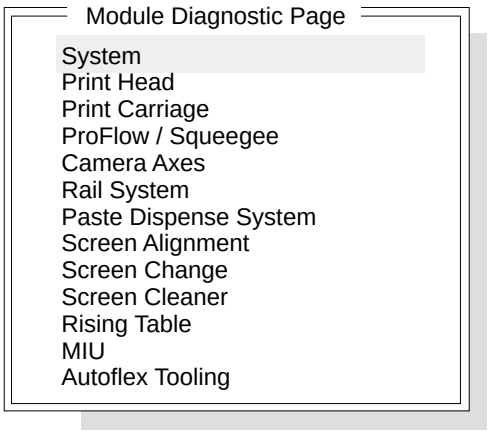
To enter the diagnostic mode press the **Maint** button.

Run	Head	Paste Load	Clean Screen	Adjust	Setup	Monitor	**Maint**.

The menu bar changes displaying the Diagnostic option.

Calibrat Pressure	Calibrat Offset	Calibrat Vision	House Keeping	Set Prefs	Diagnost	Test Cycles	Exit

Press the **Diagnost** (F6) button. If a password exists a window displays the message **'Diagnostic Password'**. If the password is incorrect control displays the message**'Invalid password entered'** and returns to the previous menu. If the correct password is entered or no password exists a pop up window displays the following:



The menu bar changes displaying the following:

Select Module			Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of diagnostic modules.

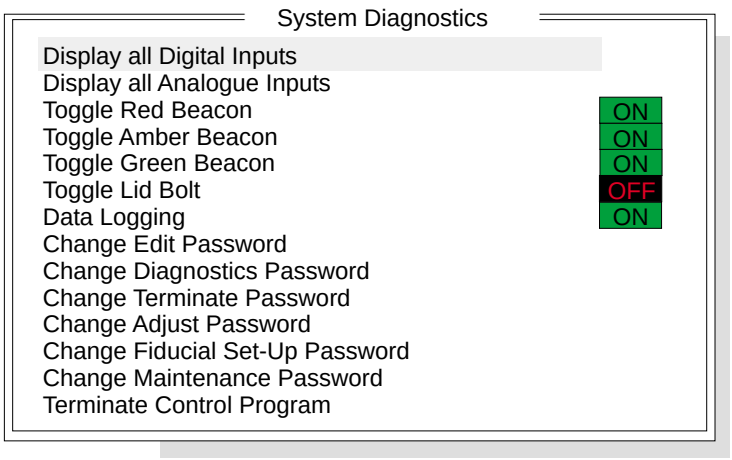
Select Module key opens a new window displaying the diagnostic functions available for the selected module.

Exit returns operation to the start of initialization.

NOTE
Before any diagnostic function is used in any of the modules they must be homed first or they are not able to initiate a command.

SYSTEM

Selecting this diagnostic module opens the following window:



The menu bar changes displaying the following:

Run Diagnost			Next	Previous			Exit

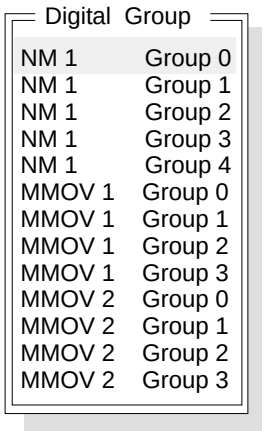
Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostic page.

Display All Digital Inputs

Selecting this diagnostic function opens the following window:



The menu bar changes displaying the following:

Select			Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of diagnostic modules.

Select key opens a new window displaying the diagnostic functions available for the selected option.

Exit returns operation to the system diagnostics page.

NM1 is a NextMove I/O card that is housed in the PC. The MMOV1, MMOV2 and MMOV 3 are MultiMove I/O cards that are housed in the machine controller enclosure. The NextMove and MultiMove cards monitor and control various drives and control cards in the machine controller enclosure.

NOTE
The signal listings, shown on the right hand side of the following diagnostic windows, are not shown on the MMI screen, they are included here as an aid to show the relationship between the I/O signal and the point description.

NM1 Group 0

NM 1 Group 0

Point Description	Bit No	Sense	Direction	State
Table HOME	0	Positive	Input	OFF
Table LIMIT	1	Positive	Input	OFF
Table at Home	2	Negative	Input	ON
Rail Lifted Left	3	Negative	Input	OFF
Rail Lifted Right	4	Negative	Input	OFF
Camera X HOME	5	Positive	Input	OFF
Print Carriage HOME	6	Positive	Input	OFF
Servo Amp error	7	Positive	Input	OFF

Signal
DIG IN 0
DIG IN 1
DIG IN 2
DIG IN 3
DIG IN 4
DIG IN 5
DIG IN 6
DIG IN 7

NM1 Group 1

NM 1 Group 1

Point Description	Bit No	Sense	Direction	State
X Rear INDEX	0	Positive	Input	OFF
X Rear HOME	1	Positive	Input	OFF
X Forward INDEX	2	Positive	Input	ON
X Forward HOME	3	Positive	Input	OFF
Y Actuator INDEX	4	Positive	Input	OFF
Y Actuator HOME	5	Positive	Input	OFF
MUX HOME	6	Positive	Input	OFF
Camera Y HOME	7	Positive	Input	OFF

Signal
DIG IN 8
DIG IN 9
DIG IN 10
DIG IN 11
DIG IN 12
DIG IN 13
DIG IN 14
DIG IN 15

NM1 Group 2

NM 1 Group 2

Point Description	Bit No	Sense	Direction	State	Signal
Board At Left	0	Negative	Input	OFF	DIG IN 16
Board At Right	1	Negative	Input	OFF	DIG IN 17
Not Used	2	Positive	Input	ON	DIG IN 18
Not Used	3	Positive	Input	OFF	DIG IN 19
Not Used	4	Positive	Input	OFF	DIG IN 20
Not Used	5	Positive	Input	OFF	DIG IN 21
Board At Stop	6	Negative	Input	OFF	DIG IN 22
Board Stop In	7	Negative	Input	OFF	DIG IN 23

NM1 Group 3

NM 1 Group 3

Point Description	Bit No	Sense	Direction	State	Signal
Not Used	0	Positive	Output	OFF	DOP 0
Not Used	1	Positive	Output	OFF	DOP 1
MIU Send Upline A	2	Positive	Output	ON	DOP 2
MIU Send Downline A	3	Positive	Output	OFF	DOP 3
MIU Available Out A	4	Positive	Output	OFF	DOP 4
Not Used	5	Positive	Output	OFF	DOP 5
Not Used	6	Positive	Output	OFF	DOP 6
Not Used	7	Positive	Output	OFF	DOP 7

NM1 Group 4

NM 1 Group 4

Point Description	Bit No	Sense	Direction	State	Signal
MUX control bit 0	0	Positive	Output	OFF	DOP 8
MUX control bit 1	1	Positive	Output	OFF	DOP 9
MUX control bit 2	2	Positive	Output	ON	DOP 10
Servo Amp enable	3	Positive	Output	OFF	DOP 11
Not Used	4	Positive	Output	OFF	
Not Used	5	Positive	Output	OFF	
Not Used	6	Positive	Output	OFF	
Not Used	7	Positive	Output	OFF	

MMOV1 Group 0 (X13)

MMOV 1 Group 0

Point Description	Bit No	Sense	Direction	State	Signal
Right Jog Button	0	Positive	Input	OFF	IN 0
Left Jog Button	1	Positive	Input	OFF	IN 1
Not Used	2	Positive	Input	ON	IN 2
Power On Monitor	3	Positive	Input	OFF	IN 3
Not Used	4	Negative	Input	OFF	IN 4
Cleaning Unit Home	5	Negative	Input	OFF	IN 5
Paper Low	6	Negative	Input	OFF	IN 6
Solvent Low	7	Negative	Input	OFF	IN 7

MMOV1 Group 1 (X13)

MMOV 1 Group 1

Point Description	Bit No	Sense	Direction	State	Signal
Not Used	0	Positive	Input	OFF	IN 8
Infinity Hardware	1	Positive	Input	OFF	IN 9
Not Used	2	Positive	Input	ON	IN A
Not Used	3	Positive	Input	OFF	IN B
Not Used	4	Positive	Input	OFF	IN C
Machine Available A	5	Positive	Input	OFF	IN D
Downline Ready A	6	Positive	Input	OFF	IN E
Upline Ready A	7	Positive	Input	OFF	IN F

MMOV1 Group 2 (X13)

MMOV 1 Group 2

Point Description	Bit No	Sense	Direction	State	Signal
Not Used	0	Positive	Output	OFF	Totem 0
Green Beacon	1	Positive	Output	OFF	Totem 1
Amber Beacon	2	Positive	Output	ON	Totem 2
Red Beacon	3	Positive	Output	OFF	Totem 3
Not Used	4	Positive	Output	OFF	Totem 4
ProFlow Reg Output	5	Positive	Output	OFF	Totem 5
Cleaner Home Clamp	6	Positive	Output	OFF	Totem 6
Chase Clamp	7	Positive	Output	OFF	Totem 7

MMOV1 Group 3 (X13)

MMOV 1 Group 3

Point Description	Bit No	Sense	Direction	State	Signal
Screen Clamp	0	Positive	Output	OFF	Source 0
Cleaner Blade	1	Positive	Output	OFF	Source 1
Cleaner Vacuum	2	Positive	Output	ON	Source 2
Clamp Board	3	Positive	Output	OFF	Source 3
Board Stop	4	Positive	Output	OFF	Source 4
Not Used	5	Positive	Output	OFF	Source 5
Not Used	6	Positive	Output	OFF	Source 6
Not Used	7	Positive	Output	OFF	Source 7

MMOV2 Group 0 (X12)

MMOV 2 Group 0

Point Description	Bit No	Sense	Direction	State	Signal
Air Pressure	0	Positive	Input	OFF	IN 0
Screen Present	1	Positive	Input	OFF	IN 1
Lid Bolt Shut	2	Positive	Input	ON	IN 2
Cartridge Empty	3	Positive	Input	OFF	IN 3
Cartridge Home	4	Negative	Input	OFF	IN 4
Cartridge Away	5	Negative	Input	OFF	IN 5
ProFlow Cassette Low	6	Positive	Input	OFF	IN 6
ProFlow Fitted	7	Positive	Input	OFF	IN 7

MMOV2 Group 1 (X12)

MMOV 2 Group 1

Point Description	Bit No	Sense	Direction	State	Signal
Not Used	0	Positive	Input	OFF	IN 8
Not Used	1	Positive	Input	OFF	IN 9
ProFlow Reg Fitted	2	Positive	Input	ON	IN A
Not Used	3	Positive	Input	OFF	IN B
Not Used	4	Positive	Input	OFF	IN C
Not Used	5	Positive	Input	OFF	IN D
Not Used	6	Positive	Input	OFF	IN E
Not Used	7	Positive	Input	OFF	IN F

MMOV2 Group 2 (X12)

MMOV 2 Group 2

Point Description	Bit No	Sense	Direction	State	Signal
Front Belt Forward	0	Positive	Output	OFF	Totem 0
Front Belt Reverse	1	Positive	Output	OFF	Totem 1
Rear Belt Forward	2	Positive	Output	ON	Totem 2
Rear Belt Reverse	3	Positive	Output	OFF	Totem 3
Tilt Cartridge Away	4	Positive	Output	OFF	Totem 4
Tilt Cartridge Home	5	Positive	Output	OFF	Totem 5
Solvent Pinch Valve	6	Positive	Output	OFF	Totem 6
Cleaner Paper Feed	7	Positive	Output	OFF	Totem 7

MMOV2 Group 3 (X12)

MMOV 2 Group 3

Point Description	Bit No	Sense	Direction	State	Signal
Release Table Brake	0	Positive	Output	OFF	Source 0
Cleaner Vacuum	1	Positive	Output	OFF	Source 1
Vacuum Valve	2	Positive	Output	ON	Source 2
ProFlow Reg Control	3	Positive	Output	OFF	Source 3
Tooling Pressure	4	Positive	Output	OFF	Source 4
Lid Bolt	5	Positive	Output	OFF	Source 5
Dispense Paste	6	Positive	Output	OFF	Source 6
Solvent Tank Press	7	Positive	Output	OFF	Source 7

MMOV3 Group 0 (X11)

MMOV 3 Group 0

Point Description	Bit No	Sense	Direction	State	Signal
Head Prop Stowed	0	Negative	Input	OFF	IN 0
Printhead Down	1	Positive	Input	OFF	IN 1
Printhead Up	2	Positive	Input	ON	IN 2
Drive Coupling Out	3	Positive	Input	OFF	IN 3
Screen At Rear	4	Positive	Input	OFF	IN 4
Screen At Centre	5	Positive	Input	OFF	IN 5
Screen At Front	6	Positive	Input	OFF	IN 6
Screen Safety Front	7	Negative	Input	OFF	IN 7

MMOV3 Group 1 (X11)

MMOV 3 Group 1

Point Description	Bit No	Sense	Direction	State
Not Used	0	Positive	Input	OFF
Not Used	1	Positive	Input	OFF
Not Used	2	Positive	Input	ON
Not Used	3	Positive	Input	OFF
Not Used	4	Positive	Input	OFF
Not Used	5	Positive	Input	OFF
Not Used	6	Positive	Input	OFF
Not Used	7	Positive	Input	OFF

Signal
IN 8
IN 9
IN A
IN B
IN C
IN D
IN E
IN F

MMOV3 Group 2 (X11)

MMOV 3 Group 2

Point Description	Bit No	Sense	Direction	State
Not Used	0	Positive	Output	OFF
Not Used	1	Positive	Output	OFF
Not Used	2	Positive	Output	ON
Not Used	3	Positive	Output	OFF
Not Used	4	Positive	Output	OFF
Not Used	5	Positive	Output	OFF
Not Used	6	Positive	Output	OFF
Not Used	7	Positive	Output	OFF

Signal
Totem 0
Totem 1
Totem 2
Totem 3
Totem 4
Totem 5
Totem 6
Totem 7

MMOV3 Group 3 (X11)

MMOV 3 Group 3

Point Description	Bit No	Sense	Direction	State
Not Used	0	Positive	Output	OFF
Not Used	1	Positive	Output	OFF
Not Used	2	Positive	Output	ON
Coupling Left	3	Positive	Output	OFF
Coupling Right	4	Positive	Output	OFF
Screen Coupling	5	Positive	Output	OFF
Head Lift Direction	6	Positive	Output	OFF
Head Lift Enable	7	Positive	Output	OFF

Signal
Source 0
Source 1
Source 2
Source 3
Source 4
Source 5
Source 6
Source 7

Display All Analogue Inputs

Selecting this diagnostic function opens the following window:

Analogue I/O Values

Description	Integer Value	Converted Value	
Pressure Sensor	2327	8.51	kg
Temperature	3644	24.573	°C
Relative Humidity	2985	42.386	%

The menu bar changes to the following:

Exit returns operation to the system diagnostics page.

Toggle Beacon Selecting any one of the three toggle beacon diagnostic functions, alternately switches them between on and off.

Toggle Lid Bolt Selecting this function alternately extends and retracts the lid bolt.

Data Logging Selecting this diagnostic function alternately enables and disables data logging during diagnostic operations.

Change Edit Password Selection of this option prompts the user to enter a new password.

Change Diagnostics Password Selecting this diagnostic function either allows a password to be entered or changes an existing password. This password protection inhibits unauthorized entry into diagnostics.

Change Terminate Password Selecting this diagnostic function either allows a password to be entered or changes an existing password. This password protection inhibits unauthorized operation of the terminate control program.

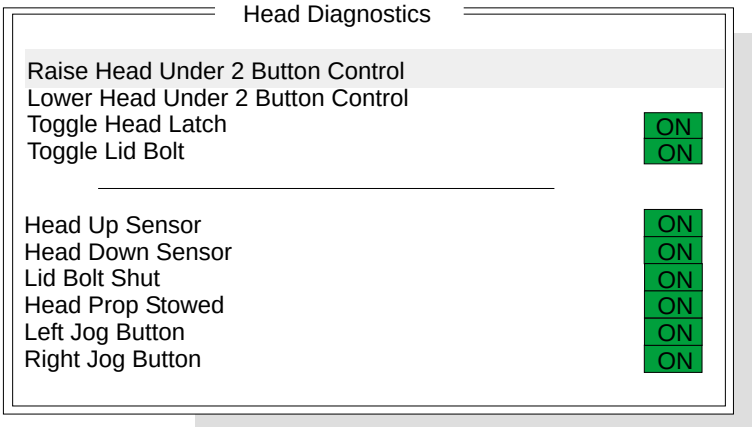
Change Adjust Password Selecting this diagnostic function allows a password to be entered or changes an existing password. This password protection inhibits unauthorized adjustments.

Change Fiducial Set-up Password Selecting this diagnostic function allows a password to be entered or changes an existing password. This password protection inhibits unauthorized entry into the fiducial setup.

Change Maintenance Password Selecting this diagnostic function allows a password to be entered or changes an existing password. This password protection inhibits unauthorized entry into the maintenance functions.

Terminate Control Program Selecting this diagnostic function terminates the Infinity control program and returns to Windows NT.

PRINT HEAD Selecting this diagnostics module opens the following window:



The menu bar changes displaying the following:

Run Diagnost			Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Raise Head Under 2 Button Control Selecting this diagnostic function allows the print head to be raised using the two button control. These switches must be operated simultaneously.

Lower Head Under 2 Button Control Selecting this diagnostic function allows the print head to be lowered using the two button control. These switches must be operated simultaneously.

Toggle Head Latch Selecting this diagnostic function alternately switches the print head magnetic latches on and off.

Toggle Lid Bolt Selecting this diagnostic function alternately extends and retracts the lid bolt.

Head Up Sensor This diagnostic function continuously displays the status of the head up sensor.

Head Down Sensor This diagnostic function continuously displays the status of the head down sensor.

Lid Bolt Shut This diagnostic function continuously displays the status of the printhead lid bolt sensor.

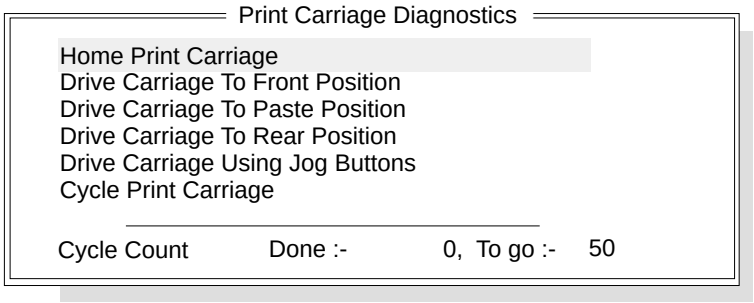
Head Prop Stowed This diagnostic function continuously displays the status of the head prop stowed sensor.

Left Jog Button This diagnostic function continuously displays the status of the left jog button.

Right Jog Button This diagnostic function continuously displays the status of the right jog button.

PRINT CARRIAGE

Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

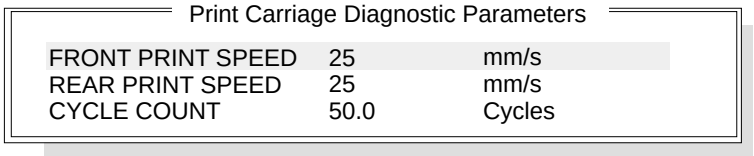
Run Diagnost	Adjust		Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Adjust opens the following window:



The menu bar changes displaying the following:

			Next	Previous	Incr.	Decr.	Exit

Next / Previous keys move the highlight bar up and down the list of diagnostic parameters.

Incr. / Decr. keys change the value of the selected diagnostic parameter.

Exit returns operation to the print carriage diagnostics page.

NOTE
These parameters are used in diagnostics only and have no affect on the product board file.

Home Print Carriage

Selecting this diagnostic function homes the print carriage, as set by its home sensor. **'Homing Print Carriage'** is displayed in the prompt box. It is always advisable to home the print carriage before attempting to position it.

Drive Carriage to Front Position Selecting this diagnostic function moves the print carriage to the front start position of the print stroke. **'Driving Print Carriage to Front Limit'** is displayed in the prompt box.

Drive Carriage to Paste Position Selecting this diagnostic function moves the print carriage to a position that clears the paste dispense unit if operated. **'Driving Print Carriage to Paste Position'** is displayed in the prompt box.

Drive Carriage to Rear Position Selecting this diagnostic function moves the print carriage to the end of the print stroke. **'Driving Print Carriage to Rear Limit'** is displayed in the prompt box.

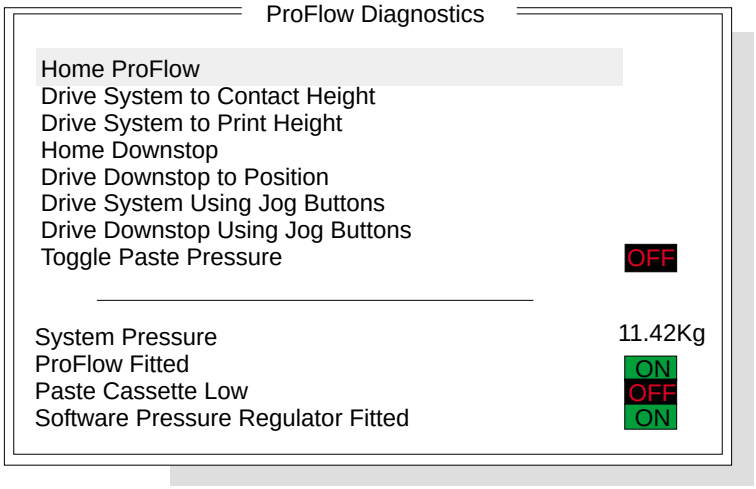
Drive Carriage Using Jog Buttons Selecting this diagnostic function allows the user to position the print carriage anywhere between the front and rear position using the two jog buttons. **'Use the Left Jog Button to move Print Carriage towards front and the Right Jog Button to move it towards the rear'** is displayed in the prompt box.

Cycle Print Carriage Selecting this diagnostic function starts a continuous cycle of driving the print carriage between its front and rear limits, pausing at each end for 2 seconds. **'Print Carriage Cycling'** is displayed in the prompt box. The cycle is terminated if the Stop key is used or the set cycle count is reached.

Cycle Count This diagnostic function displays the amount of cycles done and the amount of cycles to go to complete the cycle count.

PROFLOW

Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

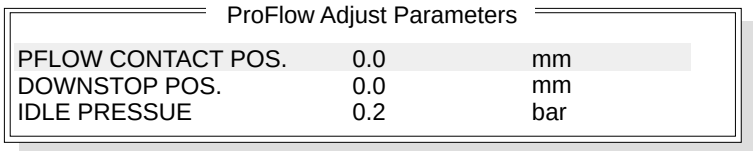
Run Diagnost	Adjust		Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Adjust opens the following window:



NOTE
Idle Pressure is only available while a software controlled air regulator is fitted.

The menu bar changes to the following:

			Next	Previous	Incr.	Decr.	Exit

Next / Previous keys move the highlight bar up and down the list of diagnostic parameters.

Incr. / Decr. keys change the value of the selected diagnostic parameter.

Exit returns operation to the ProFlow diagnostics page.

Home ProFlow Selecting this diagnostic function drives the ProFlow unit up to the home position. If the downstop is in the way a warning is displayed.

Drive System to Contact Height Selecting this diagnostic function drives the ProFlow unit onto the screen, (a slight pressure seal, is made between the ProFlow transfer head and the screen). There is no pressure applied to the paste cassette.

Drive System to Print Height Selecting this diagnostic function drives the ProFlow transfer head down to printing pressure (as setup in the Edit Data board file). There is no pressure applied to the paste cassette at this time.

Home Downstop Selecting this diagnostic function drives the downstop to its home position (fully raised).

Drive Downstop to Position Selecting this diagnostic function drives the downstop to the preset downstop position (offset can be adjusted in the status menu page by selecting Maint. and selecting Set Prefs menu).

Drive System Using Jog Buttons Selecting this diagnostic function enables the ProFlow unit to be moved up or down by means of the jog buttons.

Drive Downstop Using Jog Buttons Selecting this diagnostic function enables the downstop to be moved up or down by means of the jog buttons.

Toggle Paste Pressure Selecting this diagnostic function initiates pressure onto the paste cassette. Before initiating pressure to the paste cassette, the transfer head must be in contact with, and have an adequate seal with the screen. A warning is displayed if toggle paste pressure is selected with the transfer head off the screen.

System Pressure This diagnostic function continuously displays the current pressure in kg, exerted from the squeegee pressure load cell onto the ProFlow unit.

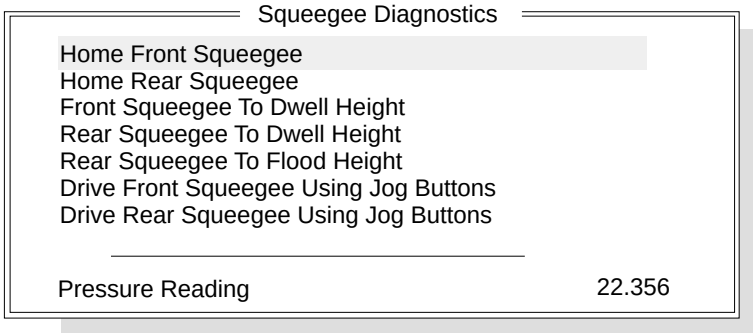
ProFlow Fitted Indication of electrical connection of ProFlow to the machine software.

Paste Cassette Low ProFlow paste low sensor activated (on), indicating paste low or empty or, deactivated (off).

Software Pressure Regulator Fitted Switched to OFF indicates that the ProFlow unit is fitted with a mechanical pressure regulator control. Switched to ON indicates that the software addressable regulator control is activated, ie ProFlow not fitted with mechanical pressure regulator.

SQUEEGEE

Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

Run Diagnost			Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Home Front Squeegee

Selecting this diagnostic function drives the front squeegee upwards to its home position, as detected by its home sensor.

Home Rear Squeegee

Selecting this diagnostic function drives the rear squeegee upwards to its home position, as detected by its home sensor.

Front Squeegee to Dwell Height

Selecting this diagnostic function drives the front squeegee to a position clear of the top of the screen (default is 30mm).

Rear Squeegee to Dwell Height

Selecting this diagnostic function drives the rear squeegee to a position clear of the top of the screen (default is 30mm).

Rear Squeegee to Flood Height

Selecting this diagnostic function drives the rear squeegee to the height set by the flood reference height parameter.

Drive Front Squeegee Using Jog Buttons

Selecting this diagnostic function enables the front squeegee to be driven up and down using the jog buttons. The right jog button drives the squeegee down and the left jog button drives it up, stopping immediately the button is released. **'Use the Left Jog Button to move the Squeegee upwards, and the Right jog Button to move it downwards.'** is displayed in the message prompt box.

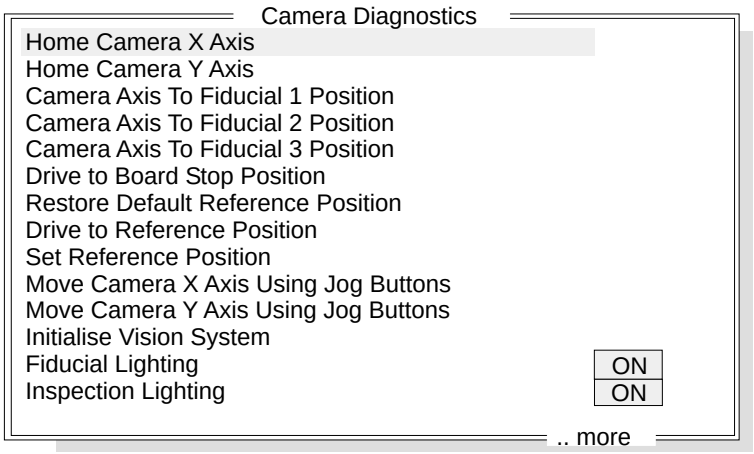
Drive Rear Squeegee Using Jog Buttons

Selecting this diagnostic function enables the rear squeegee to be driven up and down using the jog buttons. The right jog button drives the squeegee down and the left jog button drives it up, stopping immediately the button is released. **'Use the Left Jog Button to move the Squeegee upwards, and the Right jog Button to move it downwards.'** is displayed in the prompt box.

Pressure Reading This diagnostic function is a live display, showing the actual pressure being applied to the squeegee. With no squeegees fitted the figure displayed varies from machine to machine.

CAMERA AXES

Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

Run Diagnost	Adjust	Fiducial Setup	Next	Previous			Exit

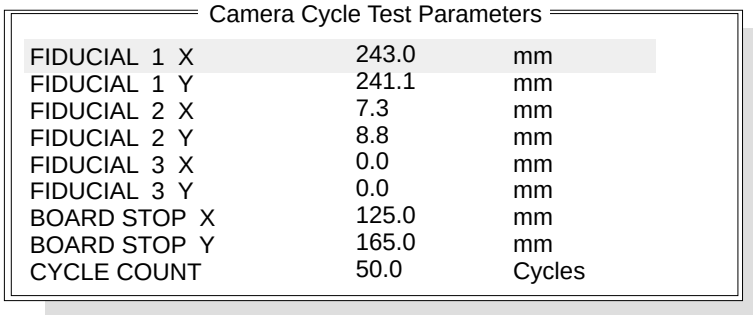
Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Fiducial Setup enables screen fiducials to be located.

Adjust opens the following window:



The menu bar changes to the following:

			Next	Previous	Incr.	Decr.	Exit

Next / Previous keys move the highlight bar up and down the list of diagnostic parameters.

Incr. / Decr. keys change the value of the selected diagnostic parameter.

Exit returns operation to the camera diagnostics page.

NOTE
These parameters are used in diagnostics only and have no affect on the product board file.

Home Camera X Axis Selecting this diagnostic function drives the camera X carriage to its home position, as determined by its home sensor.

Home Camera Y Axis Selecting this diagnostic function drives the camera Y carriage to its home position, as determined by its home sensor.

Camera Axis to Fiducial 1 Position Selecting this diagnostic function drives both X and Y carriages to the position set by the fiducial 1 X and Y coord parameters.

Camera Axis to Fiducial 2 Position Selecting this diagnostic function drives both X and Y carriages to the position set by the fiducial 2 X and Y coord parameters.

Camera Axis to Fiducial 3 Position Selecting this diagnostic function drives both X and Y carriages to the position set by the fiducial 3 X and Y coord parameters.

Drive to Board Stop Position Selecting this diagnostic function drives both X and Y carriages to the position of the board stop for the current product.

Restore Default Reference Position Selecting this diagnostic function restores the reference position stored as a default in software.

Drive to Reference Position Selecting this diagnostic function drives both X and Y carriages to the position set by the camera X and Y reference parameters.

Set Reference Position Selecting this diagnostic function alters the printer configuration file after the camera has been positioned, so that it is viewing the reference mark on the front rail. On selection the menu bar displays **Confirm**, pressing this key alters the printer configuration file. This is used in conjunction with move camera X and Y axes. Refer to the Technical Reference Manual Camera and Vision System Chapter for the camera reference position procedure.

Move Camera X Axis Using Jog Buttons Selecting this diagnostic function moves the camera X axis using the jog buttons. The right jog button drives the camera to the left at slow speed and the left jog button drives the camera to the right, stopping immediately the button is released. This is a physical movement of the camera, not as displayed on the monitor.

Move Camera Y Axis Using Jog Buttons Selecting this diagnostic function moves the camera Y axis using the jog buttons. The right jog button drives the camera to the rear at slow speed and the left jog button drives the camera forward, stopping immediately the button is released. This is a physical movement of the camera, not as displayed on the monitor.

Initialize Vision System Selecting this diagnostic function initializes the frame grabber board and it displays a live image on the vision monitor and a superimposed box graphic.

Fiducial Lighting Selecting this diagnostic function alternately switches the fiducial lighting on and off, continuously displaying the current status.

Inspection Lighting Selecting this diagnostic function alternately switches the inspection lighting on and off, continuously displaying the current status.

Cycle Camera System Selecting this diagnostic function starts a continuous cycle of driving the camera X and Y carriages to each of the following positions in sequence, dwelling for 2 seconds at each point, locating the fiducial at each fiducial position, displaying the returned location and repeating the cycle. The cycle is as follows:

1. Home
2. Fiducial 1
3. Fiducial 2

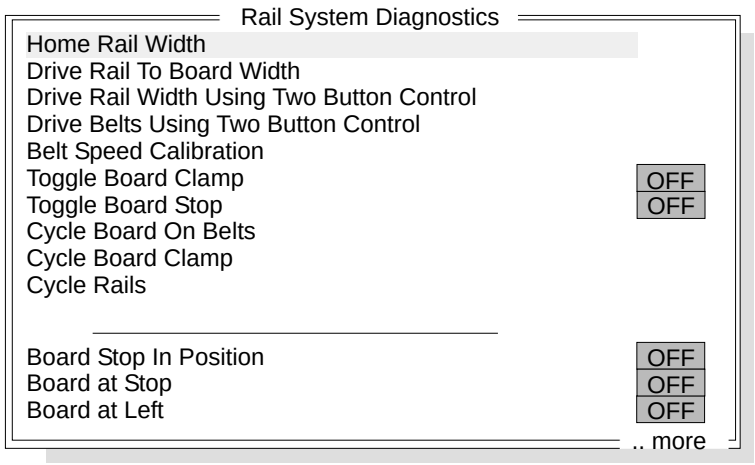
If the data logging is enabled the fiducial coordinates are appended to:

D:\Program Files\DEK\MachineControl\Printer\Camera.Dat file.

This continuous cycle is terminated by selecting the stop key or when the set cycle count has been reached.

Cycle Count This diagnostic function displays the amount of cycles done and the amount of cycles to go to complete the cycle count.

RAIL SYSTEM Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

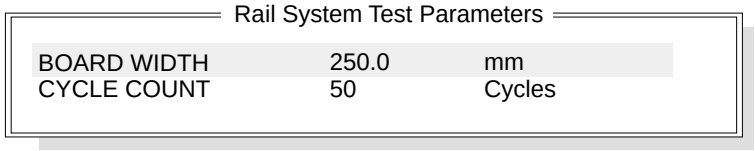
Run Diagnost	Adjust		Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Adjust opens the following window:



The menu bar changes to the following:

			Next	Previous	Incr.	Decr.	Exit

Next / Previous keys move the highlight bar up and down the list of diagnostic parameters.

Incr. / Decr. keys change the value of the selected diagnostic parameter.

Exit returns operation to the rail system diagnostics page.

NOTE
These parameters are used in diagnostics only and have no affect on the product board file.

Home Rail Width Selecting this diagnostic function drives the rail width motor to its home position as determined by its home sensor.

Drive Rail to Board Width Selecting this diagnostic function drives the rail width motor to the width set by the board width parameter.

Drive Rail Width Using Two Button Control Selecting this diagnostic function drives the rail width motor using the jog buttons. The right jog button drives the rail width motor forward at slow speed and the left jog button drives it to the rear, stopping immediately the button is released.

Drive Belts Using Two Button Control Selecting this diagnostic function drives the belt motors using the jog buttons. The right Jog button drives the belt motors to the right and the left Jog button drives the belt motors to the left, stopping immediately the button is released.

Belt Speed Calibration Selecting this diagnostic function enables the belt speed calibration to be carried out. For information on the belt speed calibration procedure see the Technical Reference Manual, Rail System chapter.

Toggle Board Clamp Selecting this diagnostic function alternately energizes and de-energizes the board clamp, displaying On when energized and Off when de-energized.

Toggle Board Stop Selecting this diagnostic function alternately lowers and raises the board stop housed in the camera assembly, displaying On when lowered and Off when raised.

Cycle Board on Belts Selecting this diagnostic function starts a continuous cycle of driving the belts to the right, until a board reaches the right board sensor, dwelling for 2 seconds and driving the belts to the left, until a board reaches the left board sensor, dwelling for 2 seconds and repeating the cycle, until stop is pressed or the set cycle count is reached.

Cycle Board Clamp Selecting this diagnostic function starts a continuous cycle of clamping and unclamping the board clamps. **'Cycling Clamps....'** is displayed in the message prompt box.

Cycle Rails Selecting this diagnostic function drives the moveable rail from the home position to the minimum board width and back to the home position. **'Cycling Rails....'** is displayed in the message prompt box.

Board Stop in Position This diagnostic function continuously displays the status of the board stop lowered sensor.

Board at Stop This diagnostic function continuously displays the status of the board at stop sensor.

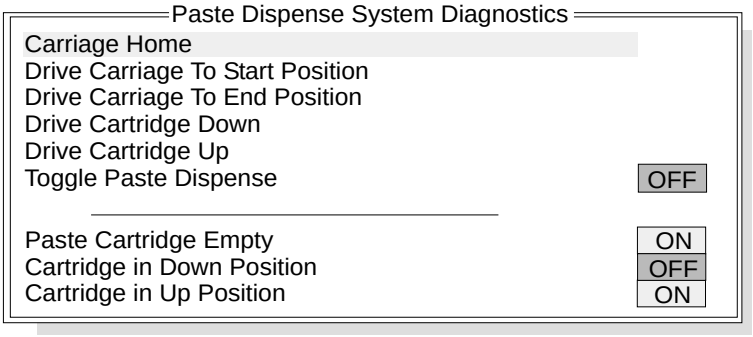
Board at Left This diagnostic function continuously displays the status of the left board sensor. On is displayed if a board is detected on the rails at the left of the machine.

Board at Right This diagnostic function continuously displays the status of the right board sensor. On is displayed if a board is detected on the rails at the right of the machine.

Cycle Count This diagnostic function displays the amount of cycles done and the amount of cycles to go to complete the cycle count.

PASTE DISPENSE SYSTEM

Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

Run Diagnost			Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Carriage Home Selecting this diagnostic function drives the paste dispense carriage left to its home position, as determined by its home sensor.

Drive Carriage to Start Position Selecting this diagnostic function drives the paste dispense carriage to the position set by the paste start parameter.

Drive Carriage to End Position Selecting this diagnostic function drives the paste dispense carriage to the position set by the paste stop parameter.

Drive Cartridge Down Selecting this diagnostic function drives the cartridge tilt motor down until the cartridge away (down) sensor is detected.

Drive Cartridge Up Selecting this diagnostic function drives the cartridge tilt motor up until the cartridge home (up) sensor is detected.

Toggle Paste Dispense Selecting this diagnostic function alternately applies and removes the air pressure to the paste dispense cartridge, displaying On when air pressure is applied and Off when air pressure is removed.

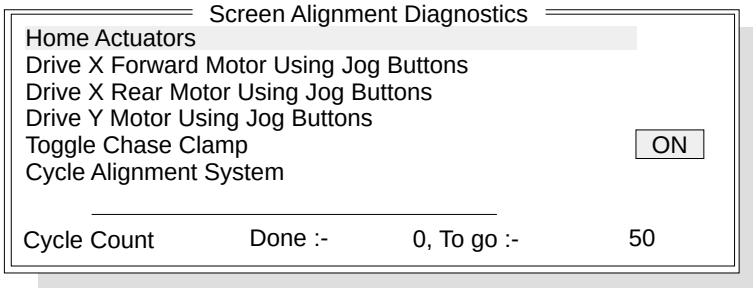
Paste Cartridge Empty This diagnostic function continuously displays the status of the cartridge empty sensor.

Cartridge in Down Position This diagnostic function continuously displays the status of the cartridge away (down) sensor.

Cartridge in Up Position This diagnostic function continuously displays the status of the cartridge home (up) sensor.

SCREEN ALIGNMENT

Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

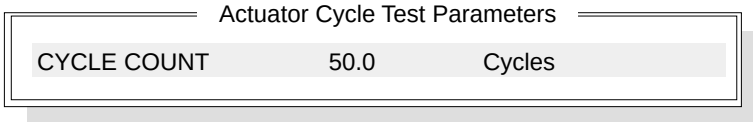
Run Diagnost	Adjust		Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Adjust opens the following window:



The menu bar changes to the following:

			Next	Previous	Incr.	Decr.	Exit

Next / Previous keys have no function in this application.

Incr. / Decr. keys change the value of the cycle count.

Exit returns operation to the screen alignment diagnostics page.

Home Actuators Selecting this diagnostic function drives the X forward, X Rear and Y Axis actuators simultaneously to their home positions, as determined by their home sensors.

Drive X Forward Motor Using Jog Buttons Selecting this diagnostic function drives the X forward actuator using the jog buttons. The right Jog button drives the X forward actuator right at slow speed and the left Jog button drives it left, stopping immediately the button is released.

Drive X Rear Motor Using Jog Buttons Selecting this diagnostic function drives the X rear actuator using the jog buttons. The right jog button drives the X rear actuator right at slow speed and the left jog button drives it left, stopping immediately the button is released.

Drive Y Motor Using Jog Buttons

Selecting this diagnostic function drives the Y actuator using the jog buttons. The right jog button drives the Y actuator forward at slow speed and the left jog button drives it to the rear, stopping immediately the button is released.

Toggle Chase Clamp

Selecting this diagnostic function alternately energizes and de-energizes the chase clamp solenoid, displaying On when the clamps are energized and Off when the clamps are de-energized.

Cycle Alignment System

Selecting this diagnostic function starts a continuous cycle of driving the screen actuators to each of the positions in the table below in sequence, dwelling for 2 seconds at each point and continuing the cycle.

The positions are given as XF, XR and Y in mm from the home position and are as follows:

1	0, 0, 0.
2	+20, +10, +10.
3	0, 0, 0.
4	-20, -10, -10.
5	0, 0, 0.
6	+10, +20, -10.
7	0, 0, 0.
8	-10, -20, +10.

If data logging is enabled, every time the screen returns to 0,0,0, locate a screen fiducial and its coordinates are appended to:

D:\Program Files\DEK\MachineControl\Printer\Screen.Dat file.

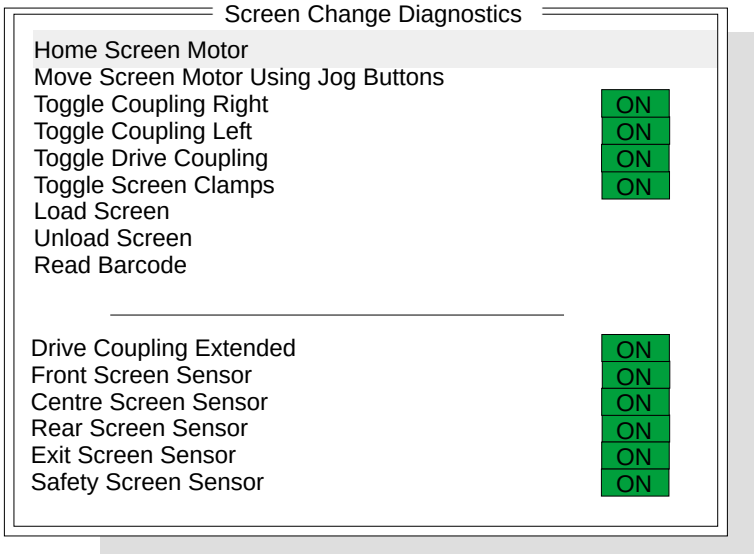
This continuous cycling is terminated by selecting the stop key or when the set cycle count has been reached.

Cycle Count

This diagnostic function displays the amount of cycles done and the amount of cycles to go to complete the cycle count.

SCREEN CHANGE

Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

Run Diagnost			Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Home Screen Motor

Selecting this diagnostic function drives the screen motor to its home position, as set by its home sensor.

Move Screen Motor Using Jog Buttons

Selecting this diagnostic function drives the screen motor using the jog buttons. The right jog button drives the screen motor forward and the left jog button drives it to the rear, stopping immediately the button is released.

Toggle Coupling Right

Selecting this diagnostic function alternately energizes and de-energizes the drive coupling right solenoid, displaying On when energized and Off when de-energized.

Toggle Coupling Left

Selecting this diagnostic function alternately energizes and de-energizes the drive coupling left solenoid, displaying On when energized and Off when de-energized.

Toggle Drive Coupling

Selecting this diagnostic function alternately energizes and de-energizes the drive couplings, displaying On when energized and Off when de-energized.

Toggle Screen Clamps

Selecting this diagnostic function alternately energizes and de-energizes the screen clamps, displaying **'On'** when energized and **'Off'** when de-energized.

Load Screen Selecting this diagnostic function performs a load screen cycle. During the load screen cycle, after the screen has cleared the rear sensor, if a screen barcode reader is fitted, the screen barcode reader is triggered and the resultant barcode is displayed in the message box on the monitor.

NOTE
If a barcode reader is fitted and the read barcode function is not displayed, check that the screen barcode hardware has been enabled in set preferences.

Unload Screen Selecting this diagnostic function performs a screen unload cycle.

Read Barcode Selecting this diagnostic function triggers the barcode reader and the resultant barcode is displayed in the message box on the monitor.

Drive Coupling Extended This diagnostic function monitors and continuously displays the status of the drive couplings.

Front Screen Sensor This diagnostic function continuously displays the status of the front screen sensor.

Centre Screen Sensor This diagnostic function continuously displays the status of the centre screen sensor.

Rear Screen Sensor This diagnostic function continuously displays the status of the rear screen sensor.

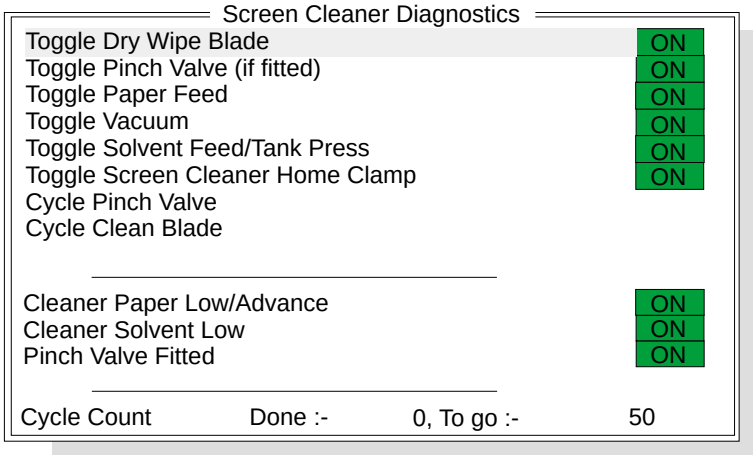
Exit Screen Sensor This diagnostic function continuously displays the status of the screen safety front sensor.

Safety Screen Sensor This diagnostic function continuously displays the status of the screen safety rear sensor.

NOTE
On later model machines, this sensor has been removed.

SCREEN CLEANER

Selecting this diagnostics module opens the following window:



NOTE
Toggle Paper Feed and Cleaner Paper Low/Advance are not present when the Vortex under screen cleaner is fitted.

The menu bar changes to the following:

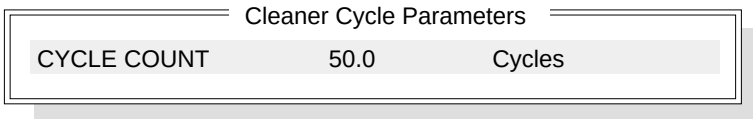
Run Diagnost	Adjust		Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Adjust opens the following window:



The menu bar changes to the following:

					Incr.	Decr.	Exit

Incr. / Decr. keys change the value of the cycle count.

Exit returns operation to the screen cleaner diagnostics page.

Toggle Dry Wipe Blade

Selecting this diagnostic function raises and lowers the cleaner body assembly, displaying On when the cleaner body assembly is raised and Off when the cleaner body assembly is lowered.

Toggle Pinch Valve Selecting this diagnostic function alternately energizes and de-energizes the solvent valve, displaying On when the solvent valve is energized and Off when the solvent valve is de-energized.

Toggle Paper Feed Selecting this diagnostic function alternately switches the paper feed motor on and off, displaying its current status. This function is not displayed if the Vortex under screen cleaner is fitted.

Toggle Vacuum Selecting this diagnostic function alternately switches the vacuum pump on and off, displaying its current status.

Toggle Solvent Feed/Tank Pressure Selecting this diagnostic function alternately energizes and de-energizes the solvent tank pressure solenoid, displaying On when air pressure is switched to the tank and Off when air pressure is removed.

Toggle Screen Cleaner Home Clamp Selecting this diagnostic function alternately energizes and de-energizes the screen cleaner home clamp electromagnet, displaying its status.

Cycle Pinch Valve Selecting this diagnostic function continuously opens and closes the solvent valve for the number of cycles specified in the cycle count.

Cycle Clean Blade Selecting this diagnostic function continuously raises and lowers the cleaner body assembly for the number of cycles specified in the cycle count.

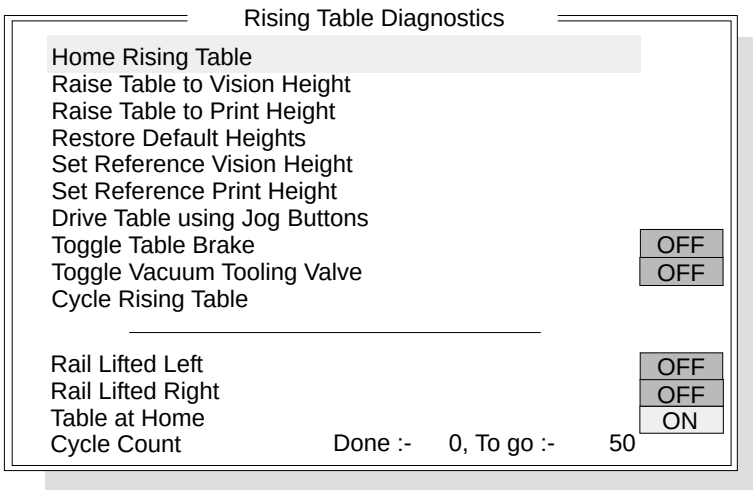
Cleaner Paper Low/Advance This diagnostic function continuously displays the status of the cleaner paper low/advance sensor. This function is not displayed if the Vortex under screen cleaner is fitted.

Cleaner Solvent Low This diagnostic function continuously displays the status of the cleaner solvent low sensor.

Pinch Valve Fitted This diagnostic function continuously displays the status of the solvent valve.

Cycle Count This diagnostic function displays the amount of cycles done and the amount of cycles to go to complete the cycle count.

RISING TABLE Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

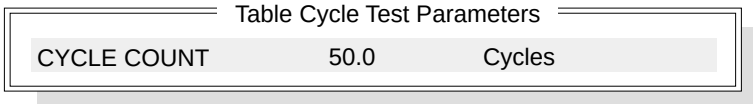
Run Diagnost	Adjust		Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

Adjust opens the following window:



The menu bar changes to the following:

			Next	Previous	Incr.	Decr.	Exit

Next / Previous keys have no function in this application.

Incr. / Decr. keys change the value of the cycle count.

Exit returns operation to the rising table diagnostics page.

Home Rising Table Selecting this diagnostic function drives the rising table down to the home position, as indicated by its home sensor.

Raise Table to Vision Height Selecting this diagnostic function drives the rising table to the height set by the vision height parameter.

Raise Table to Print Height Selecting this diagnostic function first checks that the camera carriage is at the home position, if not the rising table error message, **'Table Movement Inhibited, Camera Not Home'** is displayed. If the camera is in the home position, the rising table drives up to the height set by the print height parameter.

Restore Default Heights Selecting this diagnostic function restores the vision height to the default of 50 mm and the print height to the default of 127 mm.

Set Reference Vision Height Selecting this diagnostic function enables the rising table vision height to be set so that the camera views the board fiducials in focus. This is achieved by driving the table up or down while viewing the vision monitor until the fiducial is in focus. Pressing Calibrate Vision Height changes the menu Bar showing the option **Confirm**. Pressing Confirm sets the current height of the rising table, updating the printer configuration file. Refer to the Technical Reference Manual, Camera and Vision System chapter for the camera reference position procedure.

Set Reference Print Height Selecting this diagnostic function enables the print height to be set so that no gap exists between the screen and board. Refer to the Technical Reference Manual, Rising Table chapter for the print height calibration procedure.

Drive Table Using Jog Buttons Selecting this diagnostic function enables the right jog button to drive the rising table up at slow speed and the left jog button to drive the table down, stopping immediately the button is released.

Toggle Table Brake Selecting this diagnostic function alternately switches the table brake on and off, while continuously displaying the current status.

Toggle Vacuum Tooling Valve Selecting this diagnostic function alternately switches the vacuum tooling solenoid on and off, to supply and remove pneumatic pressure to the venturi vacuum pump, continuously displaying the current status.

Cycle Rising Table Selecting this diagnostic function first checks that the camera carriage is at the home position, if not the rising table error message, **'Table Movement Inhibited, Camera Not Home'** is displayed. If the camera is in the home position, a continuous cycle starts driving the rising table to print height, dwelling for two seconds, driving the table down to its datum height, dwelling for two seconds and repeating the cycle until Stop is pressed, or the Set Cycle Count has been reached.

Rail Lifted Left This diagnostic function continuously displays the status of the rail lifted left sensor. Off is displayed when the rail has been lifted.

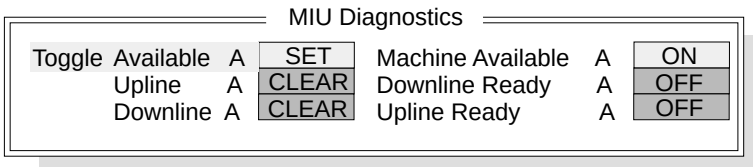
Rail Lifted Right This diagnostic function continuously displays the status of the rail lifted right sensor. Off is displayed when the rail has been lifted.

Table at Home This diagnostic function continuously displays the status of the home interlock sensor. On is displayed when the rising table is in the home position.

Cycle Count This diagnostic function displays the amount of cycles done and the amount of cycles to go to complete the cycle count.

MULTI INTERFACE UNIT

Selecting this diagnostics module opens the following window:



The menu bar changes to the following:

Toggle			Next	Previous			Exit

Next / Previous keys move the highlight bar up and down the list of selectable diagnostic functions.

Toggle activates the diagnostic function, as selected by the highlight bar.

Exit returns operation to the module diagnostics page.

NOTE
This diagnostic can only be run when the machine is connected to an upline and downline machine.

Toggle Available A This diagnostic function is currently not used.

Toggle Upline A Selecting this diagnostic function sends a request to the upline machine to send a board.

Toggle Downline A Selecting this diagnostic function sends a request to the downline machine to receive a board.

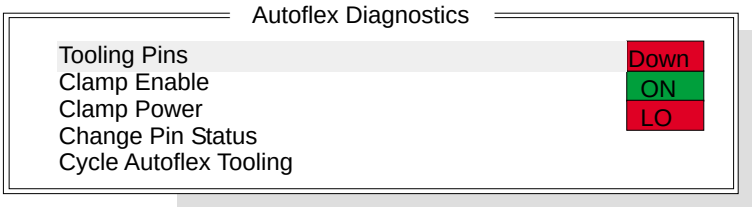
Machine Available A This diagnostic function is currently not used.

Downline Ready A This diagnostic function continuously displays whether the downline machine is ready to receive a board.

Upline Ready A This diagnostic function continuously displays whether the upline machine is ready to send a board.

AUTOFLEX TOOLING (STANDARD)

Selecting this diagnostics module opens the following window:



The menu bar changes displaying the following:

Run Diagnost			Next	Previous			Exit

Next / **Previous** keys move the highlight bar up and down the list of selectable diagnostic functions.

Run Diagnost activates the diagnostic function, as selected by the highlight bar.

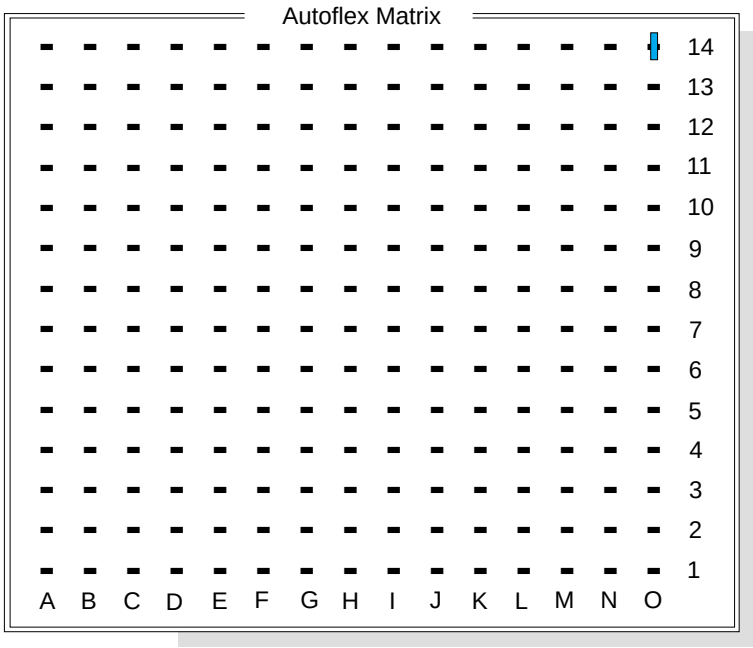
Exit returns operation to the module diagnostics page.

Tooling Pins Selecting this diagnostic function alternately lifts and lowers all the pins, continuously displaying the current status.

Clamp Enable Selecting this diagnostic function alternately switches the electromagnet clamps on or off, continuously displaying the current status. Any pins that are up when the clamp is switched off automatically lower.

Clamp Power Selecting this diagnostic function alternately switches the power through the electromagnetic coils between high and low, continuously displaying the current status.

Change Pin Status Selecting this diagnostic function enables different pin patterns to be exercised. On selection the following window opens:



The menu bar changes to the following:

Lower	Raise	Set Status	Left	Right	Up	Down	Exit

Left, **Right**, **Up** and **Down** keys move the cursor to enable individual pins to be selected.

Lower or **Raise** keys enable the selected pin to be raised or lowered.

Set Status key enables the AutoFlex to set the selected pin pattern. The message **'Setting Up AutoFlex Tooling'** is displayed in the message window.

Exit returns operation to the AutoFlex diagnostics page.

Cycle AutoFlex Tooling Selecting this diagnostic function cycles the AutoFlex pins in a set pattern. The pattern is as follows:

1. All the pins are raised.
2. The pins are lowered leaving a third raised, every third pin.
3. All the pins are raised.
4. The pins are lowered leaving a second third raised.
5. All the pins are raised.
6. The pins are lowered leaving the last third raised.
7. The process repeats until the **Stop** key is pressed.