DecoSpector 360™ Training Guide

DecoSpector 360™ Training Guide | 6.1.8 Software

Part Number 80737 Rev. 01

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Chapter 1 Introduction

Welcome! Congratulations on your purchase of a Pressco DecoSpector 360™ system! The DecoSpector is an inspection system that performs extensive product quality checks on 100% of the decorated surface area of printed beverage cans.

The DecoSpector system locates the following on cans:

- Printing flaws (voids, spots, smears, cut blanket, etc.)
- Color conformity to specifications (drift, light, dark, contamination)
- Color to color registration (ghosting, shadows, shifts)
- Missing print coat (clear or white)

The DecoSpector system correlates defects to print blanket and mandrels, so that you can quickly locate problematic areas and make repairs or adjustments.

The system consists of a touch screen operator interface, a control enclosure, an inspection tunnel, and the associated cables connecting the components.

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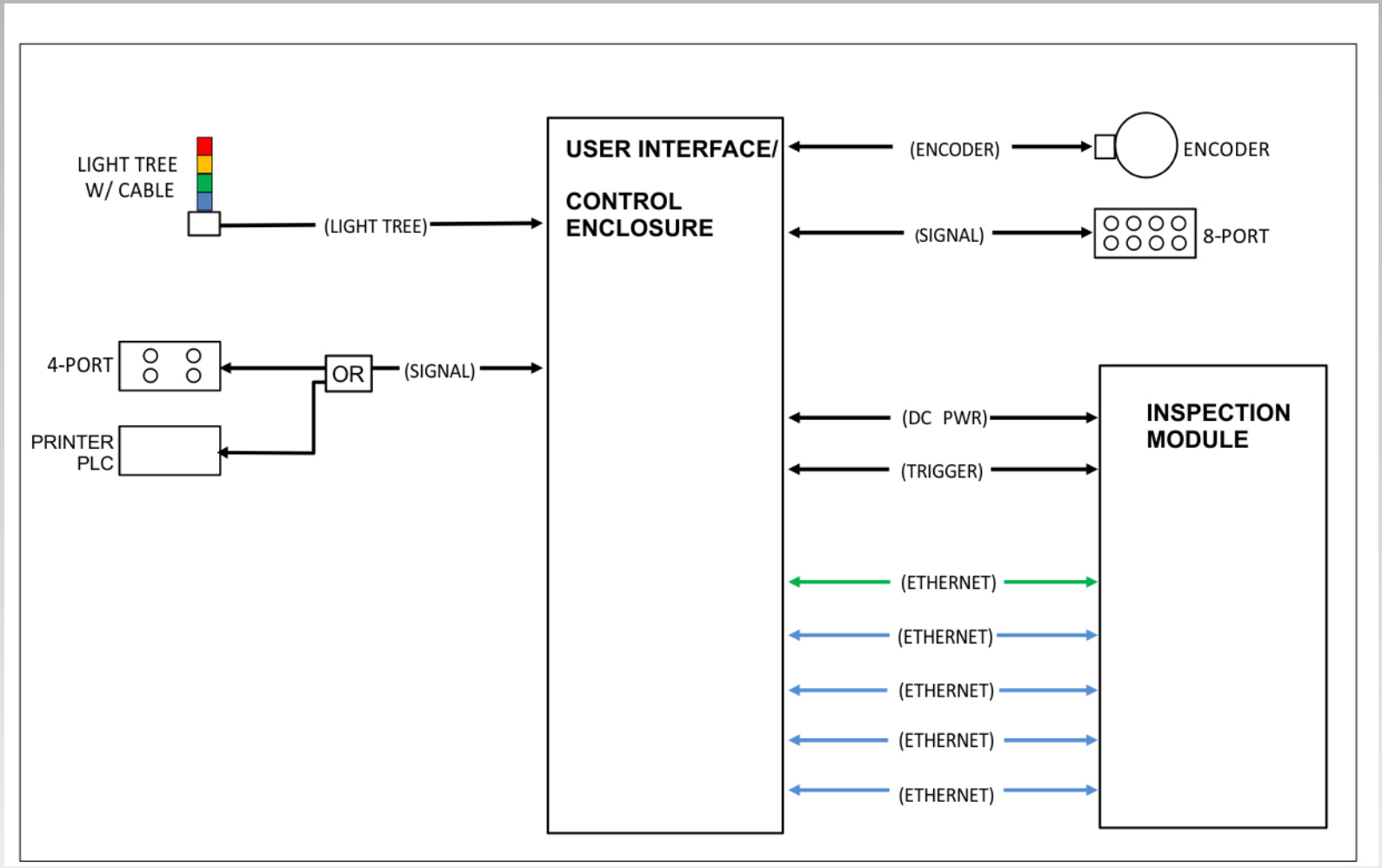
Deco Interconnect Diagram

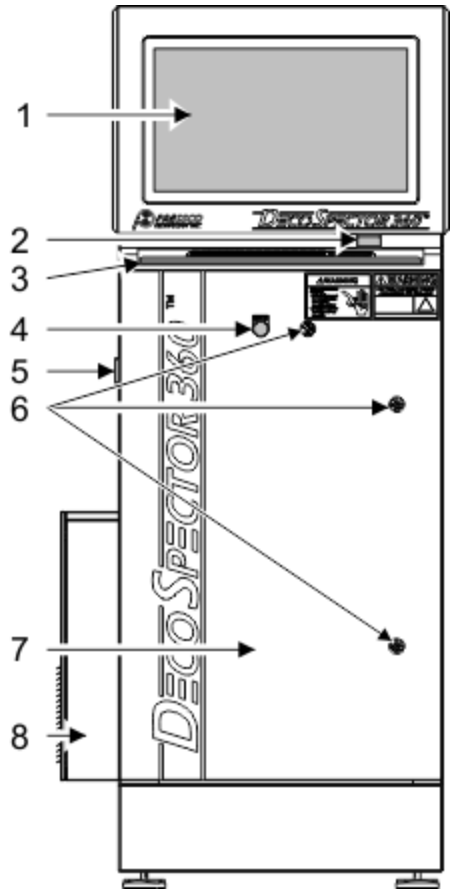
This diagram shows a typical DecoSpector 360™ system configuration. Blue Ethernet = Camera. Green = PDN.



Original Cabinet

For systems with cabinet part numbers 75000 - 75003

Control Enclosure and Operator Interface



Original cabinet

1) Touch screen monitor

2) Biometric login device (under monitor)

3) Keyboard tray

4) Power indicator LED

5) Power switch

6) Interlock

7) Vision processor (inside control enclosure)

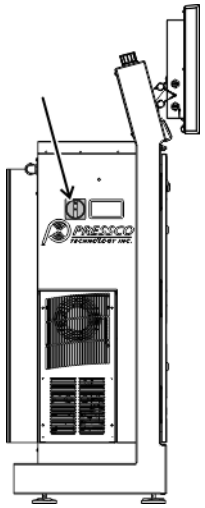
8) Air conditioner

USB Ports - Original Cabinet

There are USB ports available to back up or transfer data, and also to connect the optional mechanical keyboard. They are located on the left side of the monitor (also on the remote monitor).

SIDE VIEW OF ENCLOSURE, LOCAL, 75005

Power On and Off



To power on the system:

Turn on the switch on the side of the cabinet. The software will start automatically. (You must log in and put the system online to begin inspection)

> *Note: it takes about a minute for the computer to start after the main power switch is turned ON*

To power off the system:

Turn off the switch on the side of the cabinet.

When you shut down the system:

- The system, including the computer, shuts down,
- The UPS shuts down

> *Warning - When you shut down power using this switch, there is still voltage present on the UPS inside the unit until it discharges. The interlock switch is energized to prevent access to the inside of the unit.*
>
> *Important - If you want to restart the system, turn off the power, let the software and components completely shut down, and leave the power off for about one minute before turning it back on. This allows the electronic components to correctly reset.*

Interlock for Computer Door

Original Cabinet

At the top of the computer door is an electrical interlock that prevents the door from opening. The only way to open the door is to use a key in the defeater. This allows only AUTHORIZED SERVICE PERSONNEL to access the inside of the computer while the power to the unit is still applied. See Accessing the internal components.

> *Warning - The door is electrically interlocked. When the lock is engaged, live voltage is present within the cabinet. To override the interlock, complete a controlled shutdown, or use the key to override.*

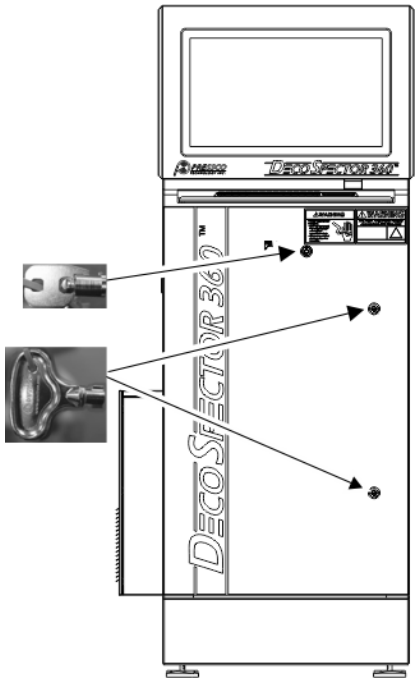
If the door is open, you can push it shut and the interlock switch will engage. It is spring-loaded.

Accessing the Internal Components

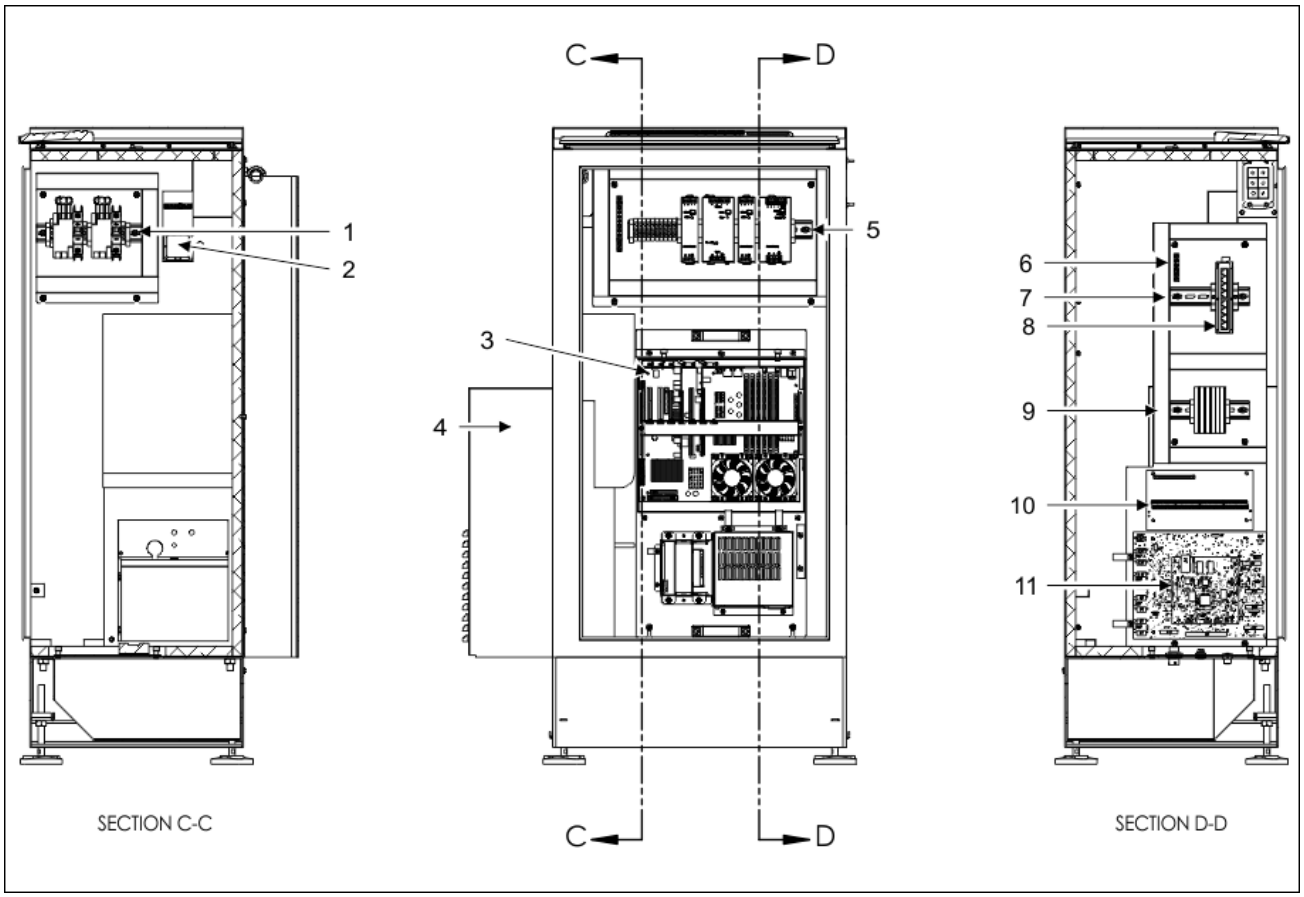
Original cabinet

To access the components inside of the DecoSpector 360™ computer, you will need two keys, which are supplied with the system. The standard key opens the locks on the system, and the interlock key opens the Interlock for computer door.

Warning - When the system is powered down, there is still voltage present at the UPS. Only **AUTHORIZED PERSONNEL** should attempt to open the system. We recommend that only AUTHORIZED PERSONNEL have access to the keys.



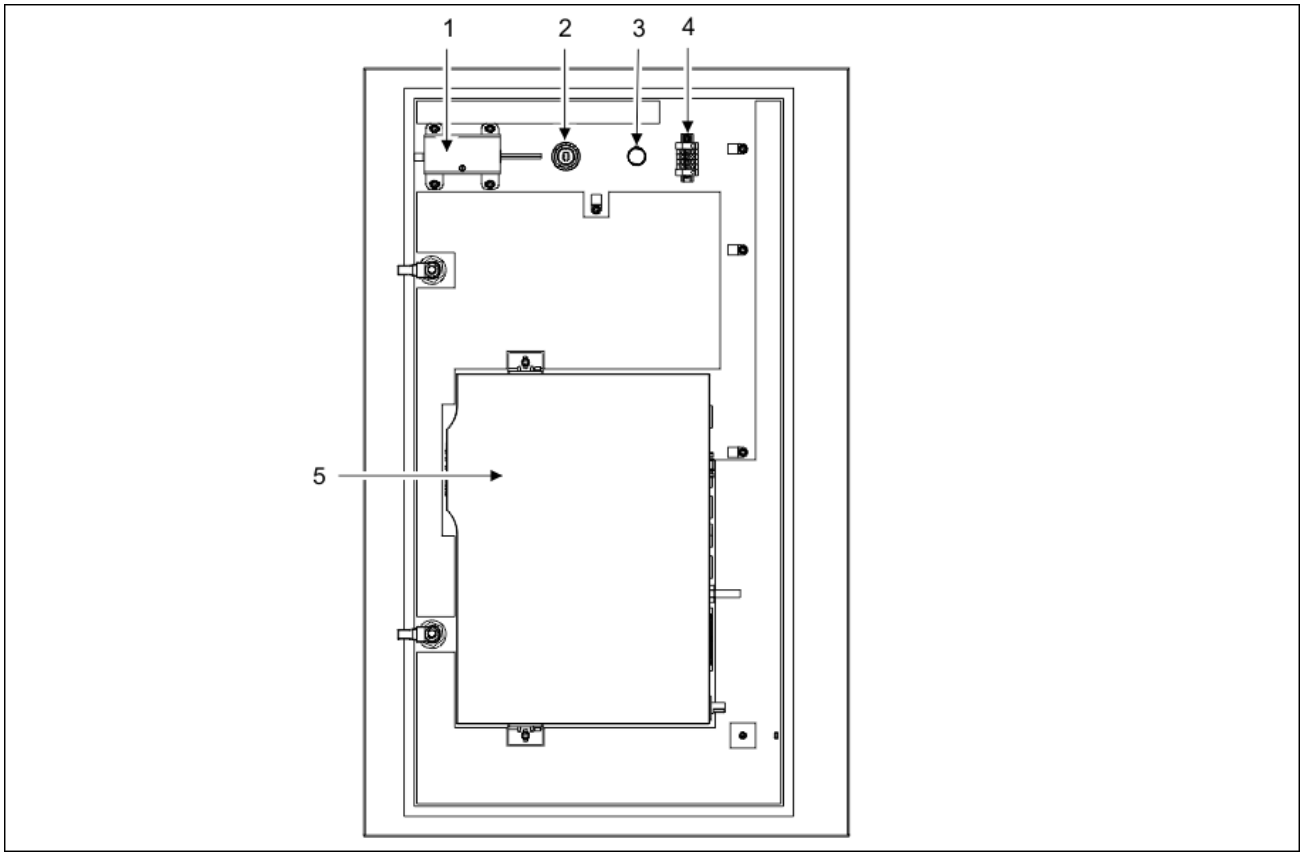
Components Inside the Control Enclosure - Original Cabinet



1) TB1 - terminal block 1
2) DISC1 - Lockable disconnect switch
3) Vision processor computer
4) Air conditioner
5) TB2 - terminal block 2
6) GB1 - ground bus 1
7) TB3 - terminal block 3
8) 8PDN ethernet switch
9) TB4 - terminal block 4
10) Extended I/O
11) Part tracker

Components Inside the Cabinet Door

Original cabinet



1) Interlock switch
2) Defeater lock
3) ON light
4) TB5 - terminal block 5
5) UPS

UPS Information

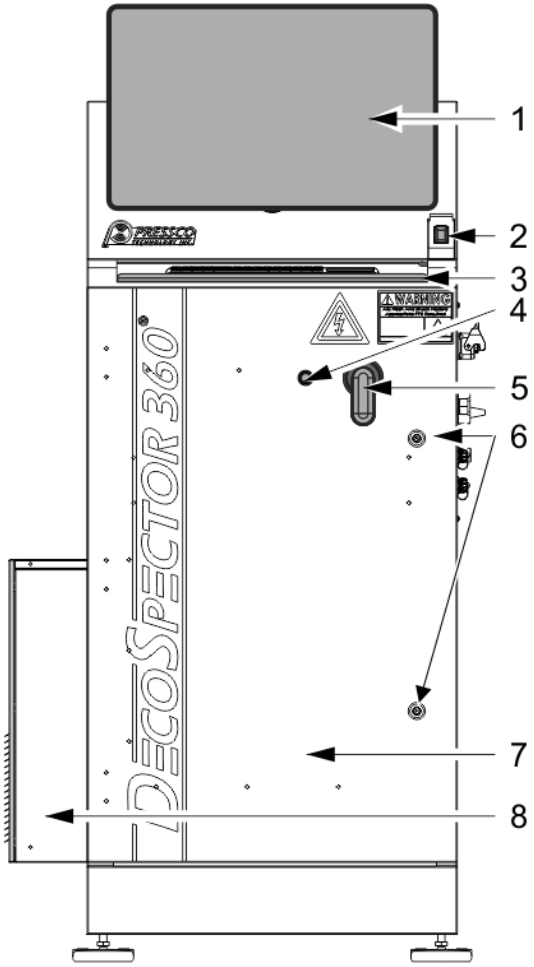
The Uninterruptible Power Supply (UPS) provides battery backup power for temporary system operation in case of a power failure.

The cabinet door will not open (due to the solenoid lock) until the UPS has powered down. A programmed power-down sequence ensures that the system shuts down properly whenever the Main AC Power Switch is turned OFF.

New Cabinet

This section is for systems with cabinet part numbers 77769 - 77770

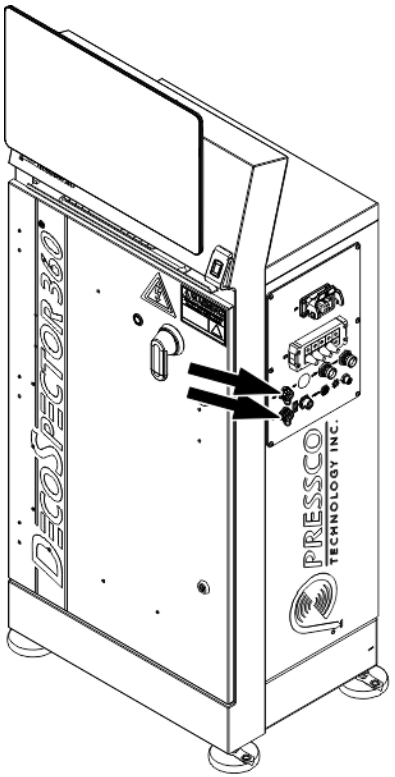
Control Enclosure and Operator Interface Hardware



New cabinet

1) Touch screen monitor
2) Biometric login device
3) Keyboard tray
4) Power indicator LED
5) Power switch
6) Locks (Accessing the internal components with power OFF)
7) Vision processor (inside control enclosure)
8) Air conditioner

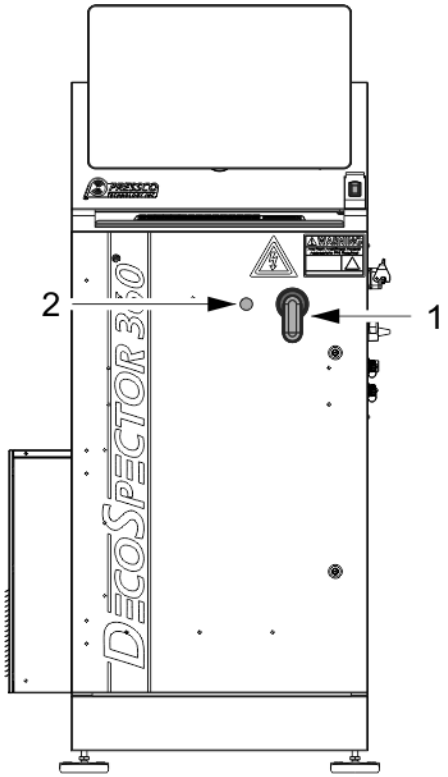
USB Ports



There are USB ports available to back up or transfer data.

Power On and Off at the Control Enclosure

New Cabinet



Power on: Turn on the switch [1] on the front of the cabinet. The power indicator [2] will illuminate. The software will start automatically. (You must log in and put the system online to begin inspection)

> *Note: it takes about a minute for the computer to start after the main power switch is turned ON*

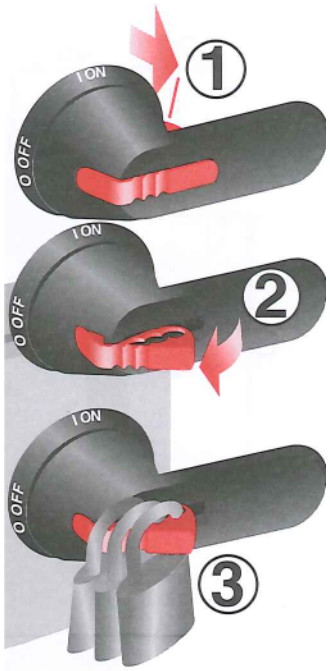
Power off: Turn off the switch on the front of the cabinet. The system, including the computer, shuts down. The UPS shuts down.

> *WARNING - When you shut down power using this switch, there is still voltage present on the UPS inside the unit until it discharges.*
>
> *Important - If you want to restart the system, turn off the power, let the software and components completely shut down, and leave the power off for about one minute before turning it back on. This allows the electronic components to correctly reset.*

Lockout Procedure

New Cabinet

To prevent power from being applied while the cabinet door is open:



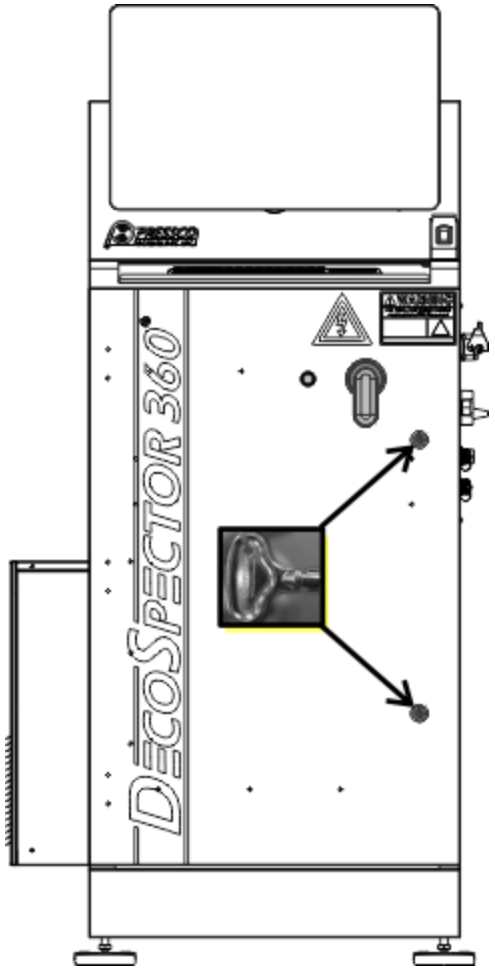
1. Make sure the handle is in the OFF position
2. Push the red piece of the handle out from the back
3. Secure up to three locks

Accessing the Internal Components with Power Off

New cabinet

To access the components inside of the control cabinet, you will need the keys (supplied by Pressco).

> ⚠ *WARNING - When the system is powered down, there is still voltage present at the UPS. Only AUTHORIZED PERSONNEL should attempt to open the system. We recommend that only AUTHORIZED PERSONNEL have access to the keys.*



Accessing the Internal Components with the Power On

New cabinet

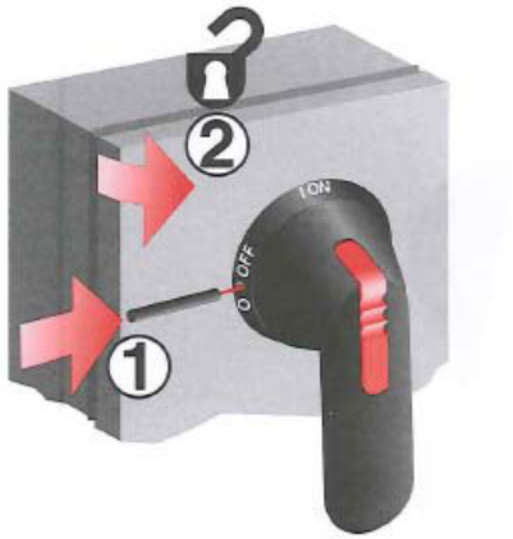
The disconnect switch has an override feature allowing you to open the cabinet door while the switch is in the ON position.

> ⚠ *WARNING - Only AUTHORIZED SERVICE PERSONNEL should access the inside of the computer while the power to the unit is still applied.*

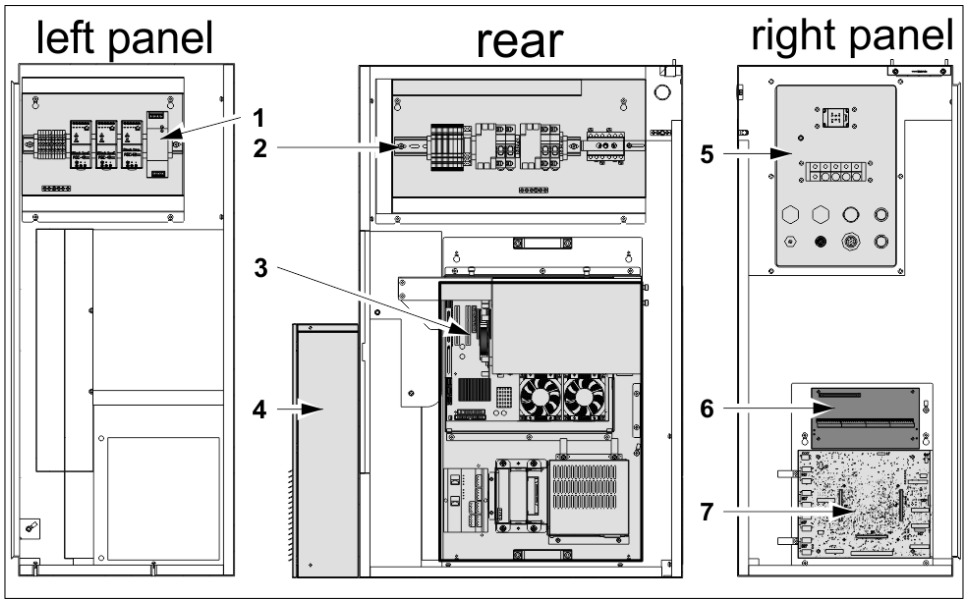
1. Use a small, blunt tool to press the small button on the left side of the handle. A 3/32" or 2.5mm allen key works best, but you can use a ball point pen.

   ⃠ Do not use a sharp tool to press the button.
2. Open the cabinet door.

> ⚠ *Warning - live voltage is present within the cabinet.*



Components Inside the Control Enclosure



1) DC Power panel, TB2

2) Power Entry Panel, DISC1, TB1

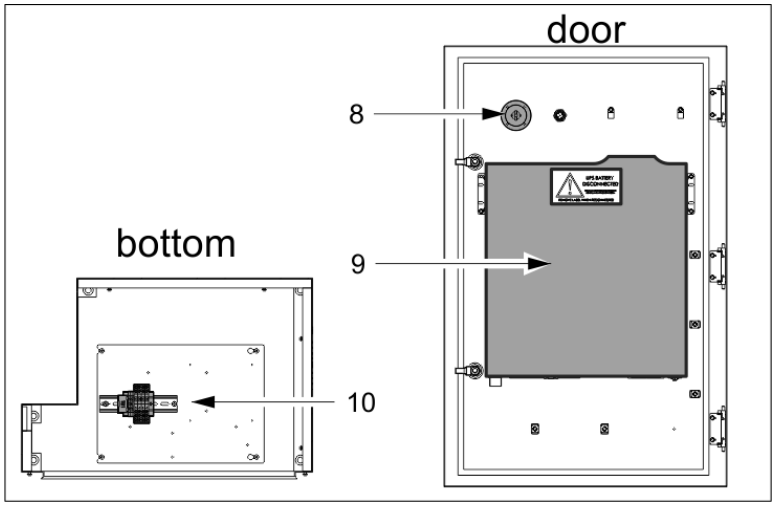
3) Vision Processor Panel

4) Air conditioner

5) Gland plate

6) Extended I/O board

7) 8-channel part tracker board

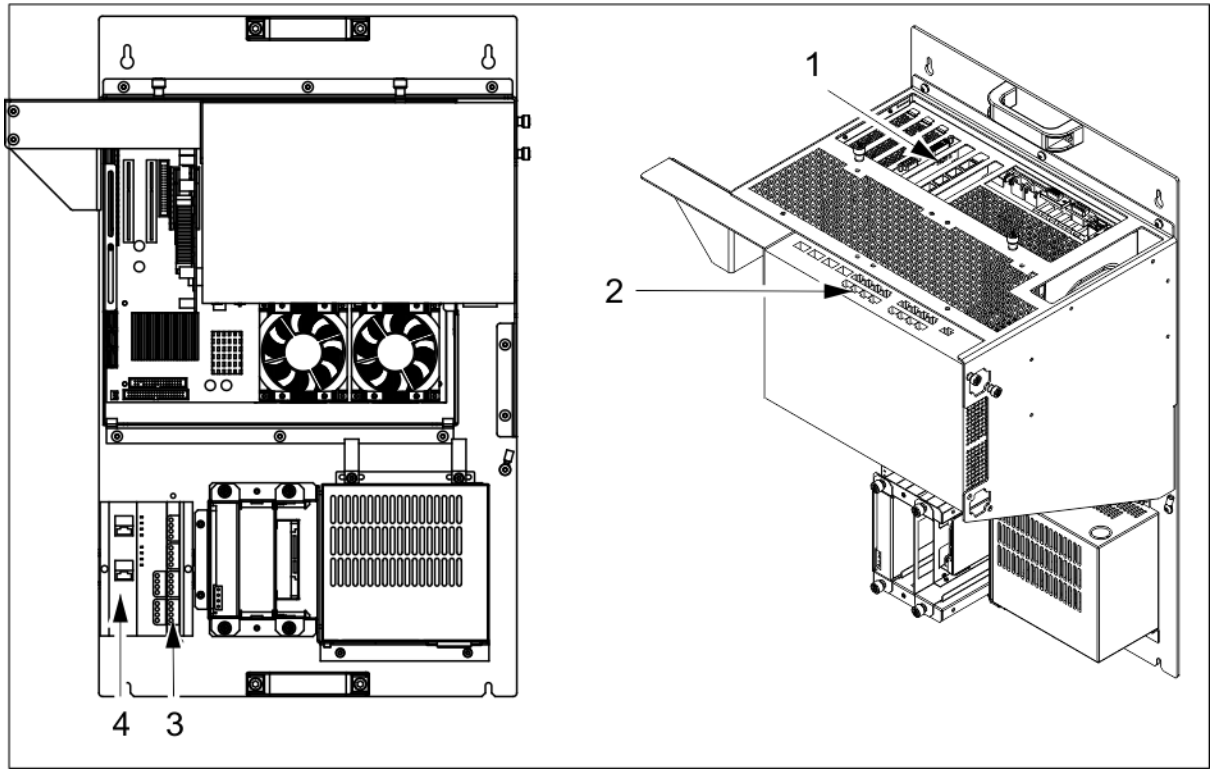


8) Power switch, DISC1 (connected by a rod to the disconnect on the rear of the cabinet)

9) UPS

10) PLC Correlation, Extended I/O, and Opto Relays 78746

Vision Processor Panel



1) Vision Processor rear panel
2) Managed Ethernet switch
3) Remote I/O output module
4) Remote I/O coupler module

Biometric Login Device

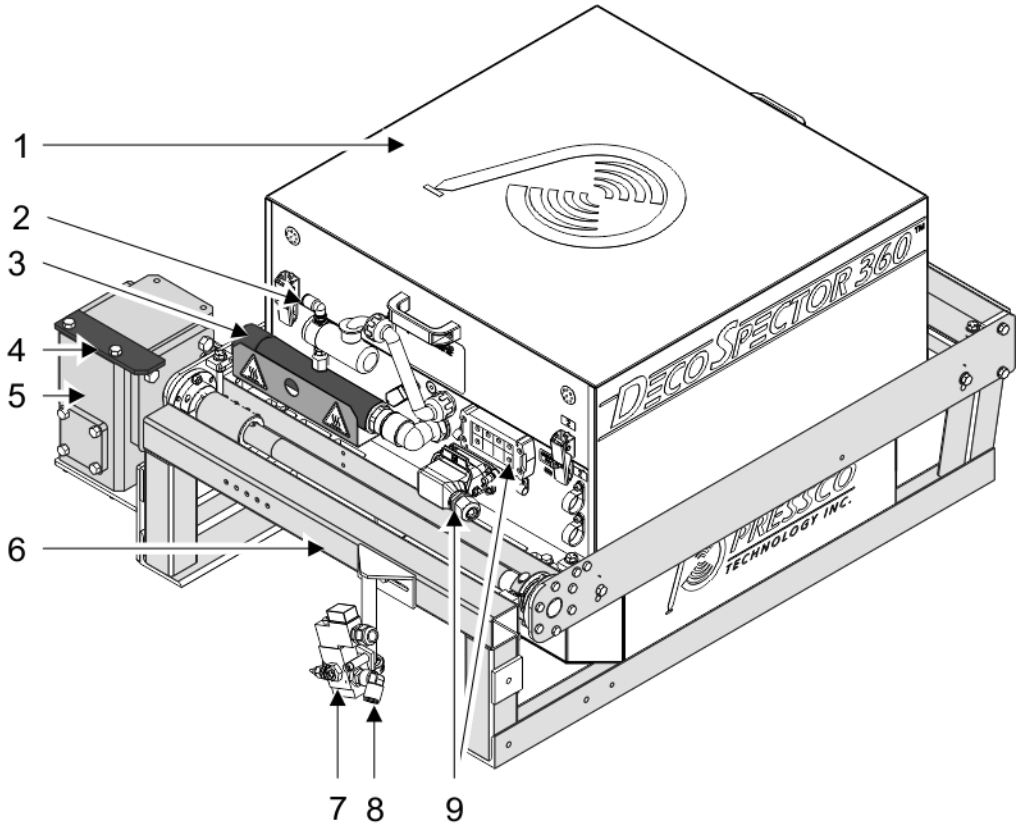
The Biometric Identification login device is used to log in and out of the Pressco system. This device is optional and must be purchased with the system.

To log in with this device, press your finger to the device. The following are conditions for use:

- You must use the same finger as initially set up by your administrator
- If you do not know how your account was set up (or which finger you used), contact your administrator
- If, after three tries, the Pressco does not recognize your finger print, you must log in using the On Screen Keyboard (OSK)

Inspection Module

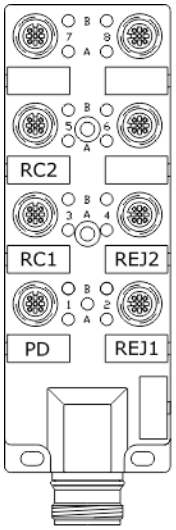
WARNING - Keep hands away from the Vortex cooler [3] to avoid risk of burns.

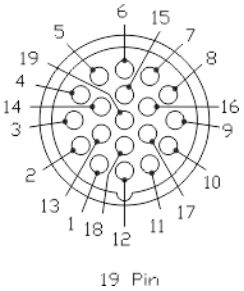


1) DecoSpector 360™ inspection module
2) air connection for Vortex cooler
3) Vortex cooler
4) mechanical stop for the service frame
5) gear box for moving the service frame
6) service frame
7) air connection for the Vortex cooler
8) air connection for the rejector
9) connection for cables to the control enclosure

8 Port I-O Box

The I/O box is usually mounted near the tunnel. The cable from this box is plugged into the bottom of the control enclosure, connector A. Control Enclosure External Connections





P/D - part detector

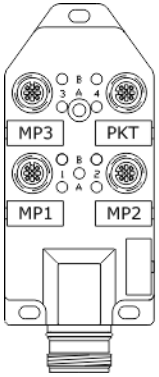
REJ1, REJ2 - rejector 1 and 2*

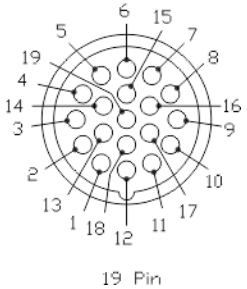
RC1, RC2 - reject confirm 1 and 2* (optional)

> **DecoSpector 360™ does not use rejector 2 nor reject confirm 2*

4 Port I-O Box

The I/O box is usually mounted near the correlation sensors. The cable from this box is plugged into the bottom of the control enclosure, connector B.





PKT - pocket detector

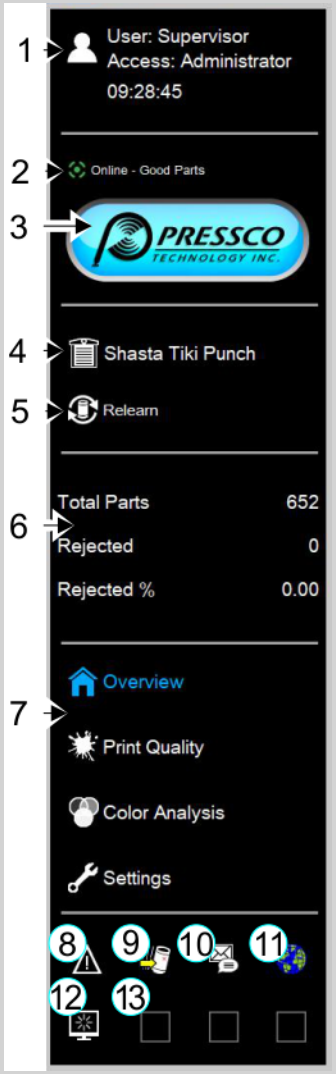
MP1 - MP3 - machine parts. These are configured through Correlation Settings

MP1 = Mandrel

MP2 - Print Blanket

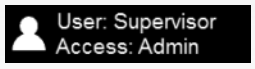
MP3 = Pin Chain

Control Panel



1) "Log In" below
2) System status
3) "Online and Offline" on the next page
4) "Job Management" on page 106 - to change the part you are inspecting
5) "Relearn" on page 110
6) "Statistics on the Control Panel" on the next page
7) "Views from the Control Panel" on page 34
8) "Alarms" on page 45
9) "Rejector - DecoSpector" on page 46
10) "Notepad" on page 34
11) "Language" on page 35
12) "Screen Capture" on page 35
13) Custom Buttons - set up by the Administrator

Log In



Tap to log in or log out.

If you have a biometric account, press your finger on the biometric device to log in. You must use the same finger that you used when you created the account.

Online and Offline

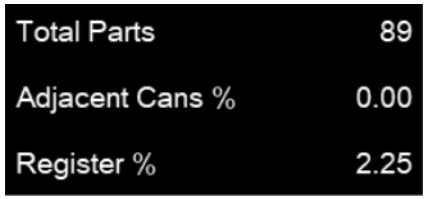
The button changes depending on system status and whether a user is logged in.

	Logged in: System is offline. Tap to put the system online.
	Logged in: System is online, capturing images, and/or inspecting parts. Tap to put the system offline.
	**No user logged in:** When you select the button in this state, the system will prompt you to log in. No user logged in - System is offline.
	No user logged in - System is online, capturing images, and/or inspecting parts.

*Note: An Administrator can enable or disable the automatic online feature from **Settings** | **System Settings** | **Go Online After Job Learn**.*

Statistics on the Control Panel

Tap the statistics area (more than once) to view more statistics.



 - Press and hold in the statistics area to clear statistics.

Views from the Control Panel

Select what to display in the Overview Panel (the big part of the screen).

- Select for the Home screen, or "Overview Panel" on page 36

- Select for the "Print Quality Screen" on page 137

- Select for "Color Analysis" on page 119

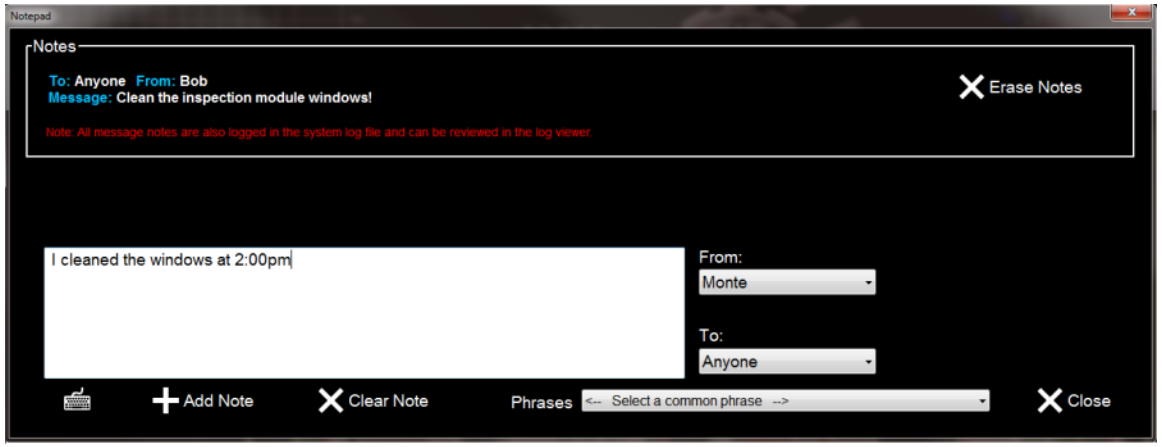
- Select for "Settings" on page 53 such as reject settings and reports

Notepad

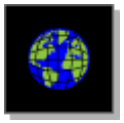

- Add messages to other DecoSpector users. Common phrases (provided from the **Phrases** drop-down menu) are normally used by Pressco Technicians to leave messages to operators, especially when a remote connection has been set up.


- The icon turns green when you **Add Note**, then **Close** the dialog. This notifies other users that there is a message waiting. To remove the green color, select **Erase Notes**. The icon turns white again. The system saves all messages in the "Log Viewer" on page 61.

Clear Note removes the text in the white box only.



Language

 - Select the user interface language. Your language preference is saved with your user account, so your default language is automatically loaded when you log in. This button is normally used to override the current language, or when no one is logged in.

Screen Capture

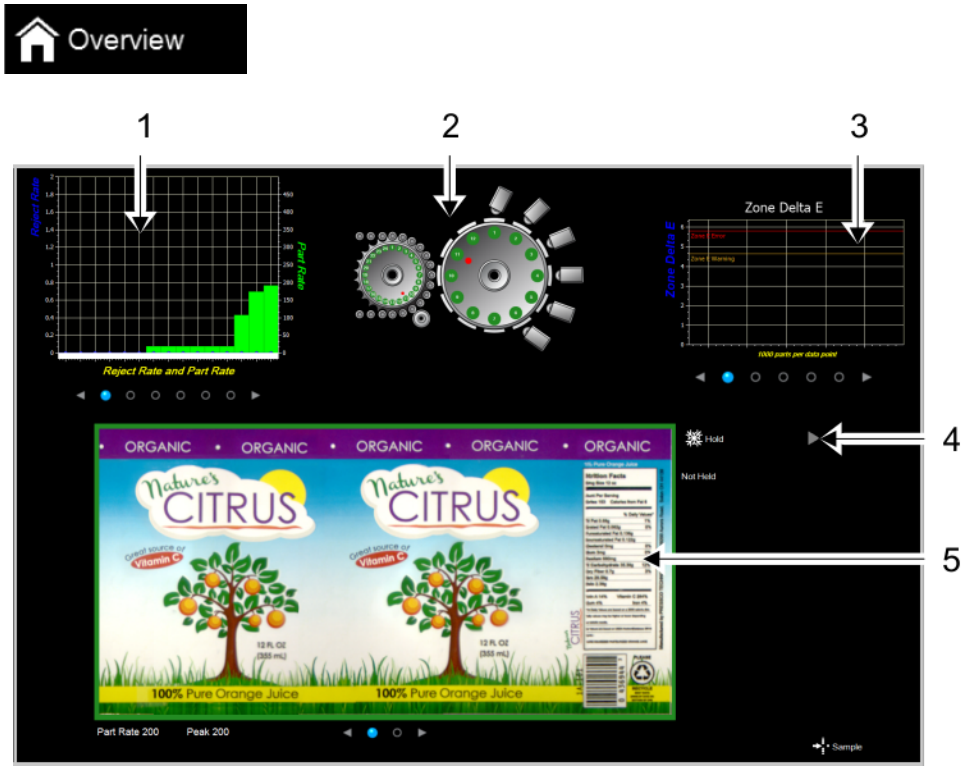
 - Capture a screen image for reference, troubleshooting, or to send to Pressco technical support. The system briefly displays the file path after the capture is taken.

Help

Access help from **Settings** | **System Utilities** | **Help**. Displays the Help files.

> *Note: to exit, press the X button in the lower right corner. If the window moves so that you cannot see the X, try pressing the top bar of the help window, and dragging the window up. This allows you to see the controls at the bottom of the screen.*

Overview Panel



1) Statistics Graphs - see "Graphs" on the next page

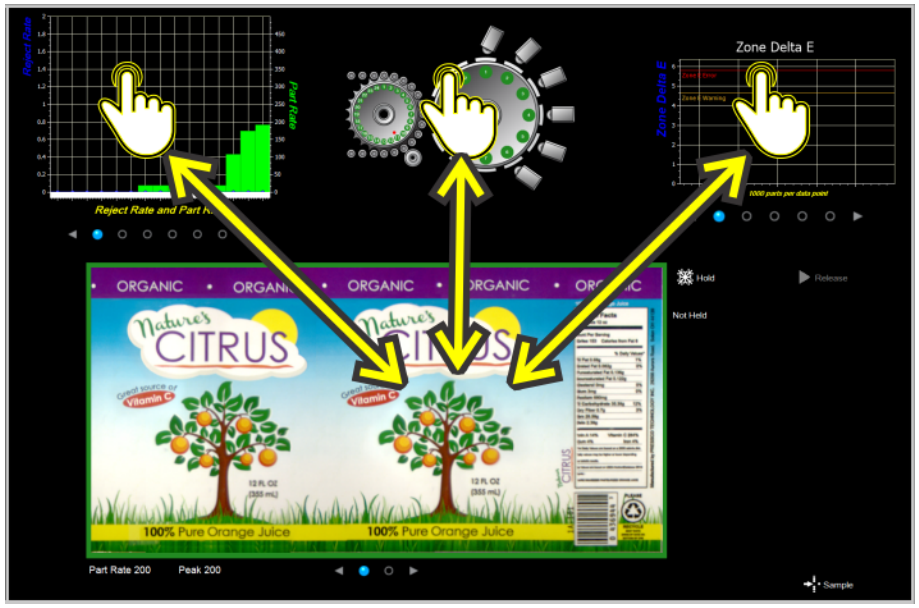
2) "Correlation" on page 90

3) "Color Trend Graphs" on page 129 (only if Color Zones are configured)

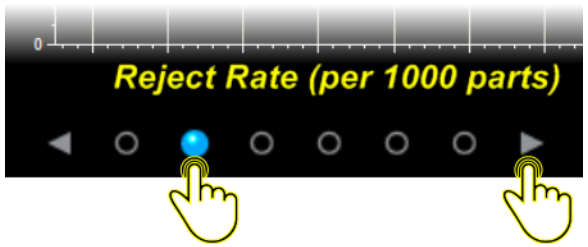
4) You can select what to display from "Overview Display View" on page 53

5) "View Live Images and Defects" on page 40

The lower section of the Overview Panel controls system operation and display. When a graph or image is displayed in the lower section, more controls are displayed to the right. Tap a graph or part image in the top section to display it as a large graph or image in the lower section of the panel.



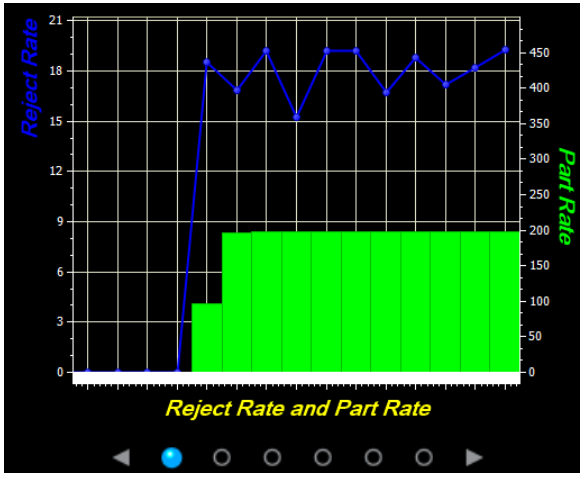
Swipe the graphs or use the buttons to display the different graphs.



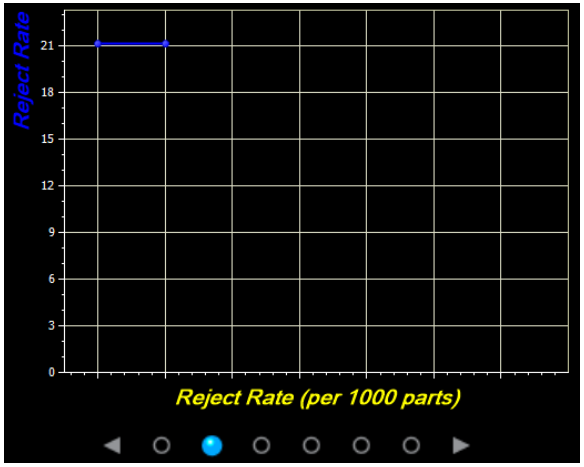
Graphs

The DecoSpector system has several graphs for you to monitor production. The following are examples:

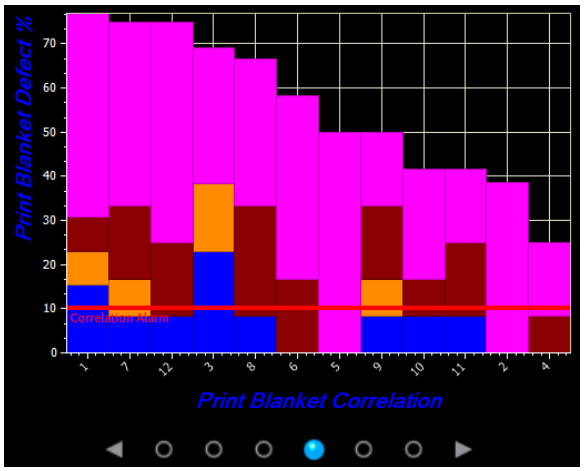
Reject Rate and Part Rate Graph



Reject Rate (per 1000 parts) Graph



Print Blanket Correlation



Graphs for Mandrel and Pin correlation are also available.

Statistics Grid

	Count	Percent (%)
Total Parts	2291	
Total Parts Rejected	409	17.852
Total Defects	483	21.082
Empty Pockets	0	0.000
Forced Rejects	0	0.000
Part Locate Inconsistency	19	0.829
Adjacent Cans	0	0.000
Out of Round	0	0.000
Registration	74	3.230
Orient	0	0.000
Print Defects	381	16.630
Wrong Color	381	16.630
Scuff	0	0.000
Shadow	0	0.000
Large Color Void	0	0.000
Small Color Void	0	0.000
Color Defects	28	1.222
Missed Acquisitions	0	
Missed Inspections	0	
Missed Results	0	
Missed Rejects	0	
Encoder Overspeed	0	

View Live Images and Defects

- View live inspection images.

Put the system online to inspect parts. The live images are updated in the part area. Swipe in the image area or tap the dots below the image to switch between the inspected image and the "error" image. The error image shows only the defects, if any. (Example of an error image: "View Defects on Images" on page 139)

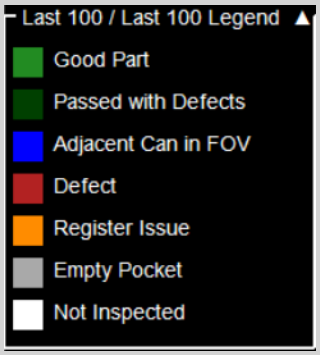
To zoom in on the image, use two fingers on the screen and drag apart to see the zoomed image. Then you can pan around the image by holding the image and dragging it on the screen.

To zoom in using the **keyboard**, double-left-click on the area desired. To zoom out, double-right-click.

To hold images on screen, use the Freeze on Defect option. "Hold an Image On Screen" on the next page

Color Borders Around Images

The DecoSpector system displays a different color border around each image depending on the inspection status.

This key is displayed in the "Print Quality Screen" on page 137. 	• Green = good part • Dark Green = a part passed, but it also had defects (example: a shadow detected on a part that had an adjacent can. The shadow is assumed to have been caused by the adjacent can) • Blue = an adjacent can is in the camera's field of view • Red = defect • Orange = registration issue • Gray = empty pocket • White = part not inspected

Hold an Image On Screen

Use the Freeze on Defect option to hold images on screen.

	Image is not held. Tap to manually hold.
	Image is held.
	Tap Release to release the image.

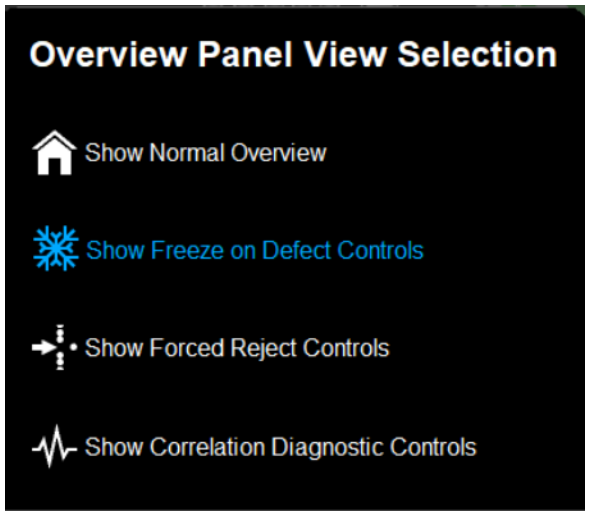
For more options (such as holding defect images automatically), see "Freeze on Defect Controls" on the next page.

Freeze on Defect Controls

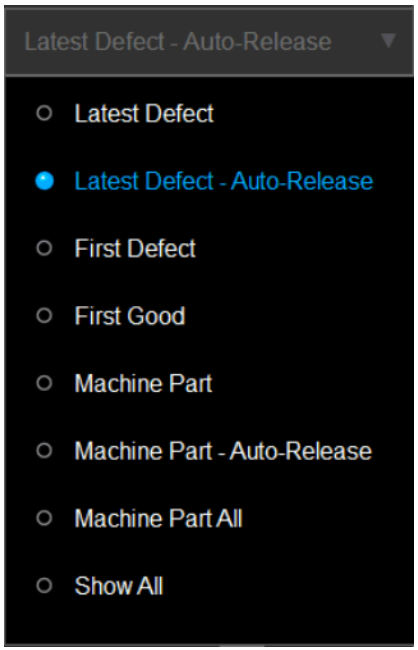
To enable Freeze on Defect Controls:

Enable the controls from the Settings menu: Settings | Overview Display View.

Select **Show Freeze on Defect Controls**.



The Freeze on Defect Controls are displayed on the home screen. Select when to freeze a defect on screen.



Latest Defect Freeze the image of the last defective part. Each subsequent failing part freezes on the screen until another part fails.

Latest Defect - Auto-Release Freeze the last defective image for up to the specified number of seconds, which is selectable next to **Release Time**.

First Defect Freeze the image of the first defective part after going online. The image remains on screen until you release it or change Freeze Mode.

First Good Freeze the image of the first good part after going online. The image remains on screen until you release it or change Freeze Mode.

Machine Part Freeze the next defective part image correlated to the selected machine part. It remains on screen until the next part correlated to the machine part becomes available and is replaced by the new image. Use the Select button to choose the desired machine part(s).

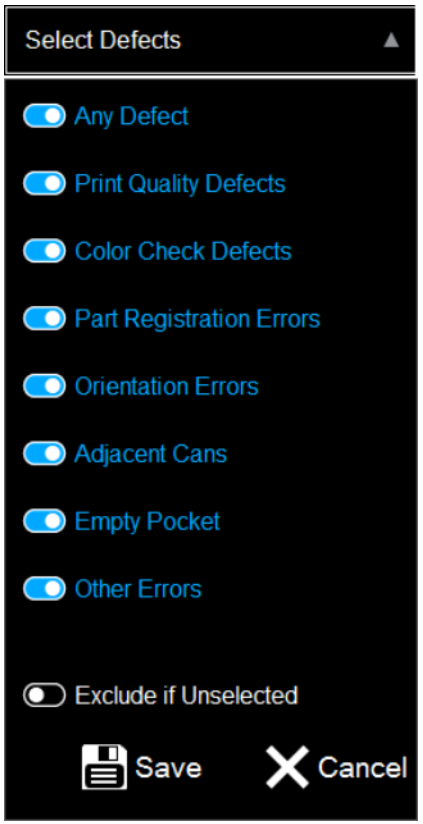
Machine Part - Auto-Release Freeze the next defective part image correlated to the selected machine part. It remains on screen for the specified time, or until the next part correlated to the machine part becomes available, whichever comes first. Use the Select button to choose the desired machine part(s).

Machine Part All Show the part image from the specified machine part(s), whether it passes or fails. It remains on screen until the next part correlated to the machine part becomes available. Use the Select button to choose the desired machine part(s). 

Show All Show all part images, not just the frozen images.

Select Defects controls

Select the type of defects to freeze on screen (used with Freeze on Defect).



= on.

Any Defect Display any defect.

Print Quality Defects Display only Print Quality defects, which include: wrong color, scuff, shadow, color void, and too much color.

Color Check Defects These defects occur when the part fails the tests for Color Zones. Color Zones are optional and are based on your plant specifications.

Part Registration Errors A registration error occurs when the system does not find the top or side edges of a part.

Orientation Errors An orientation error occurs when the part is tilted too much. This is also the reason for failure if the system detects a 'tramp can' or wrong label. This check is done automatically by the system.

Adjacent Can Errors An adjacent can error occurs when the system sees another can (in addition to the can being inspected) in the field of view. The adjacent can may cause shadows or reflections on the part being inspected.

Empty Pocket The system tests to see if a part is present before proceeding with inspection. If a part is not present, then this is called an Empty Pocket. For accurate production numbers, we need to locate empty pockets. No inspection takes place (for the current part) if the system finds an empty pocket. Empty pockets are found when the system does not locate any feature edges during part location. This can happen if the part is too short, too dark, or there is another severe defect that causes the system not to find the part.

Other Errors Display other errors that do not fall into the other specified categories.

Exclude if unselected Do not show the defect types (above) if they are turned off in the menu.

Chapter 4 System Tools

Alarms

 - Select the alarm icon to clear, configure, or view alarms.

Each alarm is user-configurable to: enable the alarm, turn on the light tree, sound the horn, turn the rejector off, and many other options.

Some alarms, including **Inspection speed too slow**, **General failure**, and **System power loss** cannot be disabled, because they are necessary for system operation.

Clearing Alarms

The alarm icon turns red when an alarm is triggered, and the Active Alarms screen is displayed. The number next to the icon indicates the number of currently triggered alarms.

Select **Clear All** (or the X) to clear the alarms. If there are no active alarms, no alarms are displayed in the list. If you close the screen without clearing alarms, the alarm icon stays red.

To see more information about the active alarm, select the alarm name in the left column. More information will be displayed on the right side of the screen.

Rejector - DecoSpector

Administrator only

 - Tap the rejecter icon to change settings.

 - This icon indicates that the rejecter is disabled.

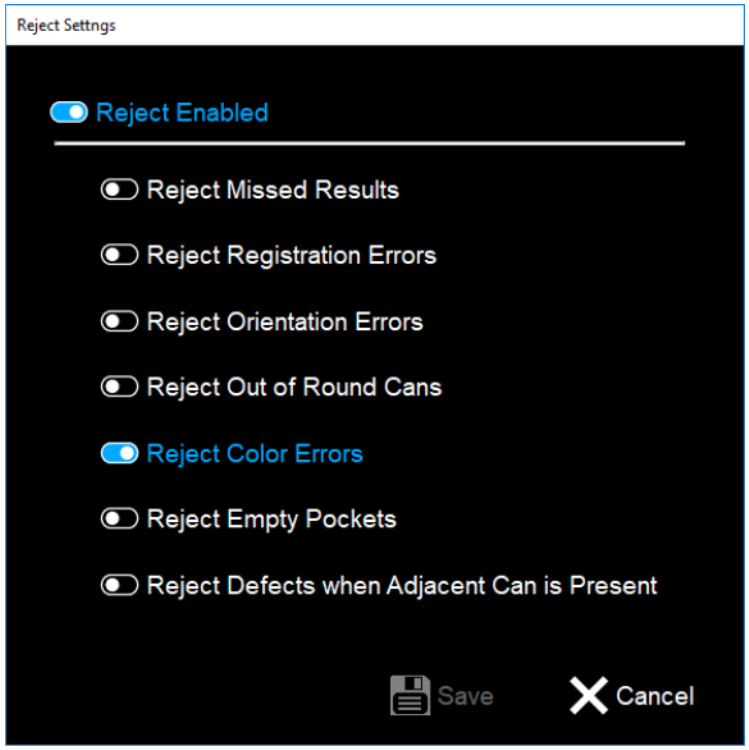
Reject Settings

Administrator only

To access these settings:

-  - select the rejector button, or
- 

| System Calibration | Reject Settings



> *Tip: you can set an alarm feature to Turn the Rejector Off if too many parts are rejected, or some other alarm condition. In Alarms, make sure "Perform Special Action" is enabled for the alarm | and enable "Turn Rejector Off" under Perform Special Action.*
> *Note: Pressco recommends that you enable both **Reject Registration Errors** and **Reject Orientation Errors**. These errors are usually found together on deformed cans.*

Reject Missed Results A Missed Result occurs if the system misses the inspection results of a part. This can happen if the inspection time is too long or if the system is too busy to process all the data before the part reaches the reject station.

Reject Registration Errors A registration error occurs when the system does not find the top or side edges of a part. If the job is set up properly, this does not happen often.

Reject Orientation Errors An orientation error occurs when the part is tilted too much. This is also the reason for failure if the system detects a 'tramp can' or wrong label. This check is done automatically by the system.

Reject Out of Round Cans Reject cans that the system determines to be out of round (the rim of the part appears to be an oval instead of a circle).

Reject Color Errors Color Errors occur when the part fails the tests for Color Zones. Color Zones are optional and are based on your plant specifications.

Reject Empty Pockets The system tests to see if a part is present before proceeding with inspection. If a part is not present, then this is called an Empty Pocket. For accurate production numbers, we need to locate empty pockets. No inspection takes place (for the current part) if the system finds an empty pocket. Empty pockets are found when the system does not locate any feature edges during part location. This can happen if the part is too short, too dark, or there is another severe defect that causes the system not to find the part.

Reject Defects when Adjacent Can is Present An adjacent can error occurs when the system sees another can (in addition to the can being inspected) in the field of view. The adjacent can may cause shadows or reflections on the part being inspected.

Adjacent Cans:

Adjacent can detection is impacted by three things:

- Adjacent cans in the Field of View – this is a true material handling issue that cannot be corrected by software, but detected
- The diffuser is getting dirty – "Clean the Tunnel Windows" on page 99
- Bad adjacent can settings – "Part Locate Settings" on page 81

Forced Reject

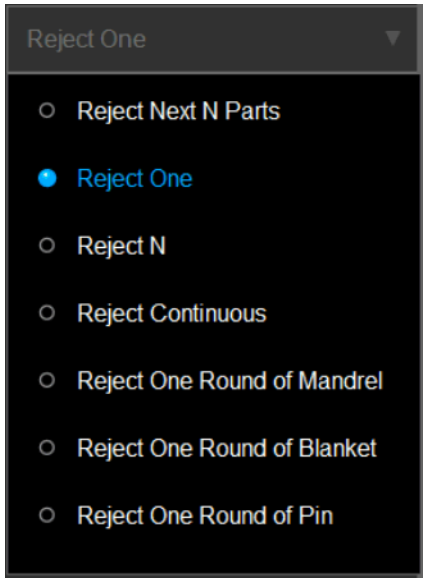
Force any part to be rejected. The system will reject all parts associated with the selected components, regardless of the pass/fail condition of those parts. This provides a means of handling an emergency situation until repairs on machine can be made. If you know there is a serious problem with a particular component, you can use this method to ensure that no part from the defective machine component passes the inspection process.

> *Tip: Forced Reject can be used for everyday quality checks if you would like to inspect dry cans versus wet cans.*
> *Note: the DecoSpector system must be online to reject parts*

To set up Forced Reject:

1. Settings | Overview Display View.
2. Select **Show Forced Reject Controls**. These are displayed on the right side of the home screen.

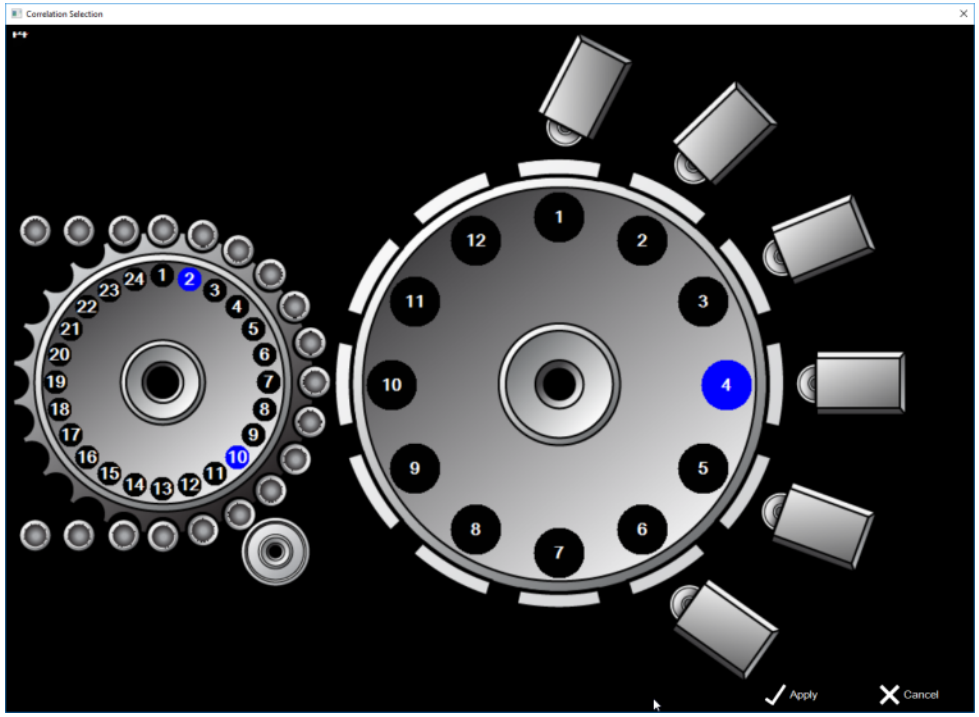
3. To select a different option than what is displayed, select the drop-down menu and make another selection.



4. 

Tap the **Select** button to select different machine parts. A graphic with machine parts is displayed. [shown below]
5. Tap each machine part that you want reject correlated parts from. In the example below, mandrels 2 and 10 and print blanket 4 are all selected.

> *Note: even if you select a Forced Reject option such as "Reject One Round of Print Blanket," you can still select other machine parts from the graphic.*



6. Tap **Apply** to save changes and exit. The correlation graphic at the top of the Home (Overview) screen highlights the selected machine parts.

To use Forced Reject:

1. Put the system online to inspect parts.
2. Start Forced Reject Tap the **Start Forced Reject** button. The system rejects those parts correlated to the selected machine parts and conditions you selected. The border around the part image turns gray when a part is rejected through Forced Reject. A message stating Forced Reject Completed is displayed when all the reject criteria is met.

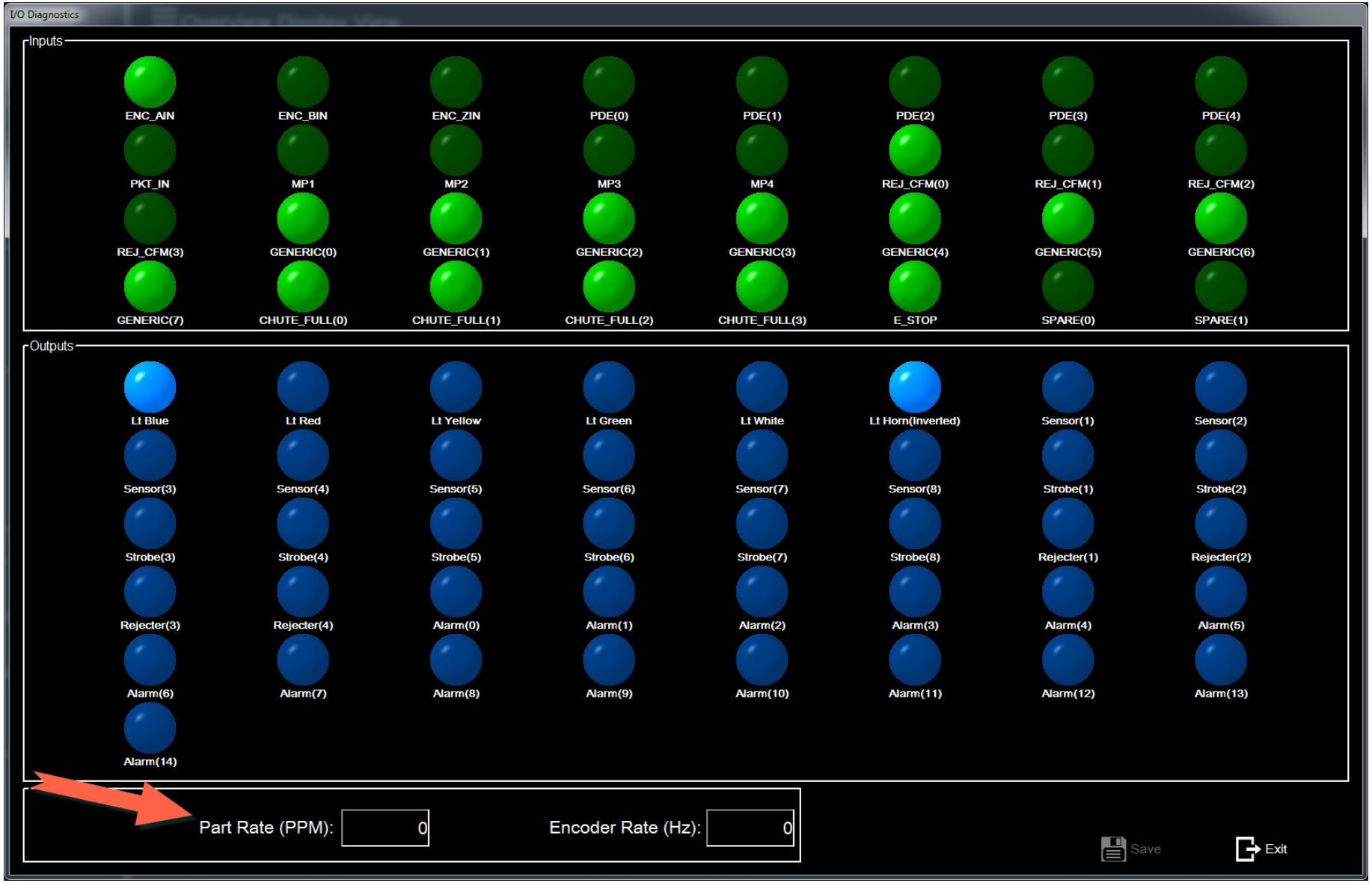

```
Starting Forced Reject
  [Mandrel = 19, Print Blanket = 1 (1 of 1)]
  [Mandrel = 20, Print Blanket = 2 (1 of 1)]
  [Mandrel = 2, Print Blanket = 3 (1 of 1)]
  [Mandrel = 3, Print Blanket = 4 (1 of 1)]
  [Mandrel = 4, Print Blanket = 5 (1 of 1)]
  [Mandrel = 5, Print Blanket = 6 (1 of 1)]
Forced Reject completed.
```

Notes about Forced Reject:

- Reset Selected To reset the Forced Reject options to the default values, select the **Reset Selected** button. (If the system is still in Forced Reject mode, you may need to cancel Forced Reject before making changes)
- The system uses an OR function to reject parts. That is, if you select mandrel 2 and print blanket 4, the system will reject the first part correlated to either machine part.
- When using **Reject One** or Reject Continuous, you must **Select** which correlated machine parts to reject.
- When using **Reject Next N** or **Reject N**, you can change the number of N parts on the screen by pressing and holding the number next to **Reject Count**.
- You can add additional correlated machine parts by tapping the **Select** button and selecting more machine parts.

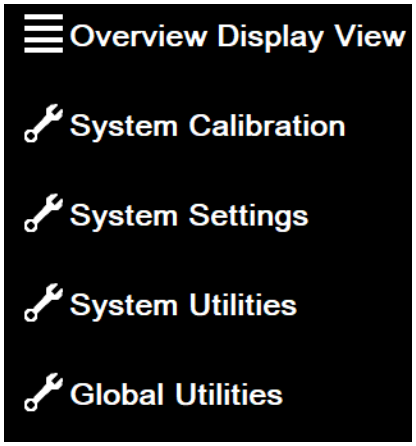
I-O Diagnostics

Settings | **System Utilities**| **I/O Diagnostics** - View the I/O port activity. You must be logged in as an Operator or higher, and running actual hardware. You can also view the part rate and encoder rate.



Settings

- Adjust system settings. A grayed out item means that only higher user levels have permission to access that item.

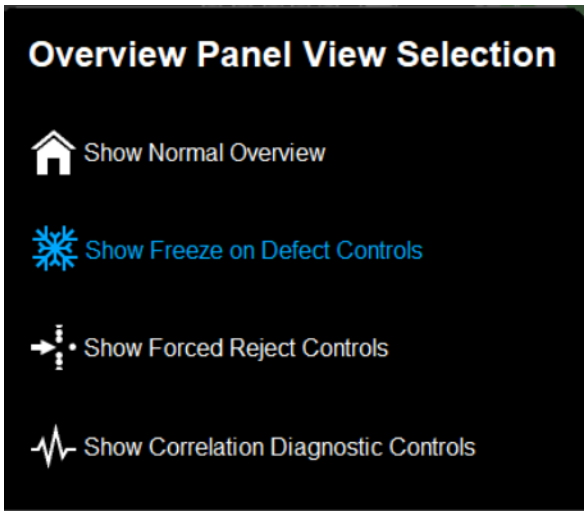


"Overview Display View" below
"System Calibration" on the next page
"System Settings" on page 55
"System Utilities" on page 56
"Global Utilities" on page 56

Overview Display View

Select what to display on the Overview screen. To get to this menu:

.



Show Normal Overview Resets the home screen to default, hiding Freeze on Defect, Forced Reject, and Diagnostic Controls.

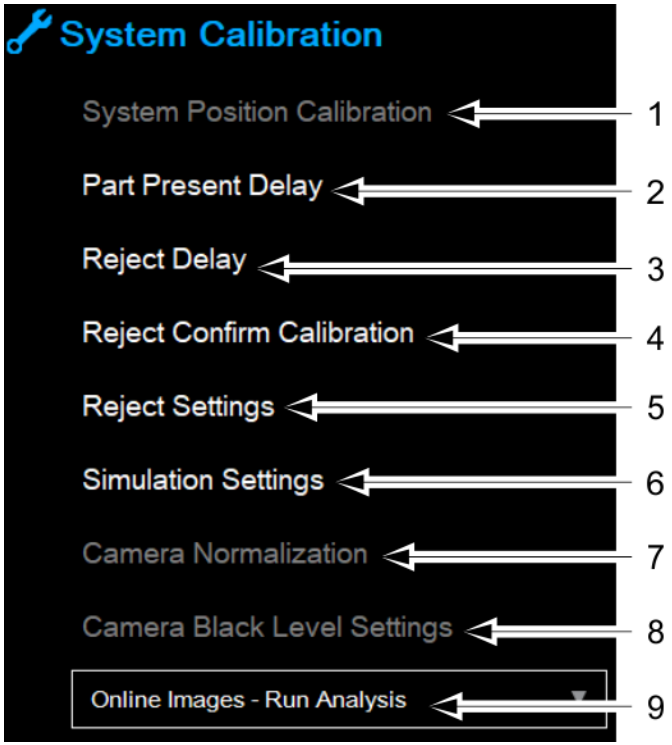
Show Freeze on Defect Controls Show the "Freeze on Defect Controls" on page 42 on the home screen.

Show Forced Reject Controls Show the "Forced Reject" on page 48 controls on the home screen.

Show Correlation Diagnostic Controls Show the correlation value where the current part is, and show that the system is tracking machine parts. "Correlation Diagnostics" on page 94

System Calibration

Administrator only To get to this menu: Settings | **System Calibration**.



Adjust the hardware settings for the following:

1) System Position Calibration: *Pressco Technician access only*

2) "Part Present Delay" on page 77

3) "Reject Delay" on page 78

4) Reject Confirm Calibration

5) "Reject Settings" on page 46 - same as selecting the rejector icon from the main screen.

6) "Simulation Settings" on page 80

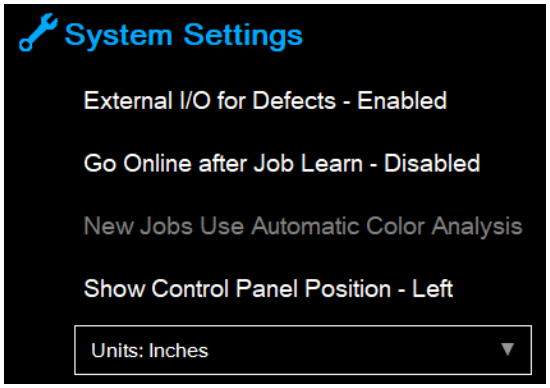
7) Camera Normalization: *Pressco Technician access only* - you must be running with actual hardware, not a simulation

8) Camera Black Level Settings: *Pressco Technician access only*

9) Online Images

System Settings

Settings | System Settings



External I/O for Defects This provides the ability to track the number of times certain defects happen, through the External I/O. It is only used in specific plant locations. Leave this disabled unless otherwise instructed by a Pressco engineer.

Go Online After Job Learn This toggles between enabled and disabled. If enabled, the system will automatically go online to inspect parts after it completes a job learn process.

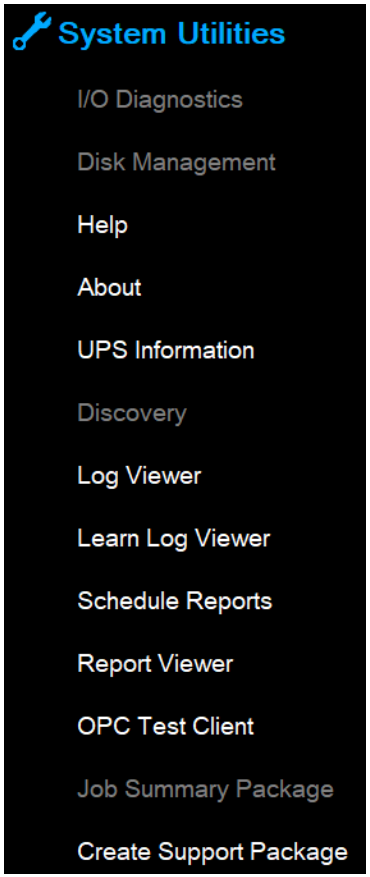
New Jobs Use Manual Color Analysis *Pressco Technician access only*

Show Control Panel Position Switch the location of the control panel.

Units Select your preferred unit of measurement.

System Utilities

Settings | **System Utilities**.



"I-O Diagnostics" on page 52

Disk Management - *Pressco Technician access only*

Help Access the help files

About View the software and firmware versions. This information may be required if you request Technical Support assistance.

UPS Information View remaining battery life and other information about the UPS backup device.

Discovery This is used by Pressco engineers when installing the system. You must be running actual hardware.

"Log Viewer" on page 61

Learn Log Viewer View the logs from the learn process

Schedule Reports Create and edit reports

Report Viewer Review all old reports generated on the system

OPC Test Client (Optional feature, must be purchased separately) Software to make sure that the OPC server is properly working

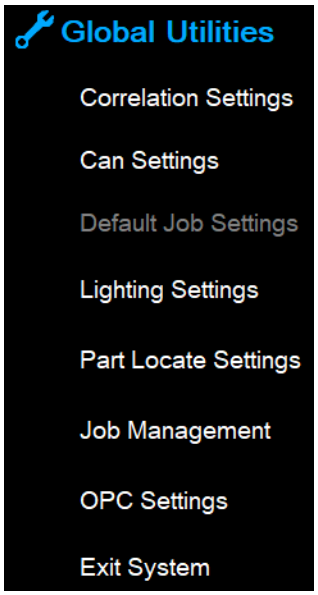
Job Summary Package *Pressco Technician access only*

"Create Deco Support Package" on page 74

Global Utilities

Administrator only

These settings apply to the entire system. Settings | **Global Utilities**.



Default Job Settings - *Pressco Technician access only*

"Lighting Settings" below

"Part Locate Settings" on page 81

"Job Management" on page 106

(optional feature)

Lighting Settings

Administrator only

Adjust lighting, only if lighting is not adequately set up during Auto Learn.

| **Global Utilities** | **Lighting Settings**

1) Lighting Zones

Adjust lighting manually if auto-adjust lighting does not work properly. For shorter cans, you might shut off lighting for the Upper Zone, to reduce reflections from adjacent cans.

Check the Saturation in the graphs at the bottom of the screen to make sure the image is not too bright.

Use the lock button to adjust all lighting zones together, or unlock it to adjust lighting zones independently.

---

2) Auto-Adjust Lighting

The system attempts to adjust lighting for the best image. It uses hard-coded settings.

---

3) Show Color Correction - not currently used

4) Saturation

Select a color to display the saturation pixels. The pixels should stand out against the color of your part.

---

5) Shape

This shape is used to define the area used to measure lighting.

Select a rectangle or a line for the shape of the image analysis tool. You can click and drag the shape to measure the lighting in the area. If using a rectangle, adjust it to cover most of the part. Once this is set, you normally do not need to readjust it for future jobs.

---

6) Continuous

Continuous - snap images until you select the Pause button.

Manual Snap - snap one image.

---

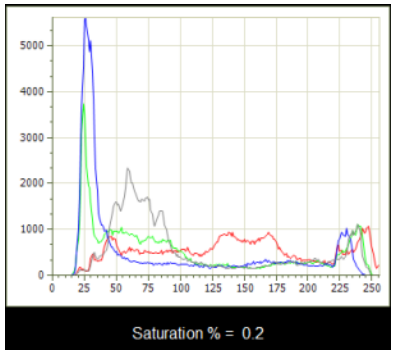
7) Saturation %

The system measures the percentage of pixels above 240 (on the range of brightness from 0 - 255). If the percentage of saturation is too high (because the lighting is too high), then the system will not properly detect color differences. There are additional Advanced Lighting Auto-Adjust Settings that may be adjusted (Pressco Technicians only).

In the example below, this can is saturated with too many white pixels. We have saturation displayed in magenta. The graph shows that many pixels are located at 255 (max level).

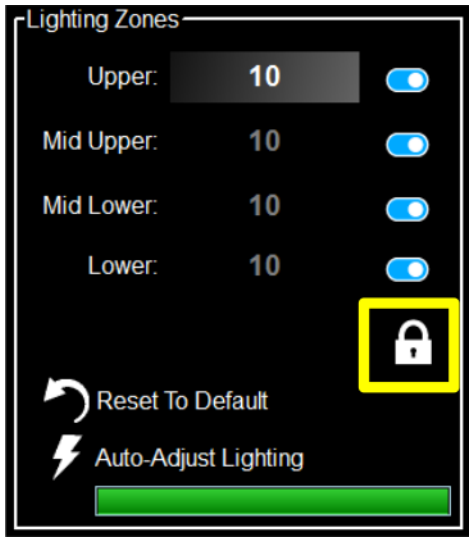
To adjust lighting:

1. Select **Continuous** [6]. You should see images updating on the screen.
2. (If needed) Adjust yellow rectangle or line [3] so that it does not fall outside of the parts. You may need to unlock the rectangle or change shapes [5].
3. Select **Auto-Adjust Lighting** [2]. Wait for the lighting to adjust.
4. Check **Saturation** below all four graphs [7]. Saturation should be < 1%. You can click the text at the bottom to view different lighting statistics.



5. If saturation >1%, select **Continuous**. Manually adjust Lighting Zones [1] so saturation < 1% under all four graphs.

   Tip: The locked icon allows you to adjust all the lighting zones at once.

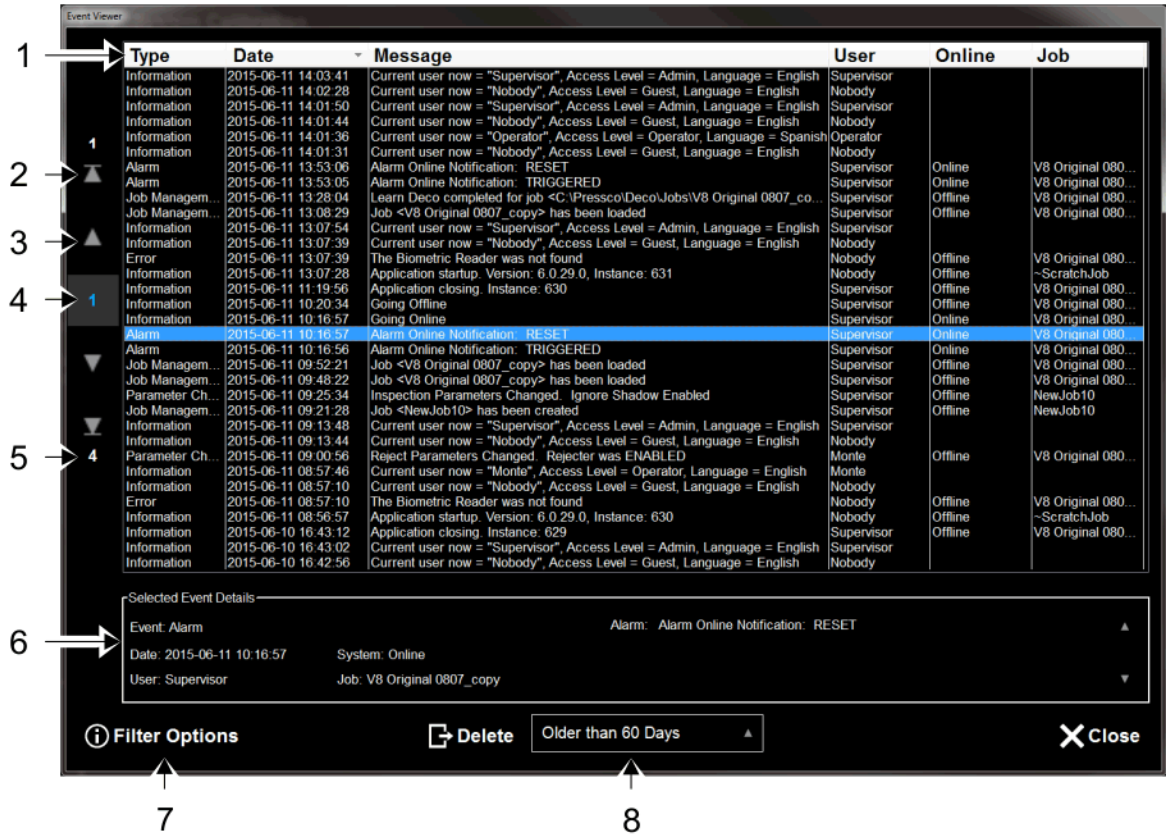


6. Select **Save** to save changes and exit.

Log Viewer

Settings |**System Utilities** | **Log Viewer**.

View the system logs, including inspection changes, alarms, and errors.



1) Sort any column by selecting the column heading

2) Go to beginning of the log file

3) Page up

4) The current page of the log file. Press and hold the number to enter any valid page to navigate to.

5) Total number of pages in the log file

6) Detailed information about the selected line (if selected). Use the up/ down arrows on the right side of the box to scroll up/ down one line in the log file.

7) View your chosen criteria. Filter options are shown below.

8) Delete old log entries (Administrator only). Select the desired criteria, then select the Delete button next to the drop-down box.

Reports

System reports provide statistical information about the performance over a period of time. The reports are saved that they can always be viewed within the DecoSpector 360™ system. Reports can also be saved to a file or printed (if a printer is connected to the system).

Reports have two components: **Scheduling** and **Viewing**.

Information contained in the reports:

- **Report Period** – Start and End date/time
- **Online Information** – How long (and when) the system was online and offline
- **Reject Enabled Information** – How long (and when) the rejector was enabled and disabled
- **Job Statistics:**
- ◦ Parts inspected and rejected

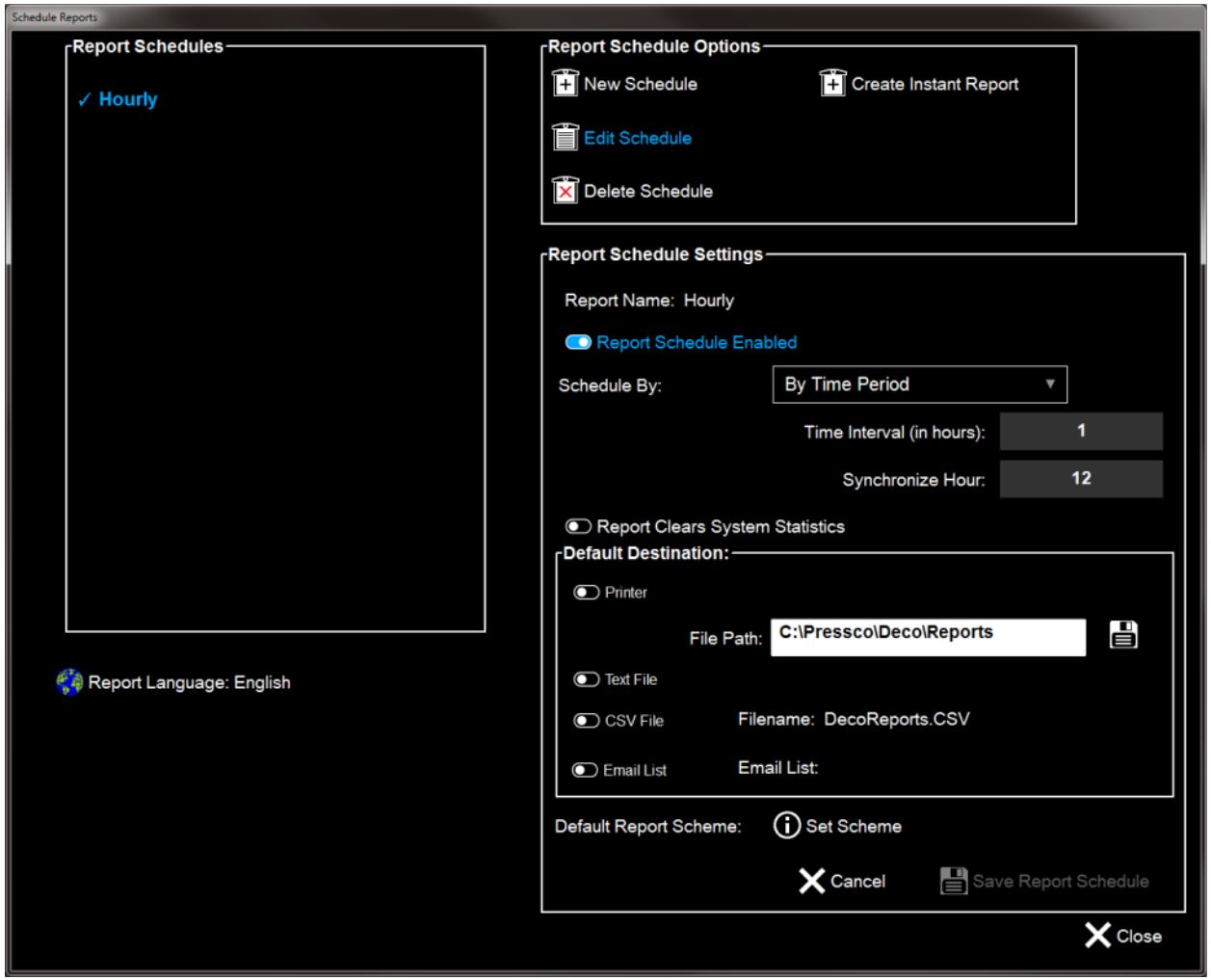
- Reject reasons
- Camera error breakdown
- Correlation statistics
- Color zone statistics (Delta E, Delta L, Delta H and Delta C).

Schedule Reports

Administrator only

Log in. Take the system offline (so the icon is not blue). 

| **System Utilities** | **Schedule Reports**. This screen shows the available report schedules and options for creating / editing / deleting report schedules.



To schedule a report:

1. Select a report in the left column, or

   Select **New Schedule**, enter a name for the new schedule, then save. Then select the new report from the left column.
2. Select **Edit Schedule**.

Report Schedules:

The list of available reports. = enabled. = disabled

Report Schedule Options:

New Schedule – Create a new schedule. This adds to the Report Schedules list. You must Edit the Schedule.

Edit Schedule – "Report Schedule Settings" on the next page

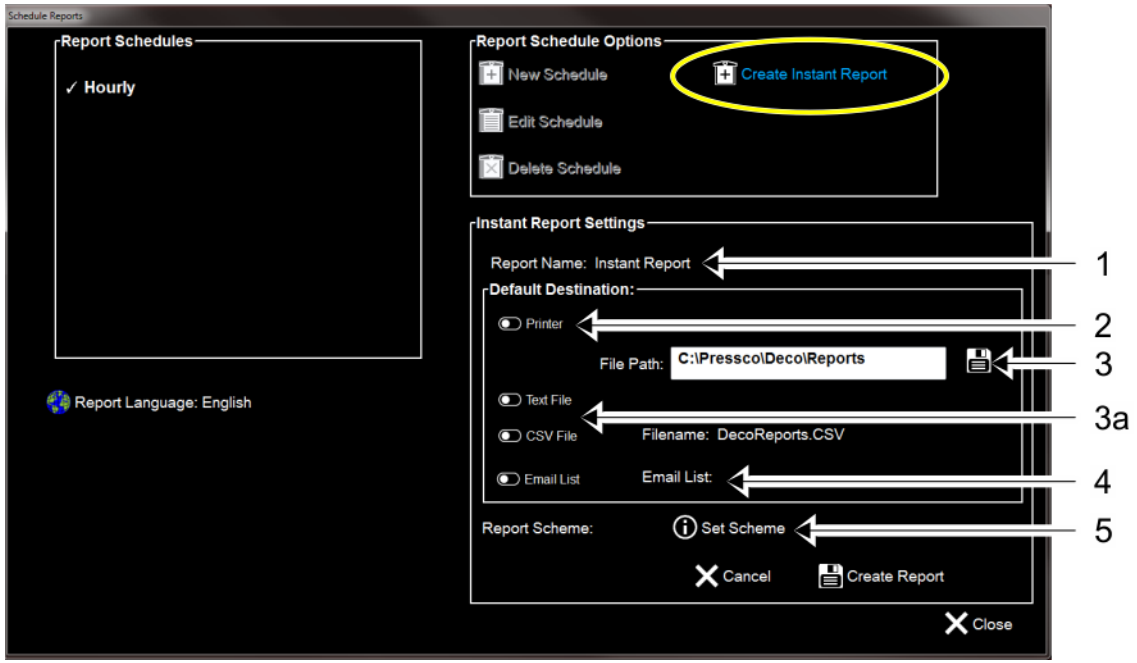
Delete Schedule – This permanently deletes the report schedule from the system. It WILL NOT delete any reports that were created with this schedule.

"Create Instant Report" below

Create Instant Report

Administrator only

Settings | **System Utilities** | **Schedule Reports** | **Create Instant Report**.



You can select and change the following options:

1) **Report name**

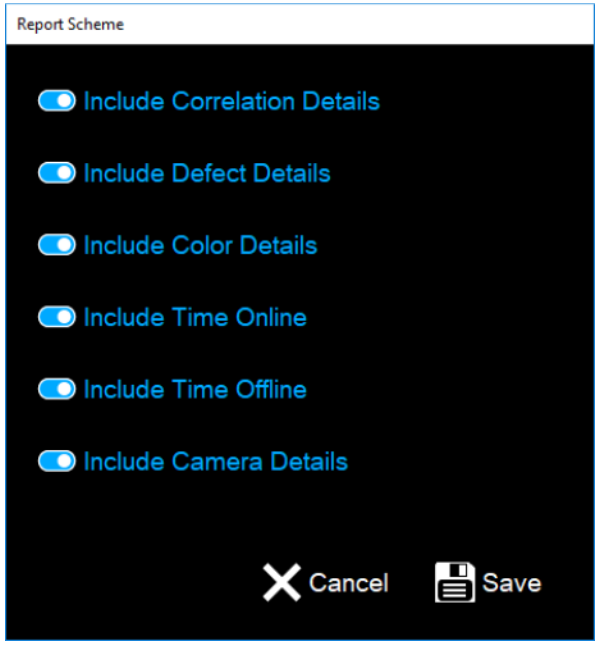
2) **Destination**. Select a printer (if one is connected to the DecoSpector 360™ system). OR:

3) **File path**. You may save the file to the system, your network (if connected), or to a USB device (if connected).

3a) Select a file type if you are saving to disk. Chose from text file or .CSV format.

4) **Email**. Enter the email address(es) to which to send the file.

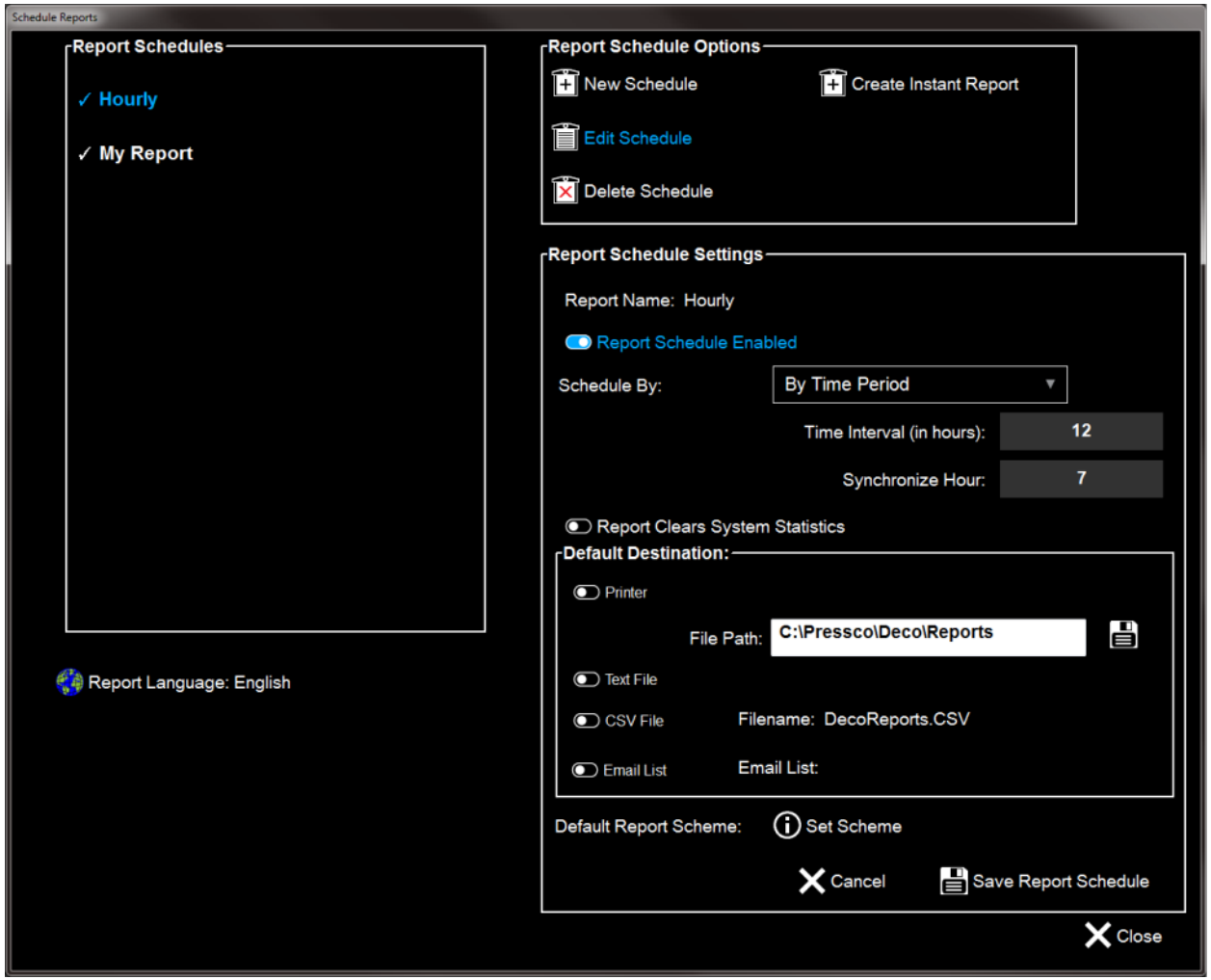
5) **Report Scheme**. Include the desired report details, including: correlation, defects, color, time online, time offline, and camera details.



Report Schedule Settings

Administrator only

Settings | **System Utilities** | **Schedule Reports**. System must be offline.



= enabled. = disabled

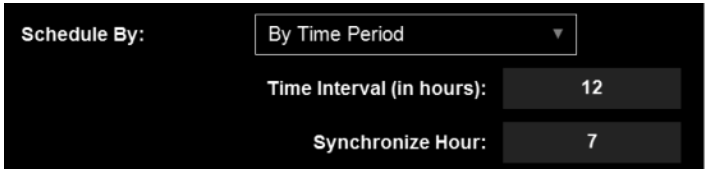
Report Name Select the name to change it if desired.

Report Schedule Enabled Enable the scheduled reports.

Schedule By:

By Time Period – The report is generated after the specified number of hours. To change a value, press and hold a number and use the

keyboard icon from the pop-up menu.



Time Interval (in hours) – You can schedule reports between 1 and 72 hours.

Synchronize Hour – Synchronize to a specific hour of the day. Enter in military time of 0 to 23. If you want shift reports every 12 hours that start at 7 AM you would set the time interval to 12 and the synchronize hour to 7 as shown above.

On Job Change – This report is generated when you load a different job.

On N Inspected Parts – This report is generated after the system has run the designated number of parts.

Parts Inspected – This value is multiplied by the scale factor below the number entry. In this example the multiplier is 1 million. This example shows 100 million parts will generate a report.

On N Rejected Parts – This report is generated after the system has rejected the designated number of parts.

Parts Rejected – This value is multiplied by the scale factor below the number entry. In this example the multiplier is 1 million. This example shows 100 million parts rejected will generate a report.

Executive Time Period - Set the time period between one and seven days. This report ignores job changes. It shows an overview of statistics (not broken out by job). By default, the correlation, color, and camera information is hidden; you can display more information as desired.

Report Clears System Statistics The system statistics are cleared when the report is generated.

Default Destination This identifies where the report is sent.

Printer Print the report (if a printer is attached and configured).

File Path Select the folder you wish to save the reports to. Otherwise, the report is sent to the destination displayed on screen.

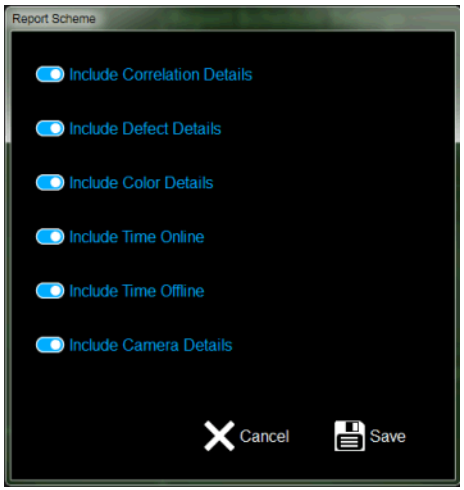
Text File Saves the report to a text (.txt) file.

CSV File Saves the report to a Comma Separated Variable (.csv) file. You can open this file in a spreadsheet program. If you want to change the report name, press and hold the name next to "Filename." A pop-up menu and keyboard option will be available to rename the file.

Email Press and hold to the right of "Email List" to enter a set of email addresses, separated by commas.

Default Report Scheme

Show and hide different components of the report statistics. The system ALWAYS records all information in the report database. The scheme is only used to adjust what is visible in the displayed and printed report.



Include Correlation Details – The correlation defect count list.

Include Defect Details – This includes: Print Defects, Color Defects, Register Defects, Orient Defects, Empty Pockets and Forced Rejects.

Include Color Details – The color statistics information about each configured color zone. Color statistics includes: Delta E, Delta L, Delta H and Delta C.

Include Time Online – How long the system was online during the report period.

Include Time Offline – How long the system was offline during the report period.

Include Camera Details – How many defects were found on each camera. Too many defects on a specific camera can indicate that the system is dirty and needs cleaning.

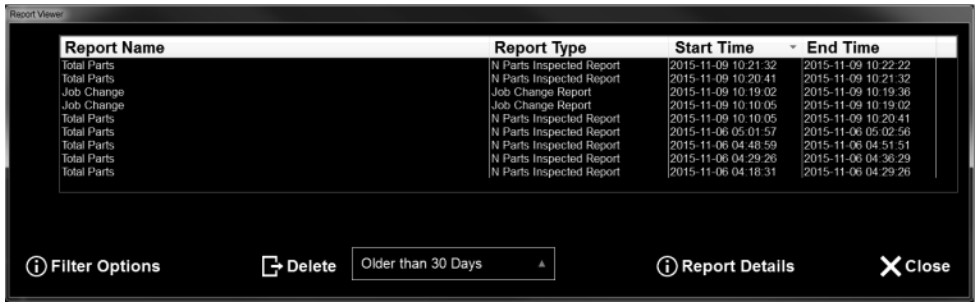
Report Viewer

Administrator only

Review all old reports generated on the system. There are options available to delete old reports, view a report and filter the report search.

Log in. Take the system offline (so the face of the button is not blue). 

|**System Utilities** | **Report Viewer**.



List of Reports To view a report, click on the report and press **Report Details**. You can Save and Print Reports from the details view.

Filter Options This allows you to filter by date and time as well as report type.

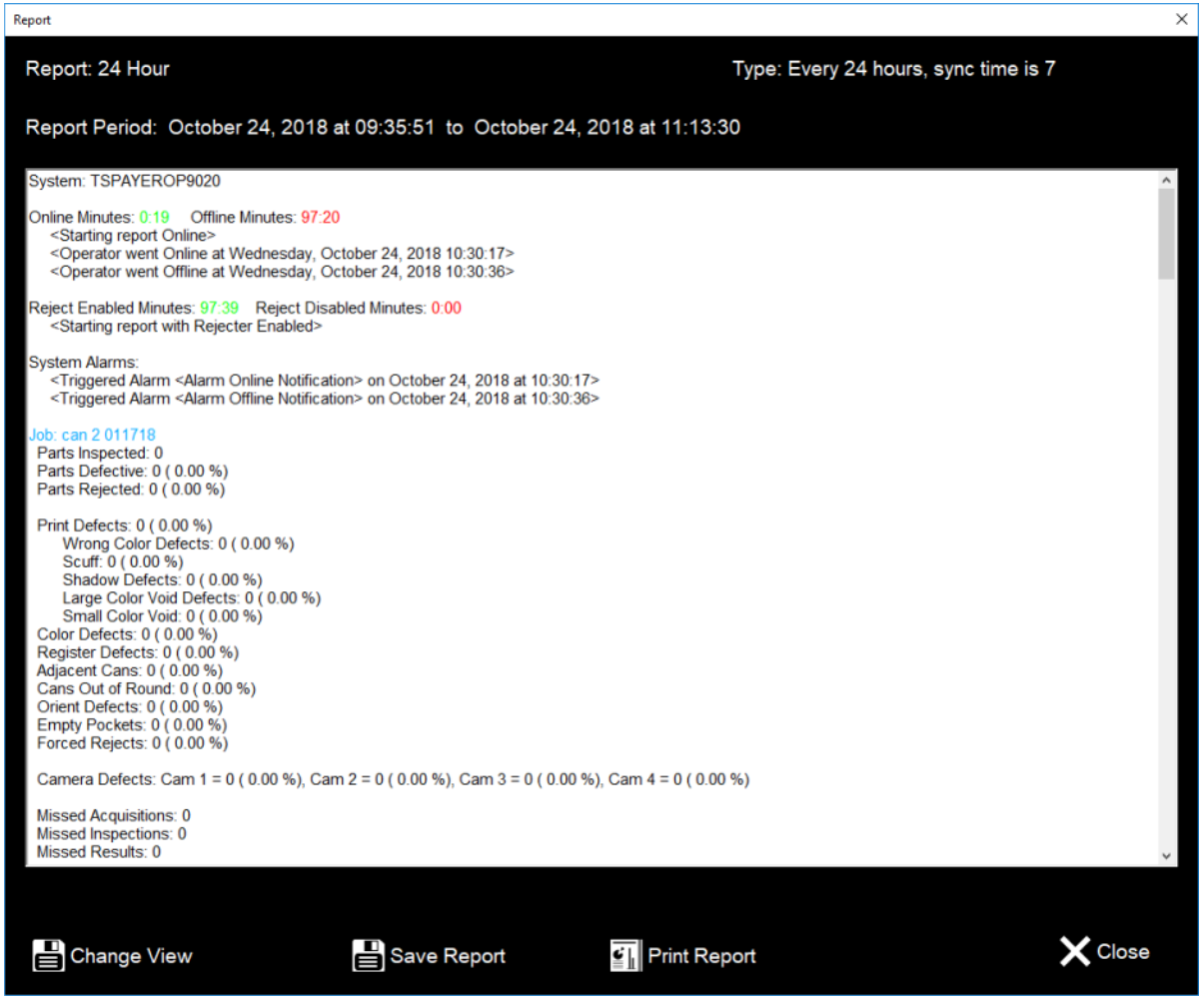
Delete This allows you to delete old reports. Select from the available options.

Report Details

The details of the report are dependent on what options are selected.

> *Note: To change the options to show, select the **Change View** button. See the option descriptions here: "Default Report Scheme" on page 69*

The report details show the report name, report type, report period and then the specific statistics during the report period.



It is possible to have multiple jobs displayed for one report period.

Save Report: Save the report to the default location of C:\Pressco\Deco\Reports, unless otherwise specified in the report schedule.

Print Report: This allows you to print the report to any connected printer.

Save Images to USB Drive

You may need to transfer images from the DecoSpector system to your computer or send to Pressco technical support.

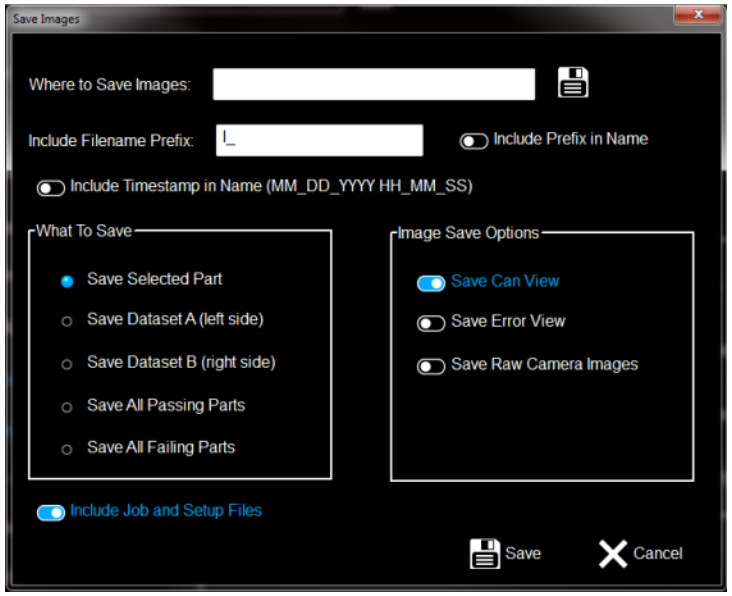
Note: The images must already be saved to system hard drive, or have occurred within the last 100 parts inspected.

To save images to an external device:

1. Plug a USB device into one of the USB Ports.
2. 

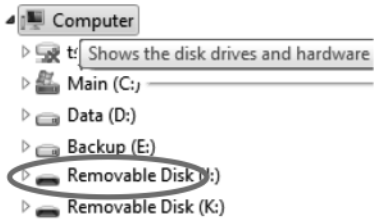
Select **Print Quality**.
3. Select the **Load** button to load the desired image(s). Then **Load Dataset**. See "Load Part Images" on page 117 for more information about loading images.
4. Select the **Options** button > **Save Part Images** 

*. The Save Images dialog is displayed.



*The Save Images icon only appears if you have loaded images.

5.  Select the disk icon next to "Where to save images."
6. Select **Computer** (or This PC) to expand the list of available drives.



7. Select the USB drive ("Removable Disk" or other named device) from the directory. The system will fill in the field next to "Where to save images."
8. Make other desired selections in the Image Save dialog box and select **Save**. The images are saved to the device.

Create Deco Support Package

A support package is a set of files gathered by the system to help find system problems. You will send this package to Pressco service specialists so that they can troubleshoot your system.

What you need:

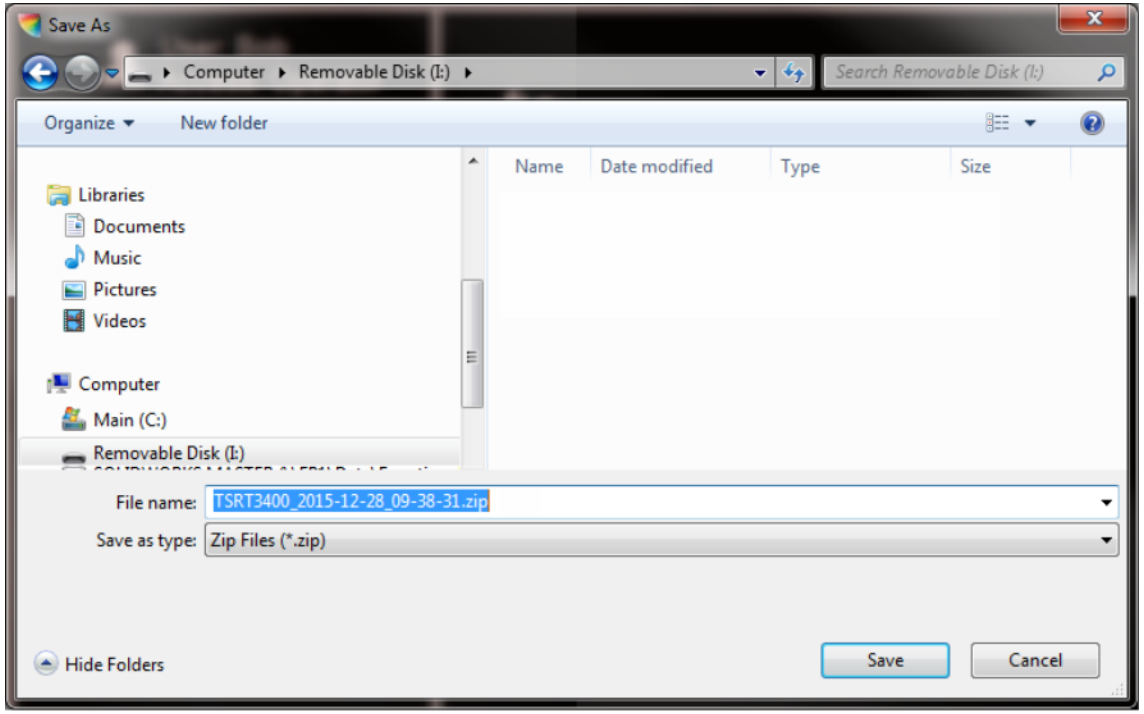
- Mechanical keyboard to enter a file name (only if you want to enter a custom file name)
- USB flash drive (128MB or larger)

To set up for the support package procedure:

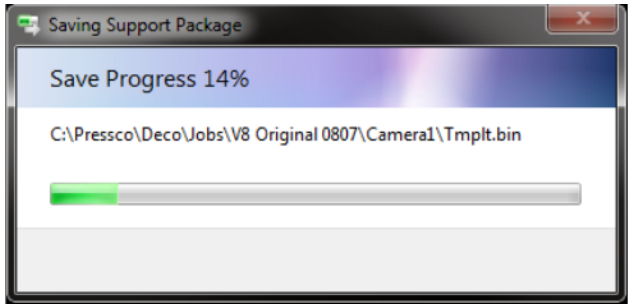
- (if using) Connect the mechanical keyboard to a USB port on the side of the monitor
- Connect the USB drive to the other USB port (see USB Ports)

To create the support package:

1. Make sure the system is offline.
2. Settings | **System Utilities** | **Create Support Package**. A Windows Explorer window will open, prompting you to name the support package file.



3. Browse to the USB device.
4. Rename the file if desired. Select **Save**. The DecoSpector system will create a support package zipped file. The status window will be removed from the screen when the process is complete.



5. Remove the USB flash drive.
6. Remove the mechanical keyboard.
7. Send the support package files to Pressco.

To send the files to Pressco:

1. Attach the USB drive to your computer.
2. Send an e-mail to techsupport@pressco.com and attach the support package files. Pressco service/ tech support will respond within one business day, if possible.

Chapter 5 Part Tracking

Part Tracking Terminology

Part Width The number of encoder ticks that the part sensor "sees" the part.

Part Present Delay The distance (in encoder ticks) from the part detect sensor to the camera centerline. If a PDX is used, this is the number of encoder ticks from the part detect pulse out of the PDX to the camera centerline.

Reject Dwell or Reject Pulse Width The duration (in milliseconds) of the reject signal. This signal must be long enough to ensure the part is efficiently rejected, and short enough to ensure that only one part is rejected for each reject pulse.

Adaptive Reject This feature is necessary when you have a significant change in product speed, since the rejector has a constant turn-on time. This logic allows the system to monitor the product speed and compensate the pulse being sent to the rejector.

Reject Confirm Not commonly used. This is the distance in encoder pulses from the reject mechanism to the reject confirm sensor (if installed).

Part Present Delay

Administrator only

Part Present Delay is the distance (in encoder ticks) from the part detect sensor to the camera centerline. The Part Present Delay ensures that your part is in the center of the image when the camera snaps its picture.

> *Tip: When you calibrate the Part Present Delay, it is ideal to only use one part at a time. Otherwise, it will not be easy to determine if the part detected is actually the same part in the image or the part rejected since all the parts look alike. If it is not possible to use only one part, try to use a different color part, or place a piece of colorful tape on a part. You will most likely use a few parts to test the calibration, or run the same part through several times.*

To calibrate the Part Present Delay:

1. Settings | **System Calibration** | **Part Present Delay**.
2. Select **Start Calibration**. (this button toggles with Stop Calibration)
3. Place a part onto the conveyor or into the part stream. The part will trigger the part detect sensor, then the system will count the number of encoder ticks and take a picture.
4. Manually adjust the part present delay value until the images are centered every time a part is run through the system. To change a value, press and hold a number and use the keyboard icon from the pop-up menu.
5. When the part is centered, select the **Stop Calibration** button, then the **Save** button. The Part Present Delay calibration value is saved and stored with the job.

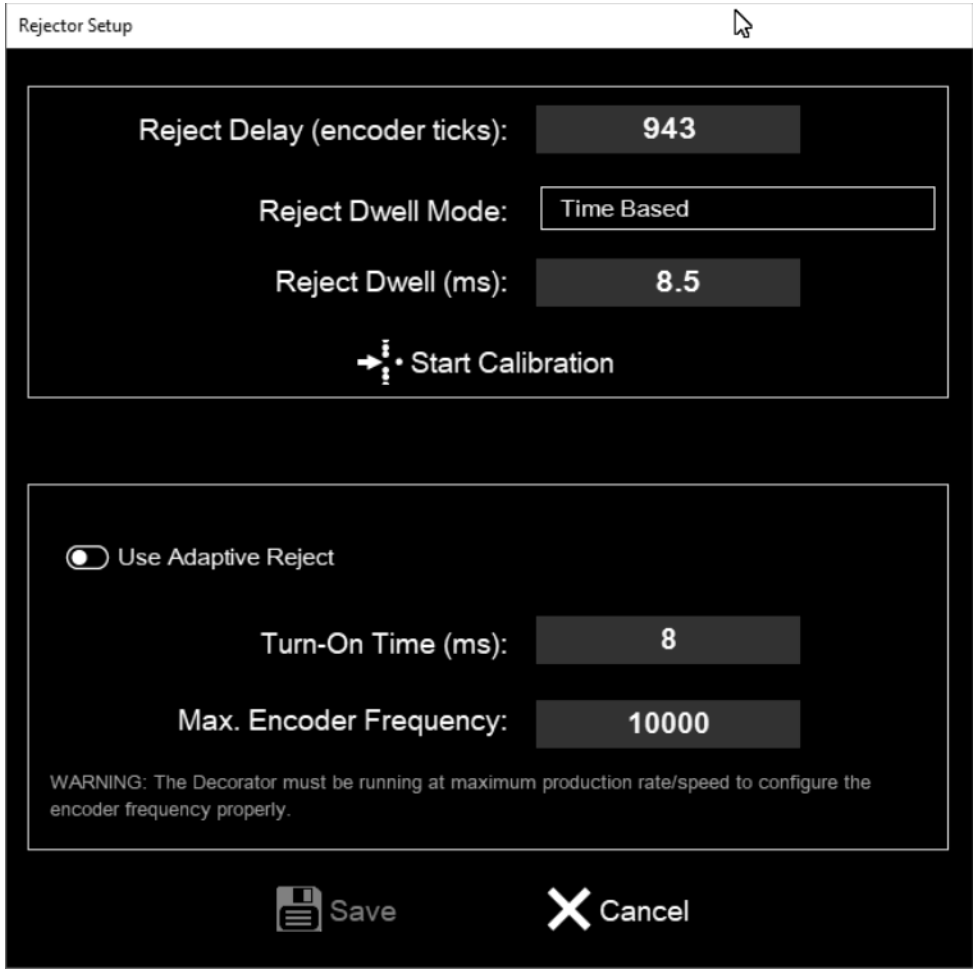
Reject Delay

Administrator only

Reject Delay is the distance (in encoder ticks) from the part detect sensor to the rejector. This signal ensures that the correct part is rejected.

During Reject Delay calibration, the reject device will activate for each part that flows through the system. Ensure that the rejector is activated properly and that each part is rejected properly. After calibration, ensure that adjacent parts are not being rejected (example, from too long a reject dwell time), nor being knocked off by the rejected part.

To change a value, press and hold a number and use the keyboard icon from the pop-up menu.



To calibrate the Reject Delay:

Settings | **System Calibration** | **Reject Delay**.

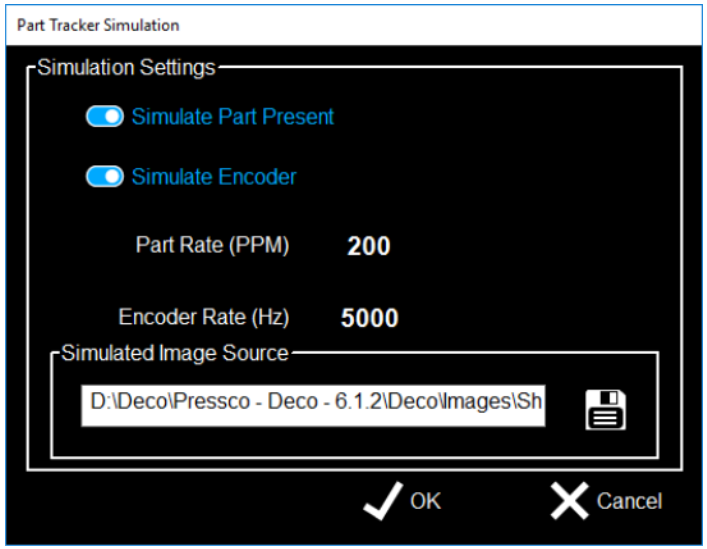
1. Stop production with the conveyor still running.
2. Select **Start Calibration**. (this button toggles with Stop Calibration)
3. Place a part on the running conveyor or into the part stream. After the number of encoder ticks shown in the Reject Delay box, the rejector will be activated.
4. Make sure the correct part was rejected.
5. Continue to insert parts into the part stream.
6. Manually adjust the Reject Delay (encoder ticks) until the correct part is rejected every time.
7. Adjust the **Reject Dwell** so that it is long enough to completely reject the part, and short enough that only one part is rejected for each reject pulse.
8. When you are sure that the correct parts are being rejected, select **Stop Calibration**.
9. Save changes and exit. The reject values are saved and stored with the job for the part.

Simulation Settings

This information is only used if you are operating the DecoSpector system without production running, such as in training, testing, or installing the system.

Settings | **System Calibration** | **Simulation Settings**.

To change a value, press and hold a number and use the keyboard icon from the pop-up menu.



IMPORTANT - If you use simulated settings, be sure to disable them before using the system in production. Otherwise, inspection and correlation statistics will not be correct.

Part Locate Settings

Administrator only

This menu ensures that the system properly locates each part. The cans need to be centered and spaced well. This ensures:

- good inspection results
- minimal false defects
- cans are inspected. If the cans are too close together, it can cause cans to not be inspected and therefore rejected.

Important - Debris and contamination could build up the glass inspection module surfaces. This dirt could appear in the images, causing false rejects of parts, missed registrations, or it could degrade lighting. Clean the inspection module glass surfaces regularly. "Clean the Tunnel Windows" on page 99

To get to this dialog: 

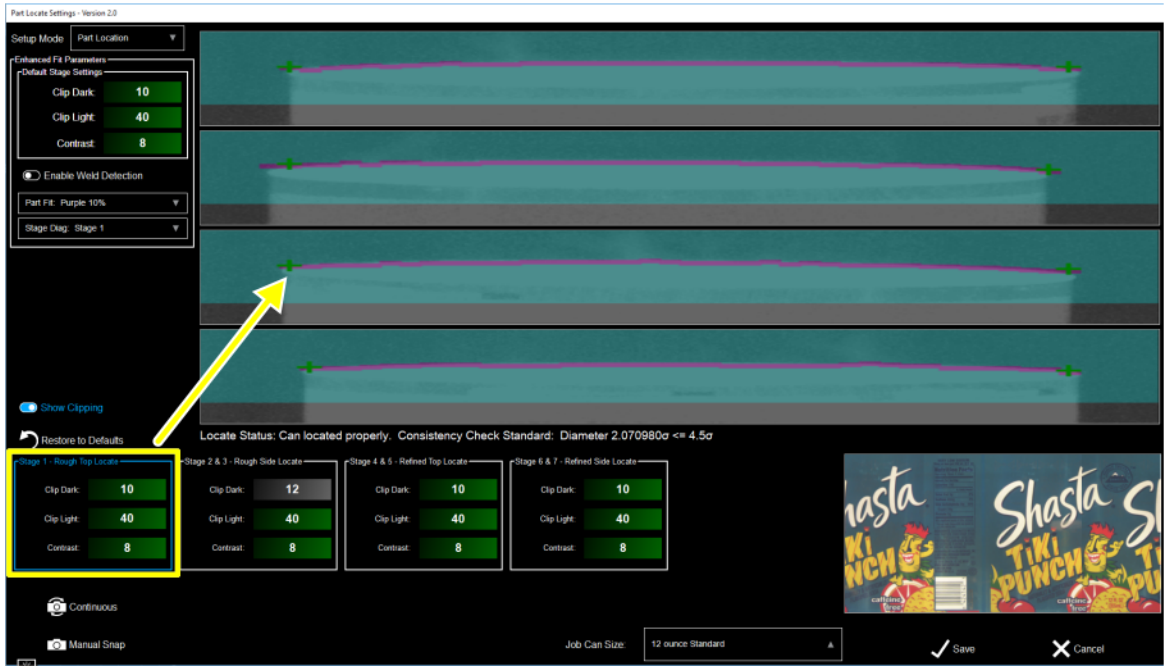
| **Global Utilities** | **Part Locate Settings**.

TIP: if the system shows an error: "Locate status: Unable to locate the part, check your edge setup," this could mean that Can Settings have not yet been set up for the part. Check the .

To adjust part locate settings:

1. Select **Manual Snap** [1] to get an image on the screen.
2. Select **Part Location** for Setup Mode [2].
3. Work the Stages from left to right, using the following steps.

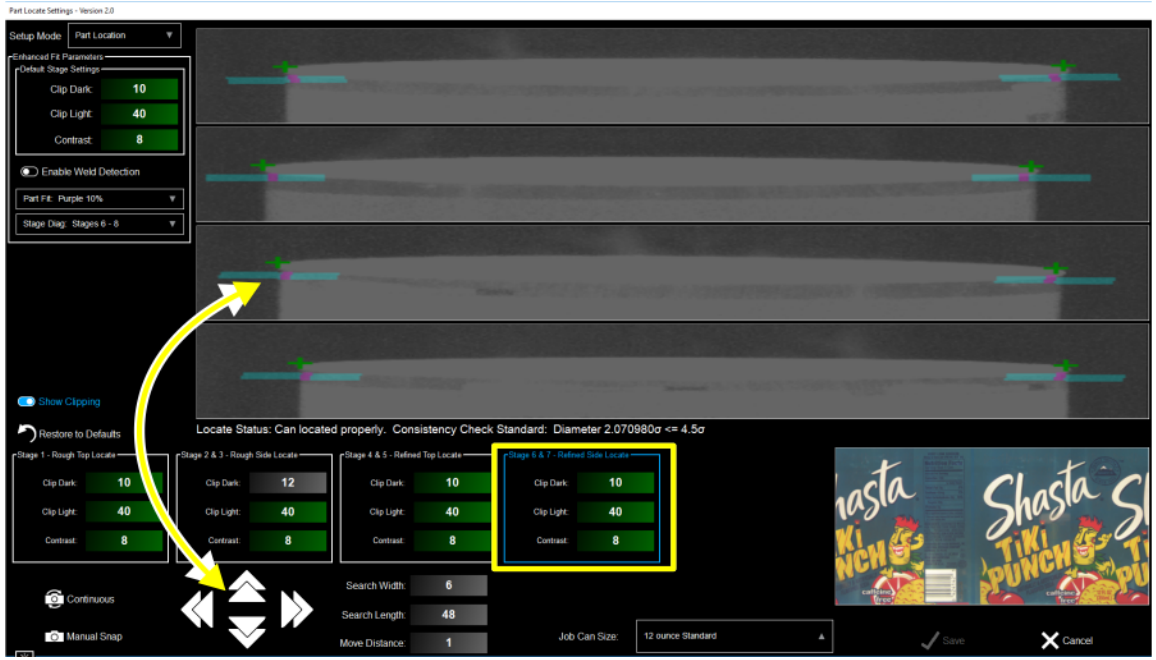
4. Select inside the **Stage 1** box [3]. The system looks for the top edge of the can. If this looks OK (see picture below), then move to Stage 2. Otherwise, adjust the values in Stage 1 until the magenta edges fall near the top edge of the can as shown below.



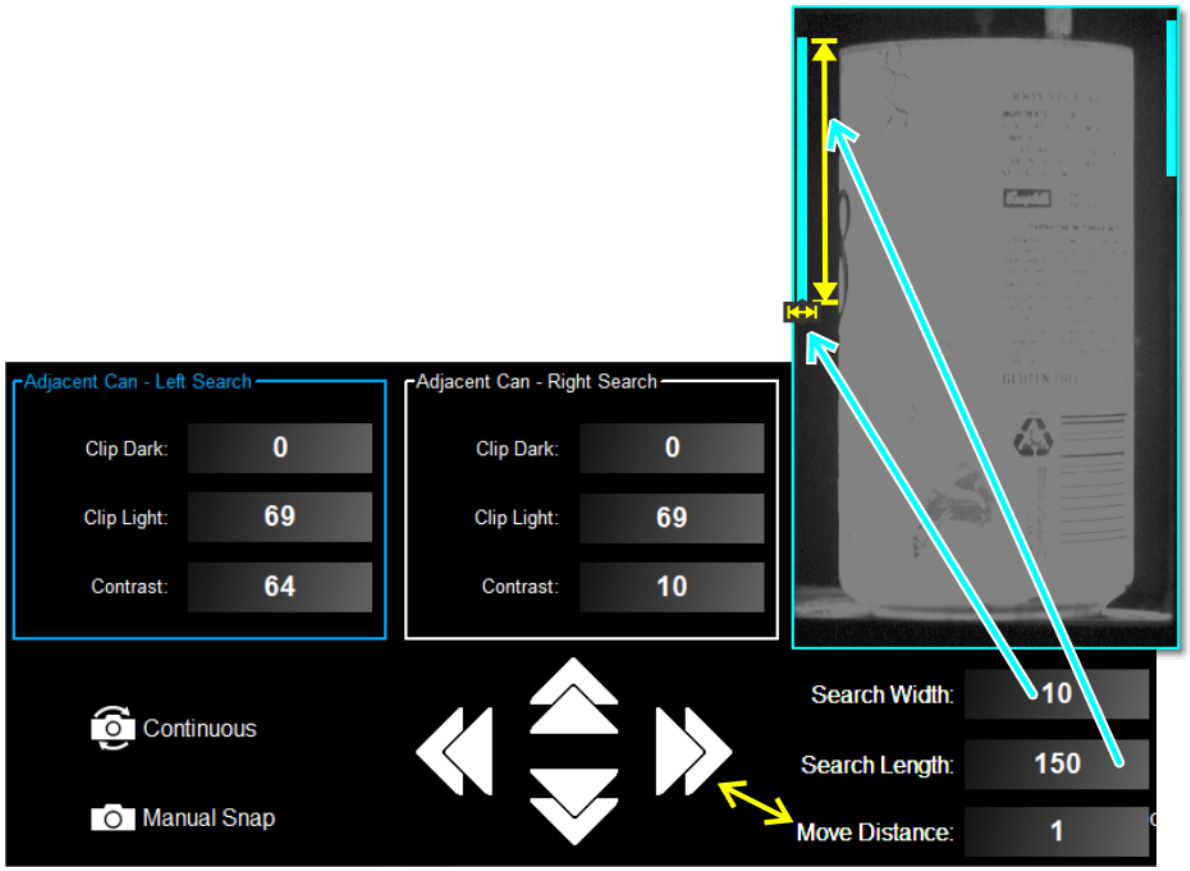
5. Select inside the **Stage 2 & 3** box [4]. The system looks for the part from the sides. If this looks OK as shown below, then move to Stage 4 & 5. Otherwise, adjust the Stage 2 & 3 values until the system finds the sides of the can on all four images properly. You can move the search regions with arrows at the bottom of the screen once you click inside the Stage 2 & 3 box.

6. Select inside the **Stage 4 & 5** box [5]. The system looks for the top edges of the can, with more sensitivity. If this looks OK as shown below, then move to Stage 6 & 7. Otherwise, adjust the Stage 4 & 5 values until the system finds the top of the can on all four images properly. You can move the search regions with arrows at the bottom of the screen once you click inside the Stage 4 & 5 box.

7. Select inside the **Stage 6 & 7** box [6]. The system looks for the side edges of the can, with more sensitivity. If this looks OK as shown below, then move to step 8. Otherwise, adjust the Stage 6 & 7 values until the system finds the sides of the can on all four images properly.



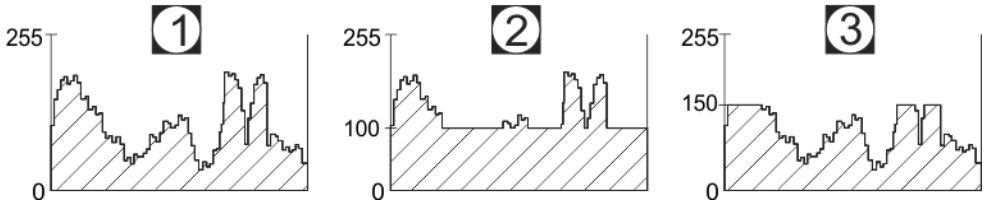
8. Select **Adjacent Can** for Setup Mode [2].
9. Make sure **Perform Adjacent Can Check** is enabled. This checks for adjacent cans and makes sure that the system does not reject parts based on reflections or shadows on the sides of the can (which are caused by adjacent cans).
10. Select inside the **Adjacent Can - Left Search** box to move and adjust the size of the left search region. Adjust clipping as necessary (described below). Move and re-size the adjacent can search regions so that they capture adjacent cans in the images. You will adjust these based on your production line.



11. Select inside the **Adjacent Can - Right Search** box to move and adjust the size of the right search region. Adjust clipping as necessary.
12. Select **Save** to save changes and exit the menu.

Clipping

Clipping is used to change gray shades to a specified value. It allows the system to ignore light reflections or normal grain in a part, to provide easier defect detection. When you enable Show Clipping you will see the results of this parameter.



[1] = no clipping

Clip Dark [2] – set a dark gray shade value. A value of 100 makes all pixels with gray levels of 0-99 a gray level of 100.

Clip Light [3]– set a light gray shade value. A value of 150 makes all pixels with gray levels of 151-255 a gray level of 150.

Proper Part Handling

Make sure that the cans are properly centered and spaced along the conveyor. Cans that are too close together may have shadows reflections that can cause :

- false rejects
- cans to not be inspected or rejected

You can view how well the parts are spaced through the Adjacent Can screen. Go to **Settings** 

| **Part Locate Settings.** Select **Adjacent Can** under Setup Mode, and switch on **Perform Adjacent Can Check**. Capture images by pressing **Continuous** or **Manual Snap**.

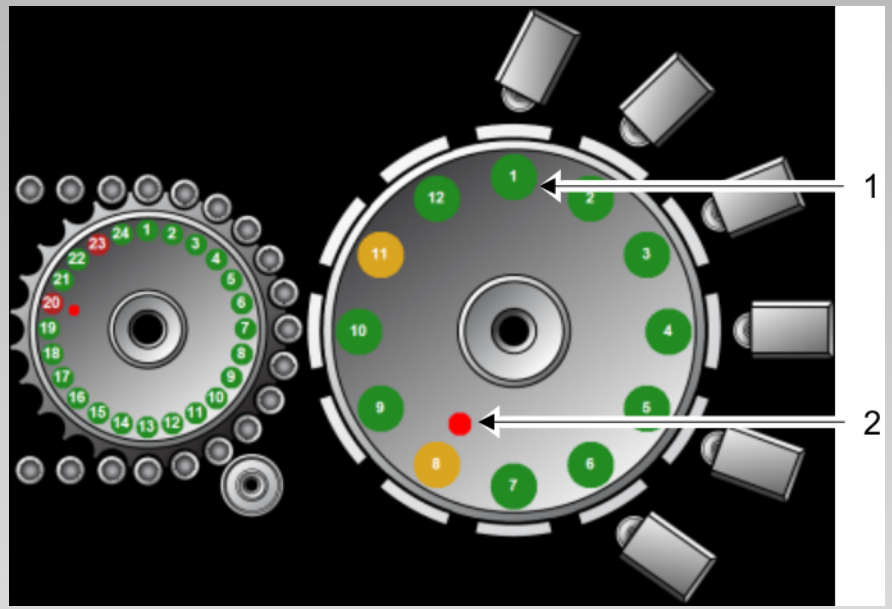
> *Note: the learn process may take much longer than normal if part handling is not correct. If there are physically damaged cans, off center cans, or adjacent cans in the image, then the system will have difficulty learning the can label.*

Chapter 6 Correlation

The DecoSpector system provides correlation to the following machine parts: Mandrel, Print Blanket, and Pin Chain

Note: Correlation is set up using Correlation Settings. This is usually performed during installation by Pressco.

The correlation graphic on the Home (Overview) screen shows the status of machine parts.



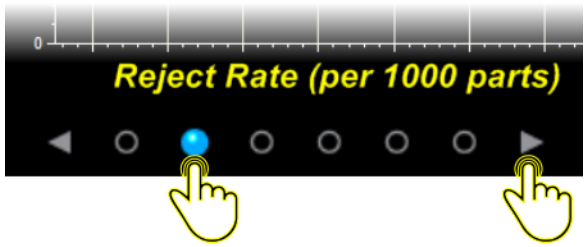
1) The large dots with numbers show the alarm condition of the machine part. The color is dependent on the defect % of each component, and is hard-coded in the software. Clearing statistics resets the color to green.

- Red = alarm condition [> 10% defects]
- Yellow = warning [5% - 10% defects]
- Green = OK. No excessive machine part defects. [<5% defects]

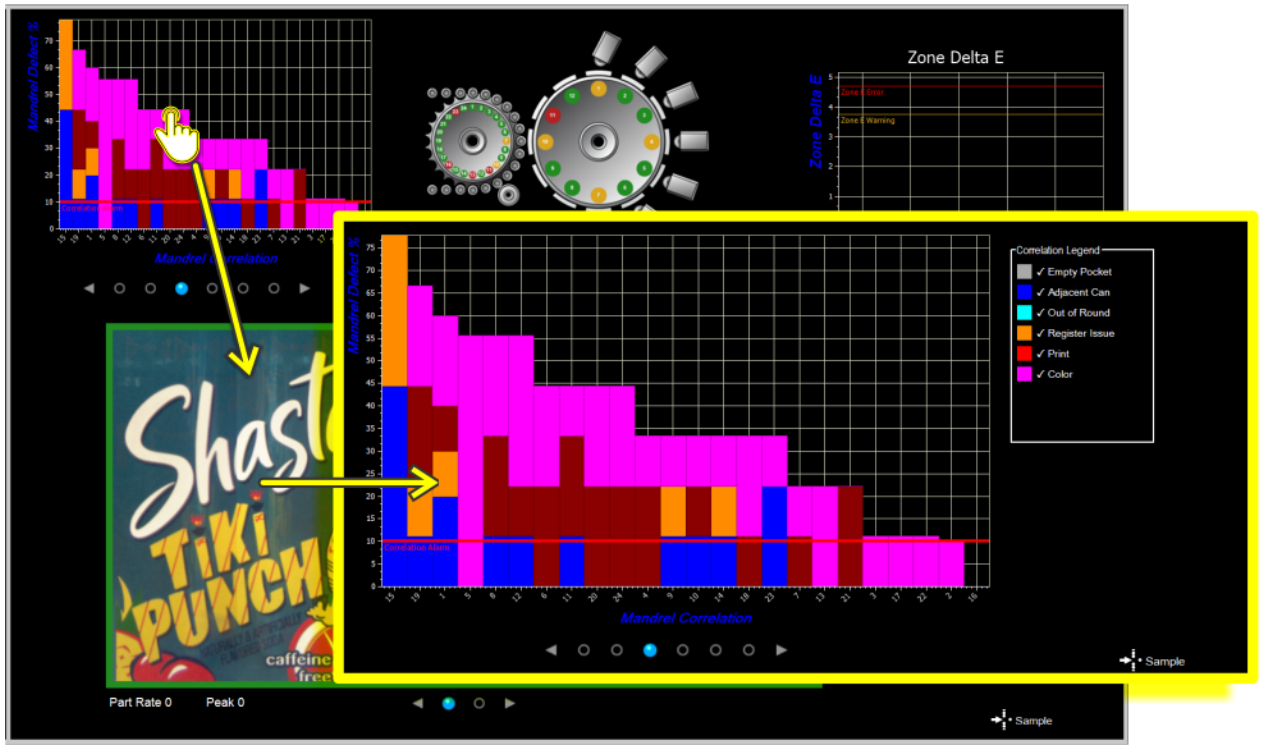
2) The small red dot indicates where the last failing part came from.

Viewing Correlation Graphs

Swipe the graphs or use the buttons to display the different graphs.

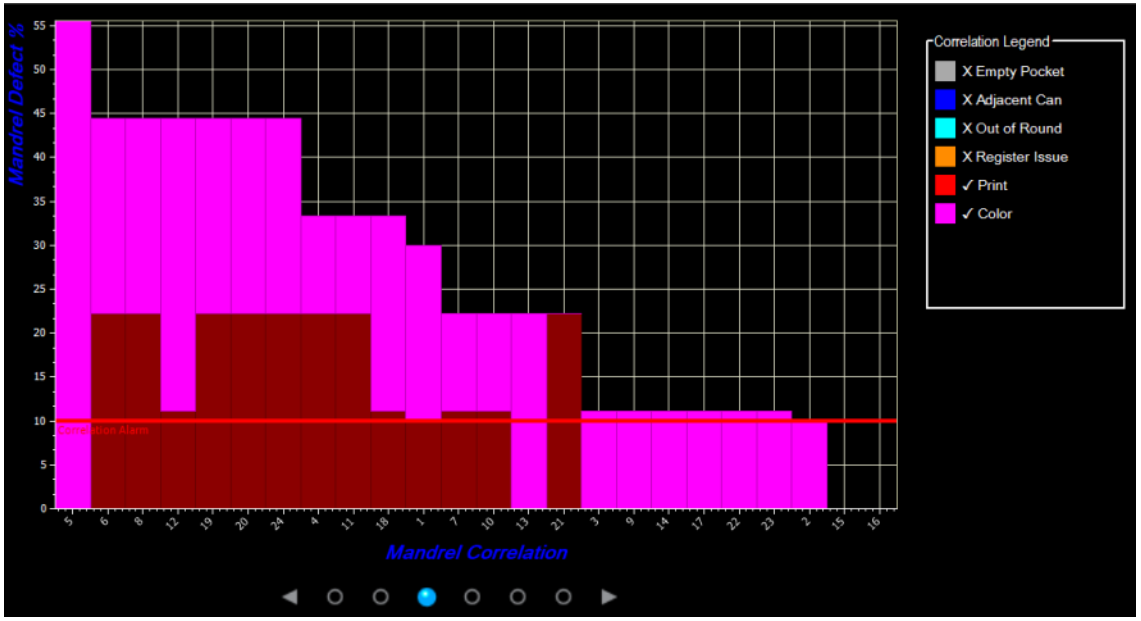


To see a larger graph, click the graph in the upper screen. The graph will be displayed in the lower screen.



The correlation graphs are color coded based on the reason the parts failed. The legend is displayed when you view a larger graph in the lower screen. The legend allows you to filter what you want to see. Click on a color to select or de-select an option. An 'X' means that information will not be shown. In the example below, the Empty Pocket, Adjacent Can, Out of Round, and Register Issue correlation data is not displayed.

> *Tip: typically, only Print and Color defects matter, since a mandrel or print blanket have nothing to do with the other defect categories.*



Gray = Empty Pocket

Blue = Adjacent Can

Cyan = Out of Round

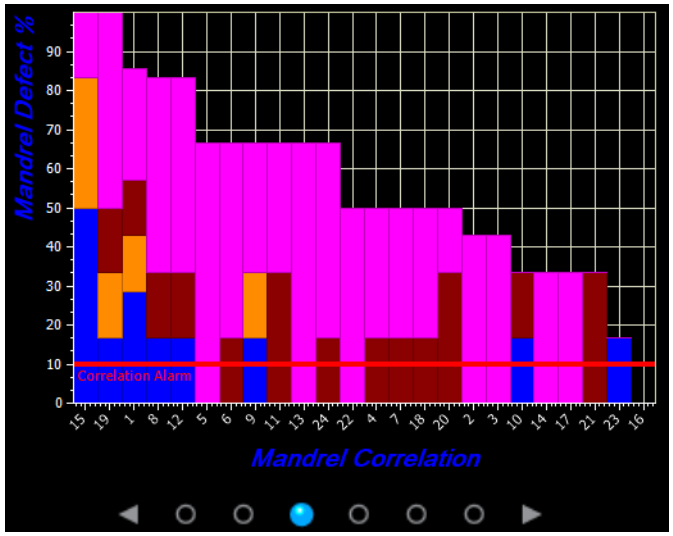
Orange = Register Issue

Red = Print Defect

Magenta = Color Defect

Mandrel Correlation

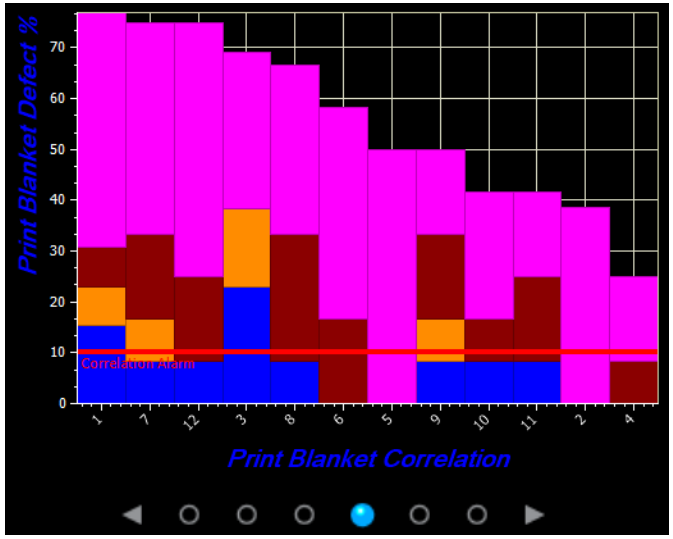
Mandrel Correlation Graph



The mandrel numbers are located on the bottom of the graph. This is sorted in descending order, left to right, from the highest number of failed parts to the lowest number of failed parts.

Print Blanket Correlation

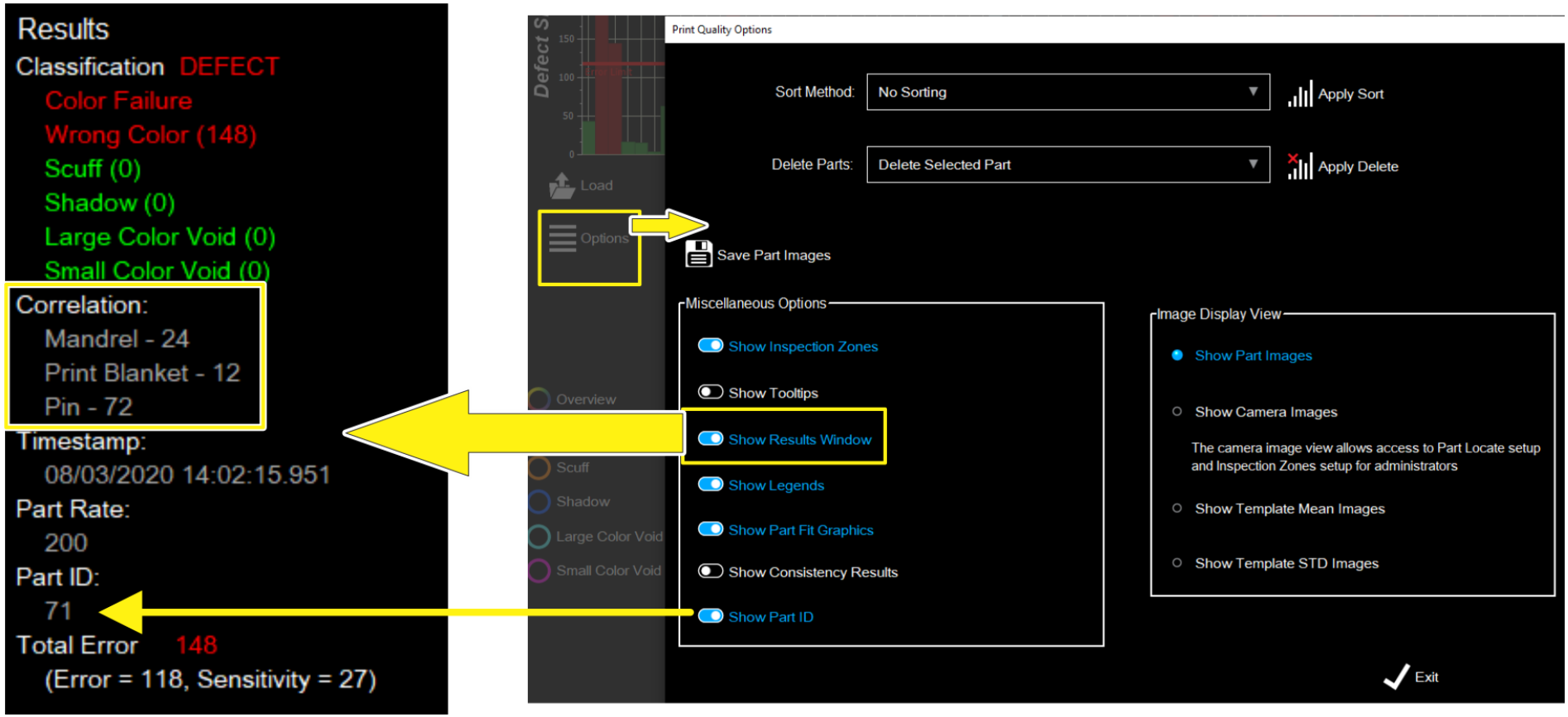
The print blanket numbers are located on the bottom of the graph. This is sorted in descending order, left to right, from the highest number of failed parts to the lowest number of failed parts.



Individual Part Correlation

View the Results window on the Print Quality screen to see the correlation data of each inspected part. To see this window, "Show Results Window" must be enabled.

In this example, the part was correlated to Mandrel 24, Print Blanket 12, and Pin 72.



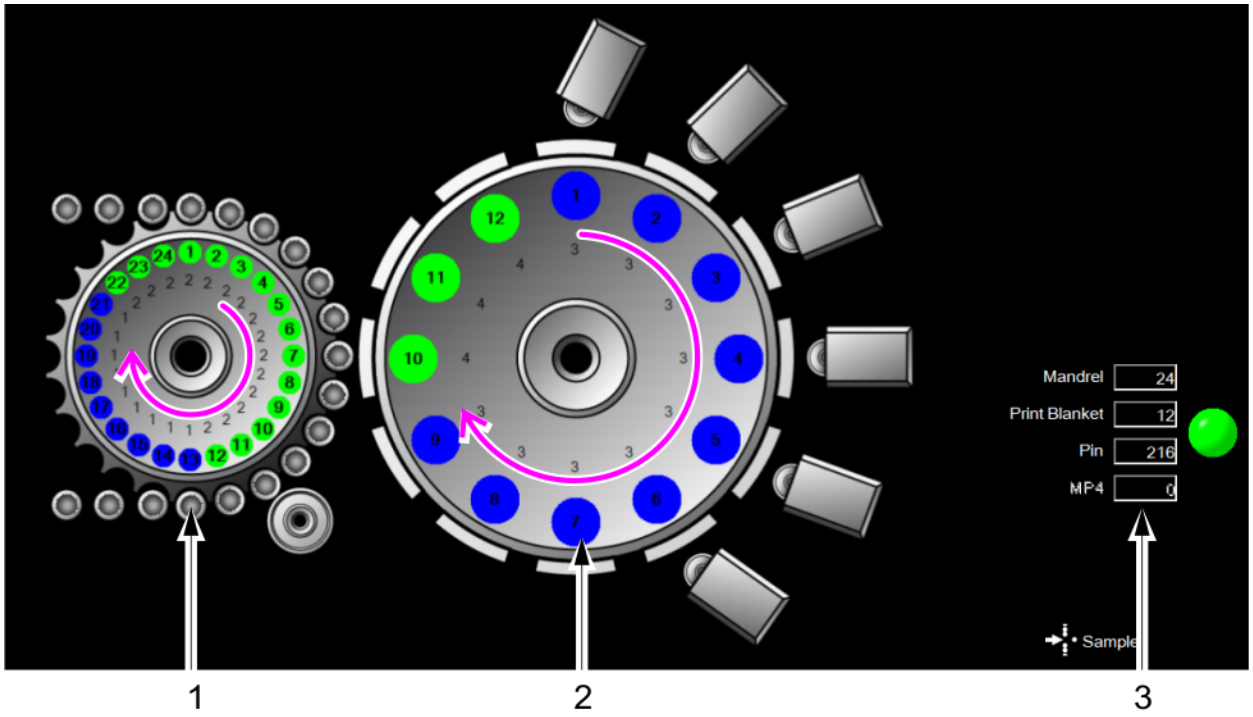
Correlation Diagnostics

Check to make sure the system is tracking the correlation of all machine parts.

Settings | Overview Display View | **Show Correlation Diagnostic Controls**. The controls are displayed on the home screen.

When the system is online, you will see the correlated machine part numbers update with colored dots. The dots toggle between blue and green so that you can see where the current part is in the production line. If a machine part is skipped, you see that the machine part dot does not change.

The machine part count is displayed (the innermost numbers on the graphic). If the counts do not increase equally, then this indicates a correlation problem. This number resets to one after it reaches 99.



1) Mandrel parts

2) Print blanket parts

3) Correlation values

Preventive Maintenance Frequency

IMPORTANT - The windows inside the inspection tunnel need to be cleaned regularly. The frequency depends on plant conditions, and could be as much as three or four times per shift.

	Frequency - Number of times per:					
Action	**Shift**	**Day**	**Week**	**Month**	**Year**	**Supplies Required**
"Clean the Tunnel Windows" on page 99	1					Part number: 74284 - Kit Window Cleaning DS2 (includes plexiglass cleaner and lint-free wipes)
"Clean the Control Cabinet Filters" on the next page				1		Recommended: "RP Super Filter Coat Adhesive." Find this on the Internet or in a hardware store near you.
Replace the two Filter/ Regulator Filters: 30 minutes "Replace the Filter-Regulator Filters" on page 102					3	Part number: 67622 - Kit Oil Removal Replacement Filters

Clean the Control Cabinet Filters

The filter should be cleaned once a month for best results. The filter is located on the side of the cabinet. Replace with a new filter when necessary.

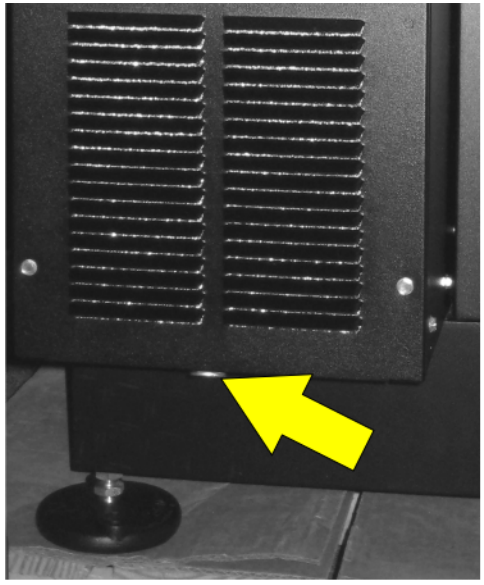
> *Note: You may need to clean the filters weekly depending on plant conditions*

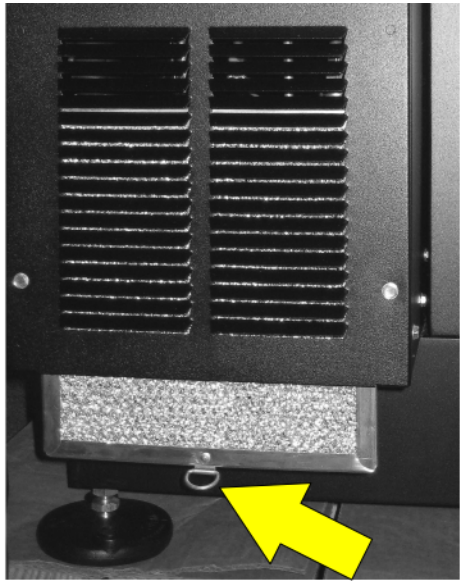
What you need:

Recommended: "RP Super Filter Coat Adhesive." Find this on the Internet or in a hardware store near you.

To clean the filter:

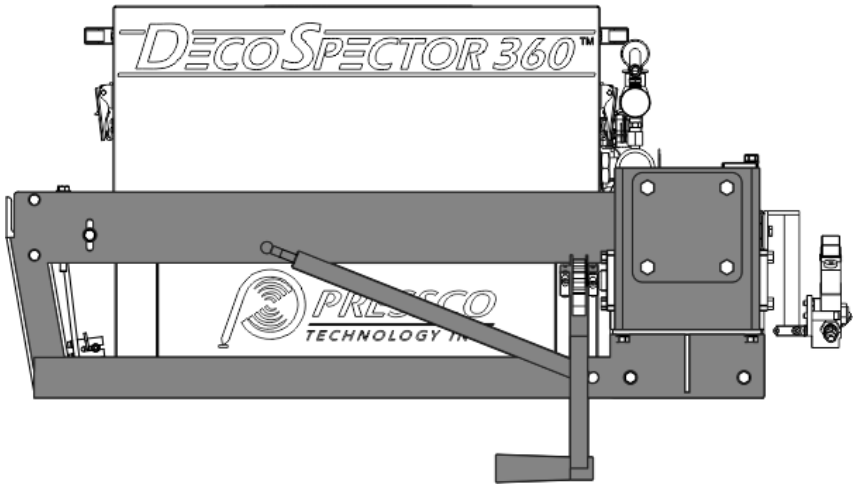
1. Pull the ring on the bottom of the filter cover, and pull the filter down to remove it. (see photo below)
2. Remove the filter and clean it. DO NOT use caustic solutions.
    - If the filter contains dry dust and dirt, flush the filter with warm water from the exhaust side to the intake side
    - If the filter contains oily dust and dirt, clean it in soapy water, then rinse in clear water
3. Dry the filter completely [placing it with a corner down will assure complete drainage].
4. Recoat the filter with "RP Super Filter Coat Adhesive." Spray both sides for best results.
5. Place the filter back inside the filter cover.





Service Frame

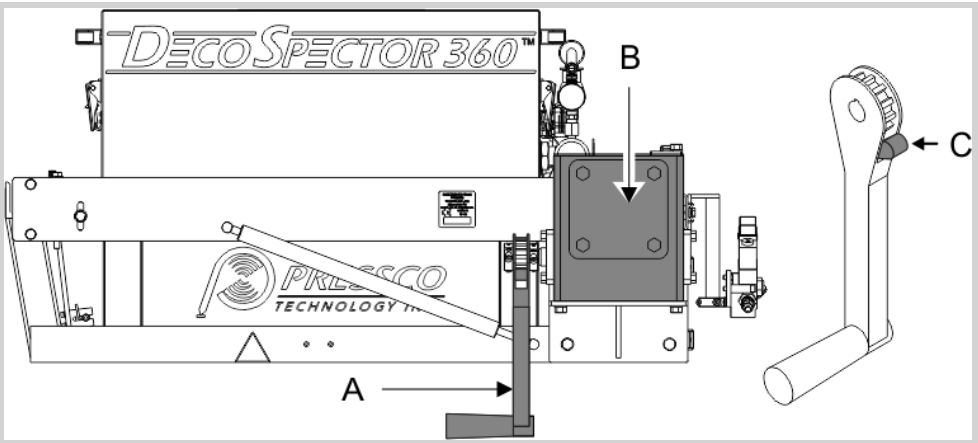
The service frame is used during inspection module maintenance and calibration.



WARNING - This product contains no operator serviceable parts. Contact Pressco for service. How to Contact Pressco
- Do not open the gearbox enclosure. Oil may spill from the gearbox if it is opened.
- KEEP OFF the service frame. The service frame is not for lifting persons.
- KEEP OUT from under the raised service frame until it is secured by the locking device.

Use the Service Frame to Lift the Module for Maintenance

1. Use the handle [A] to lift the module. Turn handle [A] clockwise = module moves up. The handle contains a ratchet device, allowing movement in only one direction at a time.
2. Move the module up until it reaches the stop position [D].
3. Clean the module windows and perform other maintenance procedures as necessary.



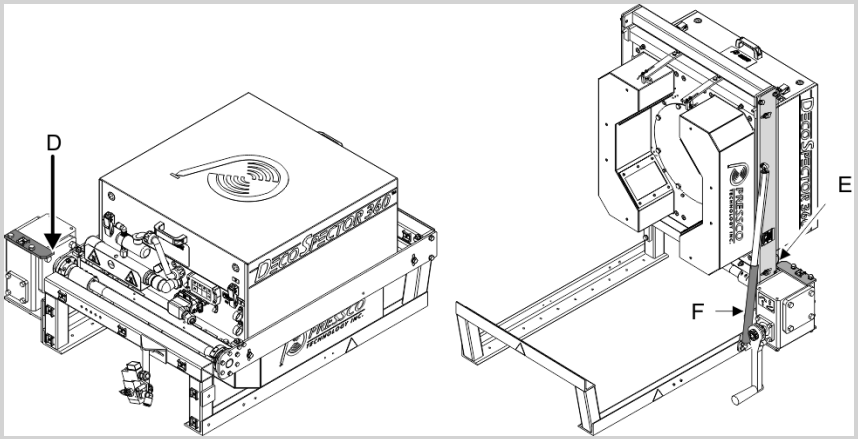
A) handle

B) gear box

C) direction switch on handle

When you are finished with maintenance:

1. Push to release the locking mechanism [F].
2. Use the switch [C] on the handle to change directions.
3. Crank the handle [A] to lower the module. Turn handle [A] counter-clockwise = module moves down.



D) mechanical stop

E) service frame does not move after reaching the mechanical stop

F) locking device holds the module in place while you work

Clean the Tunnel Windows

The inspection tunnel windows need to be cleaned at least once per shift, depending on plant conditions.

Important *- Debris and contamination could build up on both the glass and plastic surfaces. This dirt could appear in the inspection windows, causing false rejects of parts, missed defects, or it could degrade lighting. Clean glass and plastic surfaces often.*

What you need:

- Soft, clean, oil-free cloths. Recommended: Part number: 74284 - Kit Window Cleaning DS2 (includes plexiglass cleaner and lint-free wipes)
- Mild soap and water solution
- Flashlight to see inside tunnel area
- Stopped production line - only for a short time when you swing the tunnel open and closed

Do NOT use:

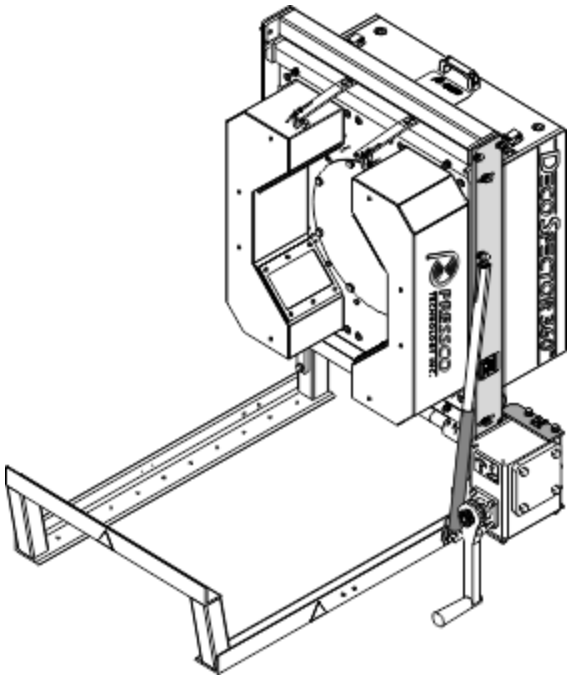
 Regular paper towels to clean the surfaces. These may scratch the surfaces or leave lint.

 Alcohol-based solvents. These may damage the plastic surfaces.

 Harsh chemicals. These may damage multiple surfaces.

To clean the windows:

1. Ensure the production line is stopped, and the area surrounding the tunnel is clear (of people, parts, equipment).
2. Turn the service frame handle clockwise to move the tunnel up and away from the production line.
3. Push the locking mechanism into place.

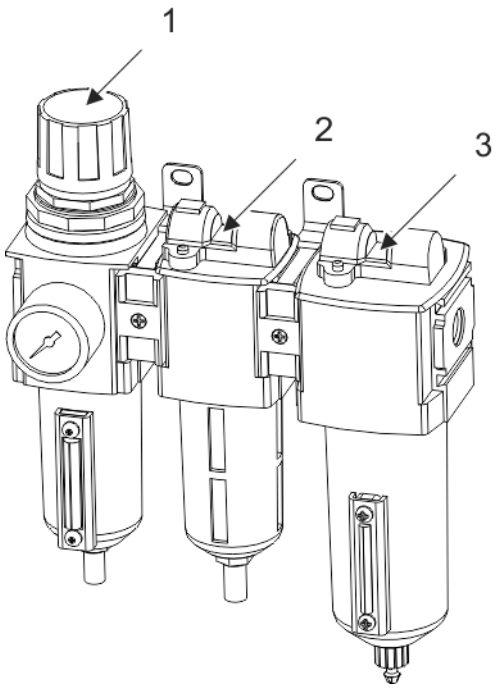


4. If desired, signal to someone in your plant to restart production, while you clean the windows.
5. Using a soft cloth and mild cleansing solution, clean all inspection and lighting windows inside the tunnel. Make sure all grease, oil, and other debris is removed.

6. If you have started production, signal to someone to stop it again.
7. Push to release the locking mechanism on the service frame.
8. Flip the switch to change directions of the service frame.
9. Crank the handle to lower the module back into place.
10. Start production.
11. Select the **Relearn** button in the DecoSpector 360™ software, so that the system learns parts with the newly cleaned windows.

Replace the Filter-Regulator Filters

The filter/ regulator assembly shown below is installed with the inspection module. Replace filters.



	Pressco part number	Description	Replace at least:
1		Filter/ regulator. No filter change necessary.	
2	67620	Filter oil removal	Every 2000 hours
3	67621	Filter oil vapor removal	Once per year
	67622	Kit (contains one each of 67620 and 67621) It is easier to replace both of these filters at the same time	

Best Practices

This section includes practices you can use regularly to keep the DecoSpector 360™ and the inspection process running smoothly.

How to Avoid False Rejects

Learn and Adjust:

- Use the **Relearn** button to relearn the part.
  - If the system is not programmed to go online automatically, select **Show Templates**.
  - If the system automatically goes online, select the **Print Quality** button, load images, select **Options**, then select **Show Template Mean Images**
  - If the templates look OK (that is, there are no gaps or smears, and the image looks clear), then adjust the defect size and sensitivity through the Print Quality screen
- After the learn is complete, load the last 100 defects and last 100 images in the Print Quality screen
- Review the latest defects and determine if the DecoSpector is rejecting good/ sellable cans. If it is, find the failing classification (in red) and adjust size and sensitivity accordingly.
- Review the last 100 images and determine if the system is missing any defects. If it is, then adjust the defect size and sensitivity to the proper error threshold to reject bad cans.

Defect Size vs. Sensitivity

Defect Size is the count or total area of defective pixels found over the entire view of the can. It is not just a count of the number of pixels. Instead, the system uses a weighted pixel count to help identify the severity of the defect as well.

Sensitivity is used to determined which pixels in an image are defective. It is important to set the sensitivity properly.

- Anything below the sensitivity value is considered good
- Anything above the sensitivity value is considered bad
- A very high sensitivity will detect very severe defects, but it will completely ignore a defect that is not as severe, even if that defect covers a very large area of the can. Not all deco defects show up as a severe change, so we strongly advise against using extremely high sensitivity values.
- Example: if the normal good can contrast is 45, then do not use sensitivity values of 100 or more. The system would see no defects if they show up between 45 and 100.

See "Adjust Inspection Settings" on page 141

Voids (Small vs. Large)

Small voids: to detect small ink voids, use a low defect **size** (20 - 50) and mid defect **sensitivity** (45 - 65).

Large voids: to detect large ink voids, select a high defect **size** (300 - 1500) and low defect **sensitivity** (35 - 55).

Adjusting for the System Missing Defects

If the DecoSpector is missing defects on your parts:

1. Load the last 100 images in Print Quality.
2. Locate the classification that is detecting a difference from the current can and the label template. This will show up as a spike in the green area below the unwrapped image.
3. Adjust the defect size and/ or the sensitivity threshold to a value that best detects the missing defect, and still allows the good cans to pass.
4. Save the new settings.

Troubleshooting the Can Line

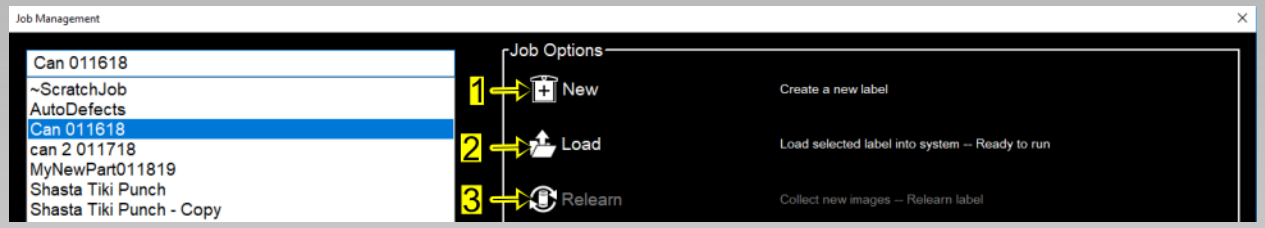
How to use secondary correlation to identify the root cause of the defect.

- **Bodymaker**: if the system is rejecting cans with a body defect, identify the BMID and alert the manager on duty in that department. If the rejected cans have the same body-maker ID, then the cause is probably that body maker. If the ID numbers are mixed, then there may be a can stuck somewhere in the conveyor system damaging cans as they go by.
- **Trimmer**: if the system is rejecting for trim hairs, identify the BMID of the bad trimmer and alert the manager on duty in that department
- **Washer**: if you see cans that have too much acid or too little acid in the washer, or washer waves, or ink voids caused by water droplets from the washer, alert the manager on duty in that department
- **UV Rim Coat:** if you see ink voids caused by UV splatter, alert the manager on duty in that department
- **Blanket Defects**: if the system is rejecting cans for a tear in the blanket, dents in a blanket, creases in the blanket, or worn blankets, stop the line and replace all blankets. NOTE: you can also used "Forced Reject" on page 48 to reject a specific blanket or mandrel continuously.
- **Pin Chain:** if the system is rejecting for top edge defects, you may have a bent pin or the pin chain timing may be off

Chapter 8 Job Management

- Tap the job name icon (in the control panel) to open the job menu.

Note: You will learn new cans each time you change production. When you save a job, the lighting and inspection settings are saved.



1) **New**"New Part (First Time Inspecting a Part)" on the next page

2) **Load** in the left column, select the job or label you want to inspect, then select **Load** "Part Changeover (Part Type Inspected Previously)" below

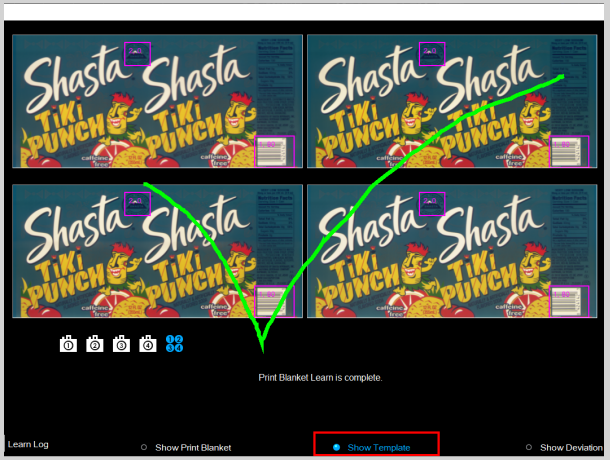
3) **Relearn** Relearn the label

Part Changeover (Part Type Inspected Previously)

If you have inspected a part type previously, you will change the Job and relearn the part.

To change parts:

Step	Button or Menu Item
1. Log in to the Pressco system. (Operators may change part jobs.)	
2. Make sure the system is offline, so the button face is not blue.	
3. Select Job icon (in the Control Panel) to open Job menu.	
4. Select the job name of the part you want to inspect.	

Step	Button or Menu Item
5. Select **Load** to load the job. The icon turns blue while the system loads the job. Wait until the job is loaded.	
6. Select **Relearn**. Wait while the system learns the label.	
7. Select **Show Templates***. Make sure the images are clear, and they resemble your label. If not, select **Relearn** again. *You will only see Show Templates if the system is not programmed to go online automatically. An Administrator can enable or disable the automatic online feature from **Settings** | **System Utilities** | **Go Online After Job Learn**.	
8. Select ✔ **Job Ready** to close the Learn menu.	
9. Put the system online.	

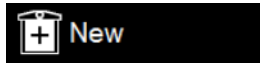
Note: the learn process may take much longer than normal if part handling is not correct. If there are physically damaged cans, off center cans, or adjacent cans in the image, then the system will have difficulty learning the can label.

New Part (First Time Inspecting a Part)

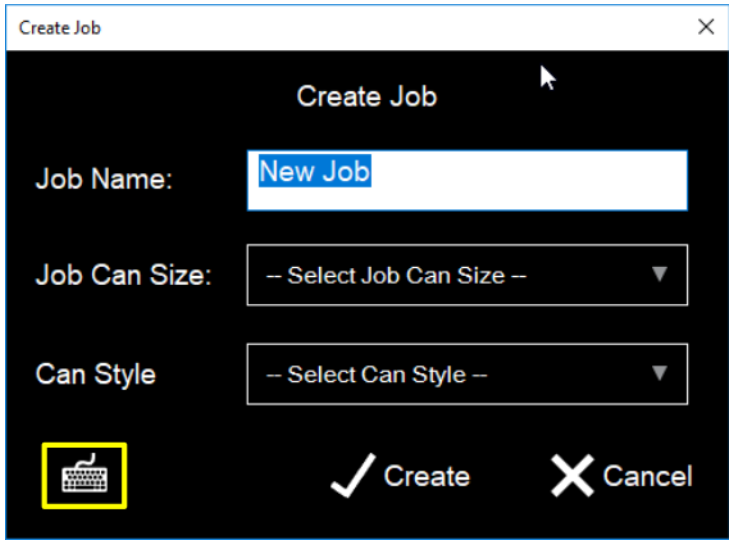
Log in. Take the system offline (so the face of the button is not blue). 

To create a new job:

1. Select 

| 

|  Type a Job Name.



2. Select a **Job Can Size** and **Can Style**. Select ✔ **Create**.
3. Wait until the system prompts you to align the print blanket. Select ✔ OK. To learn how to align the print blanket, see Align the Print Blanket.

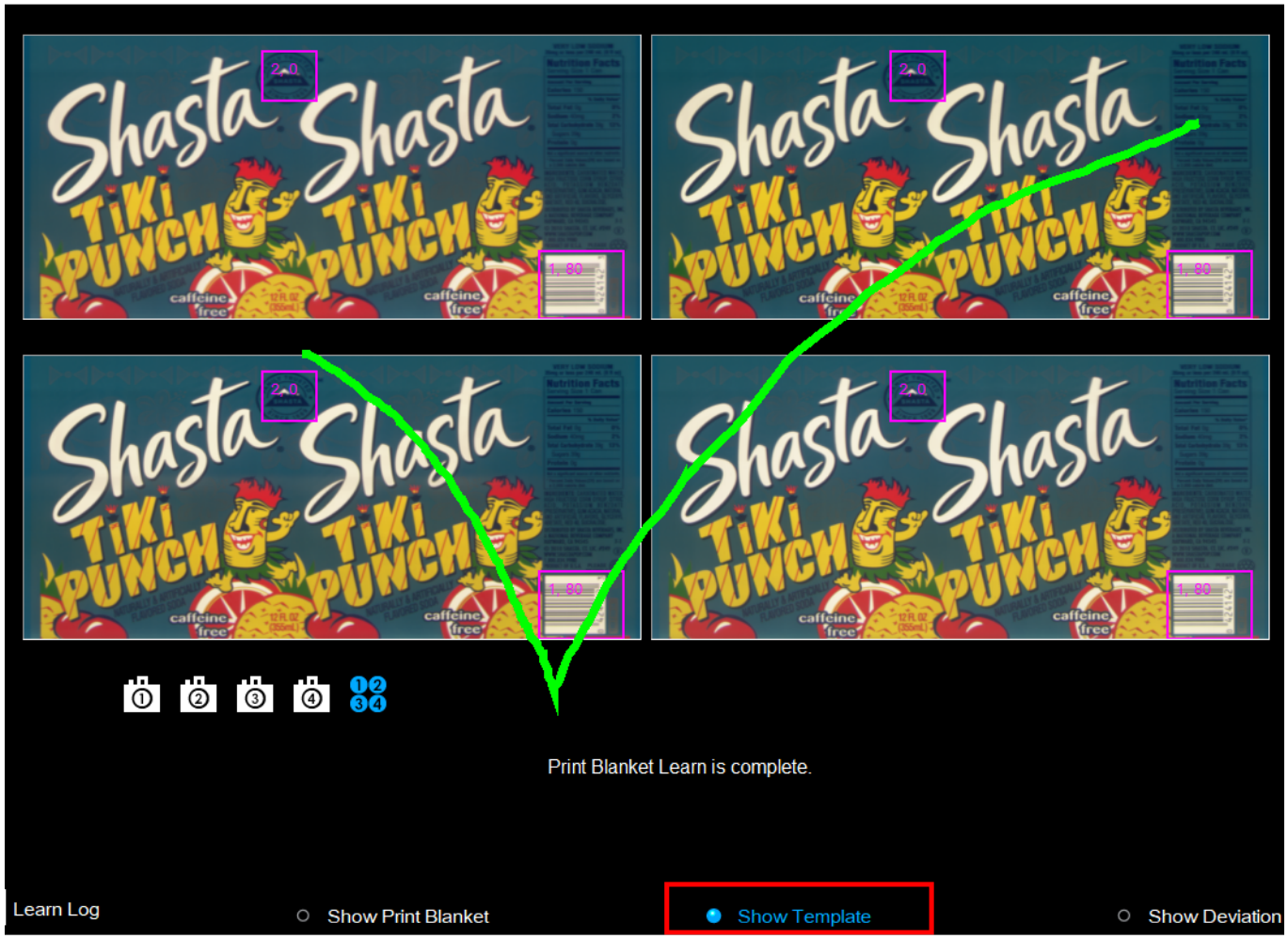
4. Align the print blanket and select ✔ **Save Alignment**.
5. If your system is configured to "Go Online After Job Learn,"* then you are finished. The system automatically finishes learning and goes online to inspect parts.

The system collects part images, adjusts lighting, and creates templates. The system saves the templates, which are used as the standard to which it compares inspected parts during online operation. The system will post a message that says **Learn Deco Finished**.

> *Note: If your system is not configured to automatically go online, you may set up* ***Special Zones****: "Inspection Zones" on page 111 and/ or "Color Zones - Manual, optional" on page 116.*

If your system is not configured to "Go Online After Job Learn:"

1. Select **Show Templates**. Make sure the images are clear, and they resemble your label. If not, select **Relearn** again.



2. Select ✔ **Job Ready** to finish the learn process.
3. Put the system online to inspect parts.

*Note: An Administrator can enable or disable the automatic online feature from **Settings** | **System Settings** | **Go Online After Job Learn**.*

Relearn

Relearn icon

Use Relearn:

- during part changeover, when a job already exists
- if you have been running the same part for several hours, to detect subtle process changes
- if inspection is not working correctly. First, "Clean the Tunnel Windows" on page 99, and then Relearn. If the windows get dirty over time, this can affect inspection performance.

If you have not inspected a label previously, use "New Part (First Time Inspecting a Part)" on page 107).

To use Relearn:

Select the Relearn icon from the home screen or Job menu. The system will automatically collect part images, go through Pre-Calibration and Part Fixture steps*, and then go online to inspect parts.**

Note: the learn process may take much longer than normal if part handling is not correct. If there are physically damaged cans, off center cans, or adjacent cans in the image, then the system will have difficulty learning the can label.

*The system may prompt you to align the print blanket, only if the consistency data for the part is out of specification. Move the image so that it looks like your print blanket.

**The system must be set up to go online automatically. If not: Put the system online to inspect parts.

> *Note: An Administrator can enable or disable the automatic online feature from **Settings** | **System Settings** | **Go Online After Job Learn**.*

Inspection Zones

This feature allows you to increase or decrease the sensitivity on specific parts of your label, without affecting inspection on other parts of the label. You can inspect specific areas such as the date code area, or busy printed areas to find washer stains, for example. Each zone has independent sensitivity control.

Once you save the inspection zones, this information is saved with the job, so that it gets used each time you run the job.

To set up inspection zones:

1. 

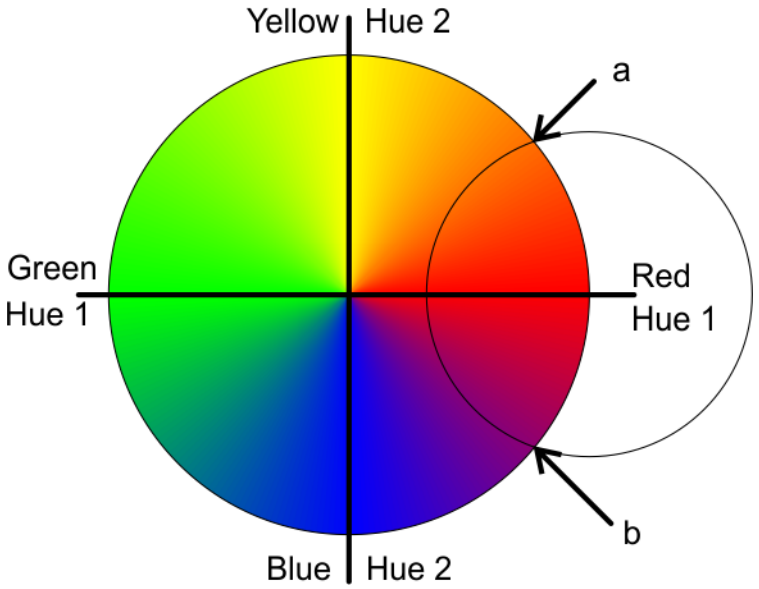
Go to the job menu.
2. Select **Inspection Zones**.
3. Select **New Zone**. A default zone and inspection settings appear on the screen.

4. Move the zone to where you would like to adjust the sensitivity. (You can set up more than one zone)
5. Adjust the sensitivity:

> ***Tip**: The sensitivity values are locked together by default, which provides the best overall inspection. Typical settings are 120% for more sensitive, and 80% for less sensitive.*

- Intensity % inspects for shadows and scuffs
- Saturation % inspects for too much color or color voids
- 100% is standard inspection
- 0-99 is less sensitive
- 101-500 is more sensitive. At 500, the inspection block is black (look in the lower image); almost every pixel fails at this setting.

Hue 1 and Hue 2 typically get adjusted the same amount. Try small incremental adjustments.



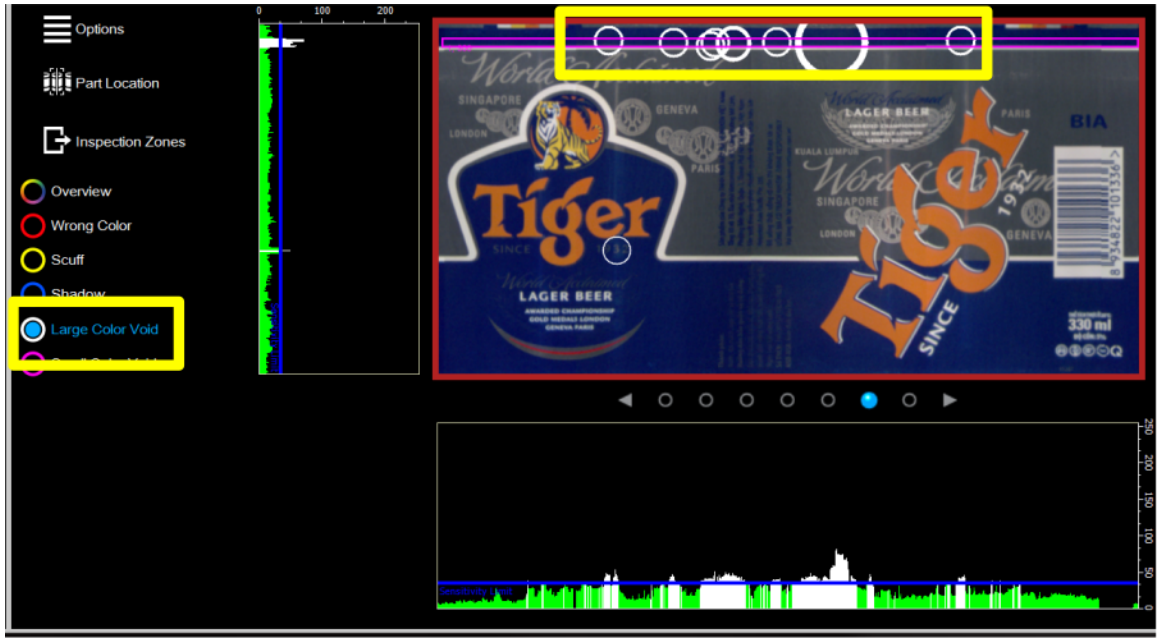
- a and b represent red as it starts drifting towards yellow or blue
- Hue 1 affects Red and Green. If you expect to see red, but the can color is printing orange or purple, OR you expect to see green, but the can color is printing greenish-yellow or aqua, then increase Hue 1.
- Hue 2 affects Yellow and Blue. If you expect to see yellow, but the can color is printing orange or yellow-green, OR you expect to see blue, but the can color is printing greenish blue or purple, then increase Hue 2.

In our example below, we placed an inspection zone over the bar code, making inspection less sensitive in this area.

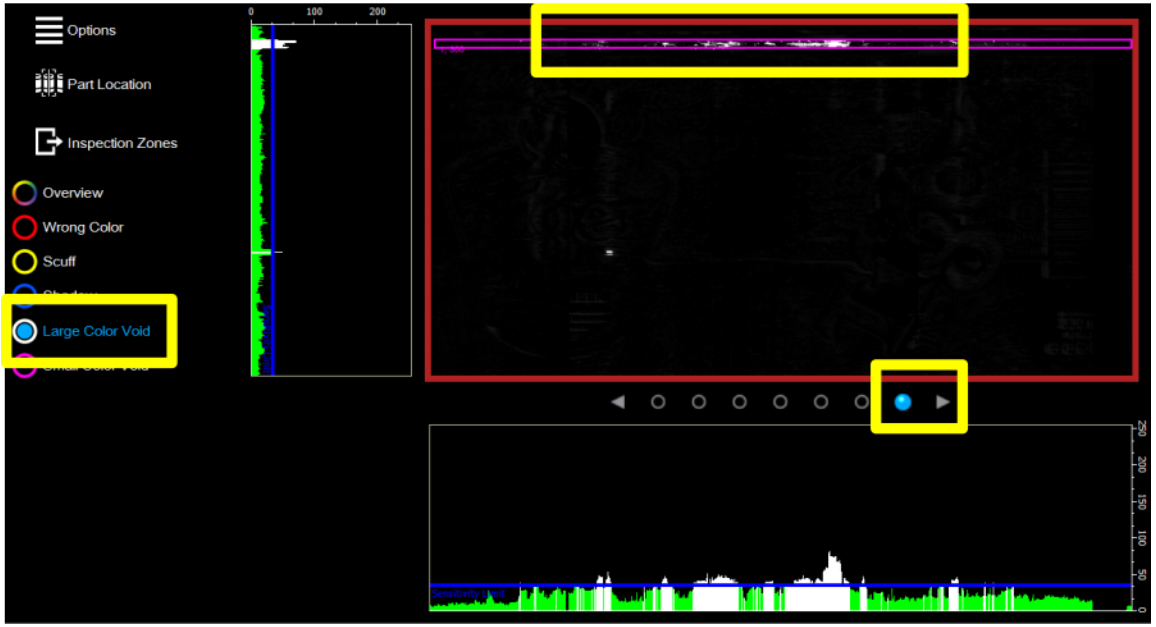
See also: "Inspection Zones Example" below

Inspection Zones Example

This example shows that a Large Color Void was found within the inspection zone.



You can see the defect more clearly by looking at the "error" image. Click the appropriate dot under the image.



Color Zones - Manual, optional

Note: if your system is configured to "Use Automatic Colors," then you will not see this screen nor set up colors. The system does that automatically.

Use Color Zones to monitor specific colors over time. You may choose up to eight colors, and the system will monitor how closely each image compares to the original image

To set a color zone:

1. Select **New Zone**. An adjustable circle is displayed on the image. This is the template image, so the colors are an average of all the learned parts.
2. Move and/ or resize the inner circle to an area on your part you want to monitor. Try to use an area that contains only one color, not shading nor borders. Use the outer circle as space to allow for part movement. Do not include other colors within the outer circle. You can move and re-size the circle on the full image or the zoomed image on the right.
3. Select the **Zone Name** to rename the color, if desired. The system will automatically apply a color name based on RGB values if you choose not to add a name. Select **Auto Name Color** to apply a standard color name. You may type a different name if desired: select the keyboard icon. ✔ **Save**.
4. To add another zone, select **New Zone** again and move or resize the circle as desired. Rename the color.
5. Select **Save** to save changes and exit. The system will save this information with the job. WAIT while the system updates the parameters.

When the system learns the part, it places the color zone on the same area of all images, regardless of part movement.

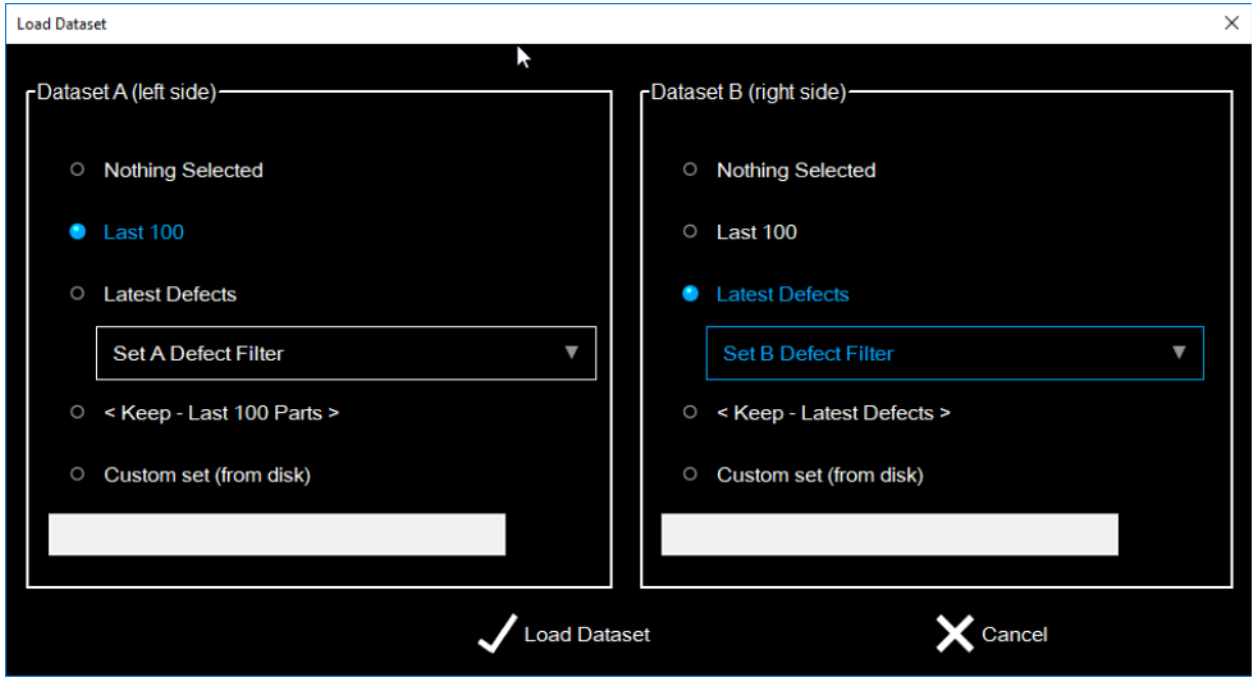
Chapter 8 Load Part Images

Note: The images must already be saved to system hard drive, or have occurred within the last 100 parts inspected.

To load part images (in Print Quality or Color Analysis):

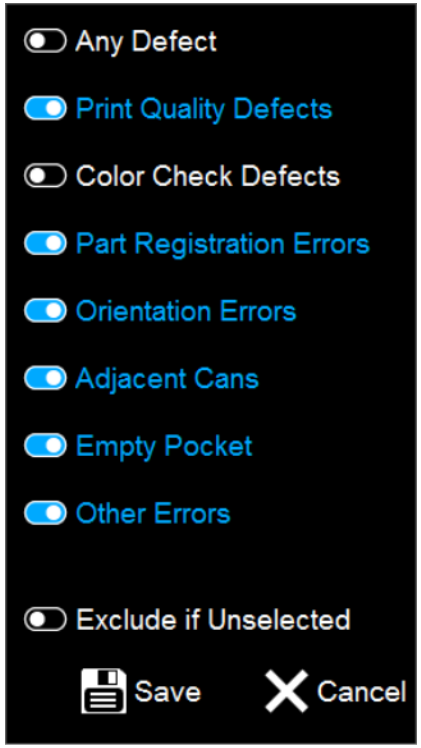
1.  - Tap the load icon.
2. Select images to load for Data Set A (left side of the graph) and Data Set B (right side of the graph).

   Note: when you select Custom Set (from disk), up to 49 images from the selected folder are loaded.



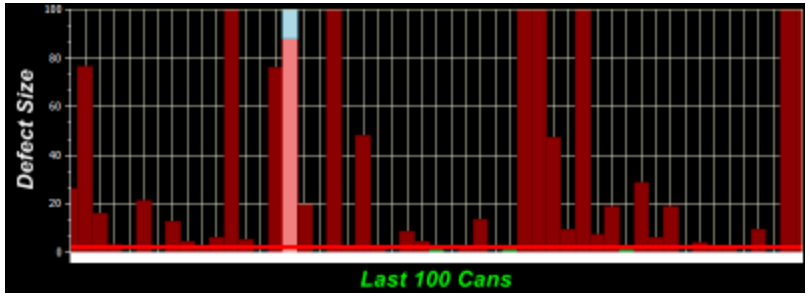
   Tip: Look at the Last 100 images, in addition to Latest Defects. If you only look at the latest defects, you may be missing parts that are just barely passing, that you want to reject.

3. If you select Latest Defects, you can filter which defects you want to see. Make your selection from the drop-down menu:



Any Defect switches all options on or off.

4. After the images are loaded, tap one of the bars at the top of the screen to see the corresponding image, which is displayed below the graph. In the Color Analysis screen, the graph looks different than below. You can select any point on the graph to select a part.
5. Select Load Dataset and WAIT until the system finishes loading the images. (***LOADING*** is displayed during the load process. The name of the data set is displayed when loading is complete)



Chapter 9 Color Analysis

This section describes how the system monitors your part's colors. The colors (or zones) need to be defined when the job is created or updated.

To view anything on this screen, you must load a fresh set of images. See "Load Part Images" on page 117

The system sets up colors using either Automatic or Manual colors. This is set up during installation.

See "Color Zones - Manual, optional" on page 116

Color Measurements

The DecoSpector 360™ takes several color measurements. Use the measurement that best matches your plant's color measurement process.

In the following examples, the "standard color" is Blue: RGB: 28, 82, 162. The color squares represent different measured values. The numbers under the squares represent the number shown on the scale to the left of the DecoSpector graph.

Your standard colors are computed when the system "learns" your parts.

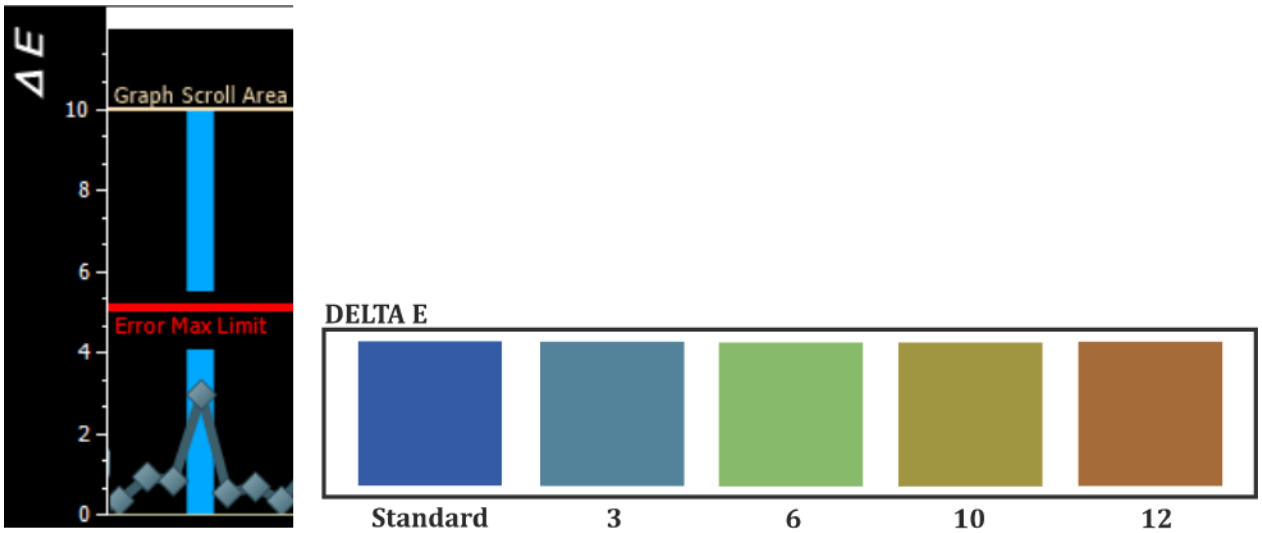
Delta E

Delta E is a measurement used to indicate how much a color deviates from an accepted standard.

The inspection provides Delta E detection by measuring color separation on a scale of 0 - 100. A value of zero indicates that there is no discernible difference in color from the reference value. A value of one indicates the minimum human perceptible difference in color. The colors are measured in RGB, and converted to L*a*b* color space for Delta E measurements.

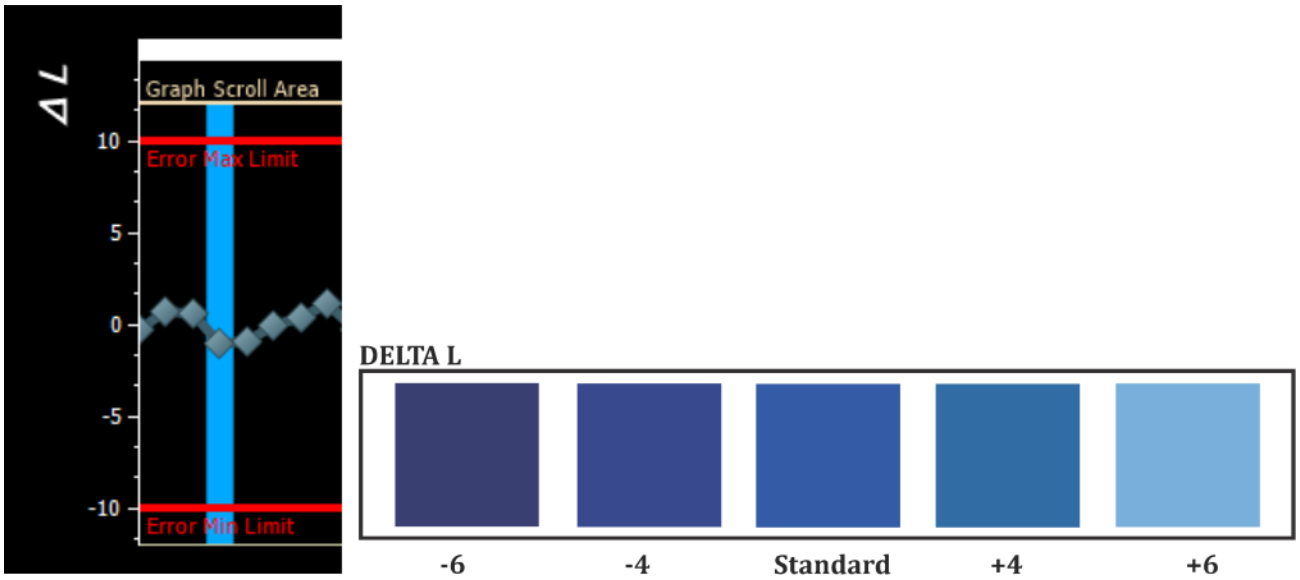
On the Delta E graph, the further away a measured color is from the standard, the more different the color.

Delta L, Delta H, and Delta C are all components of the Delta E measurement.



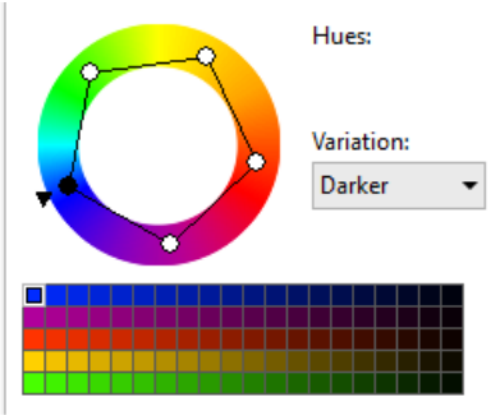
Delta L

Lightness. On the Delta L graph, a negative number represents a color that is darker than the standard. A positive number represents a lighter color than the standard.

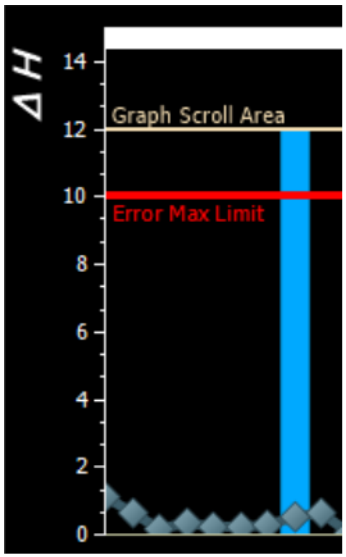


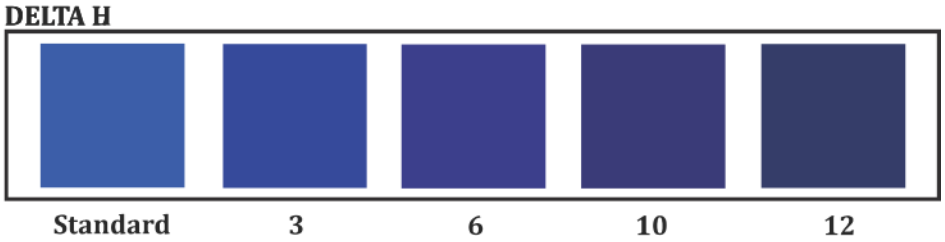
Delta H

Hue. The attribute of color that enables an observer to classify it as red, green, blue, purple, etc., and excludes white, black, and shades of gray. [Source: http://www.thefreedictionary.com/hue]



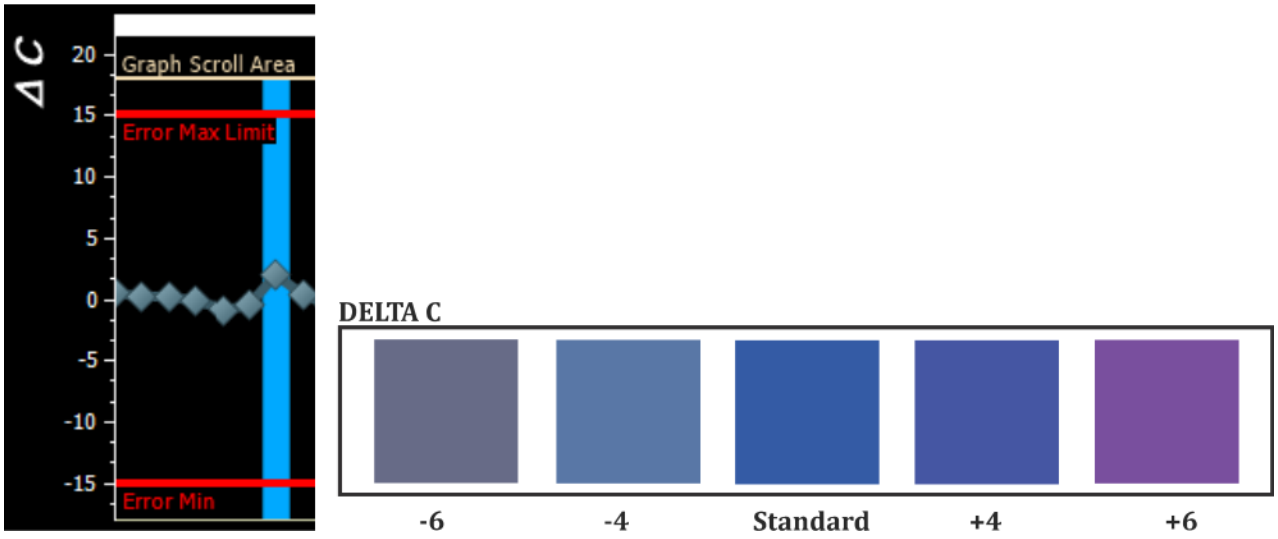
On the Delta H graph, the higher the number, the further away that color is from the standard.





Delta C

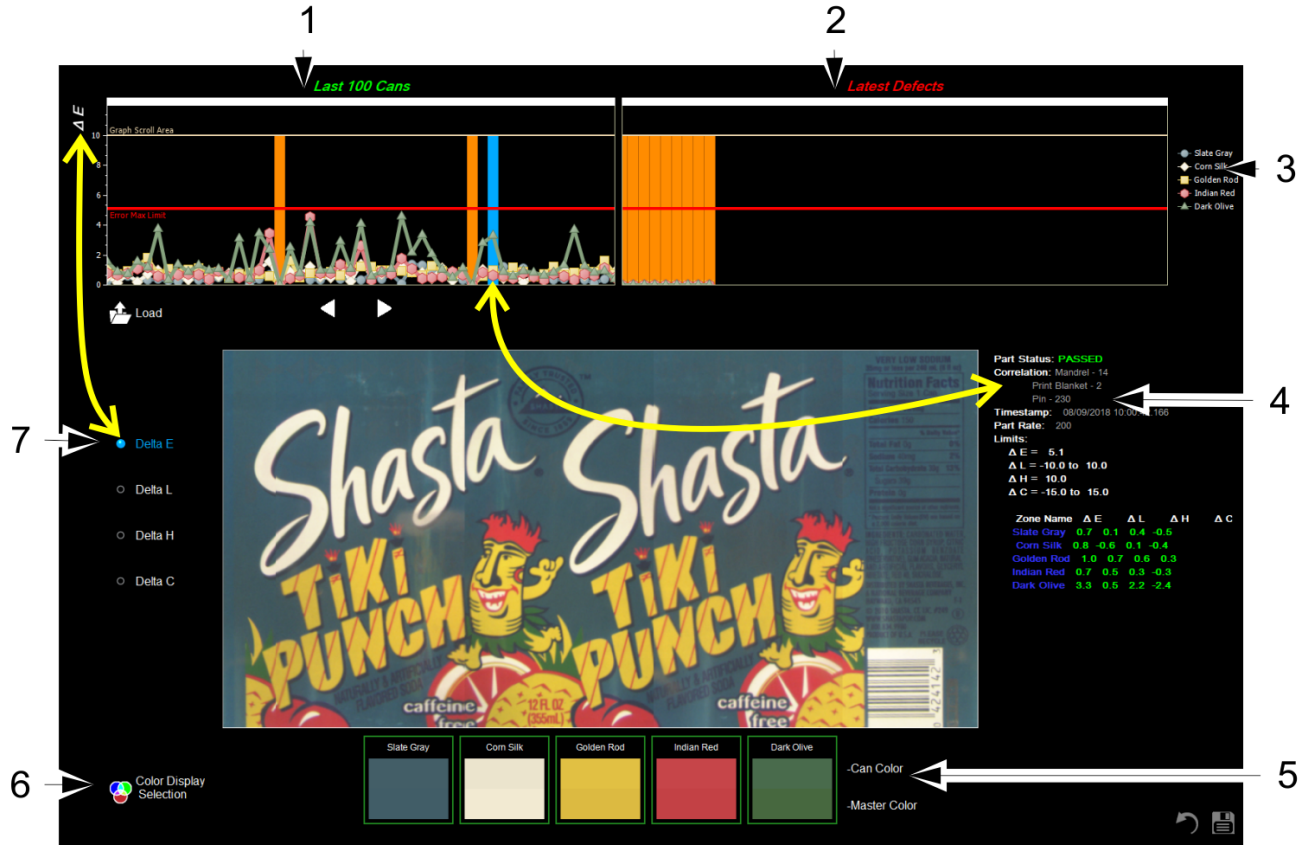
Colorfulness. The system may find an area to be more blue or less blue, for example. On the Delta C graph, a negative number means that the measured area is less colorful than the standard. A positive number means that the measured area is more colorful than the standard.


ΔC
20
15
10
5
0
-5
-10
-15
Graph Scroll Area
Error Max Limit
Error Min
DELTA C
-6
-4
Standard
+4
+6

Color Analysis Graphs

This example graph shows the default setup. To see parts, select the Load icon and select a set or sets of part images.

*Tip: If your system is excessively rejecting a specific color, select **Color Display Selection**. Then disable the problem color.*



1) Data Set A - our example loaded Last 100 Images

2) Data Set B - our example loaded Latest Defects - Any Defects

3) Color key

4) Inspection results for the selected part

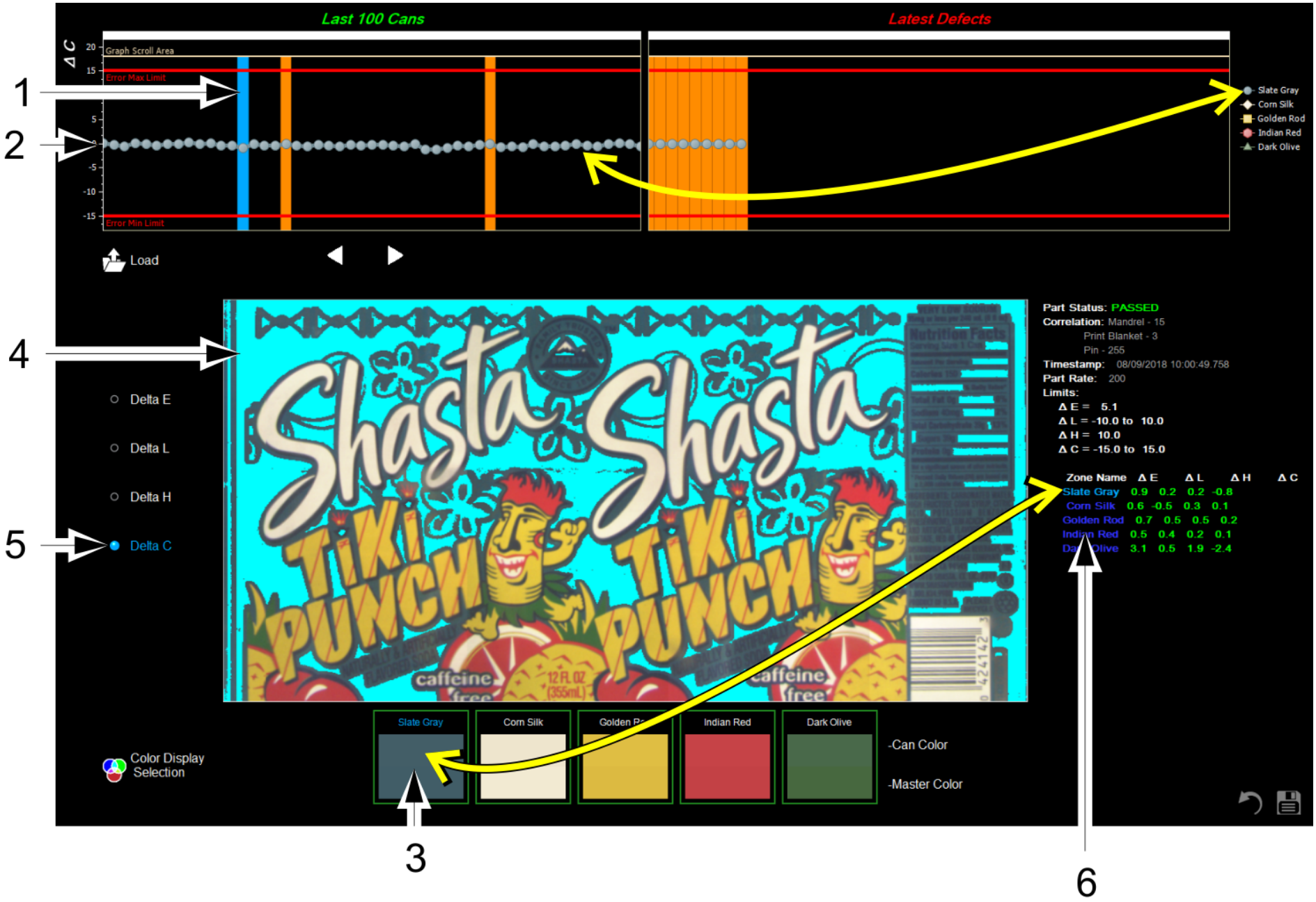
5) **Can Color** = the measured color on the selected part. **Master Color** = the learned color that the part should match.

6) "Color Display Selection" on page 126 - Select the colors you want to display or measure

7) Use the radio button to select which color measurement graph you want to display. "Color Measurements" on page 119

Color Analysis for One Color - Automatic Color Mode

You can view the inspection results for one color. To see parts, select the **Load** icon and select a set or sets of part images.



To see the information for one color:

1. Select one part (bar) in the Retro-Spec graph.
2. Only the selected color graph is shown at the top of the screen (Delta E, etc.)
3. Select the desired color block
4. The selected color is highlighted in cyan on the image
5. You can select any color measurement to the left of the image (Delta E, etc.)
6. The selected color is highlighted in the results section

When you select the image or color block again, the display reverts to all displayed colors.

Color Display Selection

This icon is displayed in the lower left corner of the Color Analysis screen.

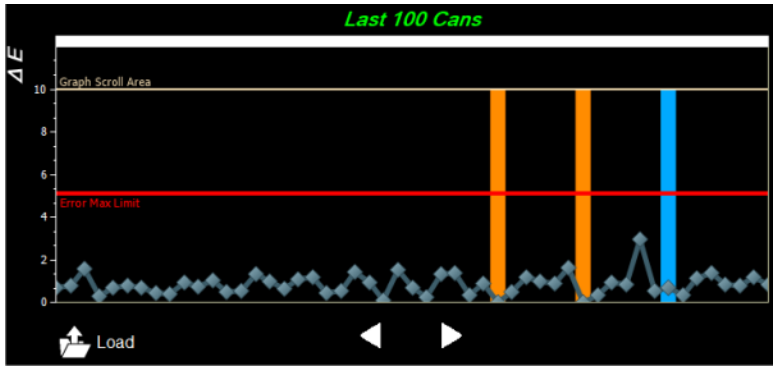
Select which colors your want to view or analyze. Choose from colors that were previously set up through **Automatic Colors** or **Manual Color Zones**.

Select the Color Display Selection icon. Then select the color(s) you want to view (the colors with will be displayed). Save changes and exit.

Is Enabled [Only when using Automatic colors] If a color is enabled, then the DecoSpector will analyze that color. If the color is disabled (the switch is not blue), then the system will not analyze that color.

The selected colors will be displayed below the image as Can Color and Master Color.

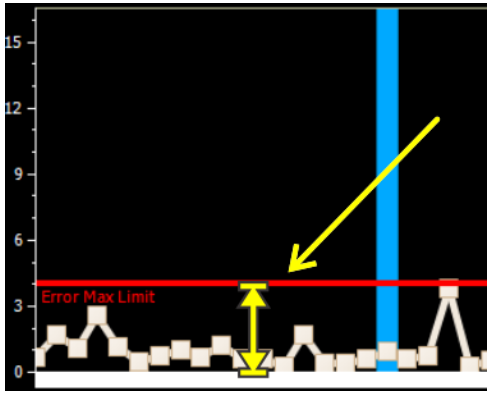
The graphs at the top of the screen will show only the selected color(s).



Adjust Color Inspection Sensitivity

Administrator only

Move the red bar(s) to adjust inspection sensitivity. In the Delta E graph, moving the red line up decreases sensitivity (fewer failed parts). Moving the red line down increases sensitivity (more failed parts).

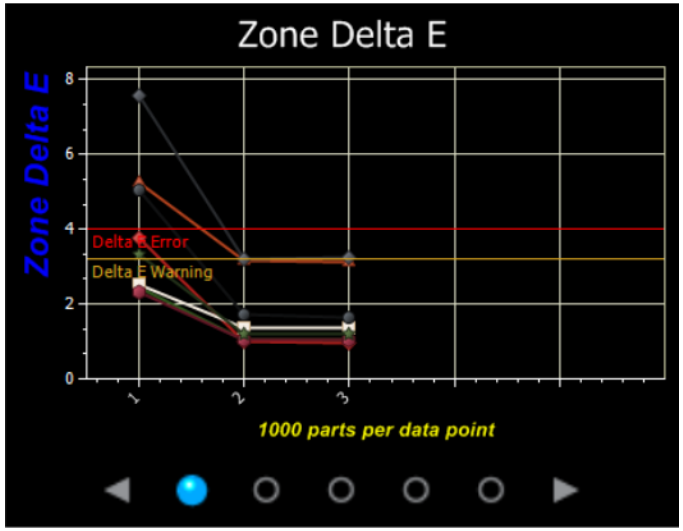


> *Note: when you move the Error Limit bar, it affects all monitored colors. To see all color plots on the graph, click on the image outside of a color zone.*

You can adjust sensitivity for other color measurements. The Delta L and Delta C graphs have positive and negative sensitivity levels. For information, see "Color Measurements" on page 119.

Color Trend Graphs

Overview On the home screen, you can view several color monitoring graphs. Swipe over the graph or select one of the dots under the graph to select different graphs. A dot is added to the chart every 1000 parts to indicate how the color is trending.



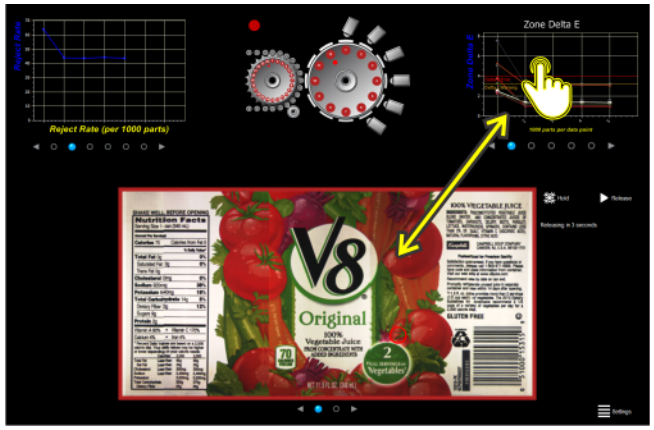
Color Analysis You can set the Error and Warning limits for these graphs in the Color Analysis screen. Use the Retro-Spec graph at the top of the screen to adjust the limits. See also "Adjust Color Alarm Limits" on page 134.

You can select a specific color graph to display using the following steps.

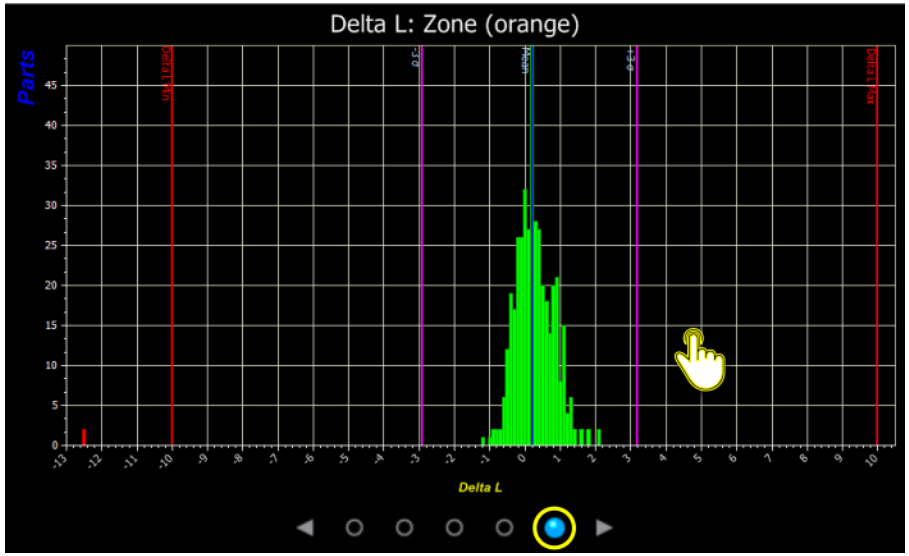
> *Note: Before selecting a graph you must: Set up Color Zones or use Automatic Color Zones*

To choose a graph:

1. Select the graph in the upper right corner of the home screen to view it as a large graph in the center of the screen.



2. Click on the graph to bring up the zone setup screen.
3. Select the rightmost dot to view the user-selectable graph.



If you are using Automatic Colors:

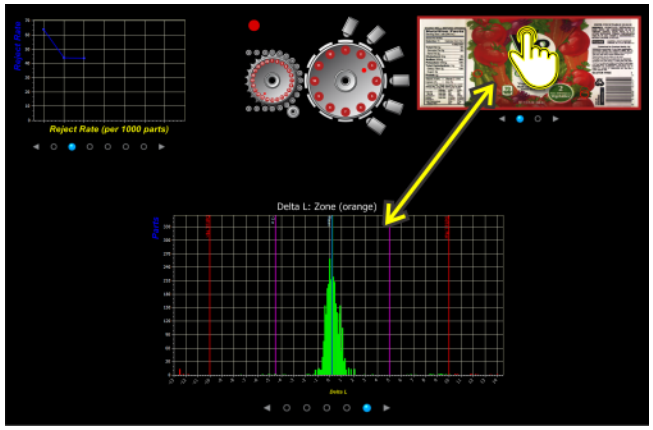
- Select a color from the drop-down menu.
- Select a color measurement (Delta E, Delta L, Delta H, or Delta C).

If you are using Manual Color Zones:

- Select one of the color zones on the image (yellow circle turns blue when you select it). The Zone Name is displayed in the upper right of the screen.
- Select a color measurement (Delta E, Delta L, Delta H, or Delta C).

Select OK to save changes and exit. The selected graph is displayed on screen.

To move the graph to the upper right of the home screen, select the part image. The graph and the part image will switch places.

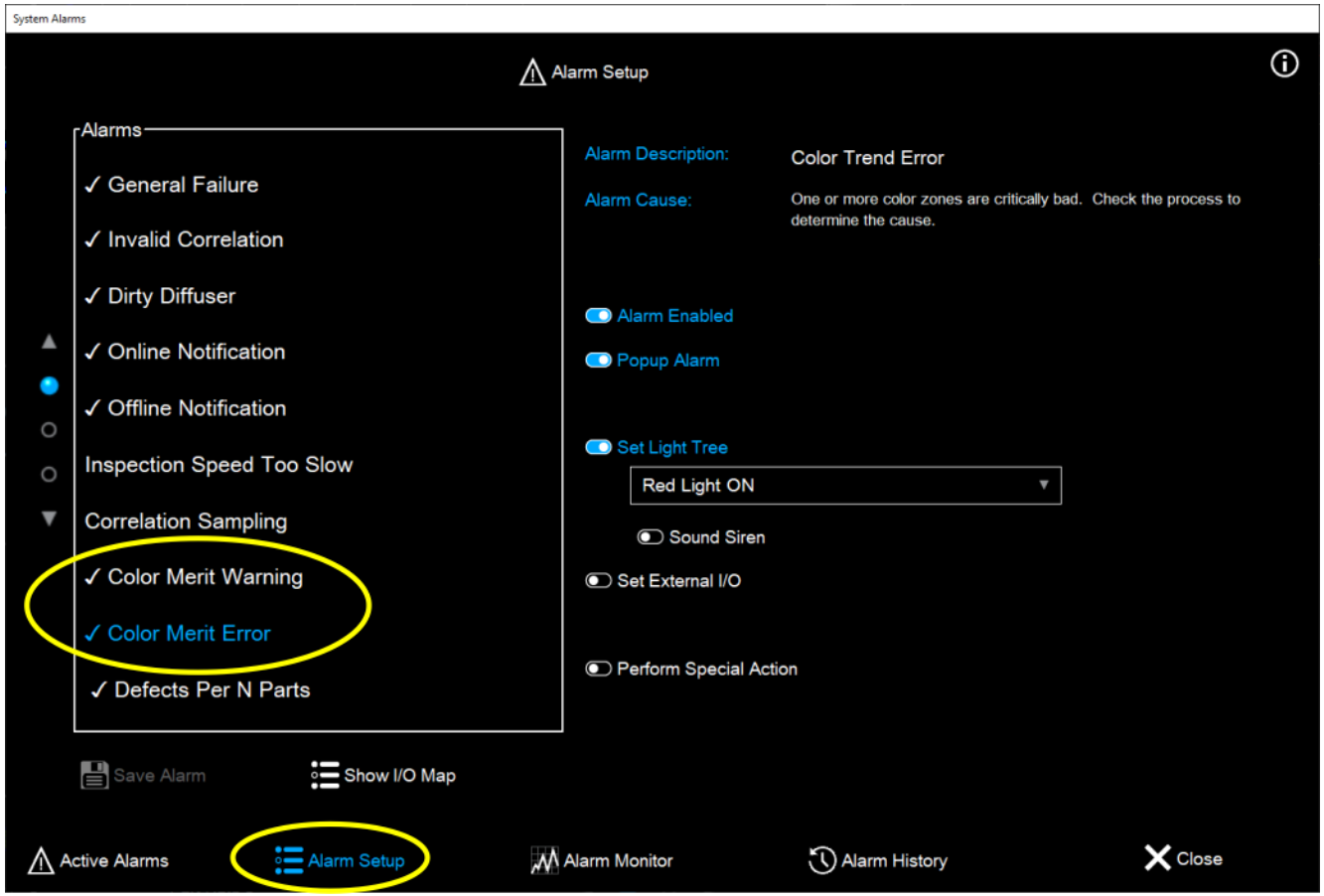


Color Alarms and Specification Limits

The **Color Merit Warning** and **Color Merit Error** alarms are used to notify you when the colors are going out of specification. The alarms use the average Delta E value for each color zone to determine when the colors are exceeding your set limits.

The **Color Merit Error** alarm is linked to the Color Analysis Delta E limit line. Administrator-level users can adjust the limit in the Alarm Setup dialog, or in the Color Analysis graphs: "Adjust Color Alarm Limits" on page 134.

Alarm setup: *Administrator only*



The **Color Merit Warning** alarm is also linked to the Delta E limit line, but is automatically reduced to 80% of the set limit.

You can also monitor the values when you use Alarm Monitor.

See also "Alarms" on page 45.

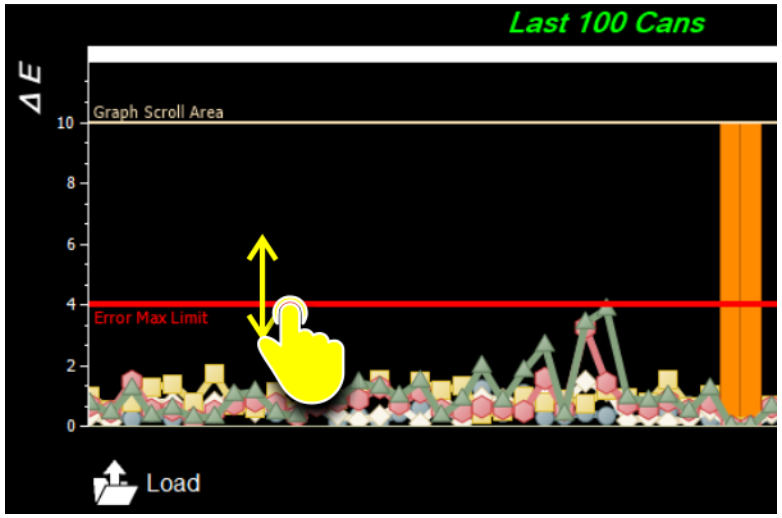
Adjust Color Alarm Limits

Administrator only

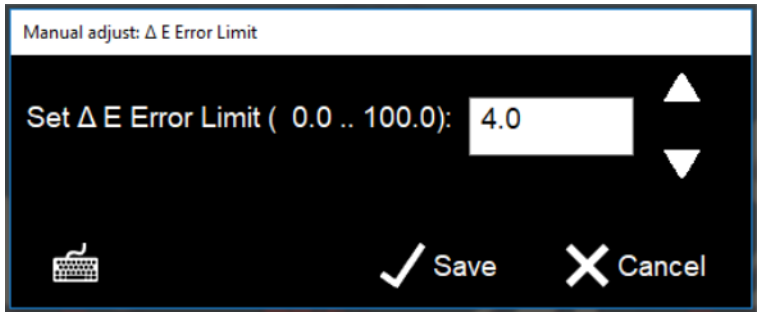
The Delta E Error Limit determines the alarm value for the **Color Merit Error** alarm. See also "Color Alarms and Specification Limits" on page 132

In the Color Analysis screen, **Load** images, and make sure Delta E is selected to the left of the part image:

Use the Retro-Spec graphs to adjust the Delta E limits. Click and drag the limits bar.



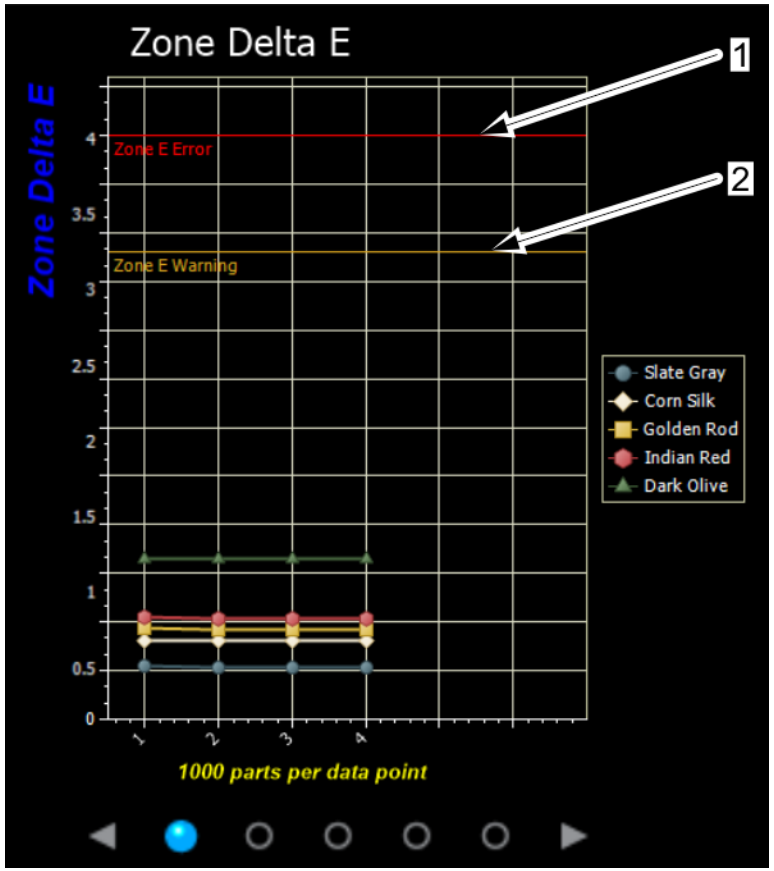
Or press the red line and hold, to enter a number.



This value matches the Zone E Error limit bar.

The **Color Merit Warning** value (in Alarms) [also called Zone E Warning in the Overview Panel graph] is automatically computed (it is 80% of the Zone E Error value).

The graph below is displayed on the Overview Panel.



1) Delta E Error Limit 2) Delta E Warning Limit (automatically computed)

The other color measurements, Delta L, H, and C, also have limit adjustments through the Retro-Spec graphs. Those limits are displayed in the corresponding graphs on the Overview Panel. There are no alarms connected to Delta L, H, or C.

Chapter 10 Print Quality Screen

Print Quality

This screen allows you to view recently inspected parts through the Retro-Spec interface. This allows you to see trends in inspection. It also allows you to change inspection settings and try them on images without interfering with current inspection.

You must be an Administrator to **save** changes.

> *To view anything on this screen, you must load a fresh set of images. See "Load Part Images" on page 117*

From the Print Quality screen, you can:

"View Defects on Images" on page 139

View "Defect Classification" on page 140

"View Inspection Results" on page 143

As a system administrator, you can also:

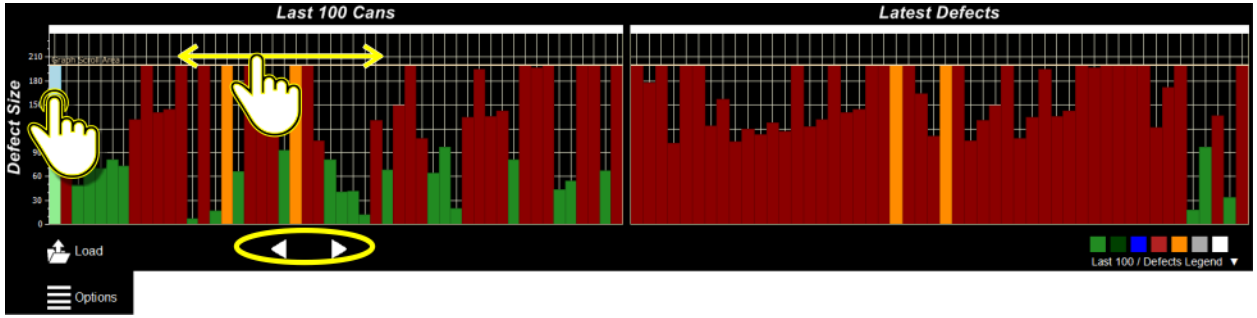
"Adjust Inspection Settings" on page 141

Retro-Spec Graph

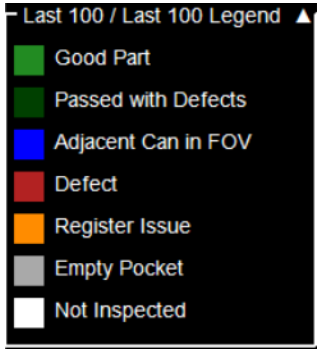
- Tap the Print Quality icon to see the Retro-Spec interface.

To view parts on the Print Quality screen, "Load Part Images" on page 117.

The Retro-Spec graph can load up to 200 parts at a time, 100 in each Data Set (A and B). Each bar on the graph represents a different part. Select a bar to see the part image below the graph. Approximately 50 parts per graph are shown at a time. To scroll, press and drag on the graph or use the arrows under the graph.



The bars on the graph are color-coded, and the legend is displayed below the graph (if enabled). See also "Color Borders Around Images" on page 41

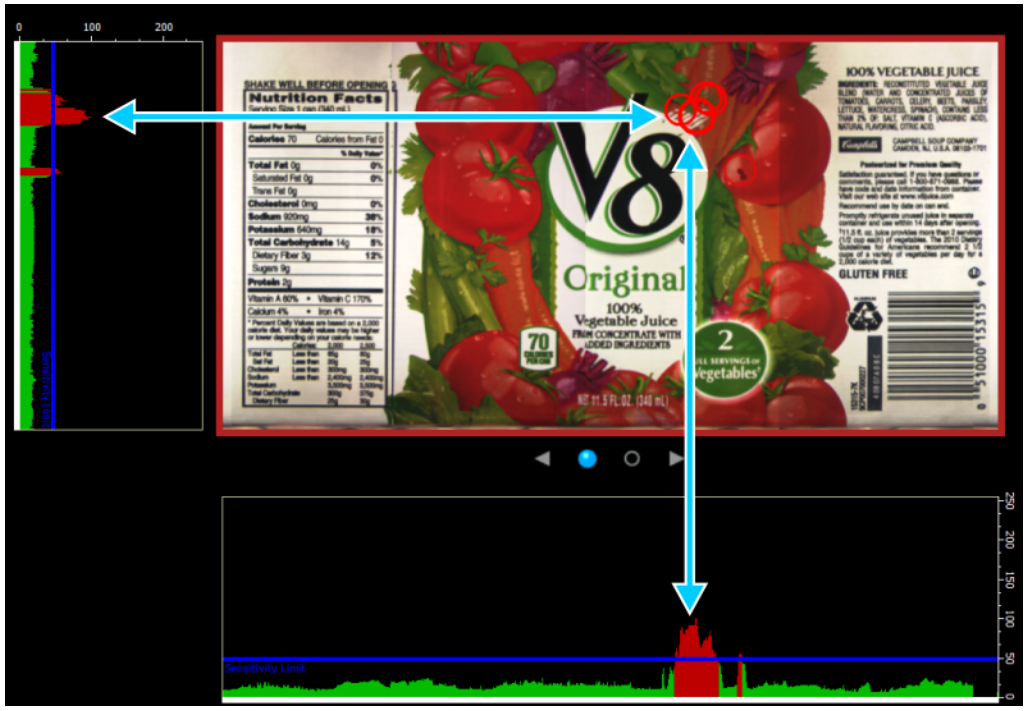


View Defects on Images

Print Quality

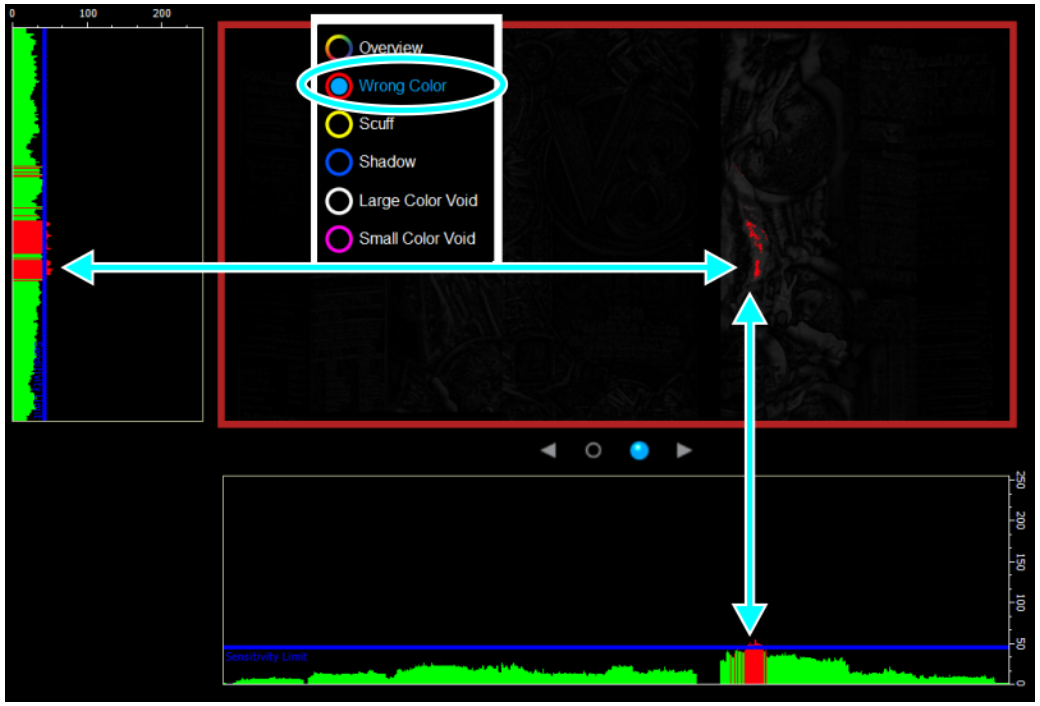
There are two images available for each part: 1) part image, and 2) error image. Swipe, or use the navigation dots or arrows under the image to switch between images.

A part image is shown below. The circles on the image indicate where the defects are found.



An error image example is shown below. The arrows (drawn for illustration purposes) indicate where the defects were found.

Look at the classification legend to see what type of defect was found. The colors correspond to the colors in the error image. See also "Defect Classification" on the next page



Defect Classification

Print Quality

When you view the Error image in the Retro-Spec interface, you can see what type of defect occurred on each part. The defects are color-coded in the Error image. You can select the type of defect to view. The Overview selection shows all defect types.

> *Note: one defect can fall into more than one classification.*

Note: The system determines the strongest classification for each pixel and colors it accordingly. You may see one defect show up in multiple classification views (example, shadow and too much color). This means the pixels in the defect area had strong characteristics in multiple classifications.

Wrong Color The system found color somewhere on the label where it was expecting a different color, such as finding green when it was expecting to see red.

Scuff The system found an area on the label that was too bright.

Shadow The system found an area on the label that was too dark.

Large Color Void The system found no color where it was expecting to see color, in a relatively large area.

Detecting Large Color Voids

To detect color voids you will need to reduce the sensitivity and greatly increase your defect size. Color void is looking for large area changes and not good at detecting small pixel sized defects.

Example: If you are using a sensitivity close to 50 for all the classification sensitivity values, then you may want to try a color void sensitivity around 40 and adjust up or down from there as needed. The defect size will be anywhere from 100 to 500 depending on how sensitive you have made the classification and what size defect you want to catch.

Small Color Void The system found no color where it was expecting to see color, in a relatively small area.

Adjust Inspection Settings

Administrator only

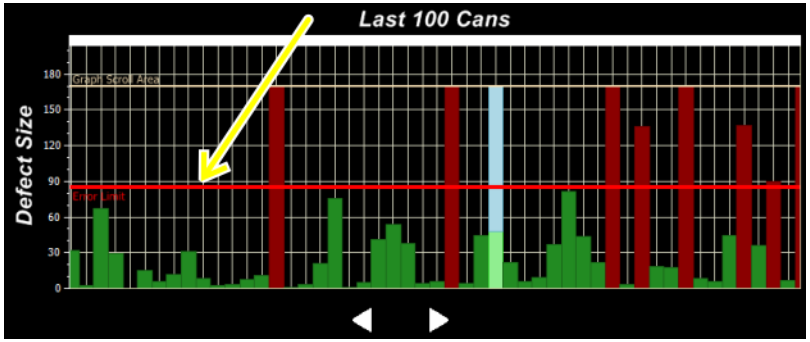
Inspection settings can be adjusted while you examine print quality.

Tap the Print Quality icon to see the Retro-Spec interface.  - Tap the load icon to load images. For information about loading images, see "Load Part Images" on page 117

Make changes as necessary.

Defect Size

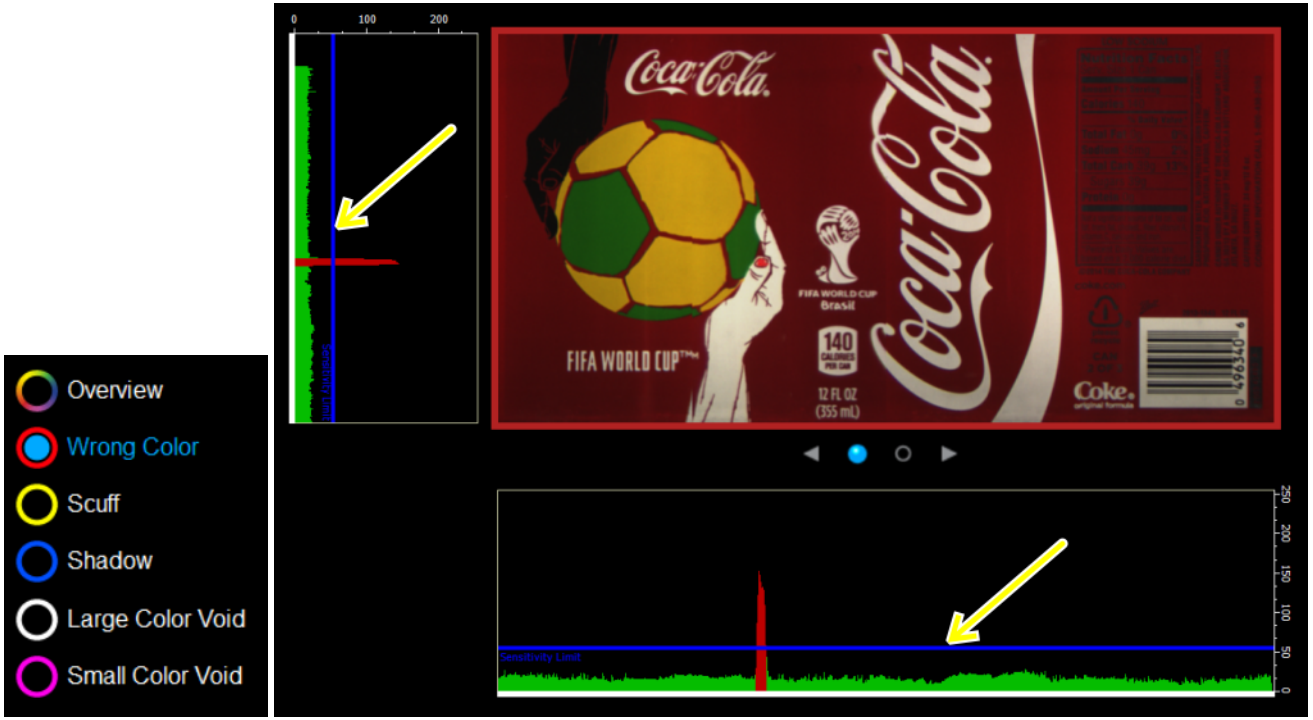
Adjust sensitivity to defect size by dragging one of the horizontal red bars in the upper graphs (except when Overview is selected in Classification Display). Or press and hold the red bar to enter a numerical value through a pop-up keyboard.



Defect Sensitivity

Select a part in the top graph, then adjust defect sensitivity by dragging one of the blue bars in the lower graphs. Both bars move together.

You can adjust sensitivity for each defect type (wrong color, etc.) by selecting the defect type (except Overview).



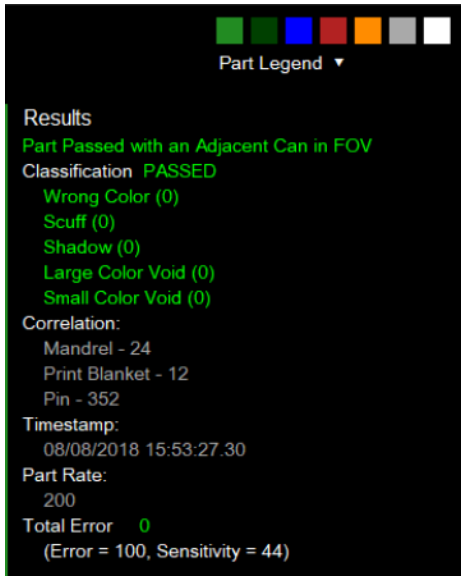
Tap the Save icon after you make changes to save the new settings to your job.

View Inspection Results

View the inspection results of each part.

Options Use the Options button to select which results to view.

If the Results are not on your screen, enable it by selecting **Options** | **Show Results Window** | exit the menu.



> *Tip: look at the camera images. This helps you determine print quality on the parts.*

To see camera images:

Select **Options** 

| **Show Camera Images** (from the right side of the menu). Select **Exit**.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