INTELLISPEC™

Operator's Guide

Pressco Technology Inc.

4.4 software

Part Number 59687 Rev. 01

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Chapter 1

INTRODUCTION

WELCOME!

Congratulations on your purchase of an Intellispec system! The Intellispec is a high-speed machine vision system designed specifically for product and online process monitoring. It is a very powerful tool that provides inspection much more reliably than the human eye or sampling methods. The latest PC technology, powerful new inspection algorithms, online adjustment capability, and inspection data storage allow the Intellispec to automatically inspect parts with extreme accuracy on high-speed lines.

The Intellispec will help you provide the highest quality of products shipped to your customers.

ABOUT THIS OPERATOR'S GUIDE

This Operator's Guide provides operating instructions for the Intellispec vision system. It provides the necessary information to operate an Intellispec that is properly installed and programmed. This guide is not a programming nor hardware maintenance guide. Programming, maintenance, and system setup require specialized training. This training is available from Pressco and may be conducted at your plant or at Pressco in Cleveland Ohio, USA. For more information, ***contact Pressco's*** (see "How to Contact Pressco" on page 119) training department.

TYPOGRAPHICAL CONVENTIONS

Following is a list of typographical conventions used in this manual:

- **Bold type** indicates a topic heading or an important item or statement.
- *Italicized type* indicates emphasis.
- Names of main components and system control signals have the first letter of each word capitalized. For example: Processor Cabinet.
- Danger messages appear as shown below:

DANGER

Danger messages alert you to specific conditions that can cause serious or fatal personal injury. Danger messages give you important information which must be observed to prevent injury. These messages are set off from the body text as shown here.

- Caution messages appear as shown below:

CAUTION

Caution messages indicate important information which must be observed to prevent: loss of data, poor system performance, or equipment damage. These messages are set off from the body text as shown here.

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- Notes appear as shown below:

❖ *Note: Notes contain special information that warrants being set off from the body text as shown here.*

SAFETY CONSIDERATIONS

Observe the following safety warnings when operating the Intellispec system or working near it:

Warning
Potential for projectiles to strike persons and cause injury. Keep clear of reject devices.

Warning
Sensitive electronics and High Voltages may be exposed. Keep Processor Cabinet door closed.

STATIC DISCHARGE PROTECTION

Caution
Electronic components can be damaged by static electricity discharge.

Always observe the following precautions before removing, installing or handling any electronic components within the Inspection System:

- Wear an anti-static wristband which is grounded to the Inspection System.
- Stand on an anti-static, grounded floor mat, and lay circuit boards on the mat during any board replacement.
- Keep circuit boards in static shield bags when storing and transporting. Ensure the bag is sealed.

HOW TO POWER UP THE INTELLISPEC

To power up the Intellispec, simply switch on the rotary switch (item 1) on the left side of the Processor Cabinet. After approximately 1 ½ minutes, the boot-up process will be complete.

The following three switches must be in the ON position:

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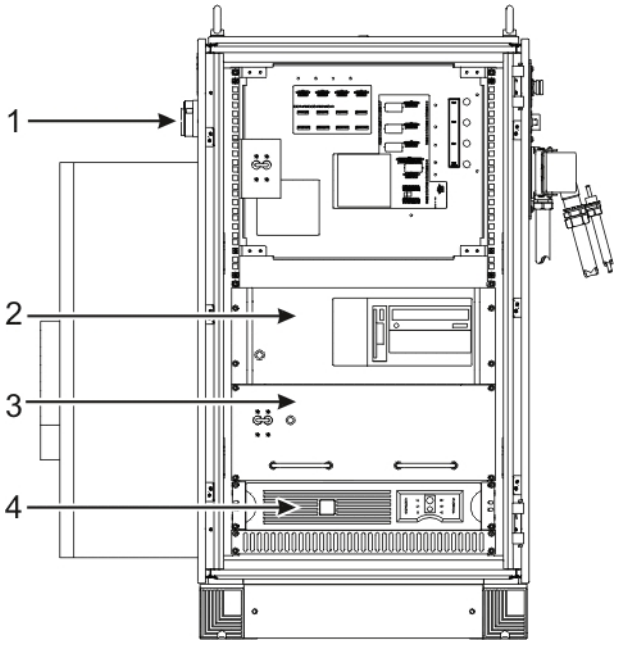
- The breaker on the front of the AC/DC power drawer (item 3) (Up position for ON)
- The power switch on the right front of the UPS (item 4)
- The power switch on the left front of the computer (item 2)

Normally, these three switches can be left in their ON positions all the time.



1	On/ off switch
2	Vision processor computer
3	AC/ DC power drawer
4	Uninterruptible Power Supply (UPS)

HOW TO SHUT DOWN THE INTELLISPEC

The Intellispec must be shut down properly, depending how the UPS is set up.

To see whether your system's UPS is configured:

USER LEVEL: ADMINISTRATOR

1) Log in. The system must be offline.
2) Click the  button.
3) Under the System tab, check the Show All Advanced Parameters button. The UPS is configured if the box next to 'UPS Configured' is checked.

If the UPS is configured

(All user levels) If the UPS is configured, simply switch off the rotary switch on the left side of the Processor Cabinet.

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If the UPS is not configured

To shut down the Intellispec system, you must be logged in as an Administrator, and system must be Offline.

Warning

Do not shut off the power switch while the Intellispec is still running. The system must go through its proper shutdown sequence. This prevents loss of production data as well as possible program corruption.

To shut down Intellispec:

1) Click the  button.
2) Click Shutdown.
3) Switch off the rotary switch on the left side of the Processor Cabinet.

INTELLISPEC OVERVIEW

The Intellispec system uses the latest machine vision technology to acquire images of parts at high production speeds, digitizes those images, and makes a decision of whether the part is acceptable or not.

To set up the system, you place a part in the camera's field of view. The vision system acquires an image. You define inspection parameters for this image, allowing each test to have its own requirements and pass/fail sensitivity.

There are up to eight separate digital cameras on the Intellispec. Each camera inspects a different location on each part, and the jobs you program for each camera determine whether the part is acceptable.

Jobs

The jobs are the programs that inspect each part within the field of view of each camera.

- A job is made up of several inspections
- Each camera runs a different job

Inspection

An inspection analyzes the pixel shade information within a region and compares it to programmed reference values. The inspection passes or fails based on these comparisons. You may have many inspections in a job for each channel.

HARDWARE COMPONENT OVERVIEW

The main hardware components include the Processor Cabinet, Inspection Modules for one to four production process channels, and the User Interface.

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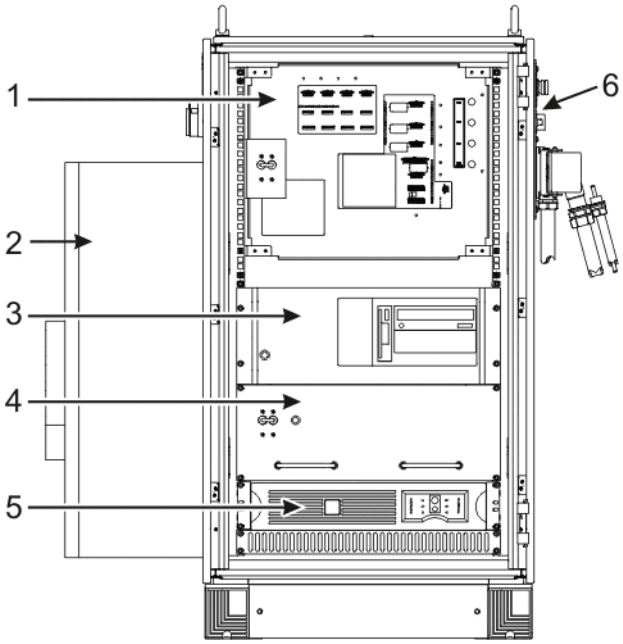
Inspection Modules

The Inspection Modules are usually installed on or near the users' production equipment. The Inspection Modules include the vision system cameras and part lighting devices. Part-present detectors, conveyor encoders, correlation sensors (optional), and part reject mechanisms are installed to track parts and reject defective product.

Processor Cabinet

The Processor Cabinet houses the System Computer, AC Transformer and DC Power Supplies, an Uninterruptible Power Supply, and the Main I/O Board. The Vision Processor Computer is an industrial PC with additional image acquisition and part tracking boards.



1	Main I/O board
2	Air conditioner
3	Vision processor computer
4	AC/DC power drawer
5	Uninterruptible Power Supply (UPS)
6	Gland plate

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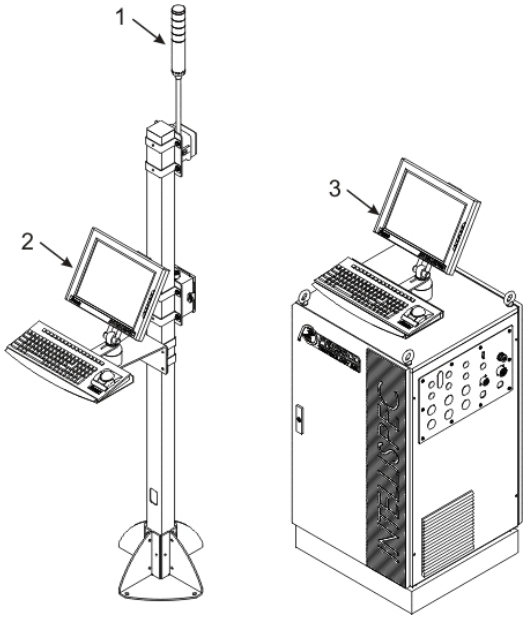
User Interface

The User Interface is mounted on a support caddy with adjustable arm. It includes a flat-screen monitor and a keyboard with trackball. It can be mounted either on top of the cabinet or on a light tree pole.



1	Optional light tree
2	Pole mount user interface
3	Cabinet mount user interface

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Chapter 2

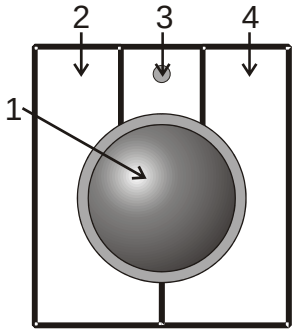
NAVIGATING THROUGH THE SYSTEM

HOW TO CHANGE THE LANGUAGE

Click the  button and select the desired language from the drop-down menu.

USER INTERFACE HARDWARE

The hardware user interface consists of a ***monitor and keyboard*** (see "User Interface" on page 8) with a built-in trackball.



1	The trackball moves the cursor
2	The left trackball button selects items on the screen
3	The middle button brings up tool tips (names of buttons, etc.)
4	The right trackball button calls up additional menus in some places on the screen

HOTKEYS

Several hotkeys are available to simplify viewing images and running inspections.

- **F1** - Snap new image on current channel. Also runs job or inspection if already in that mode.
- **F3** - Run job on current channel.
- **F4** - Remove graphics from image.

❖ *Note: The above three hotkeys are available offline only. The next three are available offline or online.*

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- **F6** - Bring up the ***Image Manager*** (see "Online Image Manager" on page 81)
- **S** - Save all images in Image Manager Buffer
- **Alt-S** - Save all images plus images with graphics in Image Manager Buffer

AREAS OF THE SCREEN

Menu Toolbar

This toolbar provides system access, system setup, camera configuration, and more. You may notice some buttons grayed out at certain times. This depends on whether a user is logged in, the access level of that user, and the operation currently being performed. The basic functions of the toolbar buttons are described below.

TOOLBAR ICON	USER LEVEL	FUNCTIONS
Login/ Logoff	All users [Operator, Mechanic, Administrator]	Enter password to access different areas of system. Click this button to log in or log off. Select your user name from the drop-down list or type the first letter of your user name, and enter your password. Depending on your user access level, other menu options become available to you when you log in. The button is “locked” and outlined in red if no user is logged in. It is “unlocked” and outlined in green if someone is logged in.
Snap image (offline only) Right-click to change modes	All users	**Single snap**: Click to snap an image. The current camera takes one image. This is useful for testing a parameter change in a job. **Continuous snap**: Right-click to put into this mode. The current camera takes images continuously. This is useful for testing a job or changes to a job on several images. It is also useful for adjusting the imaging tools - lighting, camera control, etc. **Live Images**: Displays in real-time mode. This mode is useful for setting focus and camera positioning.
Part management (offline only)	All users Administrator	Part Changeover – select part to run (if enabled), Group reporting Right-click button to enable or disable. Enable part management, load database. Add, modify, delete parts.
System configuration (offline only)	Mechanic & Administrator	Part Tracking – Calibrate reject, part present, part width

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TOOLBAR ICON	USER LEVEL	FUNCTIONS
	Administrator	All other system setup – scheduled printing, defective part logging, correlation, channel setup, camera & lighting setup
Alarm setup (offline only)	Mechanic Administrator	View alarm setup Configure alarms. Right-click button to quickly disable alarms.
Diagnostics tools (offline only)	Mechanic & Administrator	Computer diagnostics, correlation sensor diagnostics, I/O Testing
Database tools (offline only)	Mechanic & Administrator Administrator	Load/ Save Vision database, Database Detective [Process sheet, database compare, copy job to another database, online/offline history, SmartCAL, copy files to floppy] Load System database, Windows Explorer, TSTool, repair options
Miscellaneous (offline only)	All users Administrator	Change password User account setup, view log files, clear jobs & configuration, burn CDs, software upgrades, date/time adjust, disk backup
Language selection (offline only)	All users	Select language
Online/ Offline	All users	Green light = online. Online mode is used for everyday inspecting of a product. Red light = offline (you may be required to log in to go offline). Offline mode is used to train the system to a particular product and to configure the system.
Help (offline only)	All users	Manuals, Smart Support access

Help files

In 4.4 software, several manuals are available in HTML format. This means that they open in a simple browser on your Intellispec system. This format makes it easy for you to find information quickly.

To use the HTML manuals on the Intellispec or Intellitrainer:

1) Click the button.
2) Choose the desired manual. In version 4.4, the following manuals are in HTML* format:

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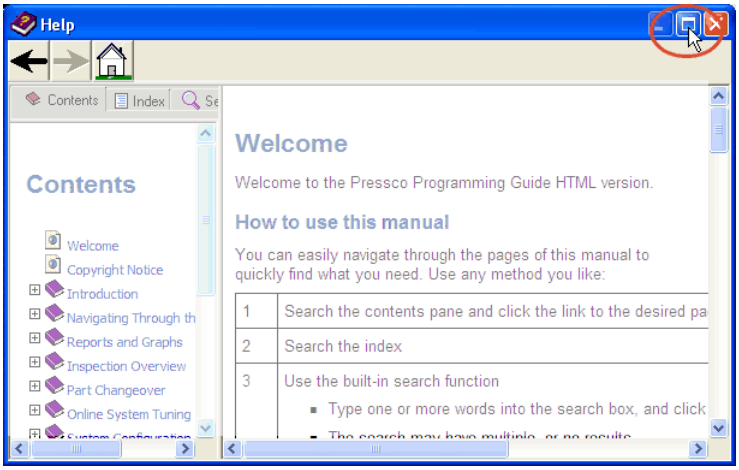
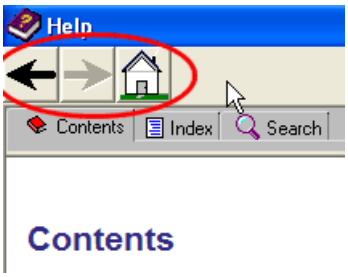
- Programming Guide (English)
- Operator's Guide (English only as of this publishing)

3) Click the Maximize button to view the browser full-screen.



4) Use the instructions provided on the Welcome page. The standard Internet browser features do not apply. The Intellispec browser has a Home button and forward and back buttons to help you navigate.



*The remaining manuals, such as Hardware Guides and some localized manuals are available in PDF. In these cases, the Intellispec or Intellitrainer displays those manuals in Adobe Acrobat Reader.

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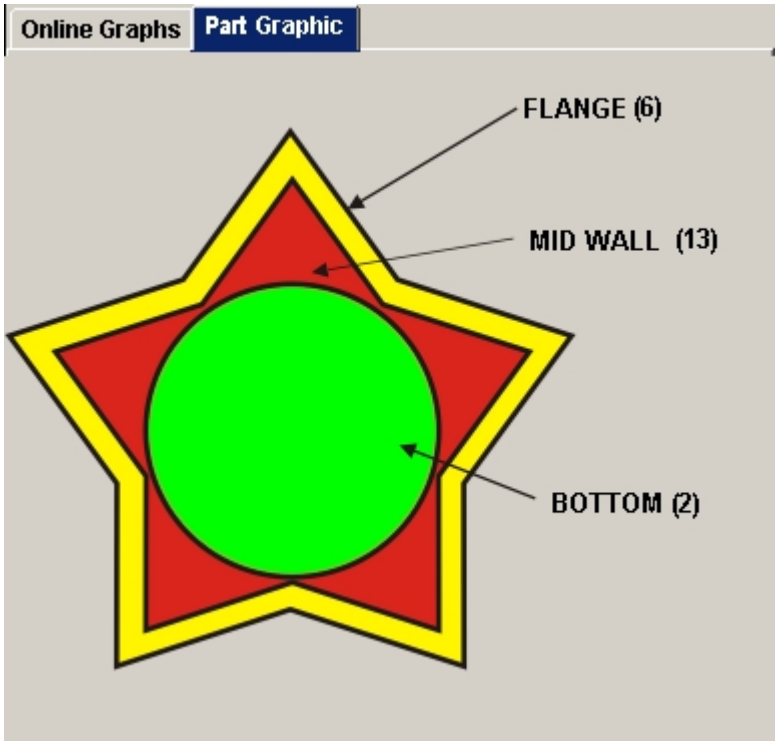
About the Part Graphic

This feature uses a graphic representation of a part so that you can quickly identify which area of the part is failing.



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Features

- Can be displayed in full screen mode to see from a distance. If more than one lane has Part Graphic enabled, all enabled lanes are displayed in ***full screen mode*** (see "About the Part Graphic Options" on page 15).
- **Green** areas indicate that parts are passing inspection.
- **Yellow** warning areas notify you that the spoilage rate is approaching, but has not yet reached a critical level. This allows you to make necessary changes to the manufacturing process before the failure rate gets too high.
- **Red** areas indicate the spoilage rate has exceeded user defined limits.
- View reject rate by either percentage or quantity.

Notes about usage

- The graphic may not look exactly like your part. It is a representation.
- This feature is not available for all types of parts.
- The graphic must be enabled for each lane or channel group.
- The graphic uses Inspection Grouping to identify the areas of the part. Groups are pre-assigned. Assign inspections to those groups.

Using the part graphic

- Move your cursor over the part graphic to see the associated group names highlighted
- Right-click to bring up the inspection for that area
- Click an area to see individual inspection statistics for that group
  - Double-click the name of the inspection to modify it

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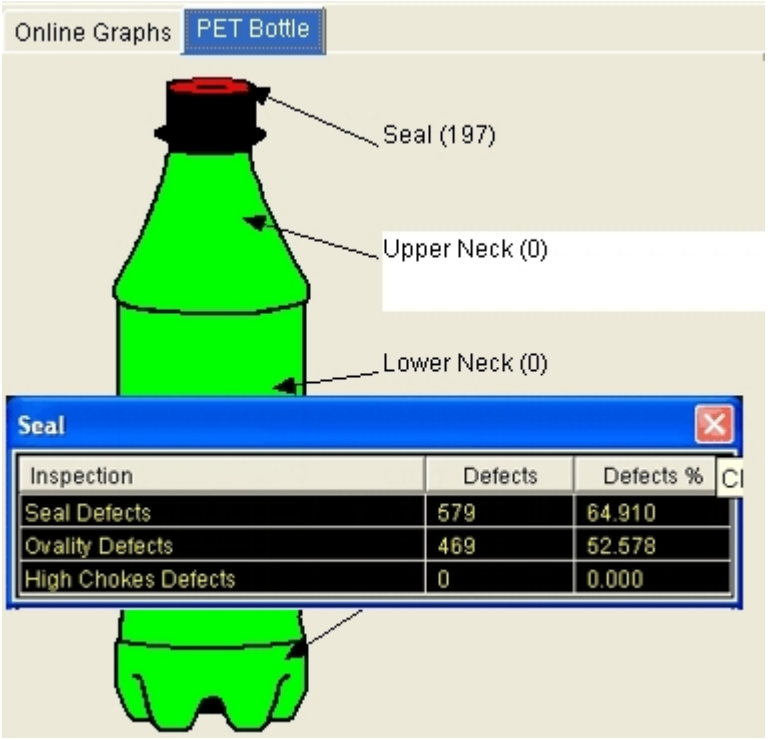
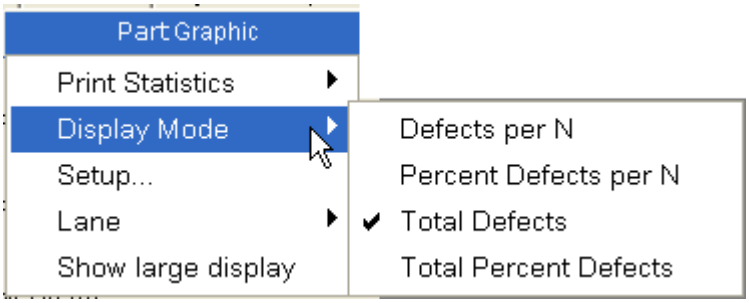
- Click the ‘X’ in the upper right corner of the statistics box to remove from screen



About the Part Graphic Options

Right-click the Part Graphic tab to see options.



Print Statistics

Print to printer, file, or both, online or offline. Printing to file creates a Groups_*date_time*.txt file to the Intellispec hard drive at C:\Intellispec\Reports.

Display Mode

Defects per N - Displays the number of defects per group up to the ***last N parts*** (see "Last N Defect Count" on page 65).

Percent Defects per N - Displays the percentage of defects per group up to the last N parts.

Total Defects - Displays the number of defects per group since the statistics were last reset.

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Total Percent Defects - Displays the percentage of defects per group since the statistics were last reset.

Setup...

(Offline only. Administrator only.) Brings up Group Reporting screen.

Lane

Displays the part graphic associated with the lane or channel group selected. Part Graphic must be enabled separately for each lane.

Show large display

Displays the part graphic **full screen**. This is a feature you would use while the system is online inspecting parts. It allows you to see, from a distance, if any areas of the part are failing. If you have more than one lane, it displays the part graphic for each lane that has an enabled part graphic.

To exit the large display, press the ESC key.

About the Statistics Area

This area displays inspection results. The tabs at the top of this section will vary depending on your system configuration. Use the arrows on the top right of the tables to scroll through the tabs.

System Overview | Lane 1 Overview | Camera 1 | Camera 2 | Camera 3 | Camera 4 | Machine Part 1

Part Rate: 401	Total	Defect	Defect %	Last (10000)	Last (10000)%
Camera 1	1812	141	7.781	141	7.781
Camera 2	1813	54	2.978	54	2.978
Camera 3	1813	227	12.521	227	12.521
Camera 4 <No Job Assigned>	0	0	0.000	0	0.000
Totals	1825	413	22.630		

Date/Time	Machine Part 1	Machine Part 2	Machine Part 3	Machine Part 4	C1	C2	C3	C4
2007-09-27 13:28:52	16	1	1	1	O	X	O	O
2007-09-27 13:28:51	12	1	1	1	X	O	X	O
2007-09-27 13:28:51	11	1	1	1	X	O	X	O
2007-09-27 13:28:50	8	1	1	1	X	O	O	O
2007-09-27 13:28:50	3	1	1	1	O	O	X	O

The order of tabs is as follows (from left to right):

1) ***System Overview*** (see "System Overview tab" on page 17) - only if your system has multiple lanes [Example: one production line making part *red*, and one production line making part *blue]*

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2) ***Lane 1 Overview*** (see "Lane Overview tab" on page 20) - only if your system has multiple cameras in one lane of inspection [Example: three cameras inspecting neck, body, and flange on one production line of parts.]
3) ***Cameras for Lane 1*** (see "Camera tabs" on page 21) - every system has at least one camera for inspection, to a maximum of eight cameras.
4) ***Correlation for Lane 1*** (see "Correlation tabs" on page 25) - if applicable. These tabs immediately follow the tabs for cameras to which they are correlated.
5) Lane 2 Overview - if applicable
6) Cameras for Lane 2 - if applicable
7) Correlation for Lane 2 - if applicable
8) Remaining Lanes, Cameras, and Correlation tabs - if applicable
9) ***Groups tab*** (on page 26)

The Administrator can ***customize*** (see "Customizing the Statistics Tabs" on page 63) the names of all tabs except System Overview and Groups.

System Overview tab

The System Overview tab displays inspection results for all cameras. This tab is only displayed if your system is configured with more than one channel group (lane).

System Overview | Lane 1 Overview | Camera 1 | Camera 2 | Camera 3 | Camera 4 | Camera 5 | Machine

14 Nov 2008 10:07:22 AM	Total	Defect	Defect %	Last (10000)	Last (10000)%
Lane 1 – 503 PPM	0	0	0.000		
Camera 1 [JOB # 1]	0	0	0.000	0	0.000
Camera 2 [JOB # 2]	0	0	0.000	0	0.000
Camera 3 [JOB # 3]	0	0	0.000	0	0.000
Camera 4 [JOB # 4]	0	0	0.000	0	0.000
Camera 5 [JOB # 5]	0	0	0.000	0	0.000
Lane 2 – 503 PPM	0	0	0.000		
Camera 6 [JOB # 6]	0	0	0.000	0	0.000
Camera 7 [JOB # 7]	0	0	0.000	0	0.000
Camera 8 [JOB # 8]	0	0	0.000	0	0.000

- Each lane is grouped and shaded so that you can easily distinguish between lanes
- Double-click on a lane n cell 

to display the corresponding lane tab
- Double-click on a camera name cell 

to display the corresponding camera tab
- In addition to ***displaying part rate*** (on page 17) (PPM), you can display burst rate or max burst rate

DISPLAYING PART RATE

The lane's **part rate** is displayed in the statistics area. It is displayed in parts per minute (PPM) in the upper right corner of:

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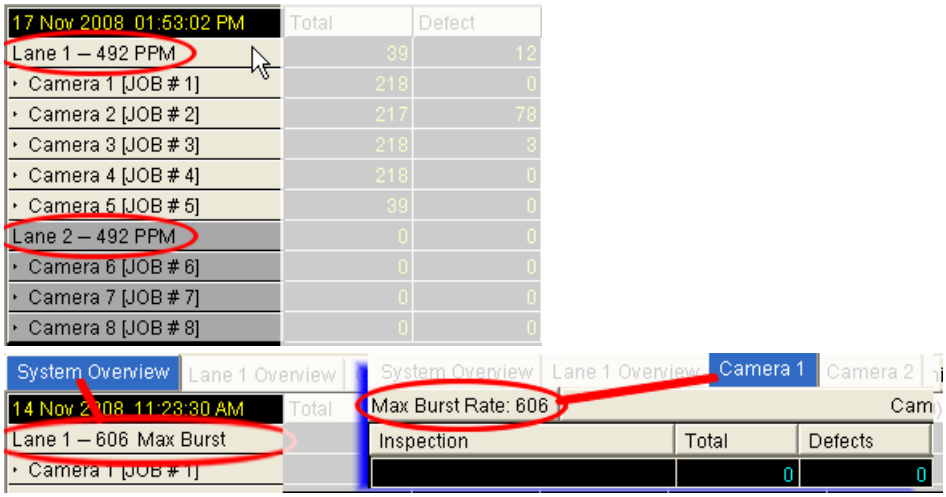
- Lane Overview tab (if configured)
- Camera tabs, and
- System Overview tab (if configured)

Click on the part rate to toggle to **burst rate** and **max burst rate**.



Burst rate

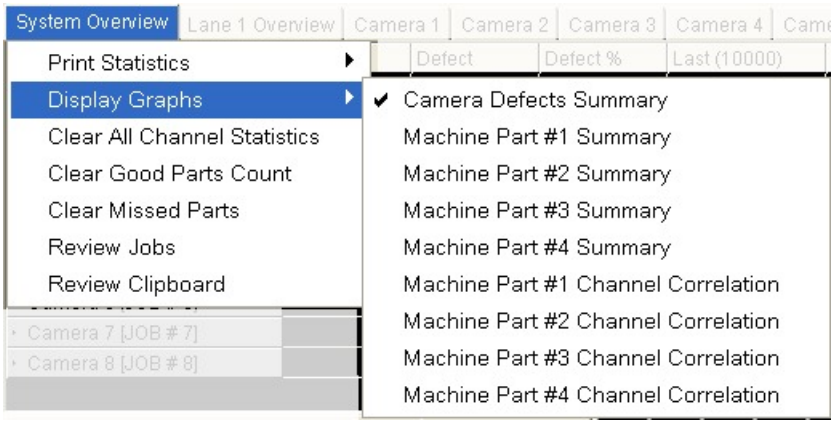
Instantaneous, current part rate.

Max burst rate

The fastest part rate encountered since the last time the statistics were reset.

STATISTICS OPTIONS

Select the System Overview tab, then right-click to view the options.



Print Statistics

Print to printer, file, or both, online or offline. Printing to file saves it as a text (.txt) file on the Intellispec hard drive at C:\Intellispec\Reports.

Display Graphs

Choose which graph to be displayed on the System Graphs tab.

Clear All Channel Statistics

Clears the defect statistics for all channels.

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Clear Good Parts Count

(Only if Good Parts Alarm is active) Clears the Good Parts alarm counter.

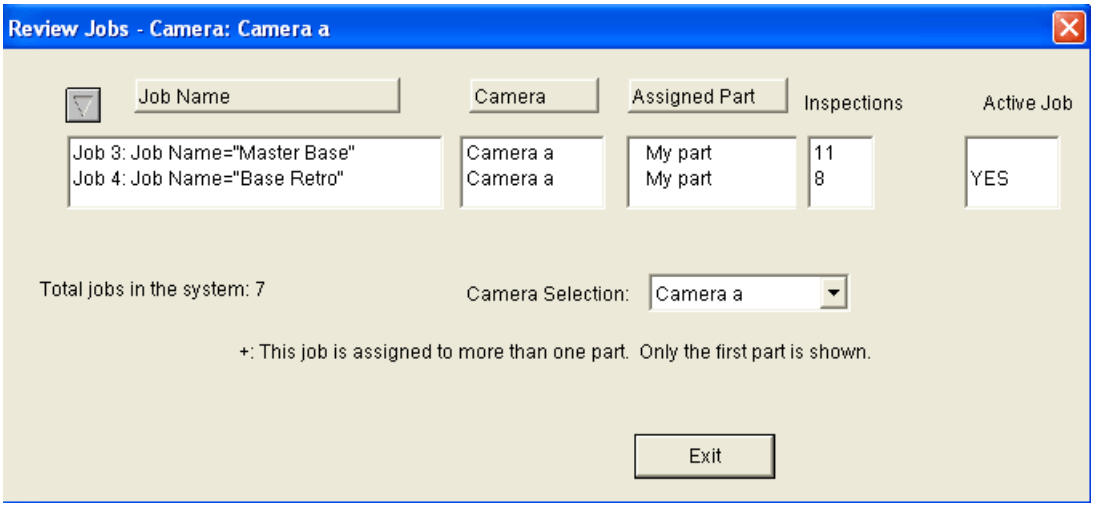
Clear Missed Parts

Clears the Missed Parts statistics for all channels.

Review Jobs

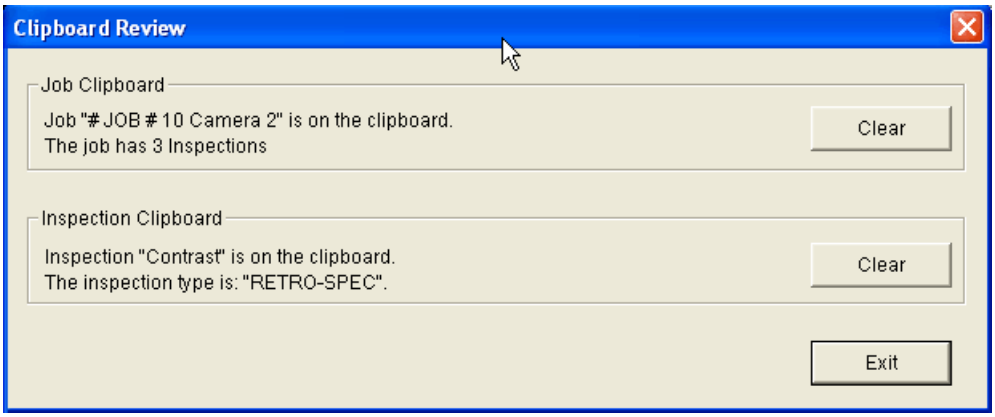
Offline only. This displays a list of all jobs in the current database. This includes:

- Job name
- Which camera the job is on
- Whether the job is assigned to a Part
- Number of inspections in each job
- Whether the job is the active job (currently selected)



Review Clipboard

(Administrator only) Displays the jobs or inspections you have put on the clipboard by using the Copy or Cut functions. An example is shown below.



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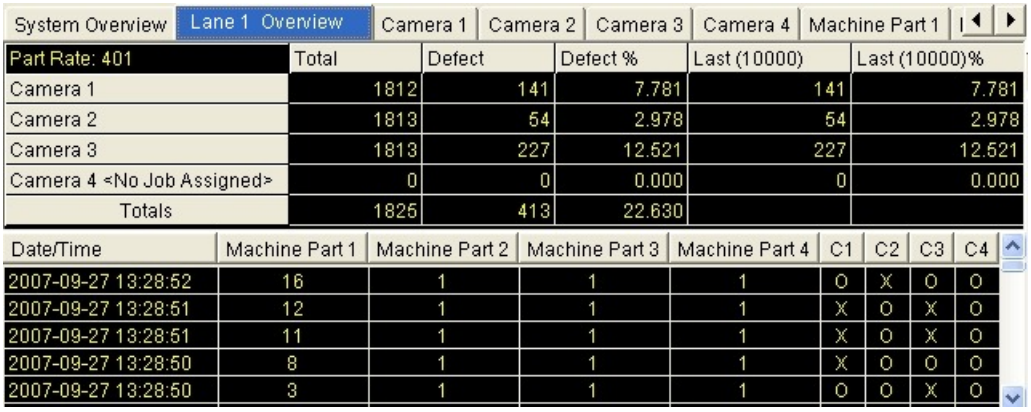
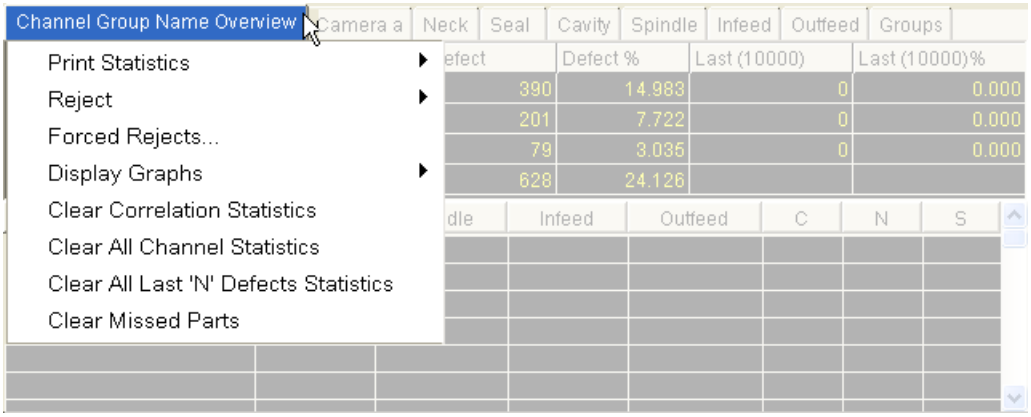
Lane Overview tab

This tab reports statistics for a group of cameras that inspect the same product. The name of this tab varies depending on your system configuration, and can be ***customized*** (see "Customizing the Statistics Tabs" on page 63). It is only available if you have more than one camera.



LANE OVERVIEW OPTIONS



Right-click the overview tab to see the available options:

Print Statistics

Print to printer, file, or both, online or offline. Printing to file saves it as a text (.txt) file on the Intellispec hard drive at C:\Intellispec\Reports.

Reject

Disable or Enable the rejecter for the lane. This works in conjunction with the Reject menu in System Configuration. If you disable the rejecter from the lane tab, it also becomes disabled in the System Configuration menu for that lane.

Forced Rejects

This menu is only valid if you have the correlation option installed.

Display Graphs

Choose which graph to be displayed on the System Graphs tab.

Clear Correlation Statistics

Resets the correlation statistics for all cameras in the channel group.

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Clear All Channel Statistics

Resets the statistics for all cameras in the channel group.

Clear Last 'N' Defects Statistics

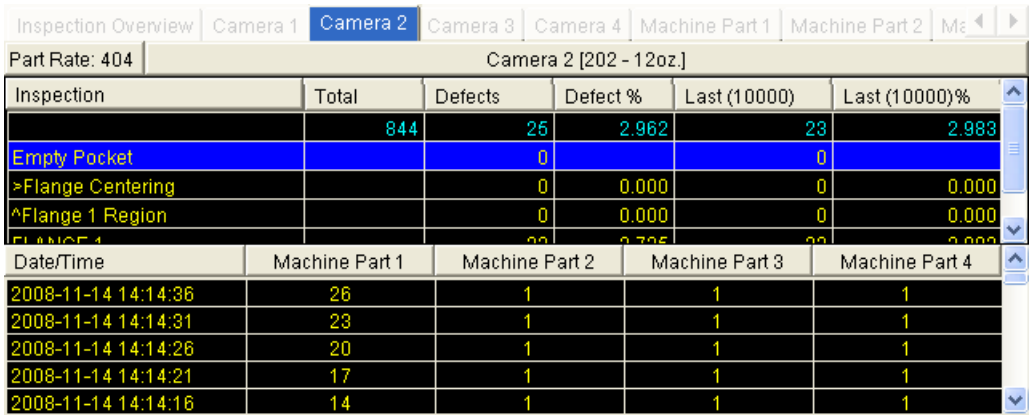
Clears the ***last N defects statistics*** (see "Last N Defect Count" on page 65). This is the most recent production data.

Clear Missed Parts

Clears the Missed Parts statistics for all cameras in the channel group.

Camera tabs

These tabs display defect information by camera. The name of the tab may be ***customized*** (see "Customizing the Statistics Tabs" on page 63) by the Administrator. If your system has the correlation option, Machine Part data is displayed at the bottom. Each correlation defect occurrence is listed by time (most recent first).



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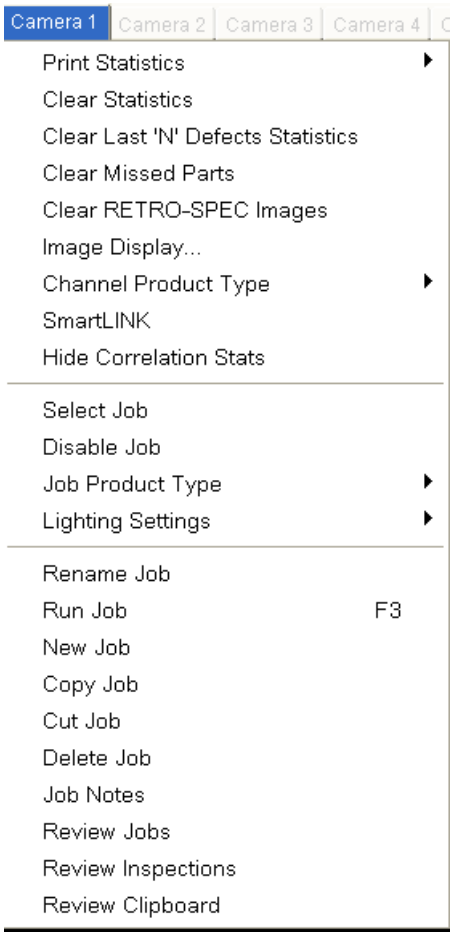
JOB OPTIONS (CAMERA TAB)

This drop-down menu contains some items that are similar to those in the Overview tabs, but these tasks apply to the selected camera only. This menu also contains job tasks and lighting options. The name of this tab can be ***customized*** (see "Customizing the Statistics Tabs" on page 63).



Right-click the Camera *n* tab to see the job options. Some options are only available to Mechanic or Administrator user levels.

Print Statistics

Print to printer, file, or both, online or offline. Printing to file saves it as a text (.txt) file on the Intellispec hard drive at C:\Intellispec\Reports.

Clear Statistics

Clears statistics for this camera. Also clears statistics for cameras within the same Channel Group.

Clear Last ‘N’ Defects Statistics

Clears the ***last N defects statistics*** (see "Last N Defect Count" on page 65). This is the most recent production data.

Clear Missed Parts

Clears the Missed Parts statistics for the selected camera only.

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Clear RETRO-SPEC Images

If the job uses Retro-Spec inspections, this function clears all the images.

Image Display

Opens the ***Image Display*** (see "Image Display Menu" on page 42) (freeze frame) menu.

Channel Product Type

(Administrator only) Offline only. Change the default product type for the current camera. Product Type limits the available inspections to those that are most commonly used for a certain type of part.

SmartLINK

Takes you to the SmartLINK screen. Available only when SmartLINK is enabled for a camera.

Hide Correlation Stats

Only available if system has correlation option enabled. Toggles with Show Correlation Stats. Hiding the correlation statistics allows you to see more inspection data.

❖ *Note: if the Part Management dialog box is open, then the following parameters do not appear in the options list: Select Job, Disable Job, Job Product Type, and Rename Job.*

Select Job

Offline only. Select the job to run on the current camera. Note that if Part Management is available, all jobs are loaded for all cameras by choosing one part name.

Disable Job

(Mechanic and Administrator) Disable the current job. This can be done online so that other cameras continue to inspect while you make changes to this job.

Job Product Type

(Mechanic and Administrator) Offline only. Change the Default Product Type for the current job. This should only be done if you need an inspection type that is not available in the camera's Default Product Type.

Lighting Settings

(Administrator only) Allows you to select between the default camera lighting setup and job only lighting.

Rename Job

(Mechanic and Administrator) Offline only. Select any job from the drop-down menu to rename it.

Run Job [F3]

Offline only. Select a job to run. The system will run all inspections for the selected job once and report the results on the Results screen. The rejecter is not activated.

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New Job

(Administrator only) Offline only. Create a new job. First name the new job, then right-click on the black statistics area (in Inspection column) for the appropriate camera, and Add registrations, orientations, and inspections.

Copy Job

(Administrator only) Offline only. Select a job to copy to the clipboard. Then use Paste Job to place a copy of the job into either the current camera or another camera.

Cut Job

(Administrator only) Offline only. Select a job to remove it from the list of jobs from the selected camera. This places the job on the clipboard. Then use Paste Job to place the job into any camera.

Paste Job

(Administrator only) Offline only. Available if a job has been cut or copied to the clipboard. Place the job from the clipboard into any camera.

Delete Job

(Administrator only) Offline only. Removes a job from the selected camera. This removes it completely from memory. It will also remove the job from the current database if you save the database again.

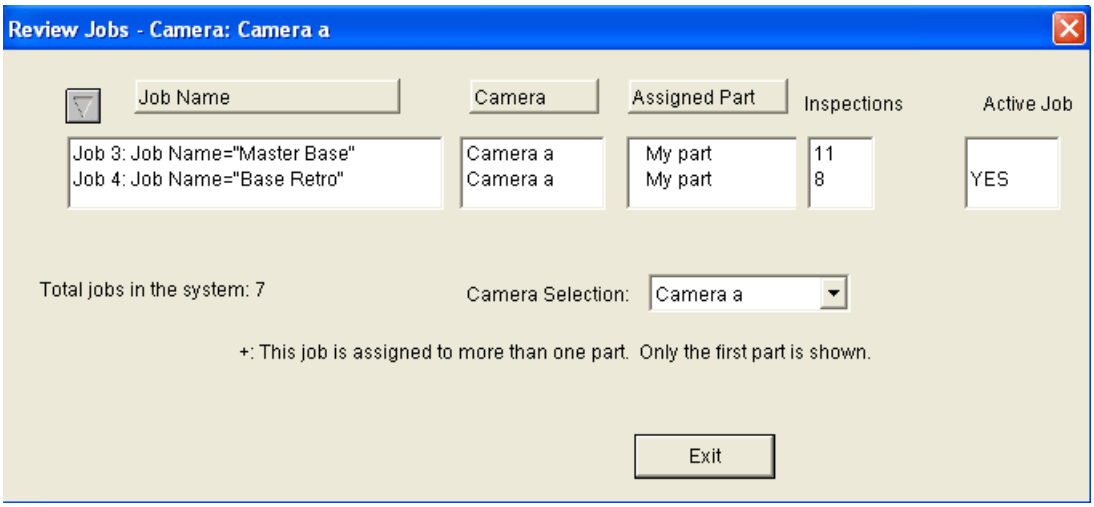
Job Notes

Enter notes about the job (example: the part it inspects, the system setup – anything that one needs to know about the job). This is a courtesy to other users, and a reminder if you need to edit the job in the future.

Review Jobs

Offline only. This displays a list of all jobs in the current database. This includes:

- Job name
- Which camera the job is on
- Whether the job is assigned to a Part
- Number of inspections in each job
- Whether the job is the active job (currently selected)



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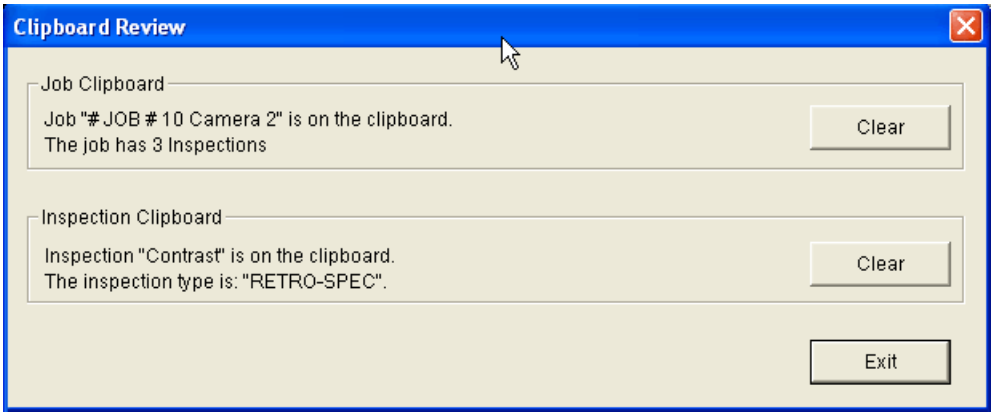
Review Inspections

Offline only. This displays all the inspections within the selected job, and the type of inspections. This is useful when you want to display inspection graphs, as they are listed by inspection type (example, Polygon, Circle, etc.). You may have re-named inspections to make more sense to your application (example, Panel, Base, Flange inspection).

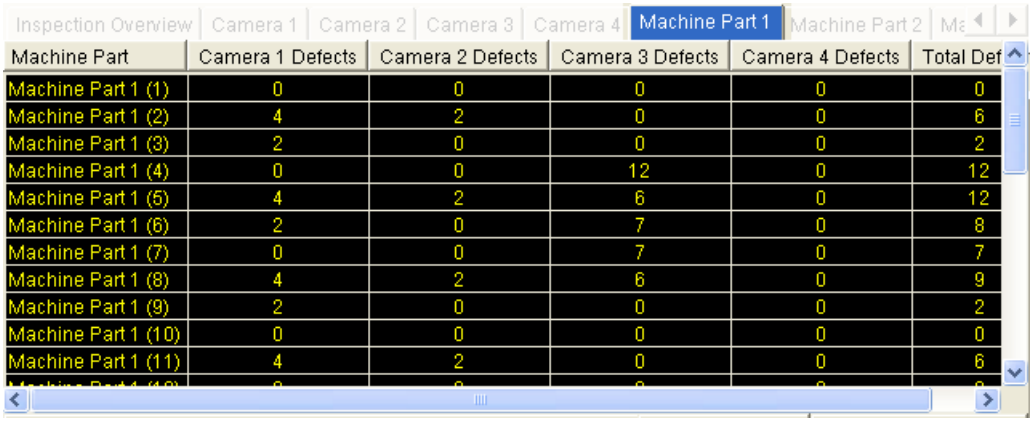
Review Clipboard

(Administrator only) Displays the jobs or inspections you have put on the clipboard by using the Copy or Cut functions. An example is shown below.



Correlation tabs

Available if your system has the correlation option. These tabs display the number of defects per camera correlated to the machine part. The name of the tab may be ***customized*** (see "Customizing the Statistics Tabs" on page 63) by the Administrator.



Machine Part	Camera 1 Defects	Camera 2 Defects	Camera 3 Defects	Camera 4 Defects	Total Def
Machine Part 1 (1)	0	0	0	0	0
Machine Part 1 (2)	4	2	0	0	6
Machine Part 1 (3)	2	0	0	0	2
Machine Part 1 (4)	0	0	12	0	12
Machine Part 1 (5)	4	2	6	0	12
Machine Part 1 (6)	2	0	7	0	8
Machine Part 1 (7)	0	0	7	0	7
Machine Part 1 (8)	4	2	6	0	9
Machine Part 1 (9)	2	0	0	0	2
Machine Part 1 (10)	0	0	0	0	0
Machine Part 1 (11)	4	2	0	0	6

Correlation is configured in the System Configuration menus.

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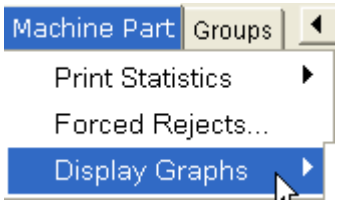
MACHINE PART OPTIONS

This menu contains options that are similar to those in other tabs, but apply to the selected correlation machine part.



Print Statistics

Print to printer, file, or both, online or offline. Printing to file saves it as a text (.txt) file on the Intellispec hard drive at C:\Intellispec\Reports.

Forced Rejects

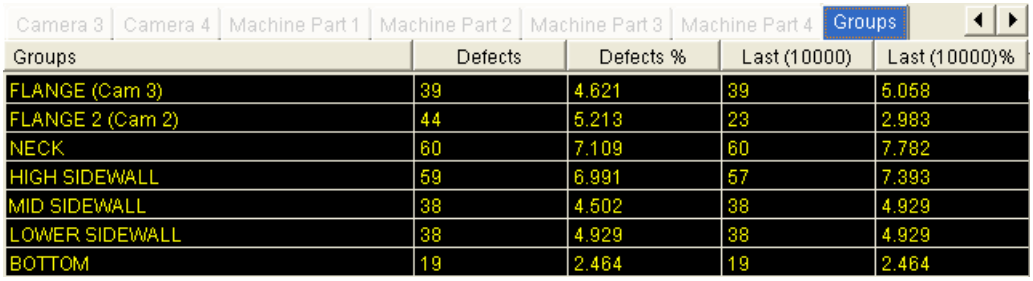
This menu is only valid if you have the correlation option installed.

Display Graphs

Choose which graph to be displayed on the System Graphs tab.

Groups Tab

Scroll all the way to the right to see the Groups tab. This tab displays the total parts, total defects, defect percentage, last N defects, and last N percentage. Defects are computed as an OR function: If you have three inspections assigned to Group 1, a defect will be counted if Inspection 1, Inspection 2, OR Inspection 3 (or a combination of all three) found a defect.



Groups	Defects	Defects %	Last (10000)	Last (10000)%
FLANGE (Cam 3)	39	4.621	39	5.058
FLANGE 2 (Cam 2)	44	5.213	23	2.983
NECK	60	7.109	60	7.782
HIGH SIDEWALL	59	6.991	57	7.393
MID SIDEWALL	38	4.502	38	4.929
LOWER SIDEWALL	38	4.929	38	4.929
BOTTOM	19	2.464	19	2.464

The Groups tab allows you to display user-defined statistics. When this tab is selected, the drop-down menu contains a setup selection where you can define which statistics get displayed on this tab.You can configure up to 64 groups.

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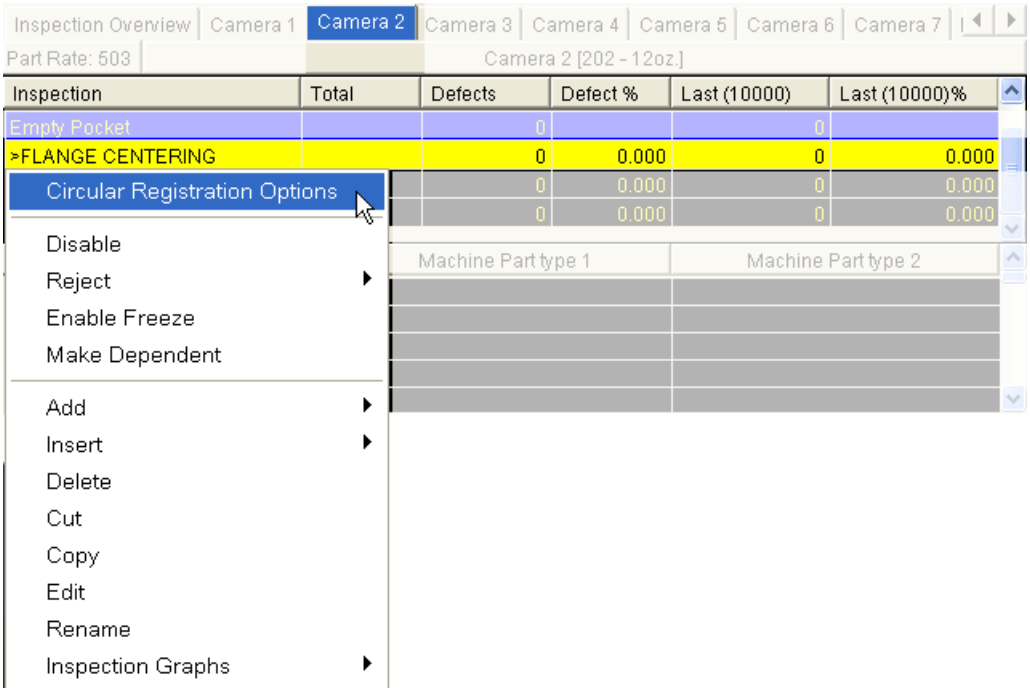
Inspection Options

When the individual camera statistics are displayed, you can modify a job (Mechanic user level and higher) or use other inspection options. Right-click over an inspection name to display the inspection options.



❖ *Note: Your user access level may limit available menu options.*

Disable

(Administrator only) Disables the selected inspection, registration, or orientation. This can be done online or offline.

❖ *Note: Disabling a registration can seriously affect inspection.*

Reject

(Administrator only) Disable the rejecter for only that particular inspection. This allows the system to run an individual inspection and collect inspection data without rejecting any parts that fail that inspection.

To disable the rejecter for an individual inspection:

1) Right-click the inspection name on which you want the reject device disabled.
2) Select Reject >> Disable Reject.

The inspection name is highlighted in blue to remind you that parts will not be rejected on this inspection.

To enable the rejecter for an individual inspection:

1) Right-click the inspection name.
2) Select Reject >>Enable Reject.

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Enable Freeze **(see "Freeze on Inspection" on page 44)**

Make Dependent/ Make Independent

These options appear when you right-click over registrations. The '>' and '^' symbols represent whether a job's registration is dependent or independent.

Add

Offline only. Add a Registration, Orientation, or Inspection to the job. The item is added as the last element of the job.

Insert

Offline only. Insert a Registration, Orientation, or Inspection *before* the inspection over which you right-clicked to see this menu.

Delete

Offline only. Removes the selected inspection from the job. This removes it completely from memory. It will also be deleted from the database if you save the database again.

Cut

Offline only. Remove the selected inspection to the clipboard. Then use Paste to place the inspection in a different order within the job, or place it into another job.

Copy

Offline only. Copy the selected inspection to the clipboard. Then use Paste to place a copy of the inspection in another part of the job, or place it into another job.

Paste

Offline only. Available if an inspection has been copied or cut to the clipboard. Place the inspection from the clipboard into the current job or into another job. To paste, click an inspection name, right-click, and select Paste. The inspection gets placed *after* the inspection over which you right-clicked to see this menu.

Edit

The inspection menus are displayed on screen right, and the proper camera's image is displayed. If the inspection is a Retro-Spec inspection, that interface is displayed.

❖ *Tip: Instead of using Edit in menu: double-click the desired inspection name in the black area.*

Rename

Offline only. Rename the currently selected inspection.

Inspection Graphs

Select an inspection graph to display on the Online Graphs screen. (not applicable for Retro-Spec inspections)

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Resizing columns in the statistics area

- Re-size a column by clicking and dragging between columns. Your cursor will change shape in the sections where this is available.
- Double-click between columns to automatically size the column to fit the data
- If you re-size the correlation columns for one camera, those same correlation cells are displayed the same way for all the cameras in the same lane

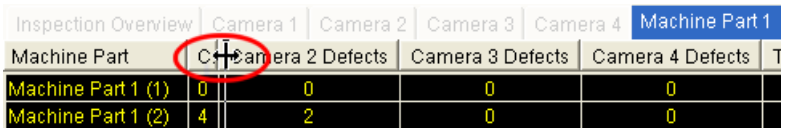
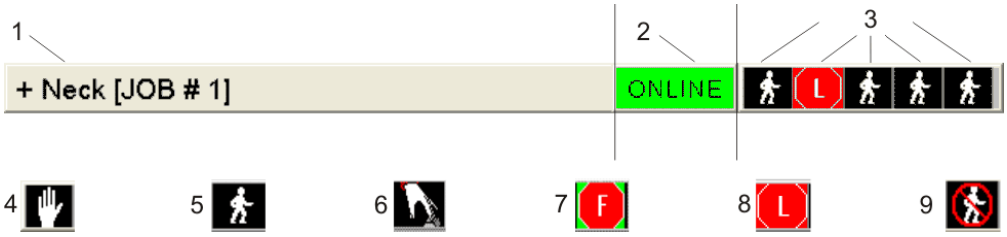


Image Toolbar

This toolbar allows you to easily select a channel to display, release frozen images (online), and see the active camera and job.



1	Camera / job indicator
2	Right-click to release all frozen images online
3	▪ Click to select camera ▪ Right-click to release frozen image online ▪ The number of icons matches the number of cameras in your system
4	Offline
5	Online
6	Held image
7	Frozen image - first part to meet freeze frame condition
8	Frozen image - last part to meet freeze frame condition
9	No job selected for that camera

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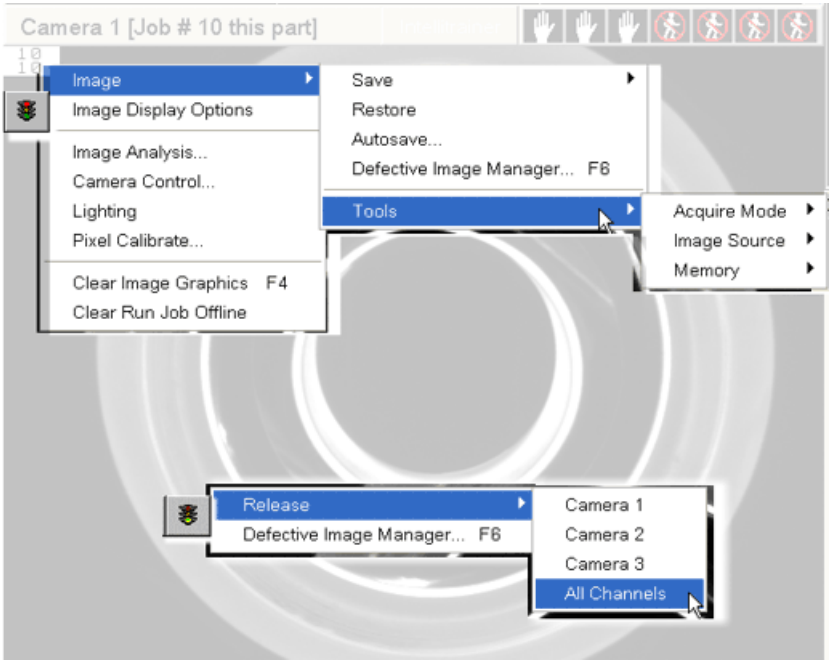
Image Area

One image at a time is displayed here, along with inspection regions if you are programming a job or displaying windows on freeze frame images online.



Right-click on the image area for image options. The available options depend on user level and whether the system is in online or offline mode. There are also color camera options.

OFFLINE OPTIONS

Image

This sub-menu allows you to save and restore images, and access the ***Online Image Manager*** (on page 81).

Image Display Options

This can be used to change the freeze-frame settings. It opens the ***Image Display menu*** (on page 42) in the upper right corner of the screen.

Image Analysis

(Mechanic and Administrator) The Image Analysis tool displays the gray shade value for any group of pixels in your image. This is useful in programming jobs or setting up lighting. You can measure gray shade values of pixels in horizontal or vertical lines, or over a circle.

Camera Control

(Administrator only) The camera control tool controls camera focus when inspection modules are mounted inside part conveying systems (example, blow molder, or inside a preform conveying system).

Lighting

(Administrator only) Brings up the Light Control tool.

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Pixel Calibrate

(Administrator only) Brings up the Pixel Scale Calibration tool that allows you to program the system to translate pixels into your desired units of measure (mm, for example).

Clear Image Graphics [F4]

Removes inspection/ orientation/ registration graphics from the grayscale image.

Clear Run Job Offline

(Mechanic and Administrator) Only available when you have run a job offline through modifying an inspection or have pressed [F3]. Clears the graphics from the image and inspection results.

ONLINE OPTIONS

Release

Release an image that was frozen on screen.

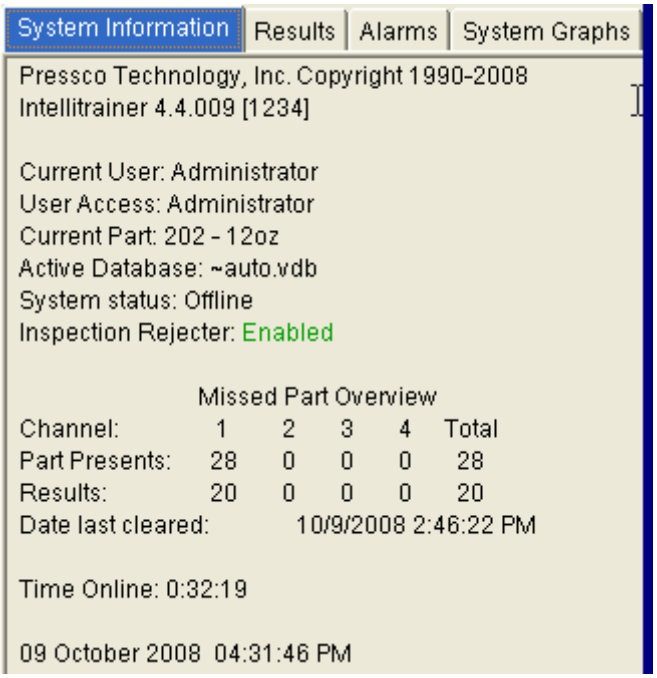
Defective Image Manager **(see "Online Image Manager" on page 81)**

Menus, Graphs, Results Area

This area displays most of the system information. Menus from inspections or other toolbar functions are displayed on the upper right screen.

More information about ***Inspection Graphs*** (on page 71).

System Information Tab



This screen displays information such as the current software version, system serial number, the user currently logged in, the name of the part being inspected, and whether the system is online or offline.

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Software version

Displayed under Pressco Technology. Your system will display "Intellispec 4.4.xxx". Refer to this software version when consulting Pressco service or technical support.

Serial number

The Intellispec system serial number is provided in brackets after the software version. In our example, the serial number is [1234].

Rejecters

The status for the rejecters is displayed on this screen. If you have dual rejecters, it displays the status for Rejecter #1 and Rejecter #2 for each channel group. The Administrator can enable or disable the rejecter for each channel group.

Missed Parts

The Missed Part Overview shows the number of missed parts that have occurred in the system since the last power-up, or since the last time these were cleared.

Time Online

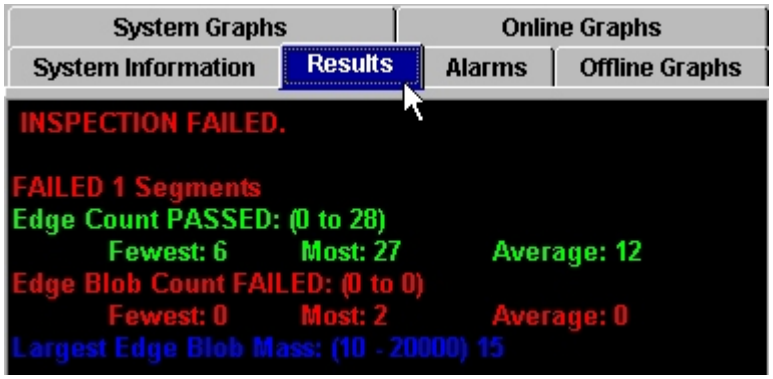
The cumulative duration of the Intellispec online time since the last power-up.

Date and Time

Date and Time are displayed at the bottom of the System Information screen.

Results Tab

This screen displays inspection results, and whether individual inspections passed (displayed in green) or failed (displayed in red). If you are editing an inspection, this displays information about whether the different portions of inspections passed or failed (example - ambient, edge, zone, etc.).



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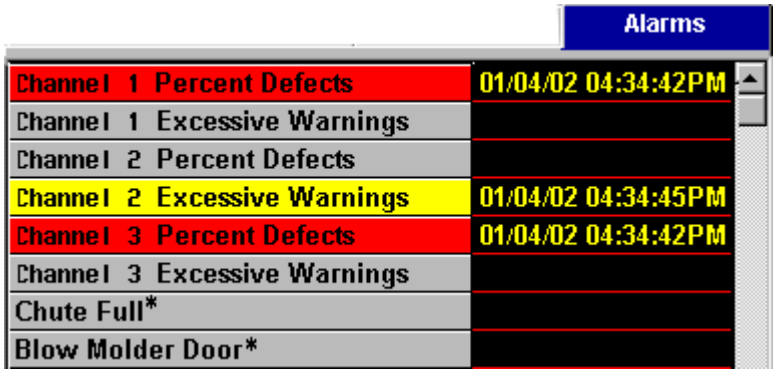
Alarms Tab

This screen displays the status of all enabled alarms. If an alarm has been triggered, it is displayed in red. If an alarm has reached warning status, it is displayed in yellow. If an alarm has not been triggered, it is displayed in gray. The time and date that the alarms were triggered are also listed.

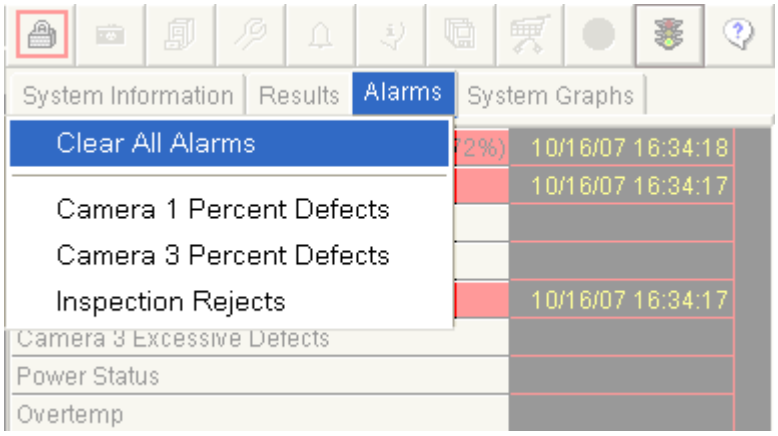


HOW TO CLEAR AN ALARM

If an alarm has been triggered, the light tree (optional) may flash and/or the horn may sound, depending on configuration.

To clear an alarm:

1) Right-click the Alarms tab.
2) Choose an alarm to clear, or choose Clear All Alarms.



> ❖ *Note: If no alarms have been triggered, there will be no list.*

System Graphs

This screen displays graphs that show statistics for all channels, or more than one channel. Examples are: defects from all channels or correlation graphs.

To select a graph:

1) Right-click the System Graphs tab.

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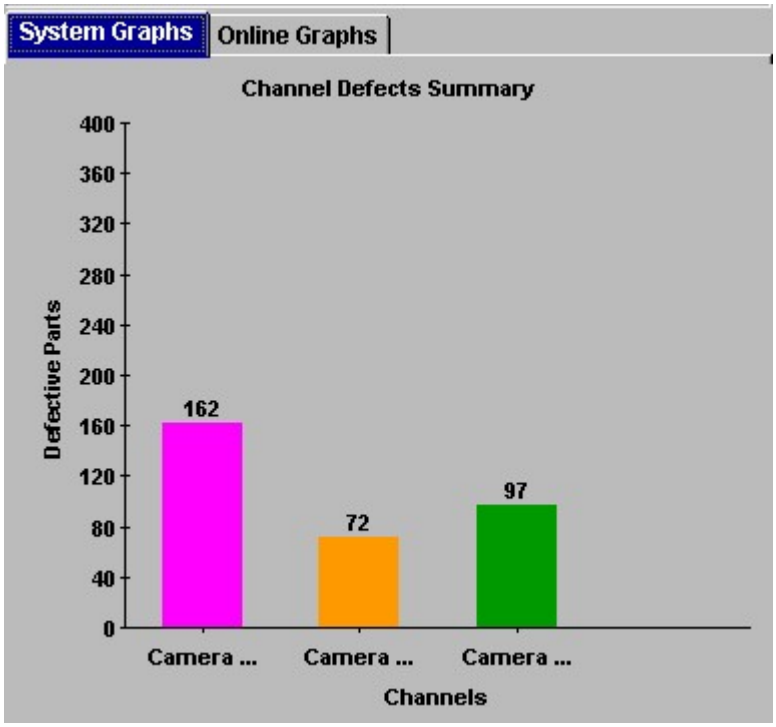
2) Select one of the available graphs.



How to Exit Menus

To exit menus, use the choices on the bottom of the menu to save and exit. In some menus, such as Calibrate Part Present, you may be required to finish the operation before exiting the menu.

If you have made any changes to the menu, all three choices will be available. Click the appropriate box depending on your choice.

- OK will save the changes you have made. It will not close the menu.
- Cancel will ask you if you want to save your changes. If no, then the parameters will revert to the values they were when you entered this menu. It will not close the menu.
- Exit will ask you if you want to save your changes. If yes, the changes will be saved and the menu will close. If no, the parameters will revert to the values they were when you entered this menu, and the menu will close. If cancel, the parameters will remain at their current values and the menu will stay open.

Instead of using the above boxes, you can open another inspection or configuration menu. You will be asked whether to save any changes you have made in the menu that is closing.

What do the >, ^, and + Symbols Mean?

You may see these symbols in the statistics areas and job indicator sections.

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Independent / dependent registrations

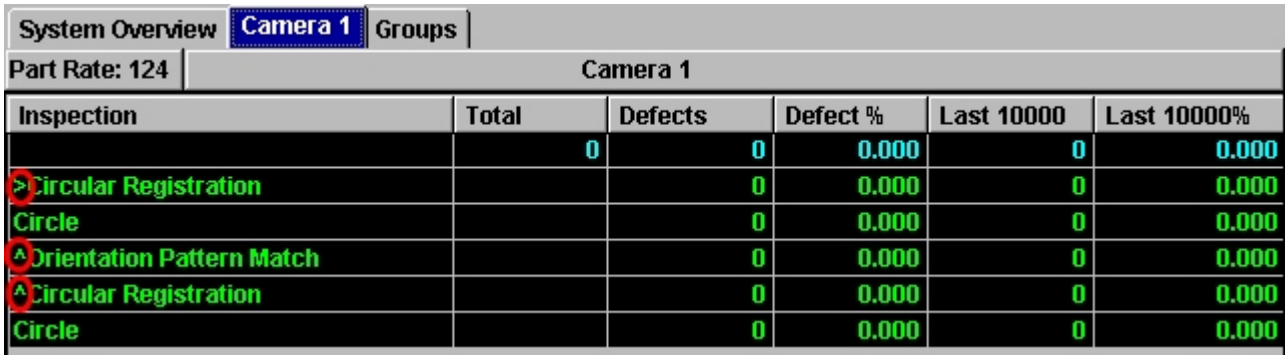
'>' and '^' represent whether a job's registration is dependent or independent.

[> symbol]

Indicates that the registration is independent. That is, it starts from scratch to find the center of the part or feature.

[^ symbol]

Indicates that the registration is dependent. That is, it uses information from the previous registration and/or orientation to find a new center or feature.



Channel specific lighting

[+ symbol]

If the plus sign (+) is present in front of the channel/ job indicator, it means that the job is using **channel-specific** lighting instead of job-specific lighting. This can be set through the job options.

- **Job-specific lighting**: the light settings will automatically be loaded each time the current job is loaded.
- **Channel-specific lighting**: the light settings will automatically be loaded for any job on that channel. This may save you time in the future when you are setting up jobs that require similar lighting for the same channel.

PASSWORDS / USER LEVELS

To protect system configuration and parameters from being changed by unauthorized users, the Intellispec has multiple user levels to allow different privileges. Some areas of the system require you to log in with your user name and password. The ***Toolbar table*** (see "Menu Toolbar" on page 10) illustrates many of the functions available to the various user levels.

When you try to enter an area of the system to which you do not have privileges, a pop-up message appears.

Additional privileges

- Mechanics and Administrators can edit inspections
- Built-in Pressco Technician account for use by Pressco Service Engineers

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How to Log In

You must log in to access most system functions. When you try to enter an area that is not available to your access level, a pop-up screen will appear that tells you that access is denied.

> ❖ *Note: If you do not have a valid User account and password, ask your Administrator to provide you with an account.*

Offline login

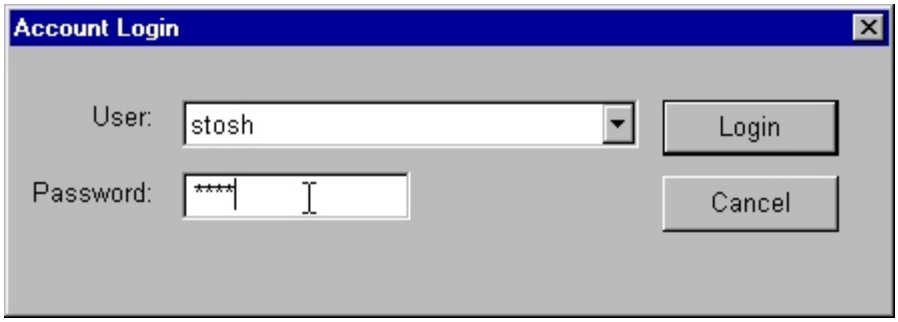
When the system is offline, many functions are not available until you log in.

Online login

When the system is online, you will be required to log in if you want to edit a job, or if your system requires a password to take the system offline.

To log in:

1) Click the  button.
2) From the dialog box, select your User account name from the drop-down menu or type the first letter of your user name, and enter your password.
3) Click Login.



You have three chances to enter the correct password. If you do not enter the correct password by the third try, the dialog box automatically closes, and you will not be logged in.

You will remain logged into the system until:

- You put the system online. The system automatically logs you out when the system goes online. This prevents you from accidentally leaving yourself logged in.
- You click the  button
- The Auto Logout feature logs you out

How to Log Out

Log out of the system when you are finished performing system changes. This prevents unauthorized users from altering the system setup. To log out, simply click the  button.

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Automatic log out

- If you put the system online, the system automatically logs you out
- The system logs you out after a specified period of time if the Auto Logout feature is enabled

How to Determine Your User Level

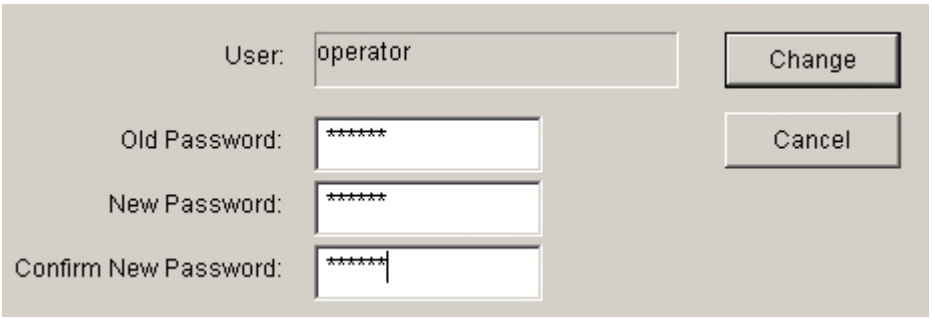
To determine your user level ***(see "Passwords/ User Levels" on page 35):***

1) Log in.
2) Click the System Information tab. This screen displays your user name and level.

How to Change Your Password

To change your password:

1) ***Log in*** (see "How to Log In" on page 36).
2) Click the  button.
3) Click the Users tab.
4) Click Change Password.
5) Enter your current password (Old Password).
6) Move the cursor and enter the New Password.
7) Move the cursor and re-type the new password in the Confirm New Password box.
8) Click Change to complete the changing of your password, or Cancel if you decide not to change your password.



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Chapter 3

PART CHANGEOVER

Changeover from one product to another can be accomplished using either ***JOB Management*** (see "Using JOB Management" on page 39) or ***PART Management*** (see "Using PART Management" on page 39).

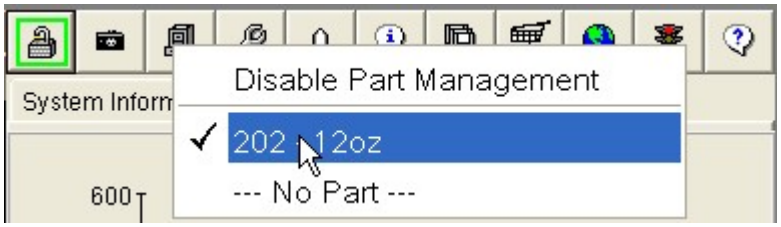
- In **Job** Management, the correct job has to be chosen for each camera individually.
- In **Part** Management, parts are loaded into the software so that changing from one part (product) to another will automatically assign the proper job to all cameras.
  - The Operator access level and above can use either part management or job management to change parts. However, an Administrator access level is needed to program new jobs or parts.
  - If Part Management is enabled, it overrides job management even if you select a different job for a specific camera.

USING PART MANAGEMENT

If the  button is active, you can use part management.

To change parts:

1) Right-click the  button.
2) Select the proper part from the drop-down menu. This will assign the proper job for all cameras.



USING JOB MANAGEMENT

To change parts:

1) Select one of the camera-specific tabs in the Statistics area of the screen.
2) Right-click on the tab and choose Select Job.
3) Choose the proper job from the drop-down menu.

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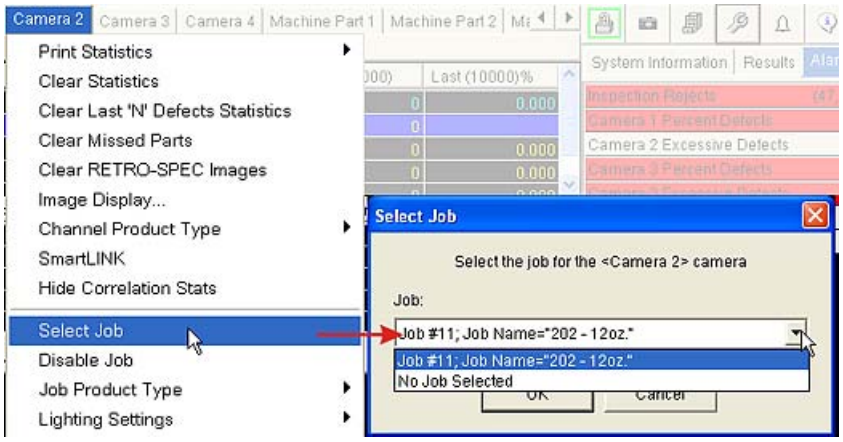
4) Repeat this for all cameras.



Selecting No Job

Selecting **No Job** disables the camera. In the event of a hardware error on a camera (such as a camera that got knocked out of alignment), this allows the system to continue to inspect without causing system errors. You may also disable a camera if you run a different type of product, and want the system to ignore a certain camera's inspection view.

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Chapter 4

ONLINE SYSTEM TUNING

Online mode is where the system actually inspects and rejects parts. This is the normal operating mode of Intellispec.

BEFORE GOING ONLINE

Before you put the system Online to begin testing parts, make sure you have completed the following tasks:

- Program a job for a good part – for each camera. Jobs are normally programmed and loaded for you during installation.
- ***Choose a job or part to run*** (see "Part Changeover" on page 39)
- Program SmartLINK logic if needed
- Calibrate the part width – for each channel group
- Calibrate the reject delay – for each channel group

TO GO ONLINE

Click the  button. When the light turns green, the system is online. It waits for the first part present signal, and then begins inspecting parts.

Using the Image Toolbar

The ***Image Toolbar*** (on page 29) allows you to select cameras, freeze images, and release frozen images. It also provides the status of inspection images for each camera.

Freeze Frame Indicators

These indicators change depending on the system mode. There is one indicator for each of eight possible cameras.

In Freeze frame conditions online, these indicators change based on your freeze choices. If you choose to have the First Failed part frozen, the indicators for any camera that has a failed part will have a First (F) indicator displayed with a red background. Likewise, if you choose to display the Last failed part, an L icon with a red background will appear.

Icon	*Description*
“F”- red background	First failed part frozen
“F” - green background	First good part frozen
“L” - red background	Last failed part frozen
“L” - green background	Last good part frozen

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Holding an Image

Click on the image to hold it. When you manually hold an image, this image stays on screen until you release it. The system continues to inspect all parts in the background.

The  indicator becomes active when you hold an image.

Releasing an Image

Right-click the camera's indicator on the ***image toolbar*** (on page 29) to release a held or frozen image. Or right-click the function button to release all cameras. Note that a freeze frame setting might cause another image to freeze.

Image Display Menu

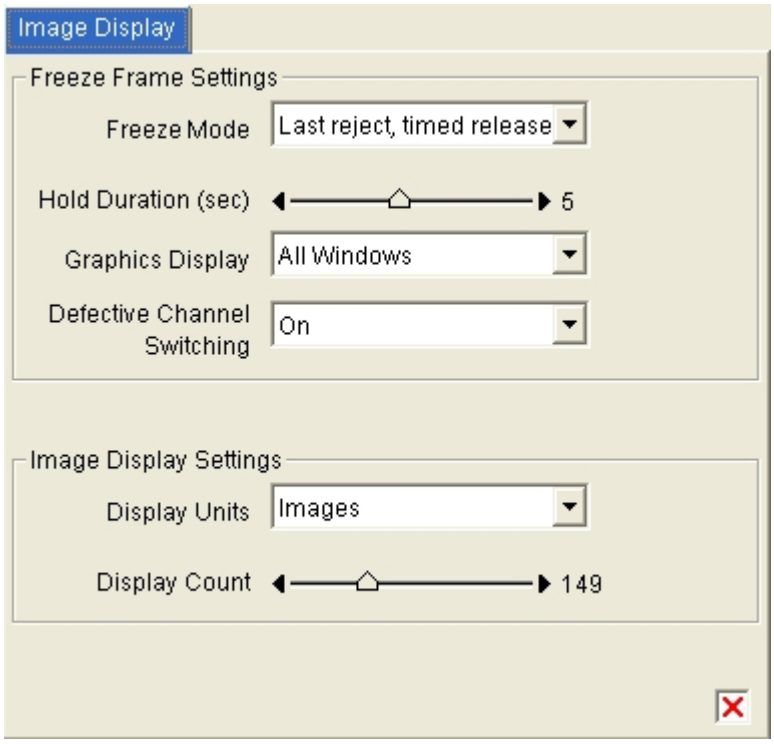
To get to this menu:

1) Right-click on the image.
2) Select Image Display Options. The menu is displayed on the screen right.

Freezing an Image:

A Freeze Frame occurs when the system automatically holds the image of a part when that part's inspection meets some criteria. For example, it can freeze the last defective part's image.

The menu is displayed on screen right. Selecting a freeze frame mode affects all cameras. Click OK [✓] for it to take effect.



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Freeze Frame overrides the Image Display settings in the lower section of the menu. For example, if you choose Last Pass under Freeze Frame, the last passing images will be frozen on the screen. The image will update only if another part passes, even if you specified that the image should update every six seconds, for example, under Image Display Settings.

The Freeze Frame indicators will show when an image is being held, whether it is the First or Last image, and whether it is a Rejected or Good part.

This feature also works with ***Enable Freeze*** (see "Inspection Options" on page 27), found in the Inspection Options menu.

Freeze Mode

Disabled

If you choose Disabled, the system will not automatically hold an image. Part images will be updated on the screen continuously. The length of time between image updates is set under Image Display settings.

Last Reject, timed release

Holds the last defective image for up to the specified number of seconds (set by **Hold Duration**). For example, if Hold Duration = 7 seconds, the last defective image will stay on screen for seven seconds if no other defects occur during that time. However, if another defect occurs during those seven seconds, its image is displayed on screen and the Hold Duration resets.

Last Reject

The system freezes the image of the last part to be rejected. Each subsequent part that fails will have its image frozen on the screen until another part fails.

Last Good

The system freezes the image of the last good part.

First Reject

The system freezes the image of the first part to be rejected after going online.

First Good

The system freezes the image of the first good part.

Graphics Display

Show Failed Regions

Displays only the inspection regions that caused the job to meet the Freeze Frame condition.

All Windows

Displays all the inspection regions on the Freeze Frame image.

No Windows

Displays only the Freeze Frame image.

Defective Channel Switching

If set to On, this allows the system to display the defective images from one camera, then switch to another camera if that camera has a defective part. If set to Off, then the system will only display the defective images from one camera, even if the other cameras had defective parts.

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Display Units

This part of the menu allows you to choose the order and length of time that the images are displayed online.

Seconds

Choose Seconds if you want the system to update the display every so many seconds. The number of seconds between image updates is set by Display Count.

Images

Choose Images if you want the system to update the display every so many processed images. The number of acquired images between display updates is set by Display Count.

Display Count

Choose how many images or seconds will elapse before the next image is displayed.

Freeze on Inspection

This feature allows you to select a particular inspection to freeze the image when a defect occurs. It works in conjunction with ***Freeze Frame settings*** (see "Image Display Menu" on page 42). Certain conditions apply to use Freeze on Inspection:

- Only one inspection may be selected at a time to Freeze on Inspection. If you select another inspection, the first one will be de-selected for you.
- Freeze Frame mode must use a valid Defect condition; that is,
  - Last Reject, Timed Release
  - Last Reject, or
  - First Reject

How to Set Freeze Frame Condition

To set a Freeze Frame Condition:

1) Log in.
2) Right-click on the image.
3) Select Image Display Options.
4) For ***Freeze Mode*** (see "Image Display Menu" on page 42), select one of the defect conditions.
5) Click OK and Exit the Image Display menu.

How to set Freeze on Inspection

This feature causes the image to freeze when a specific inspection fails.

To set Freeze on Inspection:

1) Log in.
2) In the statistics area, right-click the name of the inspection you want to freeze.
3) Select Enable Freeze. The inspection row is highlighted in green.

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Inspection	Total	Defects	Defect %	Last 10000	Last 10000%
	0	0	0.000	0	0.000
>Circular Registration		0	0.000	0	0.000
Circle		0	0.000	0	0.000
^Orientation Pattern Match		0	0.000	0	0.000
^Circular Registration		0	0.000	0	0.000
Circle		0	0.000	0	0.000

When you put the system online, and a defect is detected by the highlighted inspection, the image is frozen on the screen until you release it (right-click ), or for as long as the ***Freeze Frame*** (see "Image Display Menu" on page 42) mode dictates:

- If system is in Last Reject, Timed Release mode – the held image will be released after the Hold Duration.
- If system is in Last Reject mode – the held image will be replaced if and when another defect is detected by the selected inspection.
- If system is in First Reject mode – the held image will be held indefinitely until you release it (right-click ).

You may wish to edit the selected inspection (Mechanic or Administrator) while the image is held. Double-click the inspection name in the statistics area to edit.

To disable Freeze on Inspection:

1) Right-click the inspection name (highlighted in green).
2) Select Disable Freeze.

CHANGING A JOB ONLINE

USER LEVEL: MECHANIC AND ADMINISTRATOR

When you change a job online, the system continues to inspect parts in the background. However, not all changes are available while the system is online.

Notes about online changes:

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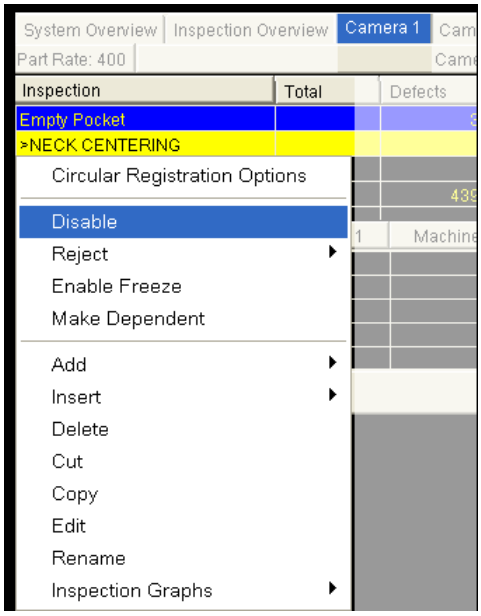
- The system will hold an image while you adjust the parameters. Adjust the parameters as necessary. Note that not all parameters or settings are available online.
- Exit the parameters menus, clicking OK to save your changes if desired. The system releases the image and resumes inspection, using the new parameters.
- If using Retro-Spec inspections, simply right-click an area of Part Graphic (if available) to edit the inspection.

Modifying inspections

To modify an inspection (cut, paste, or disable), right-click the inspection name for the ***available options*** (see "Inspection Options" on page 27).



To edit an inspection (change parameters):

- Right-click the inspection name and select Edit. Or:
- Double-click the inspection name. Or:
- If you have a ***Part Graphic*** (see "About the Part Graphic" on page 13), click an area to bring up Group statistics, and double-click the inspection name. Or right-click an area to bring up Retro-Spec interface (if available).

DISABLING A JOB ONLINE

USER LEVEL: MECHANIC AND ADMINISTRATOR

You may wish to disable a job on a particular camera in the event of a hardware failure on a camera, or if you need to stop inspection for that camera temporarily.

To disable the job:

1) Click the statistics tab for the desired camera.
2) Right-click for the menu.
3) Select Disable Job.

The system will stop inspecting with that camera. The camera indicator becomes grayed out to indicate that it is disabled.

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To enable the job again:

1) Right-click the statistics tab to see the options menu.
2) Select Enable Job. The system resumes inspection with that camera.

GOING OFFLINE

To take the system offline, click the  button. The light on the button turns red to indicate that the system is offline.

You may be required to ***log in*** (see "How to Log In" on page 36) to take the system offline.

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Chapter 5

REPORTS AND GRAPHS

The Intellispec generates graphs and inspection results for the overall system, individual channels, and machine correlation (if applicable). These statistics can be printed or saved to disk.

The Intellispec can save statistics automatically at intervals programmable by your Administrator. Statistics graphs can also be printed or saved on demand.

WHAT DATA IS COLLECTED?

The following data is collected by the Intellispec:

- **Job statistics** (on page 64) – parts inspected, parts rejected, which inspections failed.
- **Correlation data** (on page 67) – how many defects were associated with each machine part. Only available if you have the correlation option.
- **Individual inspection graphs** (on page 71) – graphically shows how many parts passed or failed each inspection. Can show you if a process is moving out of specification, or whether there were just a few parts that did not pass certain inspections.
- **Event reports** (on page 75) – Online/ Offline history, system event logs.
- **Databases** (on page 77) – Defective Parts database, Machine Logging database, Dimension inspections database.
- **System setup parameters** (on page 80).

TERMINOLOGY

To help you understand what is included in the reports, the following is a list of terms used throughout the Intellispec:

Camera

Just as it sounds, the camera is the imaging device that takes pictures of one view on a part.

Channel

A channel is an acquisition point. In most cases a channel is an inspection module, consisting of one or more cameras and a light source. The camera and lighting triggers must occur at the same time to be considered part of the same channel. An example channel is a CP4412E module with three digital cameras and a lighting source that are all triggered at the same time.

Channel Group

Includes a channel or channels that share the same encoder, part present, and reject devices.

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Defect

A part that did not pass inspection. Note that one part may fail more than one inspection.

Inspection

An inspection analyzes the pixel shade information within a region and compares it to programmed reference values. The inspection passes or fails based on these comparisons. You may have many inspections in a job for each camera.

Jobs

The jobs are the programs that inspect each part within the field of view of each camera.

- A job is made up of several inspections
- Each camera runs a different job

Lane

Also referred to as Channel Group. A lane usually refers to one production line, and can contain multiple channels.

Reject

A part that failed one or more inspections from any camera. The part can be physically rejected, or simply counted in the statistics.

Configuration Terminology

There are several terms used to identify cameras, groups of cameras, and their relationship with one another. Use the following table to identify each term.

1	Channel Group = Lane	Think of this as one production line. Maximum number of lanes = 4 (depends on configuration) All channels within the channel group use the same part detect, tracking, and reject system.
2	Channel	Think of this as one inspection module. May contain up to 4 cameras and light source. Maximum number of channels per lane = 4 (depends on configuration). This is considered one acquisition point - all cameras and the light source are triggered at the same time.
3	Camera	Just as it sounds, the camera is the imaging device that takes pictures of one view on a part. In version 4.4 software, the Intellispec can accommodate up to eight digital cameras. If your system has analog cameras, the limit is four cameras.

There are configurations available for numerous applications. Your system will be configured for you.

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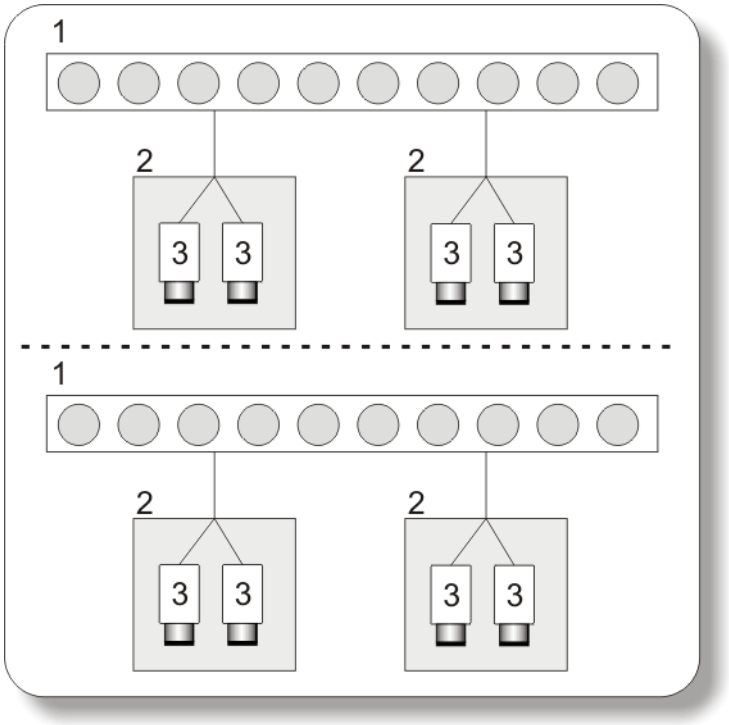
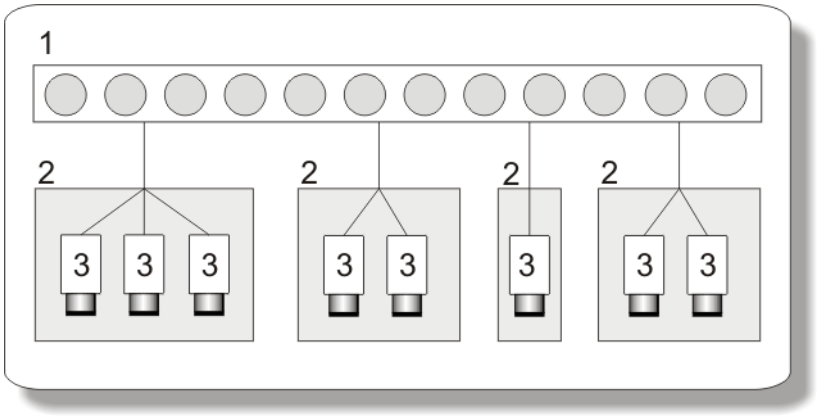
Example 1: the following illustration shows 2 lanes, 4 channels, and 8 digital cameras. The numbers correspond to the above table.



Example 2: the following illustration shows 1 lane, 4 channels, and 8 digital cameras. The numbers correspond to the above table.



HOW TO SET UP REPORTS

USER LEVEL: ADMINISTRATOR

(Offline only) This menu allows you to configure automatic printing of the statistics, save a database of defective parts, and save a database of online/offline status.

To get to this menu:

1) Log in.
2) Click the  button.

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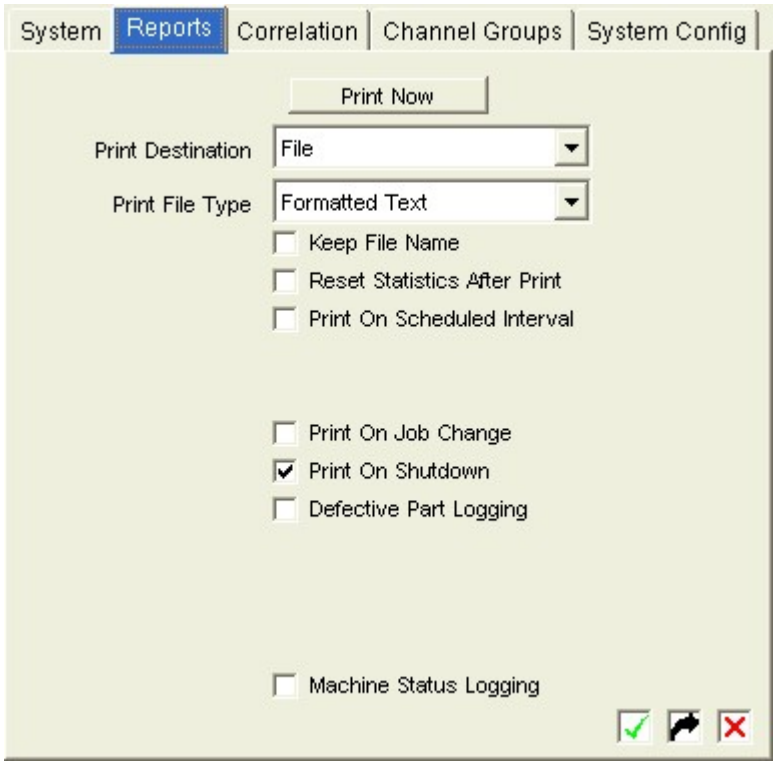
3) Click the Reports tab.



ABOUT STATISTICS PRINTED TO FILE

Use the table below to see what statistics are printed when you print them to file.

- ***Notes**: items in [brackets] are available on systems with the correlation option. Your system's tabs may have different labels than listed below as they can be customized by the Administrator in the System Configuration menus.*

USER LEVEL	WHEN YOU SELECT THIS:	WHAT IS IT?	THIS FILE IS PRINTED:
Operator level and higher	Right-click System Overview tab >> Print Statistics to File	***System Overview statistics file*** (on page 56)	System Summary Date_time.txt [no correlation]
Operator level and higher	Right-click Lane Overview tab >> Print Statistics to File	***Lane Overview Statistics file*** (on page 57)	▪ Lane n Channels Summary Date_Time.txt ▪ [Last_50_Correlation_Defects _Date_Time.txt]
Operator level and higher	Right-click Camera *n* tab >> Print Statistics to File	***One camera statistics file*** (on page 58), and [***Last 50 correlation defects*** (see "About the Last 50 Correlation Defects" on page 70)	▪ SysID_Camera n _Date_Time.txt ▪ [SysID_Camera n _ Last_50_Correlation_Defects _Date_Time.txt]

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USER LEVEL	WHEN YOU SELECT THIS:	WHAT IS IT?	THIS FILE IS PRINTED:
		for one channel.]	
Operator level and higher	[Right-click Machine Part #n tab >> Print Statistics to File]	[***One machine part statistics file*** (on page 60)]	[Machine Part #n_Date_ Time.txt]
Operator level and higher	Right-click Groups tab >> Print Statistics to File	***Groups Statistics file*** (on page 60)	Groups_Date_Time.txt
Administrator	System Configuration >> Reports tab >> Scheduled Print or Print Now	***System statistics files*** (on page 54), including total correlation defects, includes Last Statistics Reset date and time.	**If Print File Type = Formatted text:** ▪ SysID_Camera n_Date_Time.txt (one file generated for each active camera) ▪ Groups_Date_Time.txt ▪ Inspection Channels Summary_Date_Time.txt ▪ [Machine Part #n_Date_ Time.txt] ▪ [AllCorrelation_Date _Time.txt] **If Print File Type = Comma Separated Variable:** SysID_Date_Time.csv – Channel data (All channels & channel group info. Included. No correlation.) **If Print File Type = Excel xls:** SysID_Date_Time_Ch.xls (All channels & channel group info. Included. No correlation.)

Where Is the File Printed?

When you right-click one of the tabs and select Print Statistics to File, that file is printed to the C:\Intellispec\Reports folder.

The Scheduled Print or Print Now function from the Reports menu also prints the data to the same \Reports folder as mentioned above.

SAVING OR PRINTING REPORTS AUTOMATICALLY

You can use Reports setup to configure how and when the reports are printed or saved automatically.

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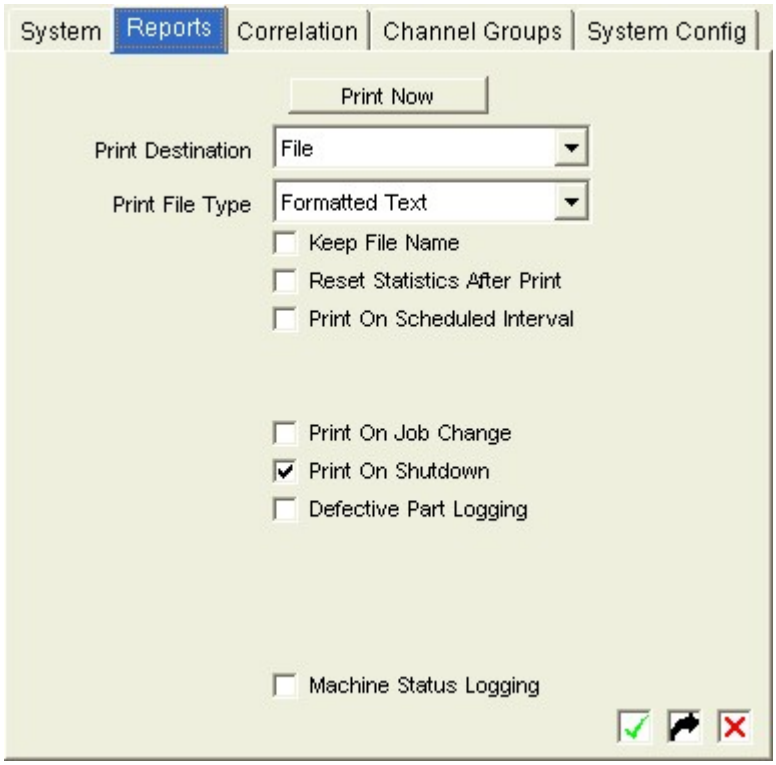
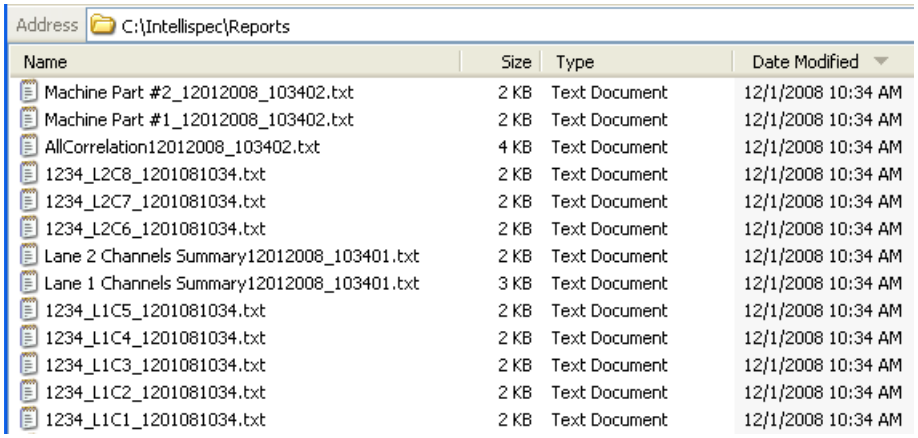
❖ *Tip: if you want your network to poll the statistics regularly to get a statistics reports, use the* Keep File Name *feature.*

System Statistics Files

These files are saved through scheduled printing, or by using the Print Now button in the System Configuration menu >> Reports tab.



When a file is printed, it is saved on the Intellispec hard drive under C:\Intellispec\Reports. The following is an example of all the reports saved on scheduled interval. The example shows a system configured with eight cameras, two machine parts, and two lanes. These reports are generated when File Type = Formatted Text.



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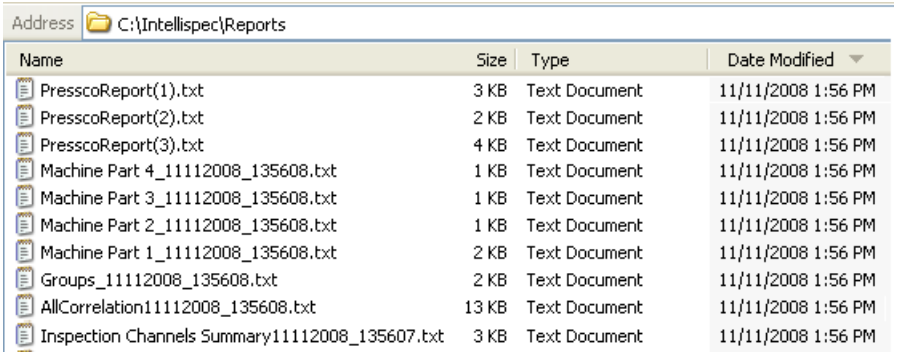
The following is an example of similar data saved as above, except that Keep File Name was checked, and the system was configured with three cameras and four machine parts. The three camera statistics reports are called "PresscoReport(x).txt".



Address C:\Intellispec\Reports

Name	Size	Type	Date Modified
PresscoReport(1).txt	3 KB	Text Document	11/11/2008 1:56 PM
PresscoReport(2).txt	2 KB	Text Document	11/11/2008 1:56 PM
PresscoReport(3).txt	4 KB	Text Document	11/11/2008 1:56 PM
Machine Part 4_11112008_135608.txt	1 KB	Text Document	11/11/2008 1:56 PM
Machine Part 3_11112008_135608.txt	1 KB	Text Document	11/11/2008 1:56 PM
Machine Part 2_11112008_135608.txt	1 KB	Text Document	11/11/2008 1:56 PM
Machine Part 1_11112008_135608.txt	2 KB	Text Document	11/11/2008 1:56 PM
Groups_11112008_135608.txt	2 KB	Text Document	11/11/2008 1:56 PM
AllCorrelation11112008_135608.txt	13 KB	Text Document	11/11/2008 1:56 PM
Inspection Channels Summary11112008_135607.txt	3 KB	Text Document	11/11/2008 1:56 PM

The following is an example of the AllCorrelation statistics file.

Correlation Statistics

System ID: 1234
Date: November 11, 2008 01:56:08 PM

Total Machine Part 1 Defects

Machine Part 1	Defects
1	48
2	81
3	14
4	1
5	45
6	16
7	1

...

Total Machine Part 2 Defects

Machine Part 2	Defects
1	1358

Total Machine Part 3 Defects

Machine Part 3	Defects
1	1358

Total Machine Part 4 Defects

Machine Part 4	Defects
1	1358

Last 50 Defects Correlation Statistics

Date/Time	Machine Part 1	Machine Part 2	Machine Part 3	Machine Part 4	Camera 1	Camera 2
2008-11-11 10:48:40	8	1	1	1	O	X
2008-11-11 10:48:39	1	1	1	1	O	O
2008-11-11 10:48:39	30	1	1	1	O	O
2008-11-11 10:48:38	22	1	1	1	O	O
2008-11-11 10:48:37	18	1	1	1	O	O
2008-11-11 10:48:36	9	1	1	1	O	O
2008-11-11 10:48:36	8	1	1	1	O	O
2008-11-11 10:48:35	6	1	1	1	X	O
2008-11-11 10:48:35	5	1	1	1	X	X
2008-11-11 10:48:35	2	1	1	1	X	O
2008-11-11 10:48:33	21	1	1	1	O	O
2008-11-11 10:48:33	20	1	1	1	O	O
2008-11-11 10:48:32	12	1	1	1	O	O
2008-11-11 10:48:31	8	1	1	1	O	O
2008-11-11 10:48:30	2	1	1	1	O	X
2008-11-11 10:48:30	29	1	1	1	O	O
2008-11-11 10:48:30	28	1	1	1	O	O
2008-11-11 10:48:30	27	1	1	1	X	O
2008-11-11 10:48:29	26	1	1	1	X	O

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When File Type = ***.csv or .xls*** (see "About Statistics printed to a .csv or .xls file" on page 62), one file is printed or saved. This contains system statistics. No correlation information included.

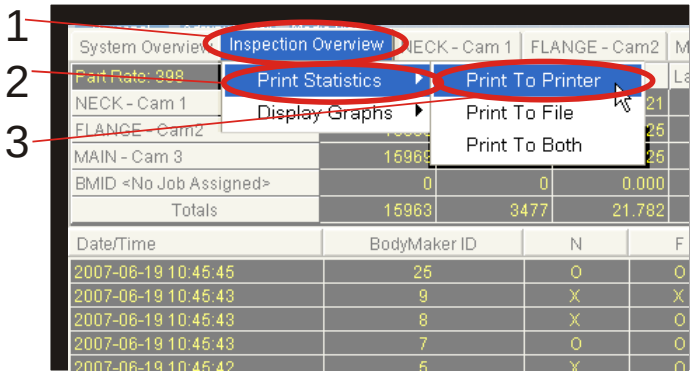
See examples of ***lane overview statistics file*** (on page 57), ***camera statistics file*** (see "One Camera Statistics File" on page 58), ***machine part statistics file*** (see "One Machine Part Statistics File" on page 60), and ***groups statistics file*** (on page 60).

SAVING OR PRINTING REPORTS MANUALLY

You can right-click any of the statistics tabs in the upper left section of the screen to print reports. Depending which tab you have selected, a different report is printed.

To print the inspection statistics to either a file or a printer:

1) In the upper left of the screen, click the Inspection Overview* tab.
2) Right-click the Inspection Overview tab, select Print Statistics.

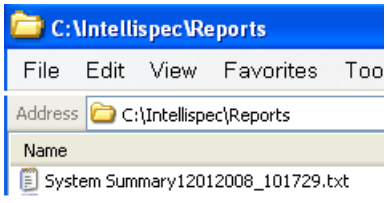


3) Choose a destination.
   - **Print to Printer** prints to the default connected printer.
   - **Print to File** prints two text files to the Intellispec hard drive at C:\Intellispec\Reports.
   - **Print to Both** prints both to a printer and to the text files.

*name of tab may be different on your system.

System Overview Statistics File

This file is printed when you print the statistics from the System Overview tab. If your system does not contain more than one lane it does not have a System Overview tab.



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The following is an example of a System Summary report, with two lanes and eight cameras configured.

System Summary12012008_101729.txt - Notepad

File Edit Format View Help

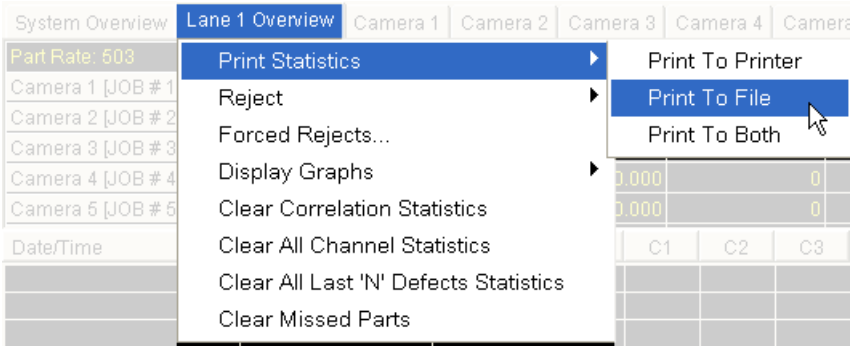
System Summary Statistics

System ID: 1234
Date: December 01, 2008 10:17:29 AM

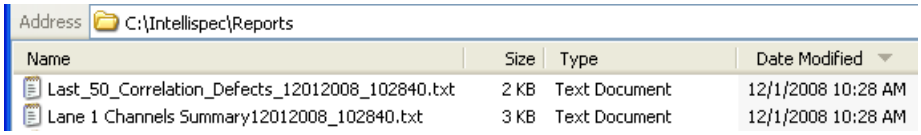
Channel	Total	Defect	Defect %	Last (10000)	Last (10000)%
Lane 1 -- 499 PPM	0	0	0.000		
Camera 1 [JOB #1]	0	0	0.000	0	0.000
Camera 2 [JOB #2]	0	0	0.000	0	0.000
Camera 3 [JOB #3]	0	0	0.000	0	0.000
Camera 4 [JOB #4]	0	0	0.000	0	0.000
Camera 5 [JOB #5]	0	0	0.000	0	0.000
Lane 2 -- 499 PPM	0	0	0.000		
Camera 6 [JOB #6]	0	0	0.000	0	0.000
Camera 7 [JOB #7]	0	0	0.000	0	0.000
Camera 8 [JOB #8]	0	0	0.000	0	0.000

Lane Overview Statistics File

This file is printed when you print the statistics from the Lane Overview tab.



When a file is printed, it is saved on the Intellispec hard drive under C:\Intellispec\Reports. The picture below shows the names of the files printed from the Lane Overview tab. If your system does not have correlation, the Last_50_Correlation... file does not get saved.



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The following is an example of the channel group (Lane) summary statistics, with four cameras configured.

Inspection Channels Summary Statistics

System ID: 1234
Date: November 11, 2008 10:49:05 AM

Channel	Total	Defect	Defect %	Last (10000)	Last (10000)%
Camera 1 [202 - 12oz.]	5733	441	7.692	441	7.692
Camera 2 [202 - 12oz.]	5733	174	3.035	174	3.035
Camera 3 [202 - 12oz.]	5733	860	15.001	860	15.001
Camera 4 <No Job Assigned>0		0	0.000	0	0.000
Totals	5739	1362	23.732		

The following is an example of the Last 50 correlation statistics.

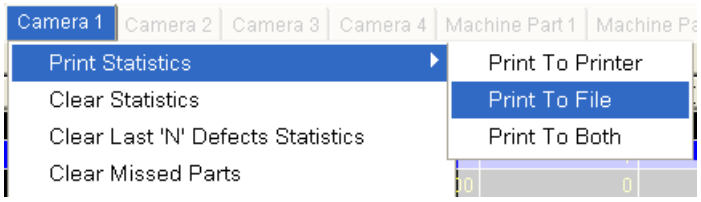
Last 50 Defects Correlation Statistics

System ID: 1234
Date: November 11, 2008 10:49:05 AM

Date/Time	MachinePart1	MachinePart2	MachinePart3	MachinePart4	Camera1	Camera2	Camera3	Camera4
2008-11-11 10:48:40	8	1	1	1	O	X	O	O
2008-11-11 10:48:39	1	1	1	1	O	O	X	O
2008-11-11 10:48:39	30	1	1	1	O	O	X	O
2008-11-11 10:48:38	22	1	1	1	O	O	X	O
2008-11-11 10:48:37	18	1	1	1	O	O	X	O
2008-11-11 10:48:36	9	1	1	1	O	O	X	O
2008-11-11 10:48:36	8	1	1	1	O	O	X	O
2008-11-11 10:48:35	6	1	1	1	X	O	O	O
2008-11-11 10:48:35	5	1	1	1	X	X	O	O
2008-11-11 10:48:35	2	1	1	1	X	O	O	O
2008-11-11 10:48:33	21	1	1	1	O	O	X	O
2008-11-11 10:48:33	20	1	1	1	O	O	X	O
2008-11-11 10:48:32	12	1	1	1	O	O	X	O
2008-11-11 10:48:31	8	1	1	1	O	O	X	O
2008-11-11 10:48:30	2	1	1	1	O	X	O	O
2008-11-11 10:48:30	29	1	1	1	O	O	X	O
2008-11-11 10:48:30	28	1	1	1	O	O	X	O
2008-11-11 10:48:30	27	1	1	1	X	O	O	O
2008-11-11 10:48:29	26	1	1	1	X	O	O	O
2008-11-11 10:48:29	23	1	1	1	X	O	O	O
2008-11-11 10:48:27	11	1	1	1	O	O	X	O
2008-11-11 10:48:27	10	1	1	1	O	O	X	O
2008-11-11 10:48:26	2	1	1	1	O	O	X	O
2008-11-11 10:48:25	29	1	1	1	O	X	O	O
2008-11-11 10:48:25	28	1	1	1	O	O	X	O
2008-11-11 10:48:24	19	1	1	1	O	O	X	O
2008-11-11 10:48:24	18	1	1	1	X	O	X	O
2008-11-11 10:48:24	17	1	1	1	X	O	O	O
2008-11-11 10:48:23	14	1	1	1	X	O	O	O
2008-11-11 10:48:21	1	1	1	1	O	O	X	O

One Camera Statistics File

This file is printed when you print the statistics from any Camera statistics tab.



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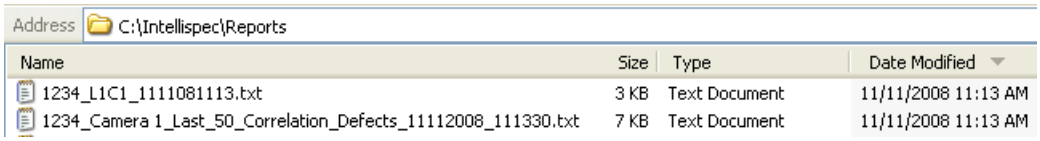
When a file is printed, it is saved on the Intellispec hard drive under C:\Intellispec\Reports. The picture below shows the names of the files printed from a camera statistics tab. If your system does not have correlation, the ...Last_50_Correlation.. file does not get saved.



The following is an example of one camera's statistics. The number of inspections listed depends on the number of inspections in the active job.

Intellispec Statistics Report

System ID: 1234
Job[Camera]: 202 - 12oz. [Camera 1]
Current Time: November 11, 2008 11:13 AM
Last Reset: November 03, 2008 04:28 PM
Time Online: 0:14

Inspection Name	Total	Reject	Reject %	Last 10000	Last 10000%
Empty Pocket	5734	1	0.017	1	0.017
CENTERING	5733	0	0.000	0	0.000
Circular Region1	5733	0	0.000	0	0.000
Inspection 1	5733	294	5.128	294	5.128
Circular Region2	5733	0	0.000	0	0.000
Inspection 2	5733	441	7.692	441	7.692
Circular Region3	5733	0	0.000	0	0.000
Inspection 3	5733	0	0.000	0	0.000
Total	5733	441	7.692	441	7.692
Totals Inspection:	5739	1362	23.732		

Definitions:
Total: Total number of parts inspected.
Reject: Number of inspections reporting a Reject.
Last 10000: Number of inspections failing in the last 10000 parts.

Note: Totals under the Reject column may not reflect a sum of that column since one part may trigger a reject for more than one inspection.

The following is an example of a file for one camera correlated to all machine parts.

Last 50 Camera 1 Defects Correlation Statistics

System ID: 1234
Date: November 11, 2008 11:13:30 AM

Date/Time	MachinePart1	MachinePart2	MachinePart3	MachinePart4
2008-11-11 10:48:35	6	1	1	1
2008-11-11 10:48:35	5	1	1	1
2008-11-11 10:48:35	2	1	1	1
2008-11-11 10:48:30	27	1	1	1
2008-11-11 10:48:29	26	1	1	1
2008-11-11 10:48:29	23	1	1	1
2008-11-11 10:48:24	18	1	1	1
2008-11-11 10:48:24	17	1	1	1
2008-11-11 10:48:23	14	1	1	1
2008-11-11 10:48:18	9	1	1	1
2008-11-11 10:48:18	8	1	1	1
2008-11-11 10:48:17	5	1	1	1
2008-11-11 10:48:12	30	1	1	1
2008-11-11 10:48:12	29	1	1	1
2008-11-11 10:48:11	26	1	1	1
2008-11-11 10:48:06	21	1	1	1
2008-11-11 10:48:06	20	1	1	1
2008-11-11 10:48:05	17	1	1	1
2008-11-11 10:48:00	12	1	1	1
2008-11-11 10:48:00	11	1	1	1
2008-11-11 10:48:00	8	1	1	1
2008-11-11 10:47:54	3	1	1	1
2008-11-11 10:47:54	2	1	1	1

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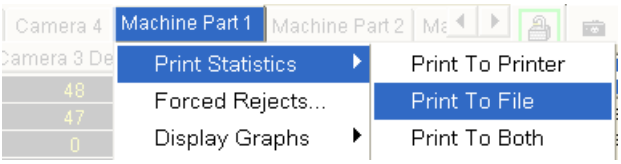
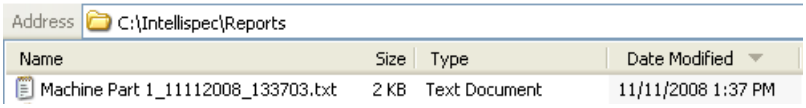
One Machine Part Statistics File

This file is printed when you print the statistics from any machine part (correlation) tab.



When a file is printed, it is saved on the Intellispec hard drive under C:\Intellispec\Reports.



The following is an example of the statistics file for one machine part.

Machine Part 1 Statistics

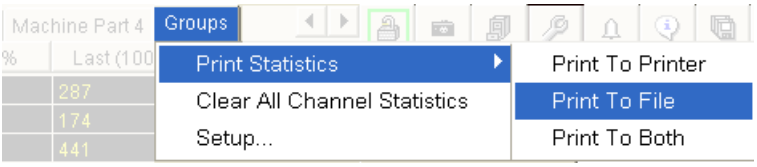
System ID: 1234
Date: November 11, 2008 01:37:03 PM

Total Machine Part 1 Defects

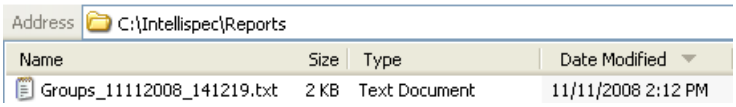
Machine Part 1	Defects
1	48
2	81
3	14
4	1
5	45
6	16
7	1
8	118
9	59
10	47
11	81
12	58
13	0
14	44
15	14
16	0
17	43

Groups Statistics File

This file is printed when you print the statistics from the Groups tab.



When a file is printed, it is saved on the Intellispec hard drive under C:\Intellispec\Reports.



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The following is an example of a groups statistics file. The number of groups listed depends on the number of groups configured.

```
Groups Statistics

System ID:          1234
Date:               November 11, 2008 01:56:08 PM

Groups              Defects  Defects %  Last 10000  Last 10000%
FLANGE (Cam 3)      287      5.000      287         5.005
FLANGE 2 (Cam 2)    174      3.000      174         3.035
NECK                441      7.000      441         7.691
HIGH SIDEWALL       430      7.000      430         7.499
MID SIDEWALL        287      5.000      287         5.005
LOWER SIDEWALL      287      5.000      287         5.005
BOTTOM              144      2.000      144         2.511
```

INTELLISPEC STATISTICS REPORT COMPARISON

Below are examples of overall system statistics from screen, a saved text (.txt) file, and an Excel (.xls) file (same information as .csv).

screen

Inspection Overview | MyCamera1 | MyCamera2 | MyCamera3 | Unassigned | Groups

Part Rate: 390	Total	Defect	Defect %	Last (10000)	Last (10000)%
❶ MyCamera1 [202 - 12oz.]	2603	201	7.722	0	0.000
MyCamera2 [202 - 12oz.]	2603	79	3.035	0	0.000
MyCamera3 [202 - 12oz.]	2603	390	14.983	0	0.000
Unassigned <No Job Assigned>	0	0	0.000	0	0.000
❷ Totals	2603	628	24.126		

.txt file

spection Channels Summary Statistics

System ID: 1234
Date: September 11, 2008 03:20:57 PM

Channel	Total	Defect	Defect %	Last (10000)	Last (10000)%
❶ MyCamera1 [202 - 12oz.]	2603	201	7.722	0	0.000
MyCamera2 [202 - 12oz.]	2603	79	3.035	0	0.000
MyCamera3 [202 - 12oz.]	2603	390	14.983	0	0.000
Unassigned <No Job Assigned>	0	0	0.000	0	0.000
❷ Totals	2603	628	24.126		

.xls or .csv file

1234_091108_150924.xls [Compatibility Mode] - Micr

F1 | MyCamera1

	A	B	C	D	E	F	G	H	I	J	K	L
❶ 1	09/11/2008	15:09:24	09/11/2008	10:22:42	1234	MyCamera1	202 - 12oz	2603	201	8	Empty Pocket	0
2	09/11/2008	15:09:24	09/11/2008	10:22:42	1234	MyCamera2	202 - 12oz	2603	79	4	Empty Pocket	0
3	09/11/2008	15:09:24	09/11/2008	10:22:42	1234	MyCamera3	202 - 12oz	2603	390	22	Empty Pocket	0
4	date/time printed		date/ time captured		System ID	Channel name		total inspected			No. inspections	
5												
❷ 6	09/11/2008	15:09:24	1234	Inspection	2603	628	24.126					

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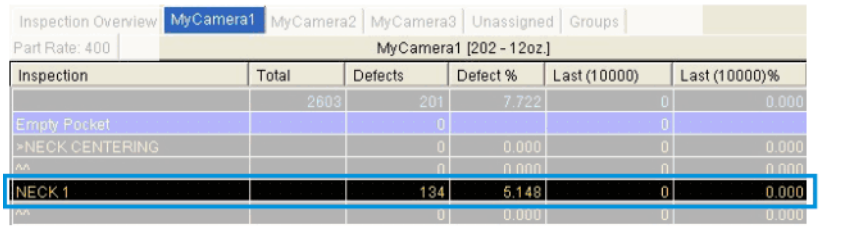
1	Total parts inspected [2603], number of defects for one channel [201], percentage of defects for one channel [7.722]
2	Total parts inspected [2603], total defects for all channels [628], percentage of defects for all channels [24.126]

Below are examples of statistics for one camera from screen, a saved text (.txt) file, and a .csv file (same information as .xls). The screen and text file examples highlight statistics for one inspection, while the .xls or .csv example highlights all the inspections for one job. The number of inspections included depends on the number of inspections in the job. The example .csv file is truncated for illustration purposes.

screen



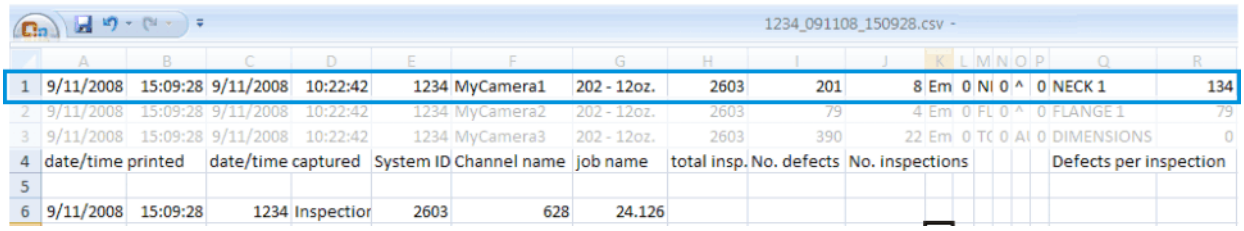
.txt file

Intellitrainer Statistics Report

System ID: 1234
Job[Camera]: 202 - 12oz. [MyCamera1]
Current Time: September 11, 2008 03:09 PM
Last Reset: September 11, 2008 10:22 AM
Time Online: 0:00

Inspection Name	Total	Reject	Reject %	Last 10000	Last 10000%
Empty Pocket	2603	0	0.000	0	0.000
NECK CENTERING	2603	0	0.000	0	0.000
Region 1	2603	0	0.000	0	0.000
NECK 1	2603	134	5.148	0	0.000
Region 2	2603	0	0.000	0	0.000
NECK 2	2603	201	7.722	0	0.000
Region 3	2603	0	0.000	0	0.000
NECK 3	2603	0	0.000	0	0.000
Total	2603	201	7.722	0	0.000
Totals Inspection:	2603	628	24.126		

.xls or .csv file



About Statistics printed to a .csv or .xls file

The information presented in either of these formats is the same. This report includes:

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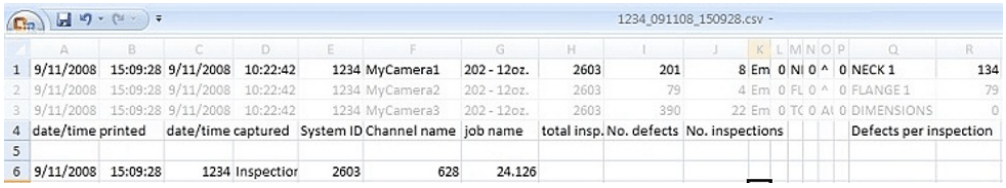
- Inspection statistics for all cameras - all inspections in each active job are included
- Last Statistics Reset date and time
- Time system was online
- Lane overview information - number of inspected parts, number of defects, and percentage of defects



1234_091108_150928.csv -

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	9/11/2008	15:09:28	9/11/2008	10:22:42	1234	MyCamera1	202 - 12oz.	2603	201	8	Em	0	Nl	0	^	0	NECK 1	134
2	9/11/2008	15:09:28	9/11/2008	10:22:42	1234	MyCamera2	202 - 12oz.	2603	79	4	Em	0	FL	0	^	0	FLANGE 1	79
3	9/11/2008	15:09:28	9/11/2008	10:22:42	1234	MyCamera3	202 - 12oz.	2603	390	22	Em	0	TC	0	Al	0	DIMENSIONS	0
4	date/time printed		date/time captured		System ID	Channel name	job name	total insp.	No. defects	No. inspections							Defects per inspection	
5																		
6	9/11/2008	15:09:28		1234 Inspectior	2603	628	24.126											

❖ *Note: .csv or .xls files do* ***not*** *contain correlation data*

.csv (comma separated variable)

This is similar information to a text (.txt) file, but presented in a comma separated text format.

.xls (Microsoft Excel)

This is similar information to a text (.txt) file, but presented in spreadsheet format.

STATISTICS DISPLAYED ON SCREEN

You can view most of the Intellispec production statistics in the upper left portion of the screen. For a description of what is displayed on each of these tabs, see more ***about the statistics area*** (on page 16).

Customizing the Statistics Tabs

The names of the following tabs may be customized by the **Administrator**.

To customize the Sidel Overview or Lane n Overview tab:

1) Log in.
2) Click the  button.
3) Click the Channel Groups tab.
4) Select a channel group.
5) Type a new channel group name. The name is displayed on the Lane Overview tab.

To customize the Camera Name tab:

1) Log in.
2) Click the  button.
3) Click the Channel Groups tab.
4) Select a channel group.
5) Under the Switch to Channel section, select a channel.
6) Under the Switch to Camera section, select a camera.
7) Type a new camera name and click OK. The name is displayed on the selected camera's statistics tab.

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To customize the Machine Part (Correlation) tabs:

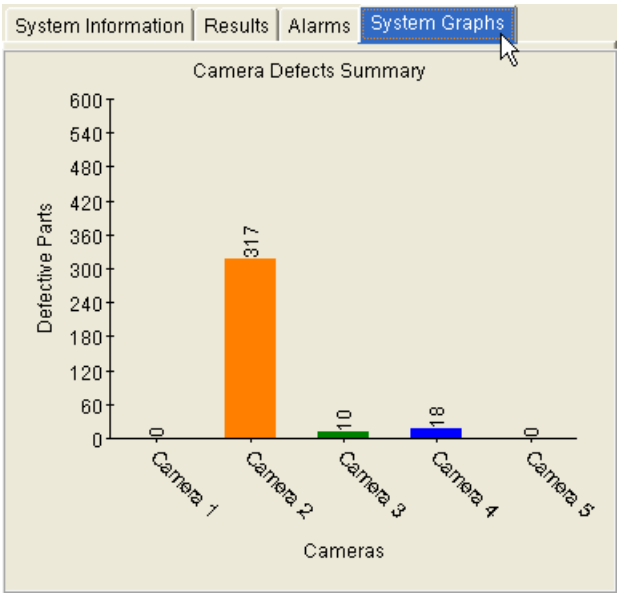
1) Log in.
2) Click the  button.
3) Click the Correlation tab.
4) Make sure the Track Machine Parts box is checked.
5) Type new machine part names. The names are displayed on the machine part statistics tabs.

JOB STATISTICS

This consists of the number of parts inspected, parts rejected, percent rejected, and the number of rejects or warnings that occurred with each inspection. A report is generated for each channel, either on demand or at scheduled intervals.

Viewing Job Statistics on Screen

The Camera Defects Summary graph displays the number of defects for all cameras. There is a vertical color-coded bar for each of the cameras. This can be displayed whether the system is offline or online.



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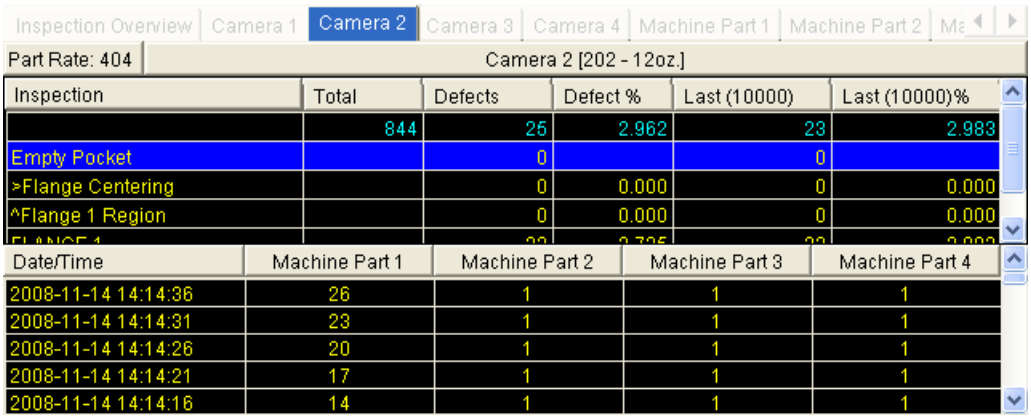
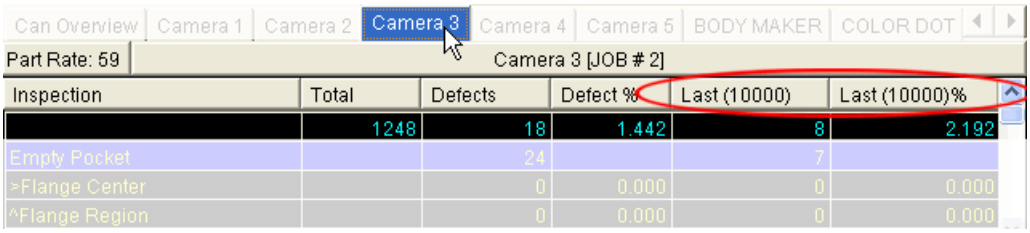
The Statistics area displays detailed job information in a table. This table displays the part rate, job name, total number of inspected parts for each camera, number of defective parts, percentage of defective parts, and Last *n* defects. The results for each inspection of the active job are also displayed.



Last N Defect Count



View the most recent production data under the Lane Overview, Channel Statistics, or Groups tabs. Last N Defect displays the number and percentage of defective parts within the last N parts. This feature allows you to continue to collect inspection data (Total inspected, total defects, and defect %) without clearing the statistics to see how the most recent batch of parts has done.

N is defined by the Administrator – it can be set between 100 and 100,000. It is a sliding window, like a ring buffer, where the oldest information is pushed out when new information is gathered.

Warning

When you change this number, the Last N defects count is reset.

Grouping Inspections

This feature allows you to assemble inspection data into groups. You may define up to 16 groups. Also see information about the ***groups statistics file*** (on page 60).

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A Groups tab in the statistics area will display inspection results by group instead of by inspection. Scroll all the way to the right to see the Groups tab.

System Overview | Inspection Overview | NECK - Cam 1 | FLANGE - Cam2 | MAIN - Cam 3 | BMID | Groups

Groups	Defects	Defects %	Last (10000)	Last (10000)%
FLANGE (Cam 3)	0	0.000	0	0.000
FLANGE 2 (Cam 2)	0	0.000	0	0.000
NECK	0	0.000	0	0.000
HIGH SIDEWALL	0	0.000	0	0.000
MID SIDEWALL	0	0.000	0	0.000
LOWER SIDEWALL	0	0.000	0	0.000
BOTTOM	0	0.000	0	0.000

Typically, the inspections in a group should cover a particular region of the part. This allows you to monitor specific regions and it can help you isolate changes in your process.

Note the following about grouping:

- Each group must be assigned inspections from one camera. No mixing inspections from camera 1, camera 2, etc.
- Inspections must be programmed before you enter group setup
- If using Part Graphic, groups are already assigned to part areas

How to Clear Statistics

You can clear the Intellispec screen statistics for one channel group or all channels, whether the system is online or offline. This clears the number of parts inspected, defects, percent defects, etc.

If scheduled print is enabled, the current statistics are printed to the default printer before they are reset.

To clear all inspection and correlation statistics:

1) Log in  .
2) Click System Overview* tab.
3) Right-click the tab.
4) Select Clear All Channel Statistics. All inspection and correlation statistics are cleared.

*Your system may not have a System Overview tab if there is just one channel or one lane. In that case, clear statistics as described below.

To clear a channel group's statistics:

1) Log in  .
2) Click a camera's statistics (or the Lane n statistics) tab.
3) Right-click the tab.
4) Select Clear Statistics (or Clear All Channel Statistics). All cameras that are part of the same channel group will have their statistics cleared as well.

❖ *Note: clearing a channel group's statistics does not clear correlation statistics.*

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The system updates screen statistics every few seconds, so you might have to wait to see the results on the screen.

CORRELATION DATA

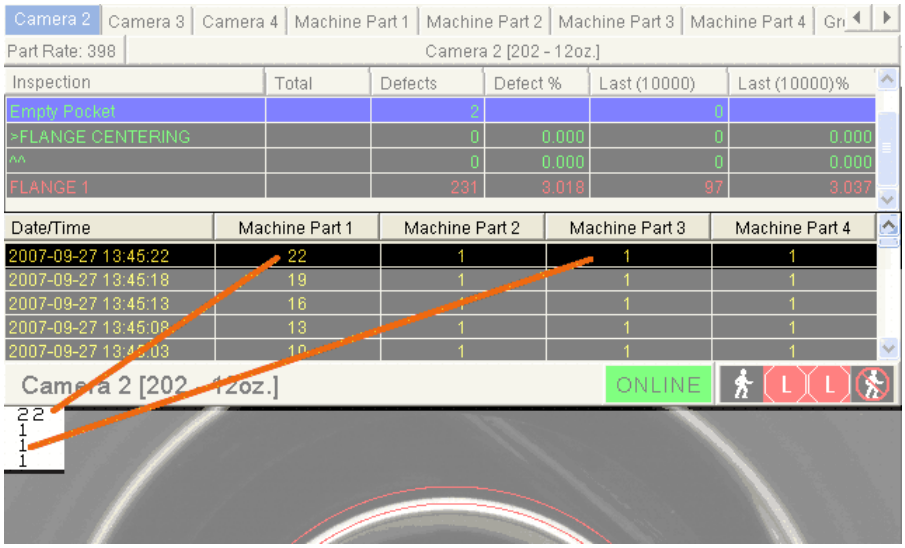
Correlation data associates defects to certain machine parts. This data can be generated by the Intellispec only if you have the correlation option installed.

> ❖ *Note: Correlation is configured through the System Configuration menus.*

Correlation – Images with Machine Part Numbers

This feature is available for systems that have the correlation option. When the system goes online, it will automatically mark all images with the machine part numbers to which that part was associated. The Administrator must enable correlation, the proper hardware must be attached, and the system must be calibrated (part tracking) to mark the images.

Images can be reviewed, saved (use F6 – Image Manager, for example), and analyzed for process monitoring. An example of these marked images is shown below.



Viewing Correlation Statistics on Screen

There are several correlation graphs and tables available to view correlation statistics.

How to Display a Correlation Graph

To display a correlation graph:

1) In the upper right of the screen, click the System Graphs tab.
2) Right-click the System Graphs tab, and select the desired correlation graph. The correlation graph is displayed.

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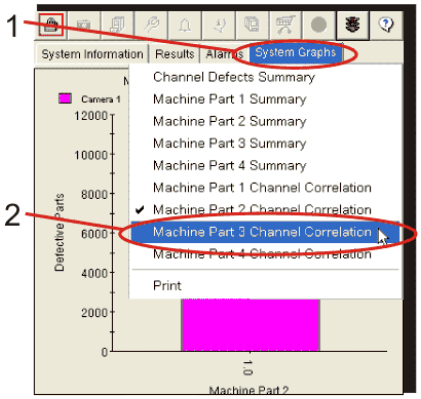
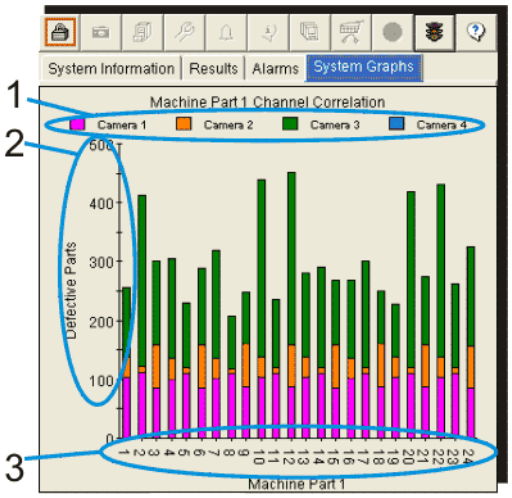


About the Correlation Graph

The Correlation graph is easy to read. Refer to the following illustration and explanation below:



1	The graph is color-coded by Camera name. The number of defects for each machine part is represented in each bar.
2	The height of the bars shows the number of defective parts correlated to each machine part.
3	The graph can display up to 24 machine parts. To scroll to lower or higher numbers, left-click or right-click over the graph.

SCROLLING THROUGH CORRELATION GRAPHS

Up to 24 machine parts can be displayed on one graph. Sometimes it is necessary to scroll through the graphs.

- To scroll to the higher number machine parts, right-click over the correlation graph
- To scroll to the lower number machine parts, left-click over the correlation graph

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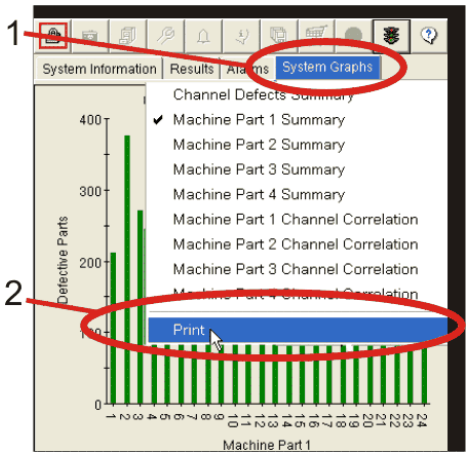
HOW TO PRINT A CORRELATION GRAPH

If your Intellispec has a printer connected with the appropriate drivers, you can print the currently displayed graph. You may print these graphs whether the system is offline or online.

To print a Correlation graph:

1) Click the System Graphs tab.
2) Right-click the System Graphs tab, and select Print. The graph is printed to the default connected printer.



About the Correlation Tables

You can view correlation data in the statistics area of the screen, while the system is offline or online.

Click the desired tab in the statistics area. Choose from Lane *n* Overview, or Machine Part *n* for correlation data. These are described next. The names of these tabs may be ***customized*** (see "Customizing the Statistics Tabs" on page 63) on your system.

Lane *n* Overview

The lower part of the table lists the correlation data for all cameras within the channel group (most recent first). There is an X in the column for the camera that failed.

System Overview | Lane 1 Overview | Camera 1 | Camera 2 | Camera 3 | Camera 4 | Machine Part 1

Part Rate: 401	Total	Defect	Defect %	Last (10000)	Last (10000)%
Camera 1	1812	141	7.781	141	7.781
Camera 2	1813	54	2.978	54	2.978
Camera 3	1813	227	12.521	227	12.521
Camera 4 <No Job Assigned>	0	0	0.000	0	0.000
Totals	1825	413	22.630		

Date/Time	Machine Part 1	Machine Part 2	Machine Part 3	Machine Part 4	C1	C2	C3	C4
2007-09-27 13:28:52	16	1	1	1	O	X	O	O
2007-09-27 13:28:51	12	1	1	1	X	O	X	O
2007-09-27 13:28:51	11	1	1	1	X	O	X	O
2007-09-27 13:28:50	8	1	1	1	X	O	O	O
2007-09-27 13:28:50	3	1	1	1	O	O	X	O

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Machine Part #n Summary

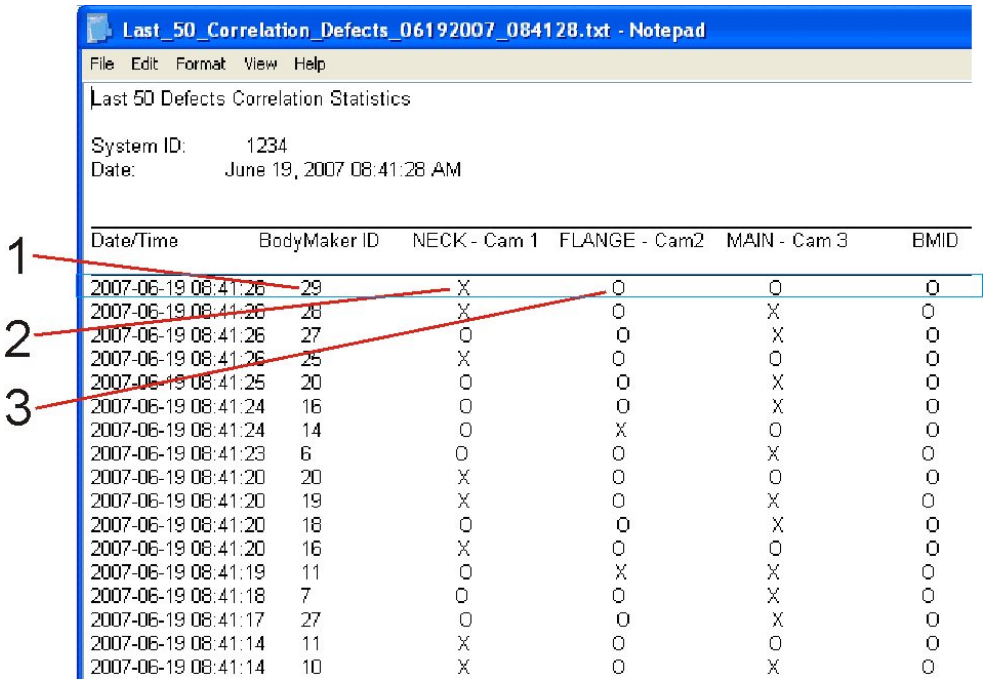
This table shows how many defects were correlated to the machine part. Parts are listed by Part ID, and the table shows whether a defect was detected in any of the cameras, correlated to this machine part. This is useful for determining failure trends on specific components, especially if one machine part in particular generated a large number of defects.

Camera 2 | Camera 3 | Camera 4 | **Machine Part 1** | Machine Part 2 | Machine Part 3 | Machine Part 4 | Gr

Machine Part	Camera 1 De...	Camera 2 De...	Camera 3 Def...	Camera 4 Defects	Total Defects
Machine Part 1 (20)	3	0	22	0	23
Machine Part 1 (21)	0	0	0	0	0
Machine Part 1 (22)	7	4	11	0	17
Machine Part 1 (23)	3	0	11	0	13
Machine Part 1 (24)	0	0	11	0	11
Machine Part 1 (25)	7	4	0	0	11
Machine Part 1 (26)	4	0	0	0	4
Machine Part 1 (27)	0	0	0	0	0
Machine Part 1 (28)	6	4	0	0	10
Machine Part 1 (29)	3	0	0	0	3
Machine Part 1 (30)	0	0	21	0	21

About the Last 50 Correlation Defects

This text file is created when you print statistics to **file (see "**About Statistics Printed to File**" on page 52).**



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1	The list shows the most recent defective parts, in descending order. The example shows the most recent defective part was correlated to Body Maker 29.
2	An "X" indicates that the camera found a defect. If there is more than one "X", then multiple cameras found defects on that part.
3	An "O" indicates that the camera did not find a defect.

INSPECTION GRAPHS

Online graphs

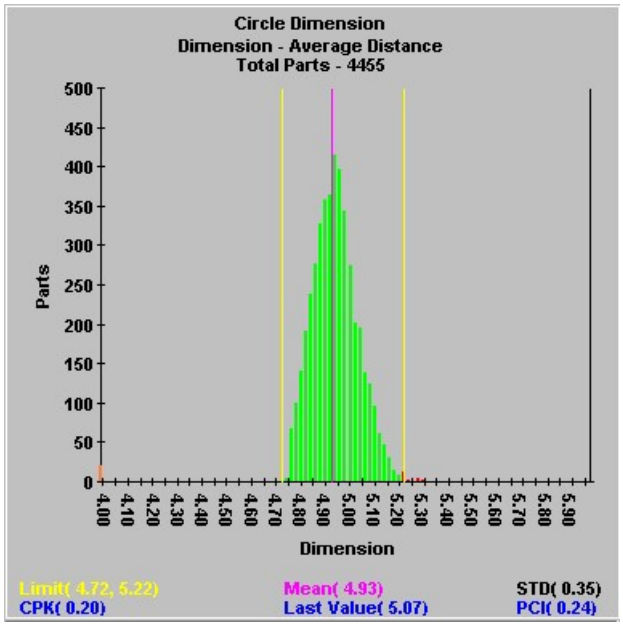
 These are the inspection graphs available when the system is online. They remain on screen when the system is offline, but the graphs will not update while offline. The inspection graphs can help you adjust the performance of an inspection. For example, they can help you set the minimum and maximum ambient allowed for a specific inspection. These graphs also show statistical information about how well the process is performing.

To select a graph:

1) Right-click the inspection name in the Statistics area
2) Click Inspection Graphs*.
3) Select the desired graph. The graphs available for each inspection depend on which portions of the inspection are enabled. For example, various Edge graphs are only available if an inspection has edge detection capabilities, and Edge Inspection is enabled.

*If the inspection is a Retro-Spec inspection, it displays all graphs within the Retro-Spec interface.

More information about graphs. (see "Information Displayed on Inspection Graphs" on page 72)



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Offline graphs

 These are inspection graphs available when you are editing, setting up, or testing an inspection. You can adjust parameter limits while viewing the test data on the graph.

To view an Offline graph while editing an inspection, click one of the  buttons.

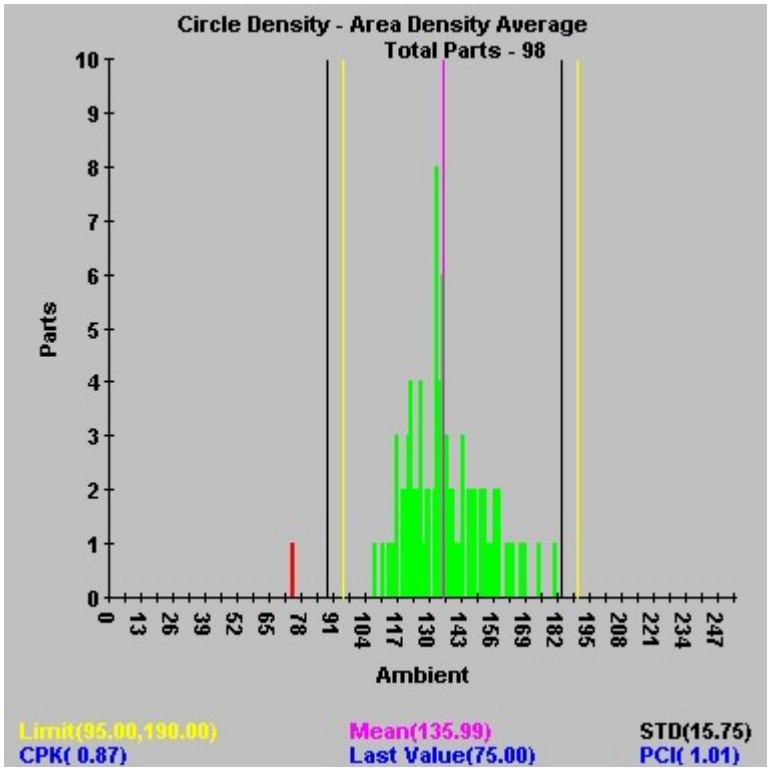
To view another Offline graph:

1) Double-click the inspection name in the statistics area.
2) Right-click the Offline Graphs tab.
3) Select an available graph.

Offline graphs are only updated when you re-test inspection during inspection editing. When you exit from editing an inspection, offline graphs are removed from screen.

Information Displayed on Inspection Graphs

The inspection graphs have much data displayed. This data is color-coded to help you identify the features of each graph. Below is a sample graph followed by a description of the available graph features. Note that not all of these features will be enabled for every inspection graph.



Total Parts

This number shows how many parts' data have been added to the graph.

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Y-axis

The Y scale of the graph – typically the number of parts inspected.

X-axis

The X scale of the graph – This is specific to the type of inspection result being plotted. In the example graph shown above, it represents the gray scale value of the ambient found for each inspected part.

Passed part data (Green)

Values that are within the yellow limits (reject specifications) of the inspection.

Failed part data (Red)

Values that fall outside of the yellow limits (reject specifications) of the inspection.

Underflow and Overflow data (Orange)

Values that do not fit within the x-axis scale of values are shown at either end of the graph. Underflow data is displayed on the left, and Overflow data is displayed on the right of the graph. (Not shown in above example)

Information data (Blue)

In some types of inspection graphs, we do not have any limits (reject specifications). For these types of graphs, the information is displayed in blue. (Not shown in above example)

Limits (Yellow)

These are the reject specifications for an inspection. The limit values are displayed in yellow at the bottom of the graph, and as bars on the graph itself.

Mean (Magenta)

This is the average of all the inspection graph values that have been plotted. This value is shown in magenta at the bottom of the graph, and as a vector in the graph (if the value is within the range of the graph).

Standard Deviation (Black)

This is computed from the set of inspection graph values that have been plotted. This value is shown in black at the bottom of the graph. The black bars in the graph represent three sigma – three times the standard deviation – on either side of the mean.

Last Value (Blue)

This is the last value that was added to the graph, from the last part inspected. This number is useful while programming a job offline, to see how the most recent changes to job parameters have affected the graph. The value is shown at the bottom of the graph in blue, but not represented as a vector within the graph.

CPK (Blue)

This is a statistical value computed from the inspection data values, displayed at the bottom of the graph. This value shows how well-centered the data population is within the reject specification.

The CPK value is a ratio. Generally, the higher the CPK, the better the product or process. Values below one indicate that variations in the process are too great to consistently produce acceptable products.

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❖ *Note: If you originally set up the reject limits to be centered on the data population, this value can show when a process is moving out of tolerance before it actually exceeds a specification limit.*

PCI (Blue)

This is a statistical process value computed from the inspection data values, displayed at the bottom of the graph. This shows you how well the data population falls within the reject specification.

The PCI value is a ratio. Generally, the higher the PCI, the better the product or process. Values below one indicate that variations in the process are too great to consistently produce acceptable products.

How to Clear an Inspection Graph

To clear data from an inspection graph:

1) Select, then right-click the Online Graphs or Offline Graphs tab.
2) Select Clear. The graph data is reset to zero parts.

How to Re-scale an Inspection Graph

You can re-scale some graphs to zoom in on data.

❖ *Note: The graph is reset to zero parts when you re-scale it.*

To re-scale a graph:

1) Select, then right-click the Online Graphs or Offline Graphs tab.
2) Click Rescale to zoom in.

❖ *Note: You may not see a graph change if it is at the highest zoom level.*

How to Print an Inspection Graph

If your Intellispec has a printer connected with the appropriate drivers, you can print the currently displayed graph. You can print these graphs whether the system is offline or online.

To print a graph:

1) ***Display the desired graph*** (see "Inspection Graphs" on page 71).
2) Right-click the Online Graphs or Offline Graphs tab.

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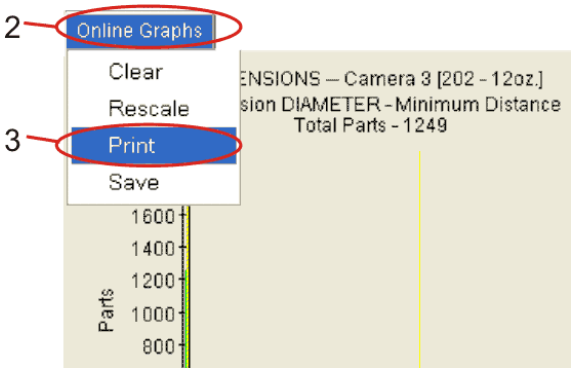
3) Click Print.



How to Save Inspection Graph Data

You may save the inspection graph data as a text (.txt) file. From this file, you can generate your own graphs in an application such as Microsoft Excel. The files are tab delimited.

To save the data:

1) Click the Online Graphs or Offline Graphs tab.
2) Right-click the tab, and select Save.
3) Name the file. The data is saved as a text file. The default folder is C:\Intellispec\Reports.
    - To save to floppy diskette, scroll up to the A: drive. Insert diskette and name the file.

Save All

With ***Offline Graphs*** (see "Inspection Graphs" on page 71), you have the option to Save All graphs' data. This saves the data from all available inspection graphs associated with the inspection you are currently editing.

EVENT REPORTS

Online / Offline History Report

USER LEVEL: MECHANIC AND ADMINISTRATOR

The Database Detective (Wombat) tool allows you to view or print a simple report that lists when the Intellispec went online, when it was taken offline, and when inspections were added, disabled, or deleted. It also lists which user was logged into the system when the event occurred. This information is displayed in reverse order, with the most recent information first.

To create the Online/ Offline History Report:

1) Take the system offline  .
2) Click the  button.
3) Click the Database Utilities tab.
4) Click the Database Detective button.

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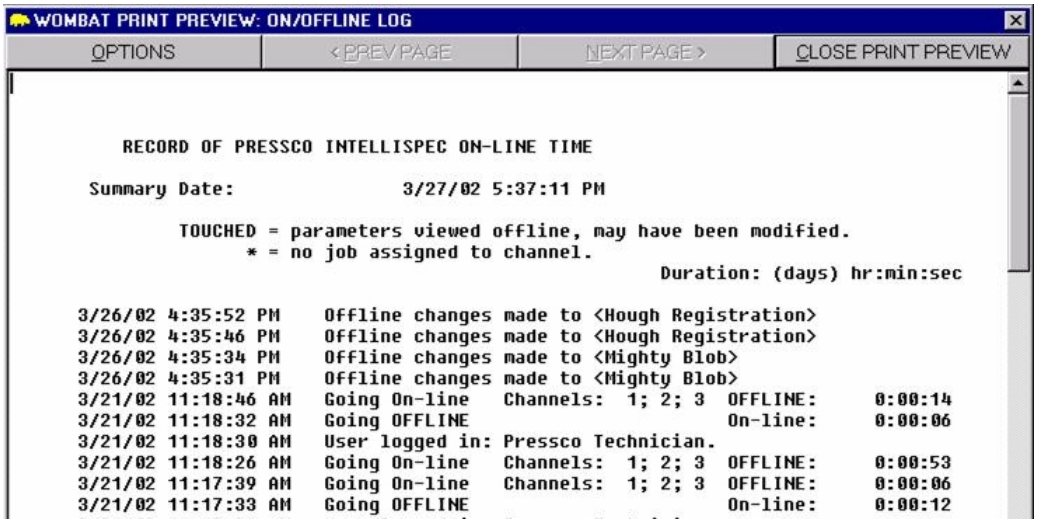
5) Press Ctrl+H. The report is displayed on screen.

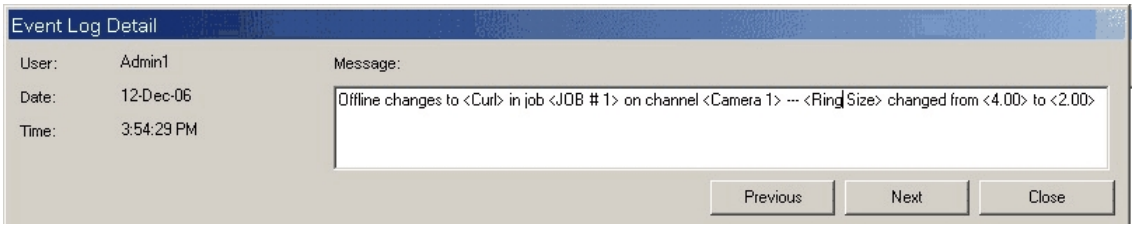


Event Logs

There are four types of logs that are automatically recorded and saved to the Intellispec hard drive:

- The **Alarm** log records all alarms that were triggered or reached warning status. It also records when alarms were cleared and by whom.
- The **Change** log records all changes to the system including configuration, lighting, camera, and parameter changes. It records when these changes were made and by whom.
- The **System** log records when users logged in and out, and when the system was put online or offline.
- The **Lighting** log is a placeholder for future functionality.

To see details about any event, click the line in the event viewer.



Viewing Log Files

USER LEVEL: ADMINISTRATOR

To view the log files:

1) Log in.
2) Click the  button.
3) Click the System tab.
4) Click the View log files button.

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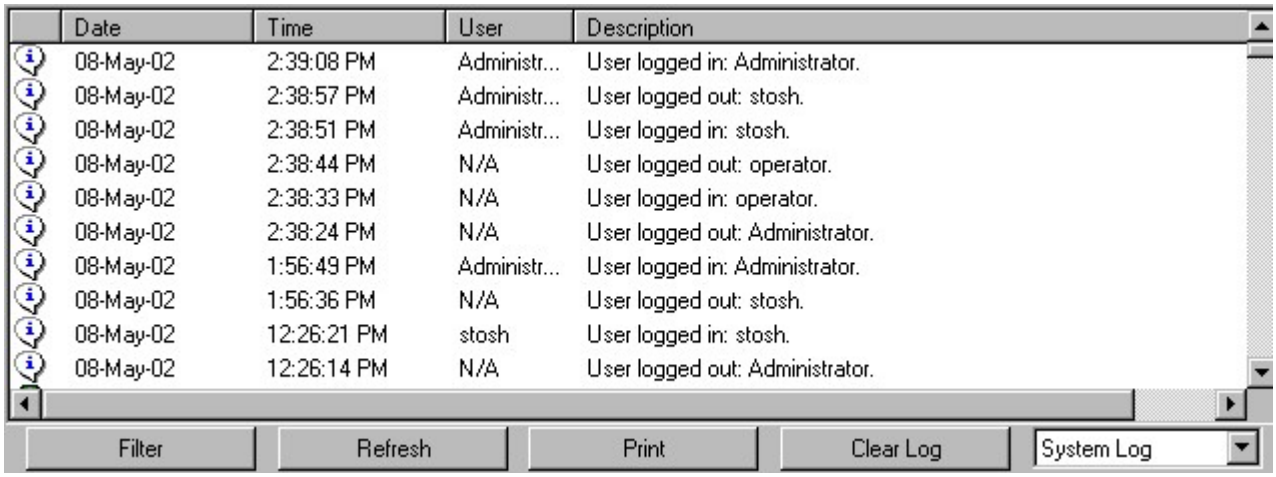
5) Choose between Alarm, Change, System, or Lighting logs in the lower right corner.



Click Date, Time, User, or Description at the top of the log screen to sort the data from the lowest to the highest or highest to lowest (click again to toggle).

To exit from the log files:

Click the X in the upper right corner of the event viewer.

DATABASES

There are three optional databases generated by Intellispec:

- ***Defective Parts*** (see "Defective Parts Database" on page 78) database
- ***Machine Logging*** (see "Machine Status Logging" on page 79) database
- ***Dimension inspections*** (see "Dimension Database" on page 79) database

They are saved as Microsoft Access databases, and must be enabled to collect data.

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Defective Parts Database

USER LEVEL: ADMINISTRATOR

This is a Microsoft Access database that can be generated by the system, if enabled. The database saves the information for each defective part as it occurs when the system is online. A sample of the database is shown below:

ReasonInspectionFailed : Table

ID	InspectionID	FailureReason	IndicatorValue
1	1	Edge Count	145
2	2	Edge Count	69
3	3	Edge Count	63
4	4	Edge Count	24
5	5	Edge Count	142
6	5	Absolute Gradient	113
7	6	Edge Count	71
8	6	Absolute Gradient	113
9	7	Edge Count	99
10	8	Edge Count	34

Part : Table

ID	JobNum	JobName	ChannelN	ChannelName	TotalParts	ISPECPartID	Cavity	Spindle	InfeedTA	OutfeedTA	DateTime
316	5	Base Inspectior	0	Base	301	1692	9	98	4	5	2/3/2004 9:13:34 AM
317	6	Neck inspection	1	Neck	829	1692	9	98	4	5	2/3/2004 9:13:34 AM
318	7	Seal Defects 7	2	Seal	4384	1692	9	98	4	5	2/3/2004 9:13:34 AM
umber)	0		0		0	0	0	0	0	0	

To enable the Defective Parts Database:

1) Log in.
2) Click the  button.
3) Click the Reports tab.
4) Check the Defective Parts Logging box.
5) Save changes and exit the menu.

Copying Defective Parts Database to your PC

Defective Parts Database is saved as c:**Intellispec\Data\DefectiveParts.mdb**. Since this file can get larger than what will fit on a floppy disk, we recommend that you ***burn it to CD*** (see "Burning a CD" on page 89), or ***copy it to USB device*** (see "Copying Files to USB Device" on page 90) to transport to your PC.

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Machine Status Logging

This is similar to the Online/ Offline status report that you can obtain through the Database Detective, except this one is automatically generated and updated (if the feature is ***enabled).*** (see "How to Set up Reports" on page 51)

MachineStatus : Table

ID	DateTime	Status	User
1	003 3:00:01 PM	Green Off	--- No user logged in ---
2	003 3:00:11 PM	Red Off	--- No user logged in ---
3	003 3:00:11 PM	Yellow Off	--- No user logged in ---
4	003 3:55:10 PM	Online	Admin1
5	003 3:55:11 PM	Green On	--- No user logged in ---
6	003 3:55:11 PM	Red On	--- No user logged in ---
7	003 3:55:15 PM	Offline	--- No user logged in ---
8	003 3:55:15 PM	Green Off	--- No user logged in ---
9	04 11:10:45 AM	Green Off	No User Logged In
10	04 11:10:58 AM	Red Off	No User Logged In

This report shows what would be happening if there was a light tree present. Green Off indicates that the green light would have been shut off at the recorded time, or the Red Off, or Yellow Off, etc.

Copying Machine Status Logging Database to your PC

The Machine Status log is saved as C:\Intellispec\Data**MachineStatusDB.mdb**. You can ***burn it to CD*** (see "Burning a CD" on page 89), or ***copy it to a USB device*** (see "Copying Files to USB Device" on page 90) to transport to your PC.

Dimension Database

The Dimension inspections offer a database that logs dimension information. This feature is useful for Process Monitoring so that you can view the average dimension measurements of a part over time.

The inspections that create the Dimension database are:

- Circle Dimension inspection
- Circle Width Dimension inspection
- Dimension inspection
- Fill Height inspection
- Label Skew Dimension inspection

Copying the Dimension Database to your PC

The Dimension database is saved as C:\Intellispec\Data**Dimension.mdb**. You can ***burn it to CD*** (see "Burning a CD" on page 89), or ***copy it to a USB device*** (see "Copying Files to USB Device" on page 90) to transport to your PC.

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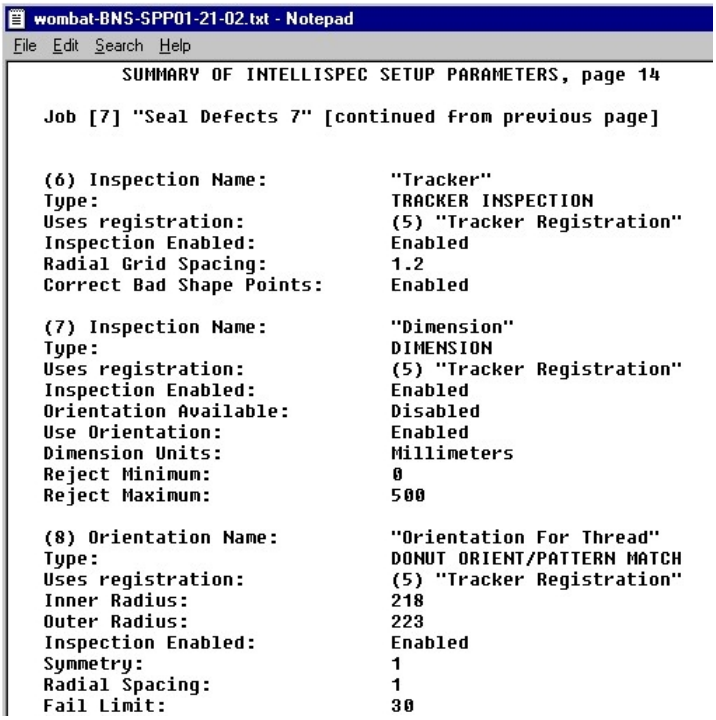
SYSTEM SETUP PARAMETERS

The Database Detective tool can generate a list of the inspections and parameters for a database – some system configuration settings, and the inspection parameters for one job on each camera. To create a report of system setup parameters, create a ***Process Sheet*** (see "Make a Process Sheet" on page 98).

Displayed below is an example file:



wombat-BNS-SPP01-21-02.txt - Notepad

File Edit Search Help

```
        SUMMARY OF INTELLISPEC SETUP PARAMETERS, page 14

Job [7] "Seal Defects 7" [continued from previous page]


(6) Inspection Name:          "Tracker"
Type:                         TRACKER INSPECTION
Uses registration:            (5) "Tracker Registration"
Inspection Enabled:           Enabled
Radial Grid Spacing:          1.2
Correct Bad Shape Points:     Enabled

(7) Inspection Name:          "Dimension"
Type:                         DIMENSION
Uses registration:            (5) "Tracker Registration"
Inspection Enabled:           Enabled
Orientation Available:        Disabled
Use Orientation:              Enabled
Dimension Units:              Millimeters
Reject Minimum:               0
Reject Maximum:               500

(8) Orientation Name:         "Orientation For Thread"
Type:                         DONUT ORIENT/PATTERN MATCH
Uses registration:            (5) "Tracker Registration"
Inner Radius:                 218
Outer Radius:                 223
Inspection Enabled:           Enabled
Symmetry:                     1
Radial Spacing:               1
Fail Limit:                   30
```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Chapter 6

SOFTWARE UTILITIES

This section includes some of the most commonly used utilities found in Intellispec. These utilities help to simplify system setup, transfer data and images to another PC, and help with troubleshooting.

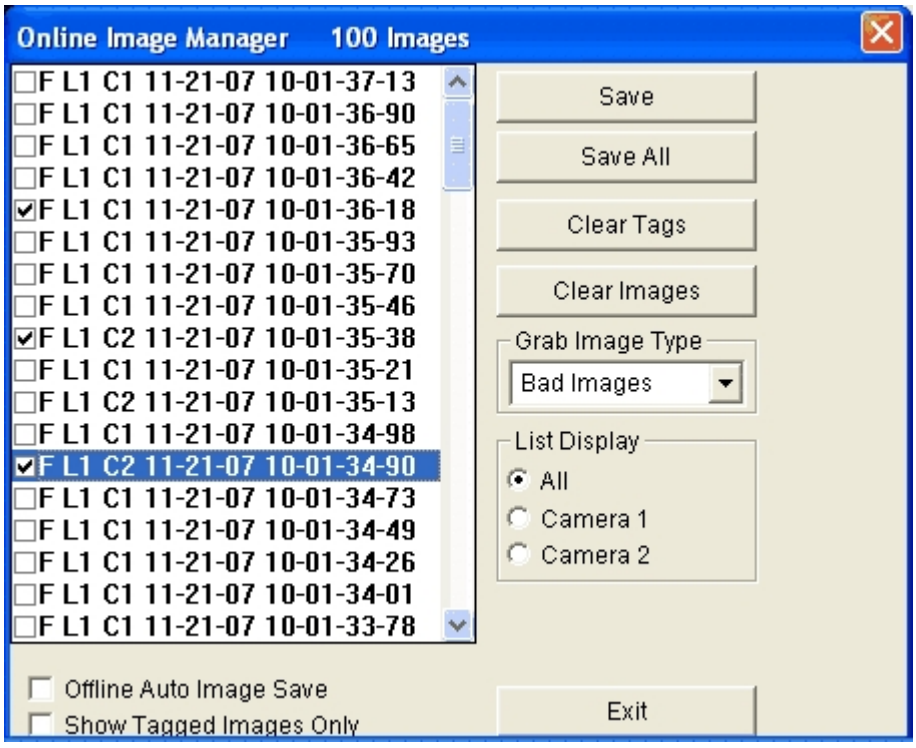
ONLINE IMAGE MANAGER

USER LEVEL: OPERATOR AND HIGHER

❖ *Note: Also called **Defective Image Manager** when you right-click image.*

This feature provides an easy way to review and save images of defective and/ or good parts. The system automatically stores the last 100 images in memory while the system is online. The memory operates in ring buffer configuration. That is, the oldest image will be overwritten after 100 images have been stored. The system continuously updates the images (online).

Press F6 to bring up the Online Image Manager. If the system is online, the system stops writing defective images to memory as soon as you press F6. Inspection continues in the background. The screen is shown below.



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This screen lists the names of up to the last 100 images from most recent (top of list) to oldest (bottom of list). The images are named as follows:

P (pass) or **F** (fail) **Lane** *n* **Channel** *n* **Date Time** (including hundredths of seconds)

Capturing Images

Select whether to collect defective images, good images, or both. The system must be put online to collect images.

Reviewing Images

- Highlight any file name to view it in the image area of the screen
- Right-click a highlighted file name to see the job run on the image
- Use the Page Up/ Page Down keys to scroll through the list, or use the scroll bars with the trackball

Filtering Images

Select which images (select by channel) to review, save, or tag under the **List Display** options.

- Select All to show all files in memory
- Select Channel *n* (your label may be different) to display or review only the images from Channel *n*

Tagging Images

Review and select certain images from the list by checking the box next to each desired image. This allows you to filter the images by choosing only the ones you want.

If you tag some images, then exit the Online Image Manager to collect more images, the tagged images will not be overwritten. The system keeps those tagged images in the buffer until you clear their tags. That is, if you have tagged three images, the system has room to write up to 97 more defective images to the buffer.

Show Tagged Images Only

(at bottom of window) If you have several tagged images, you may display the list showing only those images.

Clear Tags button

Click this button to un-check all the boxes from the entire image list (all channels).

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Saving Images

When you click the Save button, the system will save images as .bmp (bitmap format) to the C:\Intellispec\DefectiveImages folder.

If you save images to that folder, then save images again later, and there are any images with the same name (that is, you try to save the same image again), the image will be overwritten.

Offline Auto Image Save

(at bottom of window) Check this box to automatically save all images in the buffer when the system goes offline. It saves both images and images with graphics (up to 200 images total).

Quickly Save All Images

Press “S” to quickly save all images currently in memory to disk. This saves the last (up to) 100 images in grayscale format to the C:\Intellispec\DefectiveImages folder. You do not need to enter the Online Image Manager to save in this manner.

This saves images based on your Grab Image Type setting. For example, if set to Good Images, only the good images are saved to disk.

This is useful if you want an operator on the floor to periodically save images for you to sample. You can copy them to diskette or CD later to view and use them.

Quickly Save All Images plus Images with Graphics

Press “Alt” + “S” to save all images currently in memory to disk. This saves both the grayscale images (filename.bmp), plus each image with graphics (filename_c.bmp) to the C:\Intellispec\DefectiveImages folder. This equals a total of up to 200 images saved. You do not need to enter the Image Manager to save in this manner.

Save Selected Images

The following options are available when you bring up the Online Image Manager (F6).

Save button

Saves only the image you have highlighted.

Save All

Saves all images in the list.

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- If you select All from the List Display options (if your system has more than one channel), all images in the buffer are saved.
- If you have one channel selected in List Display options, all images from only that channel are saved.

Caution

Each bitmap image is 302KB. If you Save All images often, this can quickly add up to several Megabytes, taking up valuable hard disk space.

Save Tagged

This button is available when you have tagged images and check the Show Tagged Images Only box.

- If you select All from the List Display options, all tagged images from all channels are saved.
- If you select one channel in the List Display options, only tagged images from the selected channel are saved.

Save Selected Images with Graphics

To save selected images with graphics:

1) Press F6 to bring up the Online Image Manager.
2) Highlight the name of an image.
3) Right-click on that image name. The current job for that channel will run on that image, and you will see the graphics on screen. Note that the Results tab also displays the job results with each inspection's pass/fail status, as well as the reason each inspection failed.
4) Click the Save button. The image on the screen is saved, in both grayscale and grayscale with graphics formats.

Using Images

The Online Image Manager allows you to quickly review images so that you can see what types of defects the Intellispec is catching. You can then take appropriate action to prevent further defects from occurring.

After you have saved images, you might want to use them for examples in setting up future jobs. To use the images, create a ***SmartCAL*** (see "About SmartCAL" on page 86) file. This file is a list of images that the system can load so that you do not need parts running through the system. Remember to use the CH *n* number in the image file names to assign images to each different channel in the SmartCAL file.

❖ *Note: We recommend that you copy or move the desired images into different folders before creating the SmartCAL file. This is because the DefectiveImages folder is the first place from which images would get deleted, as they begin to take up valuable disk space.*

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SAVING IMAGES OFFLINE

You can save images that the cameras snap offline, to use in programming jobs.

Saving Single Images

USER LEVEL: MECHANIC AND ADMINISTRATOR

Images can be saved one at a time while the system is offline.

To save an image:

1) Log in.
2) Right-click on the image.
3) Select Image >> Save.
4) Select the type of image from the choices listed below. The currently displayed image will be saved.
    - **Grayscale** - Saves only the grayscale part image, with no graphics.
    - **Graphics** - Saves only the graphics generated by the system – the inspection regions, orientations, or registrations.
    - **Combined** - This is the grayscale part image with the graphics – inspection regions, orientations, or registrations. The Combined image is saved with a "_c" after its file name.
    - **Both** - Saves the grayscale part image, and the part image combined with its graphics to two separate files. The Combined image is saved with a "_c" after its file name.
5) Scroll to the desired folder and type a file name.
6) Click Save. The images are saved as Windows® bitmap ".bmp" files.

Using Autosave

USER LEVEL: MECHANIC AND ADMINISTRATOR

You can save a set of images while the system is offline and while your production line is running.

To save images (one channel at a time):

1) Log in.
2) Select a channel.
3) Right-click on the image.
4) Select Image >> Autosave.
    - Note that most images are saved under the C:\Intellispec\Data folder.
    - If you want to create a folder for each channel, click the [...] button. Then click the [Create New Folder] button. Name the new folder (example, Camera 1), press Enter, and then double-click the Camera 1 folder to open it. Click Select. Make sure your folder name is displayed in the Autosave box.
5) Name the image(s) in the File Name box. The system will add a number extension to the name to create several image names (example, image001, image002, etc.).
6) Select the number of images to save.

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7) Click Start. The system saves the number of images you have specified to the directory that you specified, in bitmap (.bmp) format. It will display “Done” on the Autosave screen when finished.
    - If you intend to create a ***SmartCAL*** (see "About SmartCAL" on page 86) (.pvl) file, save images for the remaining channels.
    - If you created a new folder for one channel, browse to the \Data folder and create another new folder for each remaining channel as described in step 4.

Restoring Images

USER LEVEL: MECHANIC AND ADMINISTRATOR

This option allows you to display one or more images that were previously saved to disk.

To restore a previously saved image:

1) Log in.
2) Select the desired channel.
3) Right-click the image.
4) Select Image >>Restore.
5) Browse for the desired image or SmartCAL (.pvl) file.
6) Click Open. The image will be displayed on the current channel.

❖ *Note: If you restore a .bmp image, that image will remain on screen until you go online, or restore another image. If you want the system to scroll through multiple images, use a* **SmartCAL** *(see "About SmartCAL" on page 86) file.*

ABOUT SMARTCAL

A SmartCAL (.pvl) file is a special Intellispec text file that contains a list of bitmap (.bmp) images for up to eight cameras. To create the SmartCAL file, you must have saved bitmap images on the Intellispec hard drive. These images can then be used on an Intellispec or Intellitrainer, or saved for any other use. When a SmartCAL file is loaded, the Intellispec scrolls through the list of images each time a job is run, or the  button is clicked.

Creating a SmartCAL File

USER LEVEL: MECHANIC AND ADMINISTRATOR

To create a SmartCAL file:

1) Log in.
2) Click the  button.
3) Click the Database Utilities tab.
4) Click the Database Detective button.
5) Click the Other tab.
6) Select SmartCAL.
7) Click Next.
8) In the Stored Image Operations screen, enter a name for your SmartCAL file.

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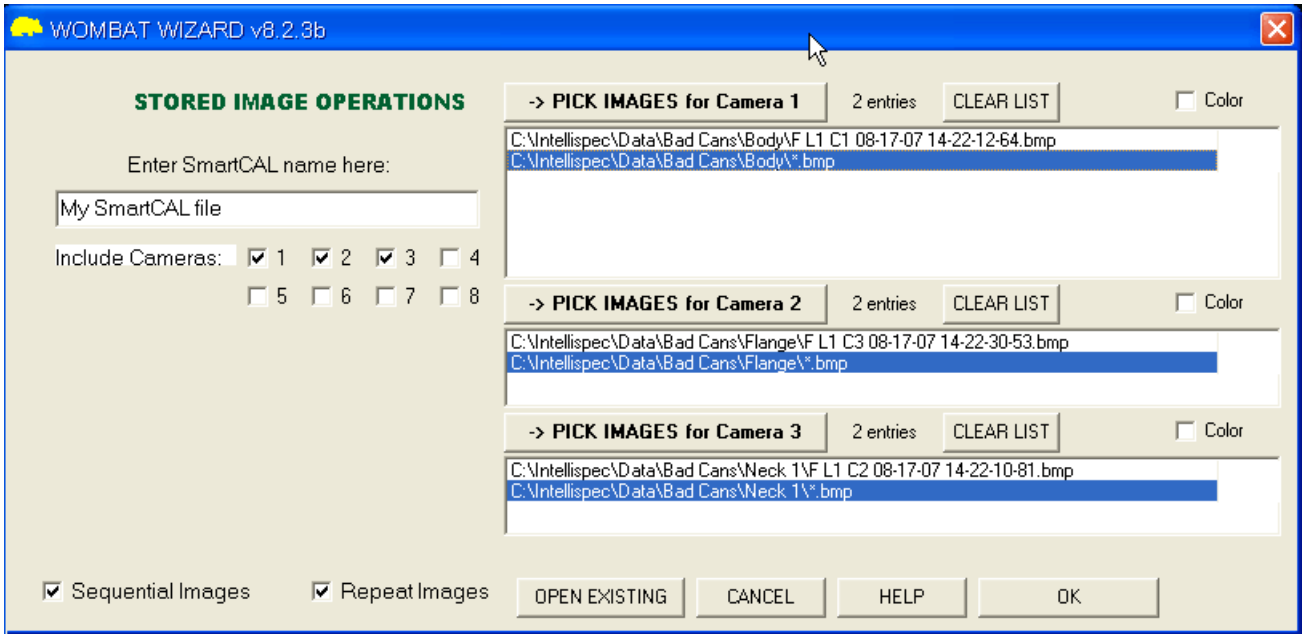
9) Pick Images (see options below).
10) Click OK.
11) When asked if you want to create this PVL file, click Yes. Your SmartCAL file will be written to the Data folder.
12) Click OK.
13) Exit from the Database Detective and Database Tools screens.

Stored Image Operations screen



Include Cameras

Select all the cameras for which you want to have images loaded through one SmartCAL file.

Pick Images

You may choose several image files for each camera, regardless of the folders where they are stored, and the SmartCAL file will reference all your selected images.

Click the appropriate Pick Images button for each camera. Browse to the folder(s) where the images are stored, and select the desired files.

- If you used ***Online Image Manager*** (on page 81) to save images, be sure to select images marked C1 for camera 1, C2 for camera 2, etc.
- Click the Clear List button if you want to remove all the files from the camera's list.

Color

This is only used in special applications where a color camera is used. Check the Color box to display color images for that camera. Otherwise the images will be displayed in grayscale.

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Sequential Images

When a SmartCAL file is loaded, Sequential Images displays the images in the order that they appear in the image list. If this box is un-checked, images are displayed in random order.

Repeat Images

When a SmartCAL file is loaded, Repeat Images allows the images to be displayed more than once. For example, if you click the  button, the images can be displayed an indefinite number of times. If this box is un-checked and the end of the SmartCAL list is reached, the images stop updating.

Open Existing

Open a previously created SmartCAL file.

Help

Brings up additional help for Wombat. Includes special keystrokes and tips that are not included on this documentation page.

To select all files within one folder for one camera:

1) Click the Pick Images for camera *n* button.
2) Browse to the desired folder.
3) Select one image in the folder.
4) Click Open.
5) Right-click that file name in the Stored Image Operations screen. You will see an asterisk in the file name, indicating that all .bmp files in that folder will be used for that camera.

To select more than one contiguous file while browsing in a folder:

1) Select the first file >> hold the Shift key >> scroll to the last desired file.
2) Click Open. All selected files will be included in the SmartCAL file.

To select more than one non-contiguous file while browsing in a folder:

1) Select the first file >> hold the Control (Ctrl) key >> select the remaining desired images.
2) Click Open. All selected files will be included in the SmartCAL file.

Using the SmartCAL File

USER LEVEL: MECHANIC AND ADMINISTRATOR

To load a SmartCAL file:

1) Log in.
2) Right-click on the image area.
3) Select Image >> Restore.
4) Scroll through the Data folder and highlight the desired SmartCAL file name.
5) Click Open. The Intellispec will ask whether you want to make that file your default SmartCAL file.
6) Answer Yes or No. The SmartCAL images are loaded into memory.

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To scroll through the SmartCAL images:

- Click the  button.OR:
- Right-click the  button. Select Continuous Snap. OR:
- Press F3. This runs the current job on the image.

BURNING A CD

USER LEVEL: ADMINISTRATOR

You may need to copy images, reports, or databases to CD to use them on your own PC.

What You Need

- A blank (or recordable session) CD

To burn the CD:

1) Take the system offline (). Do not put the system back online until you have finished burning the CD.
2) Make sure you have already saved all the desired images (or files) to the Intellispec hard disk.
3) Log in.
4) Click the  button.
5) Click the Utilities tab.
6) Click the CD Burner Software button. A CD burner software interface will appear. This software may vary on different systems.
7) When the software appears, it asks you what kind of CD to compile. Choose Data Disc.
8) Choose Add and select files to copy.
    - The command names on the CD burner software may vary based on version of CD burner software installed in your system. Follow instructions on screen.
    - If copying images, default image directory = C:\Intellispec\DefectiveImages.
    - To save all the files in one folder, simply highlight the folder name.
    - To choose specific files, browse to the desired folder and highlight all the files you want to copy.
9) Follow the instructions on screen to continue.
10) Click the Burn button.
11) **WAIT** until the burn process is **finished** (even if one of the progress bars says 100% – don't click any buttons at this time).
12) When a message pops up that says "Burn Process Completed Successfully," click OK.
13) Press the Enter key or click Discard to end the burn process. Your CD will be ejected.
14) Click the x in the upper right of the CD program window to close the program. It will ask you whether you want to save changes.

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- If you do not need to remember which files you have just burned onto your CD, click No
- If you intend to burn another CD sometime in the future with exactly the same files, save the program changes

COPYING FILES TO USB DEVICE

USER LEVEL: ADMINISTRATOR

Use Windows Explorer to copy files.

To copy data to a USB device:

1) Log in.
2) Click the  button.
3) Click the Database Utilities tab.
4) Click the Windows Explorer button.
5) Select the correct file name(s) and copy the file.

COPYING FILES TO FLOPPY

USER LEVEL: MECHANIC AND ADMINISTRATOR

This is a useful, all-purpose tool for copying images, reports, or logs to floppy diskette. You can use this information outside of the Intellispec to generate reports, spreadsheets, or to troubleshoot the system.

To get to this menu:

1) Log in.
2) Click  button.
3) Click Database Utilities tab.
4) Click Database Detective.
5) Click Other tab.
6) Select Copy Files.

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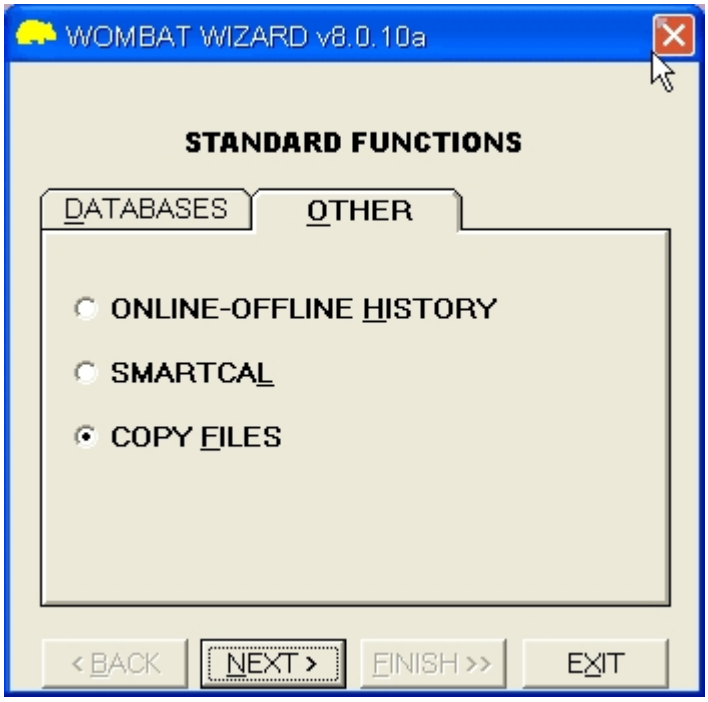
7) Click Next.



To copy files:

1) Click any of the buttons - Images, Reports, Logs, or Databases. You will see a dialog box in which you can browse for image files. The default folder will be opened for you, or you can browse to the desired folder.
2) Highlight the desired file(s) and click Open.
   - To select more than one contiguous file, select one file and hold down the left trackball button (or Shift key) and move the cursor over all the files you want to copy.
   - To select more than one non-contiguous file, select one file, hold the Control (Ctrl) key, and select the remaining desired files.
3) Make sure all the files you want to copy are highlighted in the upper window of the dialog box (click the first file name, hold Shift key, and move cursor to last file name), and click Next.

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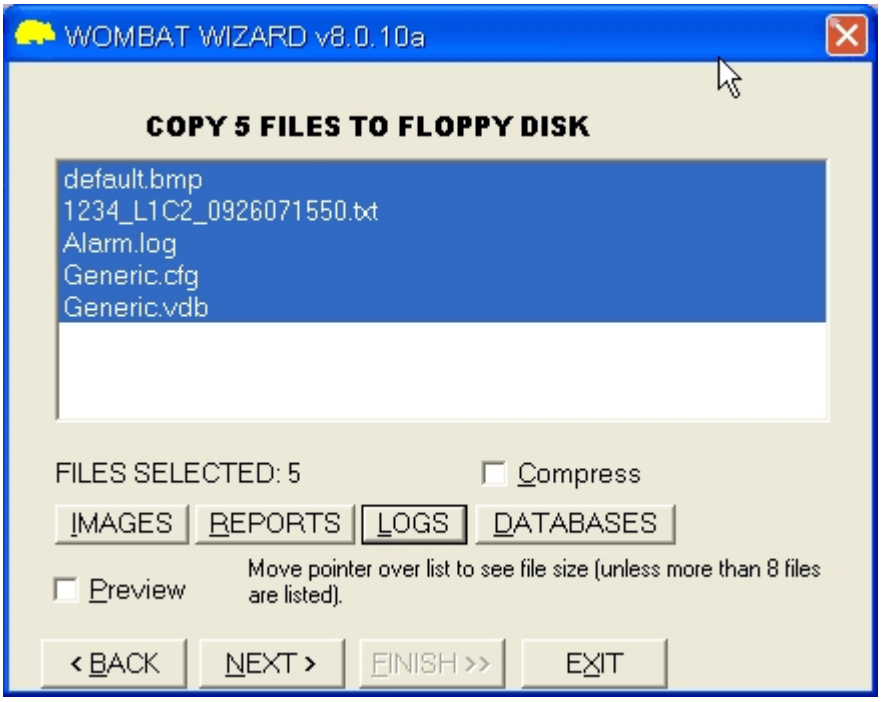
- To remove any file from the list, Shift+right-click the file name.



4) Insert a diskette into Intellispec floppy drive, and Wombat will copy these files to your diskette.

DATABASE – SAVING AND LOADING

We recommend that you ***save your database*** (see "How to Save a Database" on page 94) regularly for backup. This ensures that you have all the latest system settings and part program information saved to disk. You may need this information to restore onto your system in the event of a system failure, or you may need to send it to Pressco Service or Tech Support for assistance with your Intellispec. See also Tech Support Tool (***TSTool*** (see "TSTool (Tech Support Tool)" on page 95)).

Easy Save and Reminder

USER LEVEL: MECHANIC AND ADMINISTRATOR

The Database Detective remembers when you last saved your database. It tells you how many hours have elapsed, and recommends a backup if necessary. Simply open the Database Detective following the steps shown below. A pop-up screen will prompt you how to save it.

To get to this menu:

1) Log in.
2) Click  button.
3) Click Database Utilities tab.
4) Click the Database Detective button.
5) Follow the instructions on screen.

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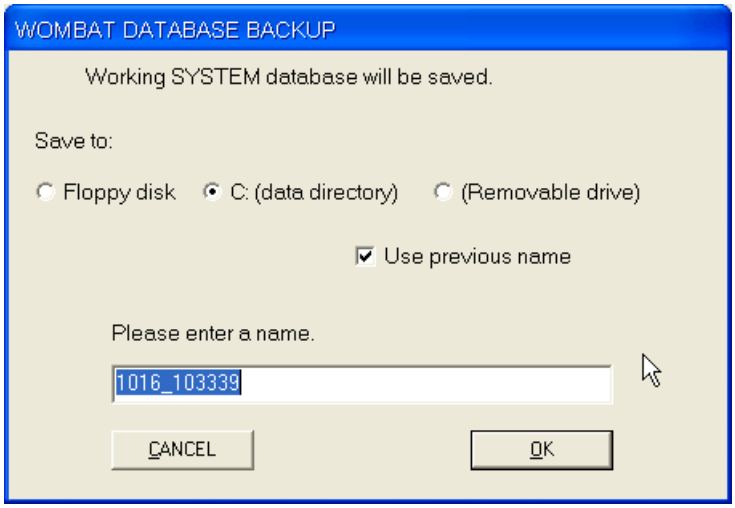
How to Back Up the Current Database

USER LEVEL: MECHANIC AND ADMINISTRATOR

If you choose not to use the ***Wombat Saved Database Monitor*** (see "Easy Save and Reminder" on page 92), this tool will back up your current database.

To get to this menu:

1) Log in.
2) Click  button.
3) Click Database Utilities tab.
4) Click the Database Detective button.
5) Press CTRL+K.
6) Choose to back up your database to floppy diskette, the C:\Intellispec\Data directory (default), or a removable drive.
7) Enter a new name for the database or check the Use Previous Name box. If you use a previous name, the previous database will be overwritten.
    - If you do not enter a new name, Wombat names the database as date_time (default) as shown in the screen below.



    - To create a new folder, enter a directory and file name such as "NewDirectory\mydb". A new folder will be created as "C:\Intellispec\Data\NewDirectory". The files mydb.vdb and mydb.cfg will be saved in that folder.
    - To save to a different drive, type the drive letter and path. Example: "d:\mynewdir\mydb"
    - The files saved are "*filename*.vdb" and "*filename*.cfg"
8) Click OK to complete the backup.
9) Click Exit in the Wombat screen.

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How to Load a Database

USER LEVEL: MECHANIC AND ADMINISTRATOR

Load a previously created database into the Intellispec memory. Note that the system and channel configuration may be different from that which you were previously running. The system may have to be re-booted depending on configuration changes. A database consists of a file folder, and several files within that folder, including the configuration file, a vision database file, and statistics files.

❖ *Note:* **Save your current database** *(see "How to Save a Database" on page 94) before loading a different one.*

To load a database:

1) Log in.
2) Click the  button.
3) Click Load under either Vision or System database. (Only **Administrators** may load System databases)
4) Browse through the folders if necessary. Vision databases have a .vdb extension and System databases have a .cfg extension.
5) Click Open.
    - If you use a similar System database with multiple Vision databases, load the System database first, then load Vision database.
    - If you load a database from a floppy disk, it will be loaded into memory, but not saved on hard disk. You should ***save the database*** (see "How to Save a Database" on page 94) to hard disk after loading it from floppy, so that you may find it later on the hard disk.
    - If you encounter an error while restoring the database, try the Vision Repair or Configuration Repair under the Database Utilities tab. These will go through the database and attempt to correct errors.

How to Save a Database

USER LEVEL: MECHANIC AND ADMINISTRATOR

There are two types of Intellispec databases:

- The **Vision** database contains job and inspection information.
- The **System** database contains calibration and system configuration information. Saving the System database saves both the System database and associated Vision database all at once.

This procedure allows you to save either the Vision or System database. It allows you to save the databases as a different name, if desired.

To save a Vision or System database:

1) Log in.
2) Click  button.
3) Click the Save button for either Vision or System database. The dialog box will prompt you to save in the default folder, or allow you to scroll to a different folder. It assigns the correct file extension, depending which type of database you are saving.

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4) Type a file name and click Save.

❖ *Note: If you save the database to a floppy diskette, it is **not** automatically saved to the hard disk. If you want to be able to load this database from hard disk at a later time, you must also save it to hard disk.*

TSTOOL (TECH SUPPORT TOOL)

USER LEVEL: MECHANIC AND ADMINISTRATOR

This is a tool that creates packets of information that Pressco's Technical Support department can use to help troubleshoot your system. It copies your current database, inspection parameters, and other pertinent system configuration information. You can create these packets, save them to floppy disk or hard drive, and then send them to Tech Support via mail, e-mail, or by using Remote Diagnostics.

To create the packet:

1) Make sure the system is offline  .
2) Log in.
3) Click the  button.
4) Click the Database Utilities tab.
5) Click the Tech Support Tool (TSTool) button.
6) Select a drive to save the packets.
   - If A: drive, then insert a blank floppy diskette into Intellispec's A: drive. Click the Span box to ensure that all information is copied if the packet is larger than one floppy diskette's capacity.
   - If you plan to send the packet to Tech Support via e-mail, we recommend that you save the packet to the C: drive. This will create one .zip file that you can e-mail.

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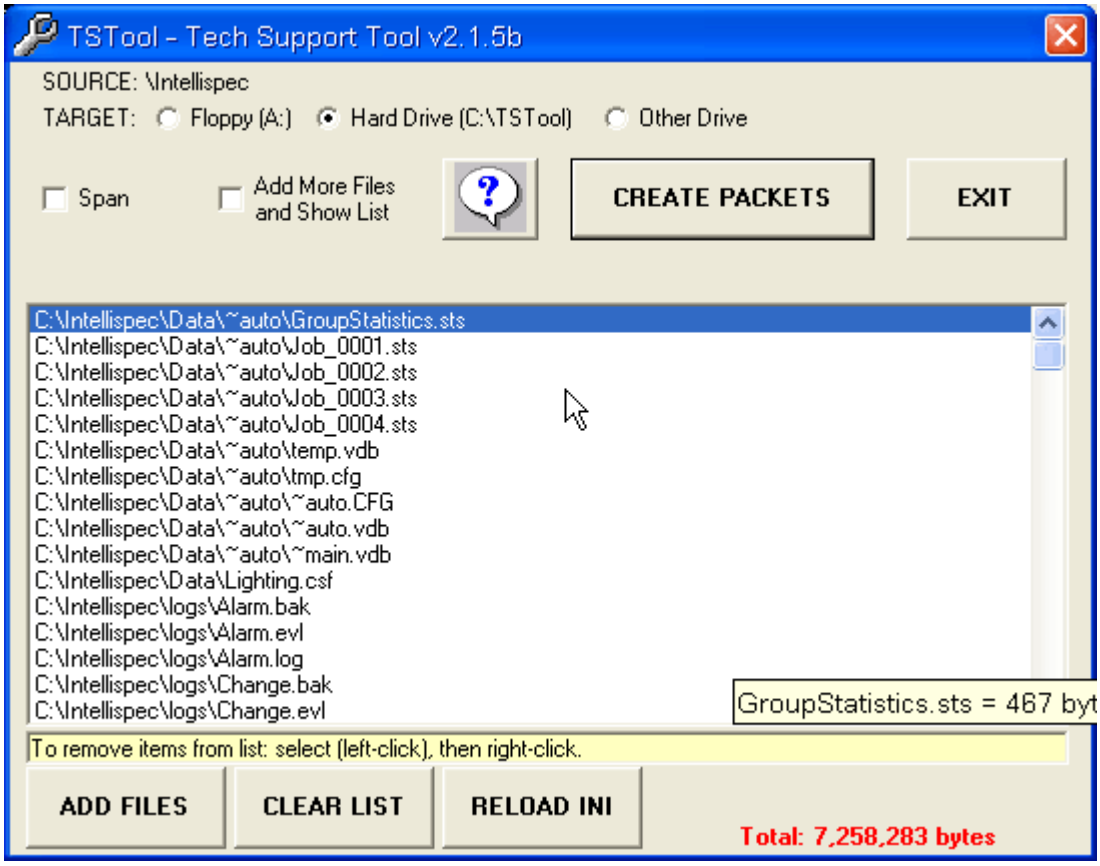
7) Click Create Packets. TSTool will create the packets, and post the status when finished.



- Click the  button for more information about the tool.

8) E-mail the packet to ***Tech Support*** (see "How to Contact Pressco" on page 119) for help.

WHERE THE FILE IS SAVED ON THE HARD DRIVE

When you save the file to the hard drive, the file is saved as C:\TSTool\TSTool.zip. The .zip file is what you e-mail to the tech support department.

DATABASE DETECTIVE FUNCTIONS

USER LEVEL: MECHANIC AND ADMINISTRATOR

The Database Detective is a valuable tool that allows you to print and save system information such as inspection parameters and online/ offline history. It also allows you to copy jobs from one database to another, or copy files to diskette so that you can use them outside of the Intellispec. This tool can help you maintain your process, and it can help you understand the settings in your system.

The program itself is referred to as Wombat as you will see on your Intellispec screen. It is a simple interface that guides you easily to perform your desired tasks.

To get to this menu:

1) Log in.

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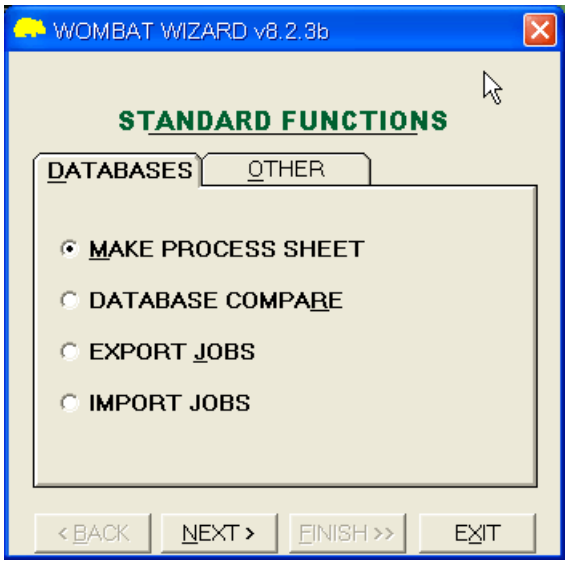
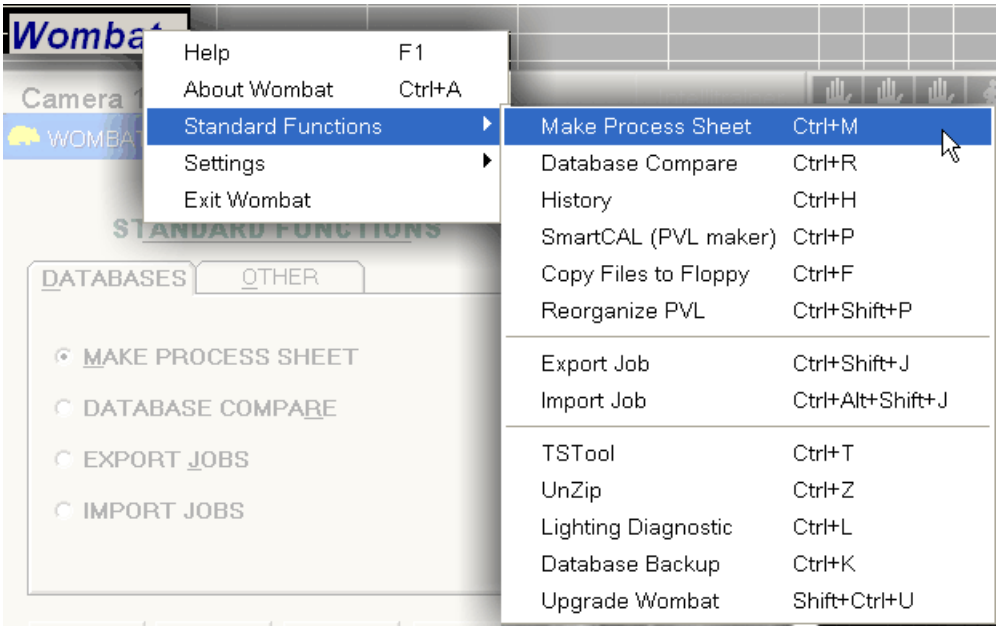
2) Click  button.
3) Click Database Utilities tab.
4) Click Database Detective button.



Database Detective Standard Functions

This list of functions, many of which are included in the main Database Detective menu tabs, is accessed by right-clicking the Wombat button, and moving your cursor over Standard Functions. Below is a list of these functions:



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Make a Process Sheet **(on page 98)**

Database Compare **(on page 104)**

History **(see "Online/ Offline History Report" on page 75)**

SmartCAL (PVL maker) **(see "About SmartCAL" on page 86)**

Copy Files to Floppy **(see "Copying Files to Floppy" on page 90)**

Reorganize PVL

If a SmartCAL (PVL file) was made to reference the bitmap files within the DefectiveImages folder, and some images were subsequently deleted, the PVL would not run correctly. When you run the Reorganize PVL function, Wombat copies the images into folders where they would not be as easily deleted, and re-writes the PVL file at the same time.

Export a Job **(on page 100)**

Import a Job **(on page 102)**

TSTool **(see "TSTool (Tech Support Tool)" on page 95)**

UnZip

Lighting Diagnostic

Database Backup **(see "How to Back Up the Current Database" on page 93)**

Upgrade Wombat

If you have received a disk or removable media with a Wombat upgrade, this utility guides you through the process.

Make a Process Sheet

USER LEVEL: MECHANIC AND ADMINISTRATOR

A process sheet is composed of two parts: a summary of the system and camera settings on the first page, followed by an abbreviated listing of the inspection parameters for the **active** jobs within the specified database. Inactive jobs are omitted from the process sheet. Active jobs are those that are selected for online use – assigned to cameras.

To get to this menu:

1) Log in.
2) Click  button.
3) Click Database Utilities tab.
4) Click Database Detective.

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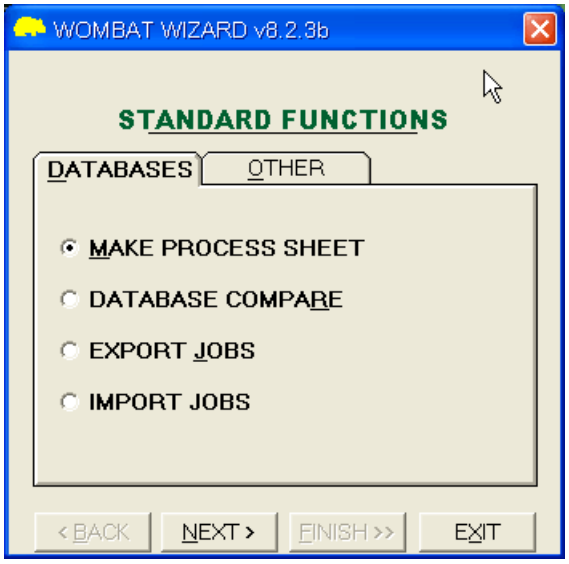
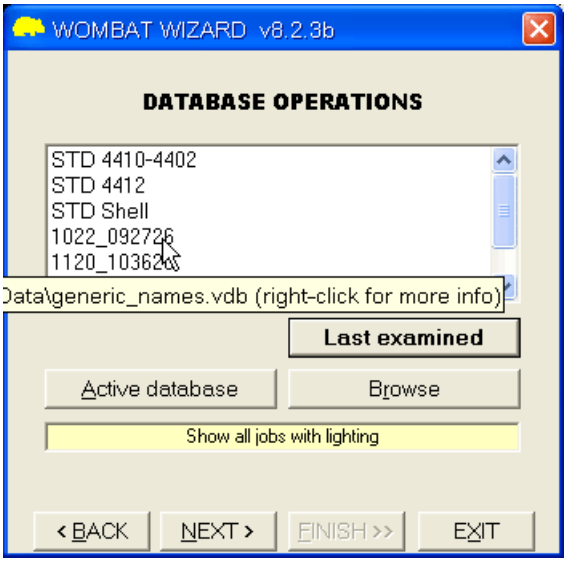
5) Select the Make Process Sheet button.



To make a process sheet:

1) Click Next.
2) Choose a database to create the process sheet. Move your cursor over the option buttons to see a description of each button.
   - Active database – This is the database that is currently running on the Intellispec. If you choose this option, you are assured of the most up-to-date information. Go to step 3.
   - If your database is saved somewhere other than the "C:\Intellispec\Data" directory, click the Browse button to locate your database. Select the desired database and click Open. Go to step 3.

Note: if you choose a system database [.cfg] file that does not have a matching vision database [.vdb] file, the process sheet will not be created



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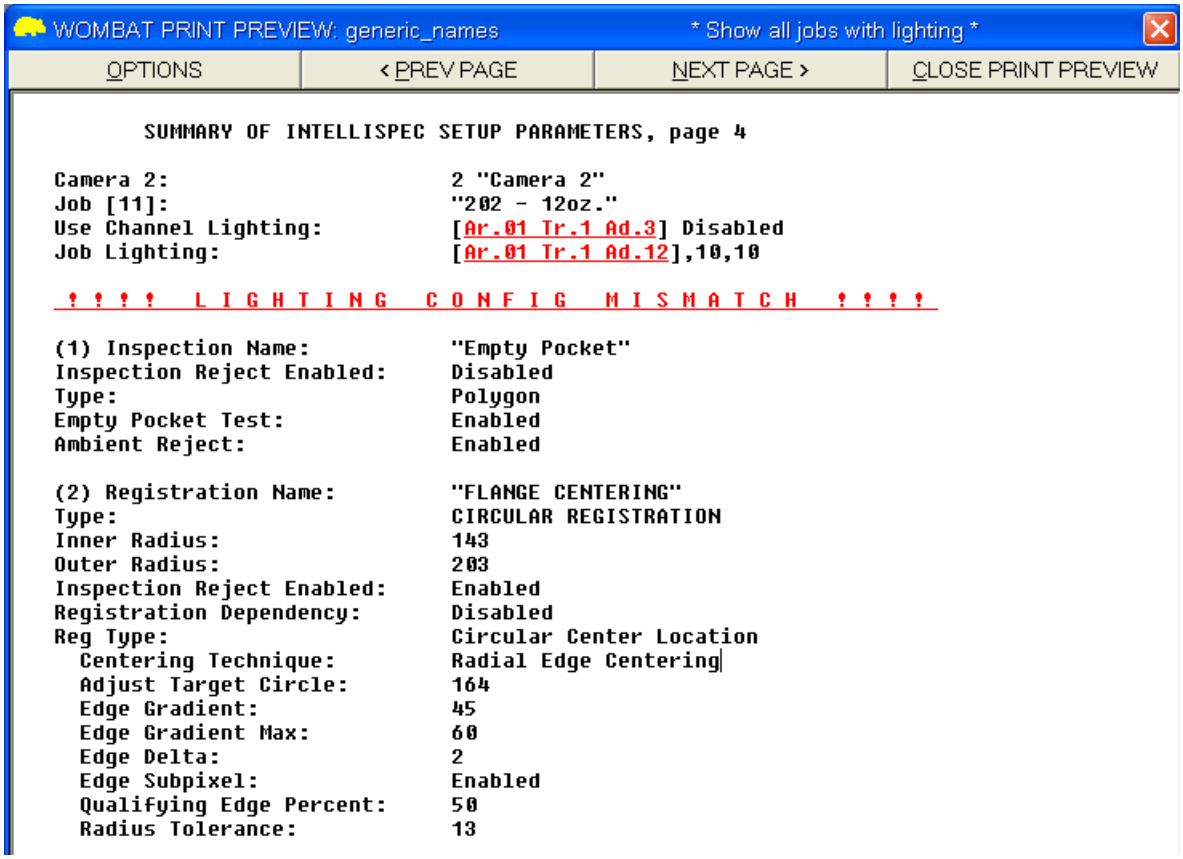
3) Click Next. The system creates the Process Sheet and displays the information as a print preview, so you can view it, print it, or save it. If any errors are encountered, they are displayed before the process sheet is displayed.



Export a Job

USER LEVEL: MECHANIC AND ADMINISTRATOR

This option allows you to take a job you have already created, and use it within another database.

To get to this menu:

1) Log in.
2) Click  button.
3) Click Database Utilities tab.
4) Click Database Detective.

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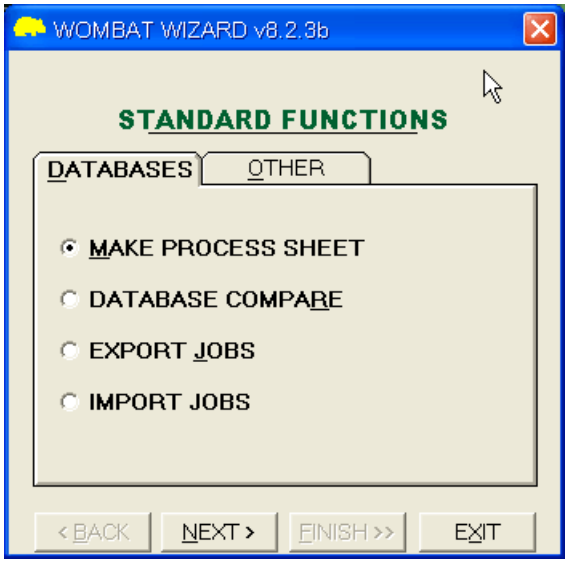
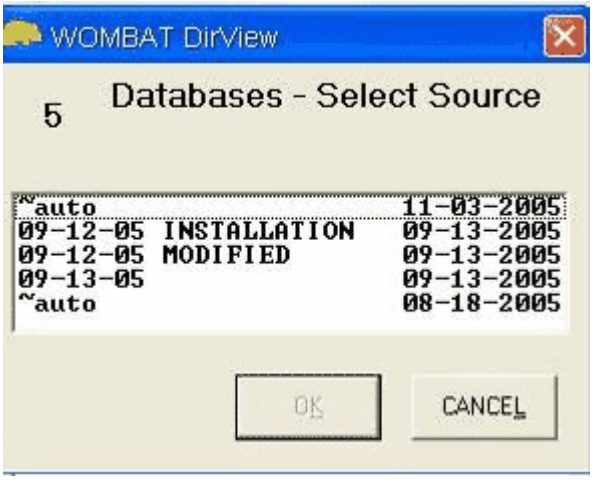
5) Select Export Jobs.



To export a job for another database:

1) Click Next.
   - If exporting to floppy disk, insert a disk when prompted.
   - If exporting to the hard drive, click No. Wombat will search your Intellispec and display all available databases.
2) Choose the source database that contains the job you want to copy. Click OK.



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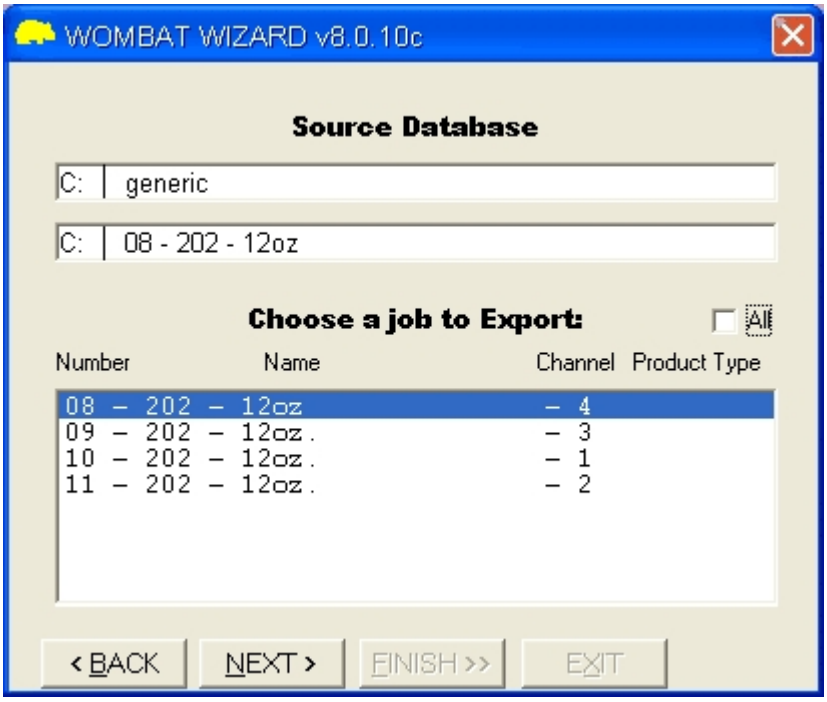
3) Choose a job to export.



4) Click Next, then OK. Wombat tells you that it is about to copy a job.
5) Click OK to continue.

After the job has been copied, use the ***Import a Job*** (on page 102) feature to import it into another database.

Import a Job

USER LEVEL: MECHANIC AND ADMINISTRATOR

Imports a job into an existing database. First the job must be ***exported*** (see "Export a Job" on page 100) through Wombat. It is saved as a .job file.

To get to this menu:

1) Log in.
2) Click  button.
3) Click Database Utilities tab.

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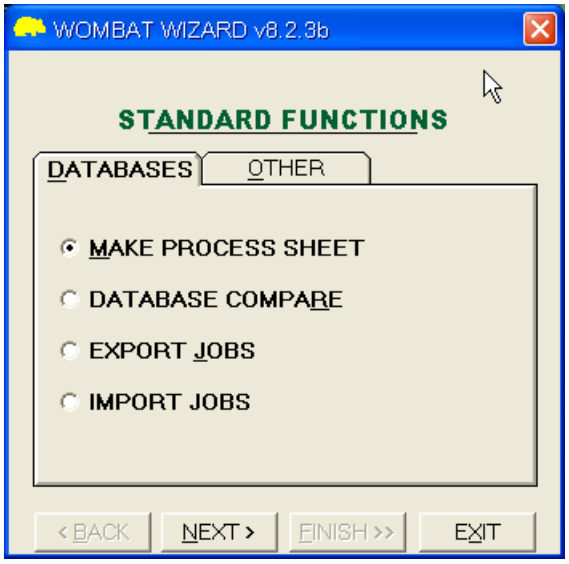
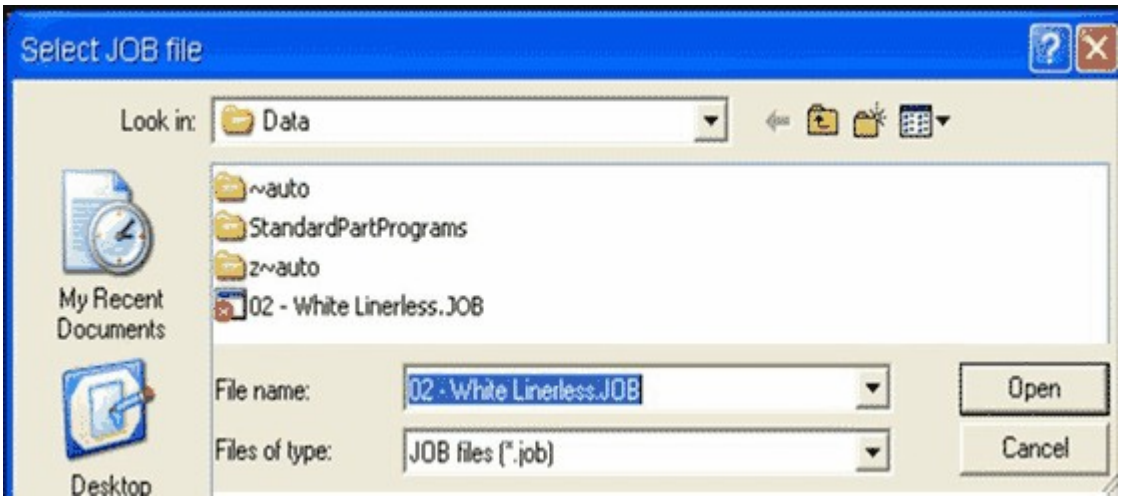
4) Click Database Detective.



To import a job:

1) Click Import Jobs.
2) Click Next.
   - If importing from floppy disk, insert a disk when prompted.
   - If importing from the hard drive, click No. Wombat will search your Intellispec and display all available databases.
3) Select a job file from the available .job files and click Open.



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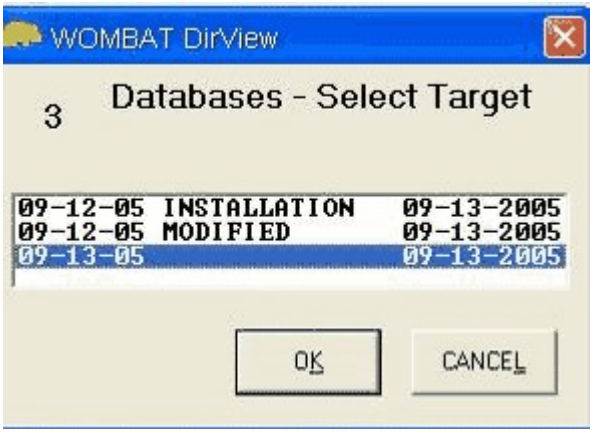
4) Select a database into which you want to import the job. Click OK. Wombat tells you it is about to import a job.



5) Click OK to continue. The job is imported into the target database.

Database Compare

USER LEVEL: MECHANIC AND ADMINISTRATOR

The ability to compare databases can be highly useful. With Wombat's new Compare function it is easy to:

- View a pair of structure files, for an overview of jobs and inspections
- View file pairs in their entirety, with differences highlighted
- In your text editor, view a streamlined report listing exactly which lines have changed.

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Chapter 7

MAINTENANCE FREQUENCY

Clean component surfaces regularly according to the following tables.

INTELLISPEC PROCESSOR CABINET AND GENERAL COMPONENTS			
ITEM	**DESCRIPTION**	**ONCE PER DAY OR SHIFT**	**ONCE PER MONTH**
Observe Proper inspection	Verify that defective parts are being rejected by inserting a known defective part through inspection	X	
Observe Proper inspection	Verify that no stray parts are stuck in or near the inspection module or reject station	X	
Observe Proper inspection	Verify that no buildup of dirt or contaminants has occurred on inspection module, part detector, or conveyor. Clean if necessary.	X	
Observe Proper inspection	Verify that each channel's image is properly centered, focused, and properly lit. Adjust if necessary.	X	
Processor Cabinet air circulation filters	***Rinse*** (see "Cleaning the Processor Cabinet Air Filters" on page 117) in clean water; use mild soap and water solution if oily.		X
PC air filter	***Rinse*** (see "Cleaning the PC Air Filter" on page 117) in clean water; use mild soap and water solution if oily.		X
Air conditioner filter	***Rinse*** (see "Cleaning the Air Conditioner Filter" on page 118) in clean water; use mild soap and water solution if oily.		X

INSPECTION MODULES BNS			
ITEM	**DESCRIPTION**	**ONCE PER DAY OR SHIFT**	**ONCE PER MONTH**
Base, Neck, and Seal Surface Camera windows (glass)	Clean with soft, clean, oil-free cloth dampened with ***glass cleaning*** (see "Cleaning Glass Surfaces" on page 108) solution.	X	

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Base and Neck backlights (plastic)	***Clean*** (see "Cleaning Plastic Surfaces" on page 107) with soft, clean, oil-free cloth dampened with mild soap and water solution.	X	
Part Detect Sensor and Reflector	***Clean*** (see "Cleaning the Part Detector" on page 109) with soft, clean, oil-free cloth dampened with mild soap and water solution.	X	

INSPECTION MODULES CHROMAPULSE			
ITEM	**DESCRIPTION**	**ONCE PER DAY OR SHIFT**	**ONCE PER MONTH**
Part Detect Sensor and Reflector	Clean with soft, clean, oil-free cloth dampened with mild soap and water solution. Wipe dry.	Once per week	
Camera lens	Clean only with lens tissue and lens cleaner. Be careful not to alter focus or aperture.		X
Glass surfaces: Beam Splitter and Secondary lens	***Clean*** (see "Cleaning Glass Surfaces" on page 110) with soft, clean, oil-free cloth dampened with lens cleaning solution.		X
Ellipsoidal mirror on CP4402, CP4402E, CP4411,CP4412	Normally does not need cleaning. If dirty, blow off dust with compressed air, and follow ***instructions*** (see "Cleaning the Ellipsoidal Mirror" on page 115).		Only if dirt appears on image
Plastic surfaces: Dome light or Ring light diffusers	***Clean*** (see "Cleaning Plastic Surfaces" on page 113) with soft, clean, oil-free cloth dampened with mild soap and water solution. Wipe dry.		X

CLEANING OPTICAL SURFACES

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, or it could degrade lighting. Clean glass and plastic surfaces often to avoid false rejects.

To maintain proper image quality and system performance, the clear glass and plastic surfaces on the Inspection Modules must be cleaned on a regular basis. Dirt and debris that appear in the image can cause false rejects. An oily film on optical surfaces can cause false rejects or missed defects.

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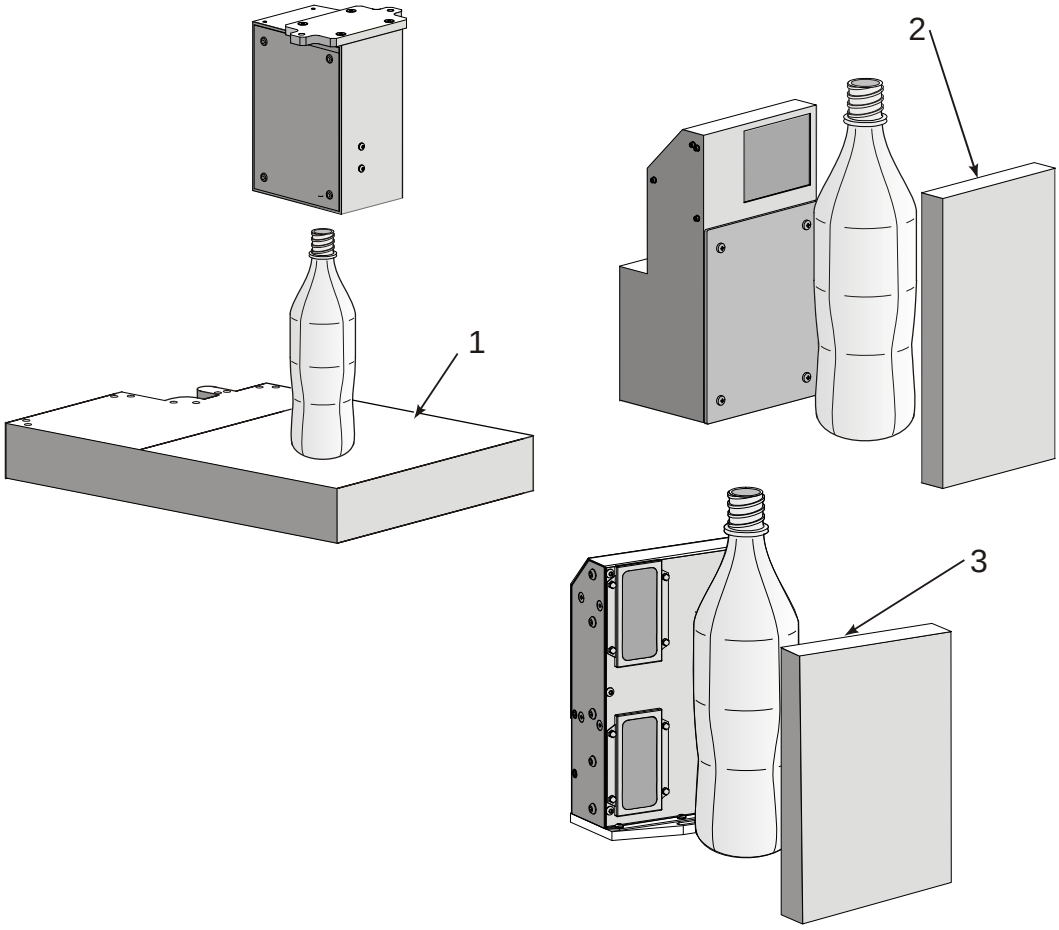
BNS MODULES MAINTENANCE

The following information is for Base, Neck, and Seal Surface inspection modules.

Cleaning Plastic Surfaces

Plastic surfaces that may require cleaning are: Base, Neck, and Sidewall backlights.



1	Base backlight
2	Neck backlight
3	Sidewall backlight

To Clean Plastic Surfaces:

Use a clean non-abrasive cloth dampened with a mild soap and water solution. Don't use a glass cleaning solution or strong solvent on the plastic surfaces as they might be damaged.

The base, neck, and sidewall backlights have plastic windows. Plastic surfaces can be cleaned with a soft, clean, lint-free cleaning cloth dampened with a mild soap and water solution. Do not use a glass cleaning solution or strong solvent on the plastic surfaces as they might be damaged.

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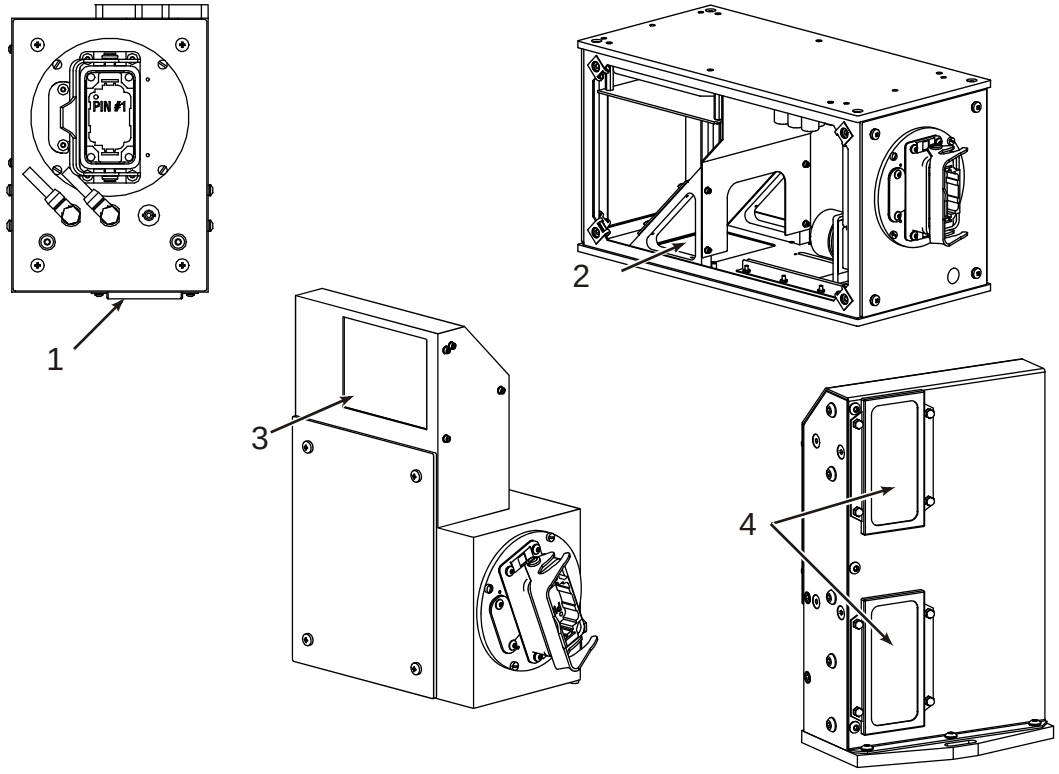
The base backlight in particular tends to collect particles of debris. It is equipped with an air knife to help keep it clear of solid particles. However, it will still require regular cleaning. Cleaning frequency will depend on plant and process conditions.

Cleaning Glass Surfaces

Glass surfaces that may require cleaning are: Base, Neck, Seal Surface, and Sidewall modules. Cleaning frequency will depend on plant and process conditions.



1	Glass window, base camera
2	Glass window, seal surface camera
3	Glass window, neck camera
4	Glass windows, sidewall camera

To clean glass surfaces:

- Use a clean non-abrasive cloth dampened with lens cleaning solution.
- Use lens tissue and lens cleaning solution on camera lenses.
- If surface has compound on it, first clean with alcohol, then with lens cleaning solution.

❖ *Note: Make sure the seal surface window remains clean. A build-up of oil film on this window will cause a glare to appear on the image, degrading system performance.*

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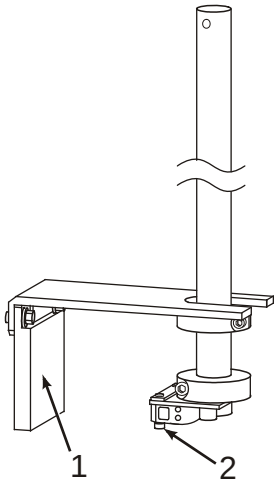
Cleaning the Part Detector

The part detect sensor and reflector surfaces of the part detector must remain clean to properly detect parts. Clean these surfaces regularly to prevent dirt and oil build-up.

Clean the part detector surfaces with a soft, clean, lint-free cloth dampened with a mild soap and water solution. Do not use a glass cleaning solution or strong solvent on the plastic surfaces as they might be damaged.

The frequency of cleaning will depend on plant and process conditions.



1	Part detect reflector
2	Part detect sensor

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CHROMAPULSE MODULES MAINTENANCE

The following information is for Chromapulse inspection modules. The information applies to all Chromapulse models, unless otherwise specified.

Cleaning Glass Surfaces

Glass surfaces that may require cleaning are:

- Camera Lens
- Beam Splitter (if present)
- Secondary lens (if present)
- Secondary mirror (if present)

To clean glass surfaces:

- Blow off dust with canned, compressed air
- Use a clean non-abrasive cloth dampened with lens cleaning solution
- Use lens tissue and lens cleaning solution on camera lenses
- If surface has compound on it, first clean with alcohol, then with lens cleaning solution

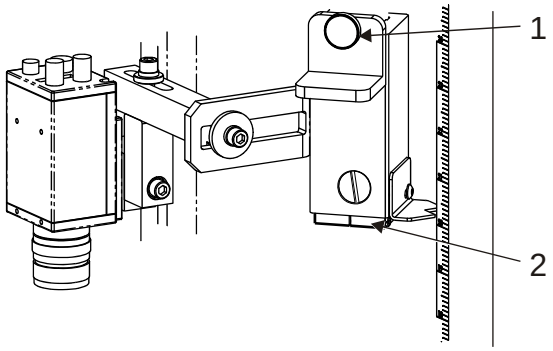
❖ *Note: Cleaning frequency will depend on plant and process conditions.*

Cleaning the Camera Lens

Caution
Do not touch the lens with fingers or oily cloths.

To clean the camera lens:

1) Raise the camera to access the lens by loosening the height adjustment screw. The clamping bracket should remain in place.
2) Clean all camera lenses with lens tissue and lens cleaning fluid. Be careful not to alter the focus or aperture of the cameras.
3) Slide the camera back into position as marked by the clamping bracket.
4) Tighten the height adjustment screw
5) Re-adjust aperture and focus if needed.



1	Camera height adjustment screw
2	Clamping bracket - camera height reference

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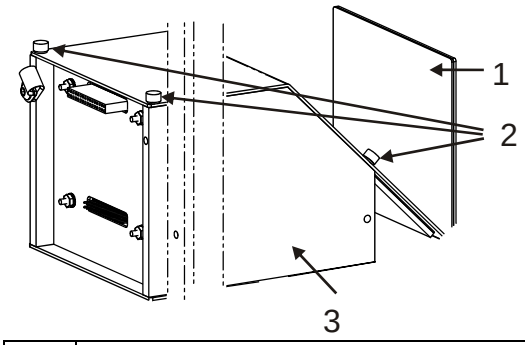
Cleaning the Beam Splitter

You must remove the Beam Splitter (on some Chromapulse models) to access the bottom side for cleaning. It is held in place with four thumb screws.

To clean beam splitter:

1) ***Raise the camera*** (see "Cleaning the Camera Lens" on page 110) if necessary. Be sure to note the camera position before moving it.
2) Loosen the four thumb screws and carefully remove the beam splitter.
3) Clean the beam splitter.
   - Blow off dust from beam splitter with canned, compressed air.
   - ***Clean the glass*** (see "Cleaning Glass Surfaces" on page 110) on the beam splitter.
4) Replace the beam splitter assembly.

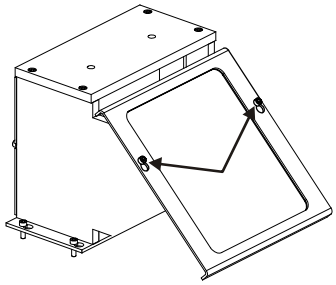


1	Beam splitter assembly
2	Thumb screws (four total)
3	Fill Light or Beam Splitter Diffuser inside

CP/E SERIES MODELS

To clean the beam splitter:

1) Loosen the screws.
2) Remove the mirror from the keyholes.
3) Clean the ***mirror*** (see "Cleaning Glass Surfaces" on page 110).



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Cleaning the Secondary Lens

If your system is equipped with a Secondary Lens, it needs to be cleaned periodically to ensure optimum inspection. This lens is usually mounted within or near the Ring Light.

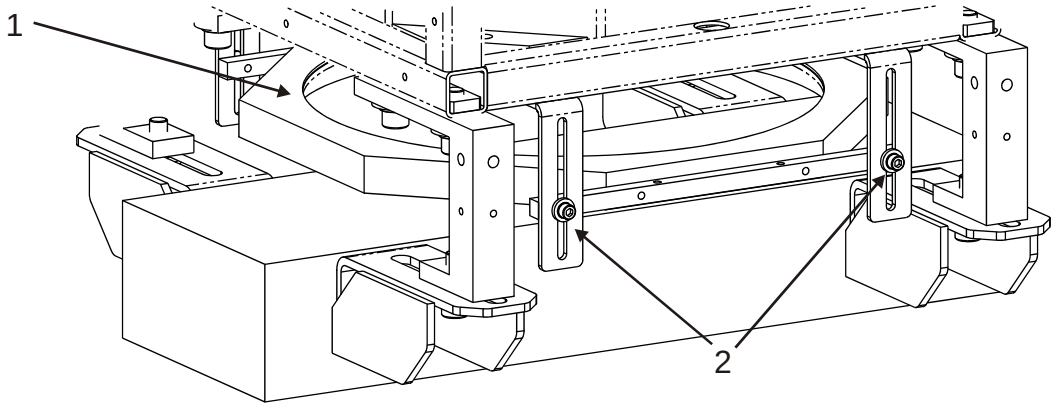
The top surface of the Secondary Lens can be accessed for cleaning from inside the Inspection Module. The bottom surface faces the conveyor surface and is usually mounted very close to the conveyor such that there is not enough clearance to reach under the Inspection Module for cleaning. If this is the case, you will have to remove the Secondary Lens to clean the bottom surface.

CP1500 MODULES

We recommend that you remove and clean the Secondary Lens (if present) as well as the Ring Light diffuser at the same time.

To clean these components:

1) Remove the four cover plates located at the bottom sides of the Inspection Module.
2) Locate the brackets with slotted holes (item 2) and remove the screws securing the Secondary lens and ring light frame to the brackets. (Note the position of the screws relative to the slotted holes before removing.)
3) Carefully remove the Secondary Lens and its frame, as well as the Ring Light by sliding it out one side of the Inspection Module.
4) Clean the the ***Secondary Lens*** (see "Cleaning Glass Surfaces" on page 110).
5) Clean the ***Ring Light Diffuser*** (see "Cleaning Plastic Surfaces" on page 113).
6) Replace these components.



1	Ring light (optional). Secondary lens not shown.
2	Ring light height adjustment

CP500/ 750 MODULES

We recommend that you remove and clean the Secondary Lens as well as the Ring Light at the same time.

To clean these components:

1) Remove the module covers.
2) Loosen the Ring Light screw.

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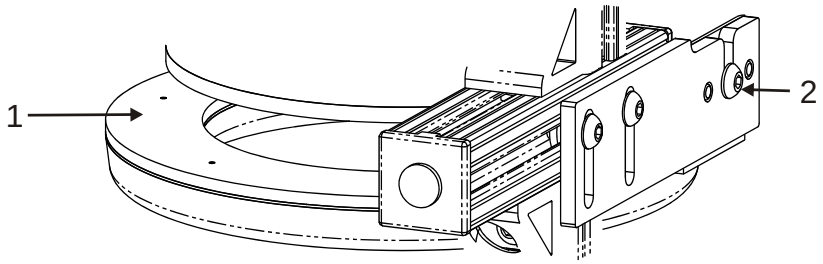
3) Remove the Secondary Lens and Ring Light.
4) Clean the the ***Secondary Lens*** (see "Cleaning Glass Surfaces" on page 110).
5) Clean the ***Ring Light Diffuser*** (see "Cleaning Plastic Surfaces" on page 113).
6) Replace these components.



1	Ring light (optional). Secondary lens not shown.
2	Ring light screw

Cleaning Plastic Surfaces

Plastic surfaces that may require cleaning are:

- Dome Light Diffuser
- Ring Light Diffuser
- Light Shield (if present)
- Beam Splitter Diffuser (if present)

❖ *Note: Cleaning frequency will depend on plant and process conditions.*

To clean plastic surfaces:

DO	DO NOT
Use canned compressed air to blow away dust	Do not wipe away dirt as plastic coating may be scratched
Use a clean, non-abrasive cloth dampened with mild soap and water solution. Saturate surface completely to let particles wash away.	Do not use paper towels or paper napkins – these may scratch surfaces
Dry the surface with clean, compressed air	

CP1500 Dome Light Diffuser

To clean the Dome Light Diffuser:

1) Use the wing nut (item 1) to loosen the assembly and raise the Dome and Fill Light assembly.
2) Clean the dome light diffuser.

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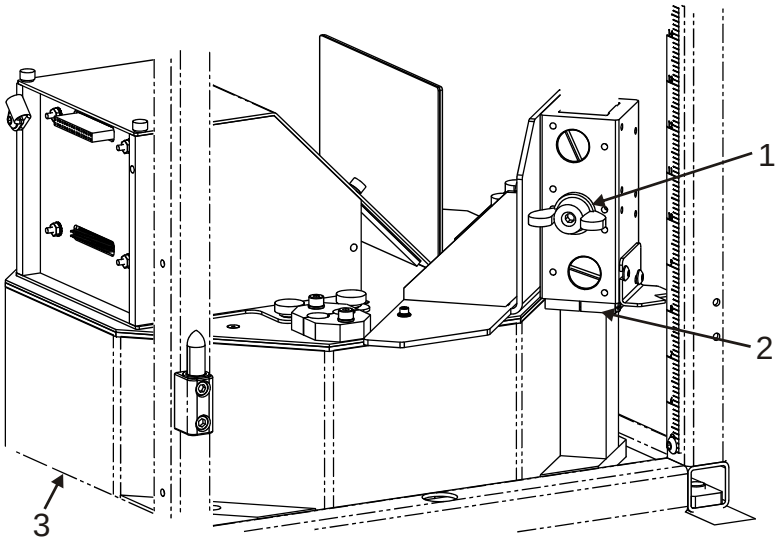
3) Lower the module back to its original position.



1	Height adjustment wing nut for Dome and Fill Light Assembly
2	Clamping bracket for lighting height reference
3	Dome Light Diffuser (underneath)

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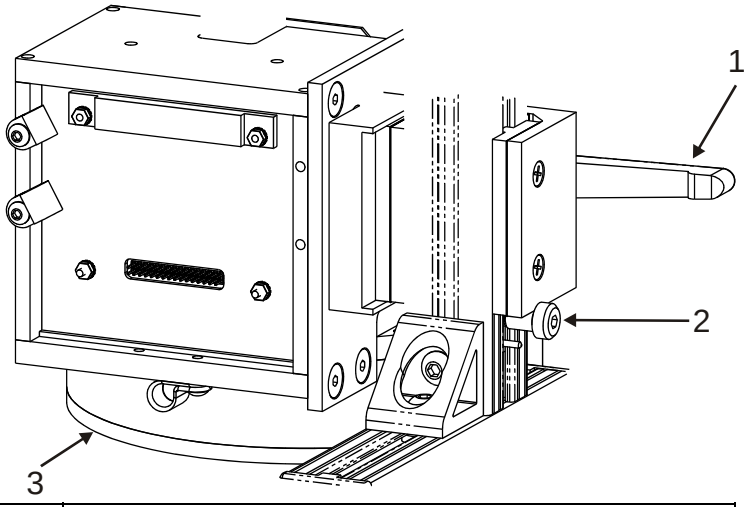
CP500 / 750 Dome Light Diffuser

To clean the Dome Light Diffuser:

1) Raise the module with the height adjust lever (item 1).
2) Clean the diffuser.
3) Lower the module back to its original position.



1	Height adjust lever for Dome and Fill Light Assembly
2	Clamping bracket for lighting height reference
3	Dome Light Diffuser (underneath)

Cleaning the Ellipsoidal Mirror

This mirror provides the enhanced neck image for optimal inspection of the neck of a can.

Warning
The special surface of the mirror can be easily scratched. Take special precautions and do not touch the surface of the mirror.

- *Note: This mirror does **not** require periodic cleaning. Contact Pressco Service if the mirror has dirt or marks that cannot be blown off with clean, compressed air.*

In most systems, the mirror has a built-in air cleaning system. Air is blown through the module to keep dust and debris off the mirror and out of the module. There are no bottom shields on these modules. You do not have to clean the mirror in these modules.

Modules with Plastic Shields

In some modules, protective shields cover the bottom of the ellipsoidal mirror.

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The ellipsoidal mirror is enclosed in the lighting box, and covered by two plastic shields – one disposable and one permanent. These shields protect the ellipsoidal mirror from contamination.

The ***plastic shields*** (see "Cleaning Plastic Surfaces" on page 113) can be cleaned. If the outer plastic shield becomes scratched, it can be replaced. ***Call Pressco*** (see "How to Contact Pressco" on page 119) for a replacement shield.

If you have cleaned the plastic shields, the beam splitter and mirror, as well as the camera lenses, and still have dirt appearing on the image, the ellipsoidal mirror can be cleaned as a last resort.

To clean the ellipsoidal mirror:

1) Remove the plastic shield enclosing the ellipsoidal mirror.
2) Blow dust off the mirror with canned, compressed air. Make sure the can is held in the upright position and shoot the air up into the module from the bottom.
3) Replace the plastic shields to protect the mirror.

Cleaning the Part Detector

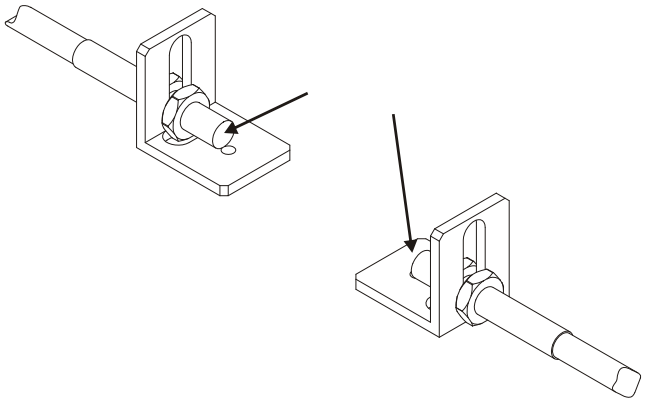
Your system will be equipped with either a part detector or proximity sensor, depending on your application. The proximity sensor does not use a reflector. However, the cleaning procedure for either of these types of sensors is similar.

The part detect sensor and reflector surfaces of the part detector must remain clean to properly detect parts. Clean these surfaces regularly to prevent dirt and oil build-up.

To clean the part detector:

- Clean the part detector surfaces with a soft, clean, lint-free cloth dampened with a mild soap and water solution.
- Clean the sensors on both sides of the conveyor.
- Do not use a glass cleaning solution or strong solvent on the plastic surfaces as they might be damaged.

❖ *Note: The frequency of cleaning will depend on plant and process conditions.*



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PROCESSOR CABINET AIR FILTER MAINTENANCE

There are three air filters within the Processor cabinet. Two are mounted on the Processor Cabinet; the third is in the PC inside the Processor Cabinet. Filter removal is explained below.

❖ *Note: Some systems are equipped with air conditioners and do not have the cabinet circulation filters.*

- If filters contain only dry dust and dirt, rinse them in plain water to clean them.
- If they contain oily dust and dirt, clean them in soapy water.

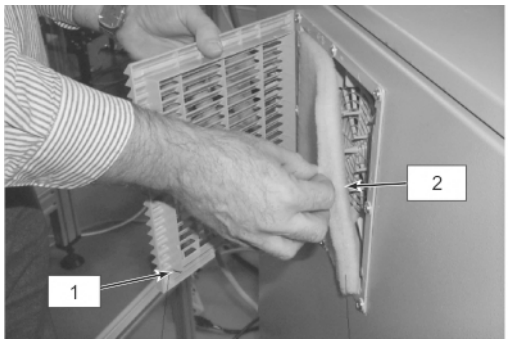
❖ *Note: Frequency of cleaning will depend upon plant conditions.*

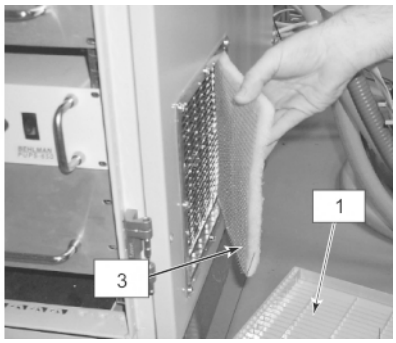
Cleaning the Processor Cabinet Air Filters

The Processor Cabinet has two air circulation fans, and each has an associated filter. The fan on the lower right side of the cabinet is the intake; the fan on the upper left side is the output.

To remove and clean the filters:

1) Remove the grill vents. Refer to the illustrations below.
2) Rinse in clean water; use mild soap and water solution if oily.
3) Replace the filters and grill vents.





1	Grill
2	Exhaust Filter
3	Intake Filter

Cleaning the PC Air Filter

The PC (computer) has one air circulation fan and filter.

To remove and clean filter:

1) Open the front door of the Processor Cabinet.
2) Turn the panel latch to the right to open the access door on the front of the PC.
3) Grip and press in on the filter holder.

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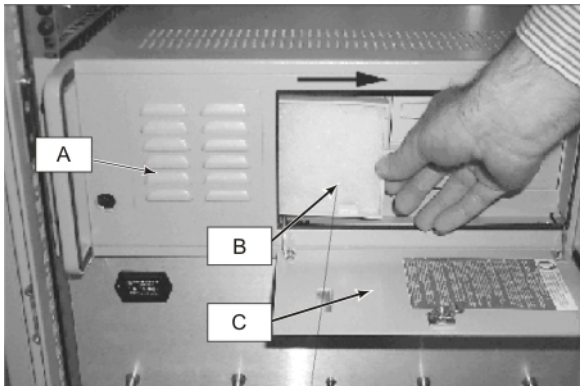
4) Slide the filter holder to the right and remove the filter.
5) Rinse in clean water; use mild soap and water solution if oily.
6) Dry filter and replace in PC.



A	PC
B	Air Filter
C	Access Door

Cleaning the Air Conditioner Filter

If your system is equipped with an air conditioner, the filter must be cleaned.

To remove and clean the filter:

1) Remove the plastic grill cover.
2) Using a hex head driver, remove the retaining screw.
3) Slide the filter up and out.
4) Clean the filter.
   - If filter contains only dry dust and dirt, rinse it in plain water.
   - If it contains oily dust and dirt, clean it in soapy water.
5) Replace filter, screw, and plastic grill cover.

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