# INTELLISPEC

## Operator's Guide

For Software Version 3.00

PRESSCO TECHNOLOGY INC.

Written and designed at:

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*Part Number 49309 Rev. 02*

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# Introduction

## Welcome!

Congratulations on your purchase of an Intellispec system! The Intellispec is a high-speed machine vision system designed specifically for product and process monitoring online. It is a very powerful tool that provides inspection much more reliably than the human eye or sampling methods. The latest PC technology, powerful 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 manual

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 document 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 training department at (440) 498-2600, or visit our website: www.pressco.com.

### Typographical conventions of this manual

For your understanding of this manual, following is a list of conventions we use:

☛ *Tips or notes about a subject appear like this*

***Warnings or Cautions are headed like this***

*Warning or Caution messages*

- Names of menu items or parameters are Capitalized.

## How to Contact Pressco

If you need assistance in setting up your Intellispec or troubleshooting it, please contact Pressco:



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Technical Support Hotline: (440) 498-2000
Monday - Friday 8:00am - 8:00pm
Saturday, Sunday 8:00am - 5:00pm EST

# Safety Considerations

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

***Warning***

*Many Intellispec systems utilize a part rejection device which blows defective product off the conveyor with high-pressure compressed air. They also utilize reject arms. Be aware of the potential for projectiles to strike persons and cause injury.*

***Warning***

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

# Static Discharge Protection

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.

# Power Up/ Power Down

Refer to your Intellispec Hardware Guide for locations of switches and hardware components.

## Power Up

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

Note: The following three switches must be in the ON position:

- The breaker on the front of the AC power module (Up position for ON)
- The power switch on the front of the UPS (Uninterruptible Power Supply)
- The power switch on the front of the computer

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

## Power Down

### If UPS is configured:

If the UPS is configured, simply switch off the rotary switch on the left side of the Processor Cabinet.

☛ *To see whether your system's UPS is configured, you must be logged in as an Administrator, and the system must be offline. Click the System Configuration button , and check the Show All Advanced Parameters button in the System menu. The UPS is configured if the box next to 'UPS Configured' is checked.*

### If 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.*

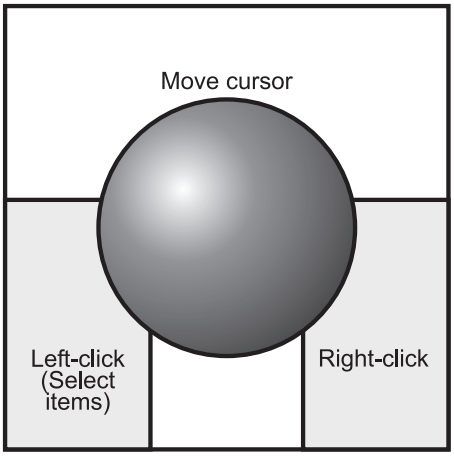
☛ *Refer to your Intellispec Hardware Guide for location of components and switches. Look for Power-down Procedure topic.*

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

# Navigating Through the System

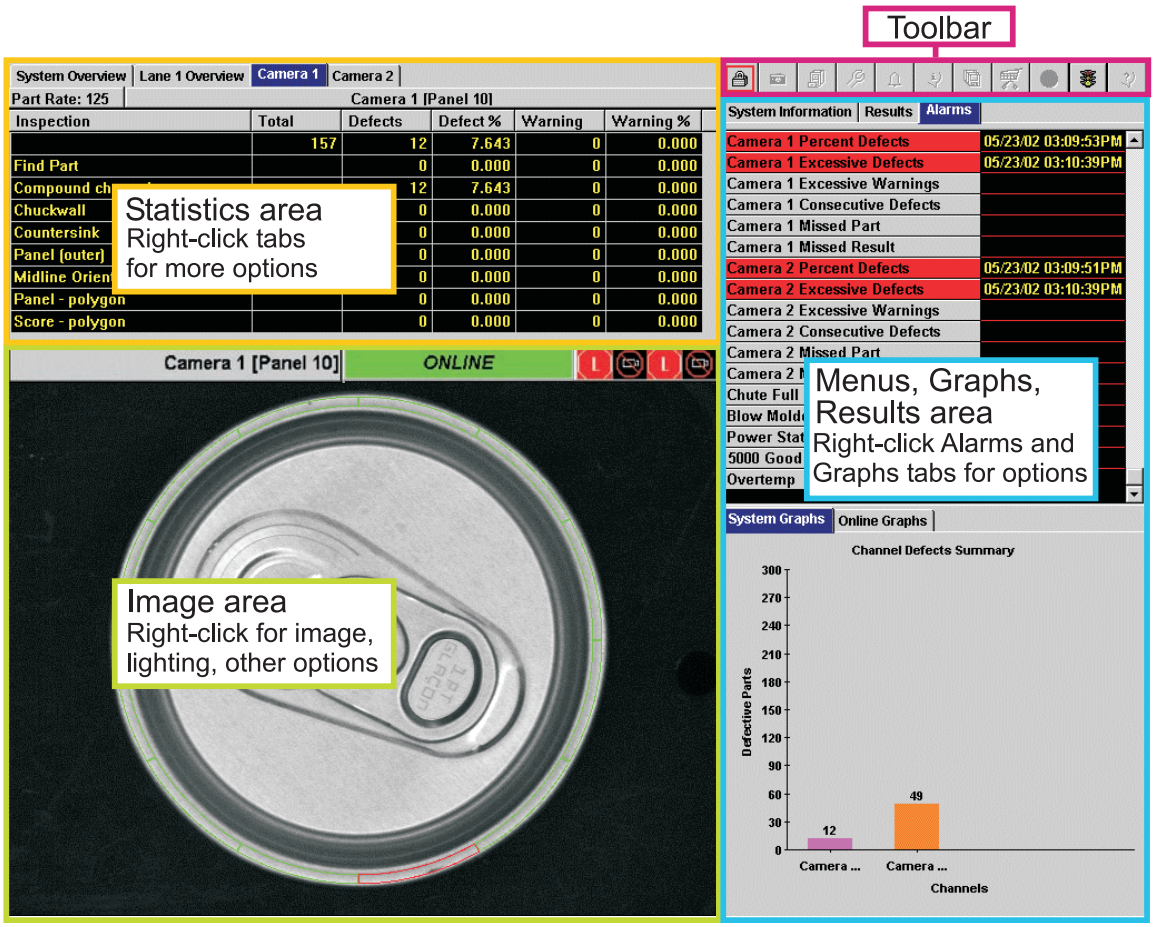
## User Interface

The user interface consists of a monitor and keyboard with a built-in trackball. The trackball moves the cursor. The left trackball button selects items on the screen. The right trackball button calls up additional menus in some places on the screen.



# Areas of the screen

This picture shows the different areas of the screen, which are described next.




## 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. Most of the detailed configuration information, however, is beyond the scope of this manual, and is described in the Intellispec Programming Guide.

### Login/ Logoff

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.

Note that on the System Information screen, the logged-in user is displayed, along with the user’s access level. User’s actions, such as putting the system online or

offline, or job changes, are recorded in the system log files, and are viewable by the Administrator.

## Single Snap/ Continuous Snap

Offline only. Right-click to change modes.

**Single snap** Click to snap an image. The current channel's camera takes one image. This is useful for testing a parameter change in a job.

**Continuous snap** Right-click to put into Continuous Snap mode. Click to enter the time interval between images, and begin snapping images. The current channel's 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. The button changes to a movie camera when in Continuous Snap mode.

The images taken depend on Offline Acquire mode in System Configuration (Administrator only). The Administrator can choose between Immediate and Part Present. Immediate means that the camera will take a picture regardless of what is under the camera – the production line does not need to be moving. Part Present means that the system will wait till the next part triggers the part present sensor, then takes a picture – the production line must be moving.

## Part Management

Offline only. Available if Administrator has selected Which Part in System Configuration and has programmed at least one part. Through this option, you can choose a part to inspect, and the system will assign the proper jobs to all channels.

## System Configuration

Offline only. Administrators only. This group of menus allows you to perform advanced system and channel setup, and to configure the correlation option if present.

## Alarm Configuration

Offline only. Available to Mechanic user level and higher. These menus allow you to enable or disable alarms, choose whether an audible or visual signal should be triggered by an alarm, and choose the duration of these signals.

## Diagnostics Tools

Offline only. Viewable by Mechanics; changeable by Administrator. These hardware diagnostics allow you to test individual I/O signals, correlation signals (if present), and to view the Intellispec's computer hardware configuration.

## Database Tools

Offline only. Mechanic user level and higher. Through these menus, you can save or load different system or inspection databases, perform database repairs, or use the Database Detective (Wombat).

## Miscellaneous

Offline only. Available to Administrators only. These menus allow you to view log files, upgrade the software, manage user accounts, shut down the system, among other options.

## Language Selection

Offline only. Select a language in which to operate the Intellispec. Languages available are displayed in the drop-down menu.

## Online/ Offline

Click to change modes.

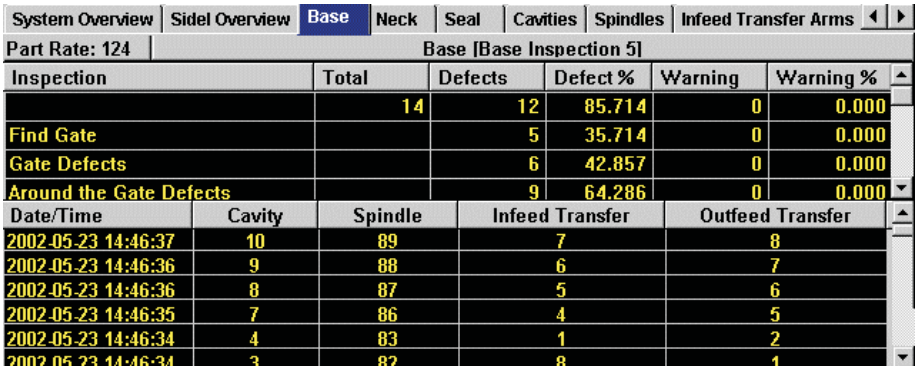
The Intellispec system has two modes of operation:  Online and Offline mode. Online mode is used for everyday inspecting of a product. Offline mode is used to train the system to a particular product and to configure the system.

The light on this button is green when the system is online. It is red when the system is offline.

## Help

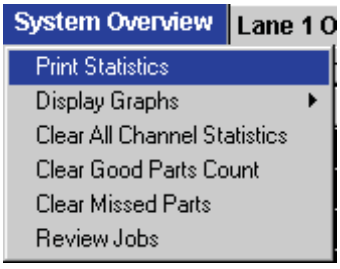
Offline only. Select a help topic to assist you with inspecting your product.

# Statistics area




This area displays inspection results. The tabs at the top of this section will vary depending on your system configuration. The System Overview tab displays inspection results for all channels. You may have a Sidel Overview or Lane n Overview tab that displays correlation results (if applicable) or channel group statistics. Individual channel statistics tabs are also present. In addition, if your system has the correlation option, correlation summary tabs are present.

## Statistics options




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

**Print Statistics** You can print job statistics if your Intellispec has a printer attached and configured. You may print these statistics whether the system is online or offline. If you encounter an error, make sure your printer is properly attached, configured, and ready.

**Display Graphs** Display the summary graphs for defects on all channels, or correlation graphs if you have the correlation option installed.

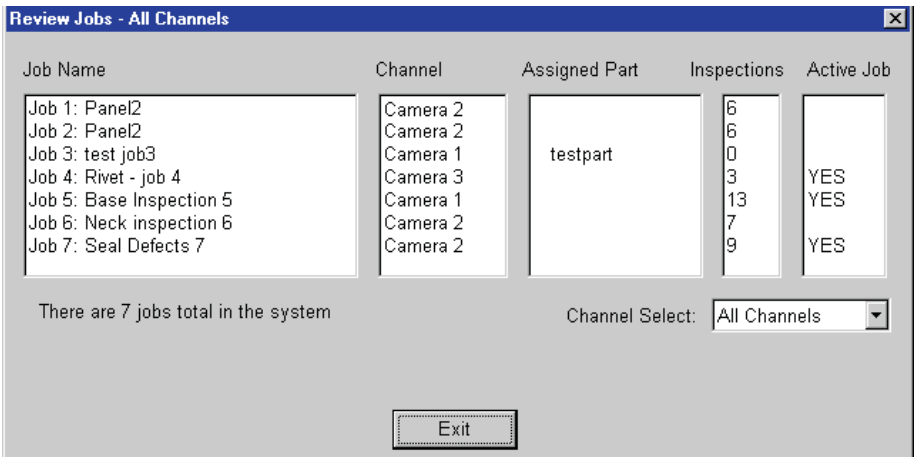
**Clear All Channel Statistics** Resets the number of inspected parts, the number of defective parts, and the number of warning parts to zero on all channels.

**Clear Good Parts Count** Resets the Good Parts alarm counter to zero.

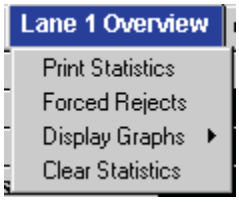
Good Parts is an alarm that can be used as a part counter. For example, say you are inspecting preforms, and have a box at the end of the conveyor (after inspection) that holds 5000 preforms. This alarm will count the number of good inspected parts, and notify you when 5000 good parts have reached that box. In addition, the External Stop signal, in this application, will stop the conveyor from moving parts into the inspection system. You can then install a new box at the end of the conveyor, reset this alarm, and start counting the next 5000 parts.

**Clear Missed Parts** Resets the number of Missed Parts to zero. Please see page 15 for more information about Missed Parts.

**Review Jobs** (Offline only) This displays a list of all jobs in the current database, the channel to which they are assigned, whether the jobs are assigned to Parts, the number of inspections per job, and whether any of the jobs are currently assigned to channels (active job).



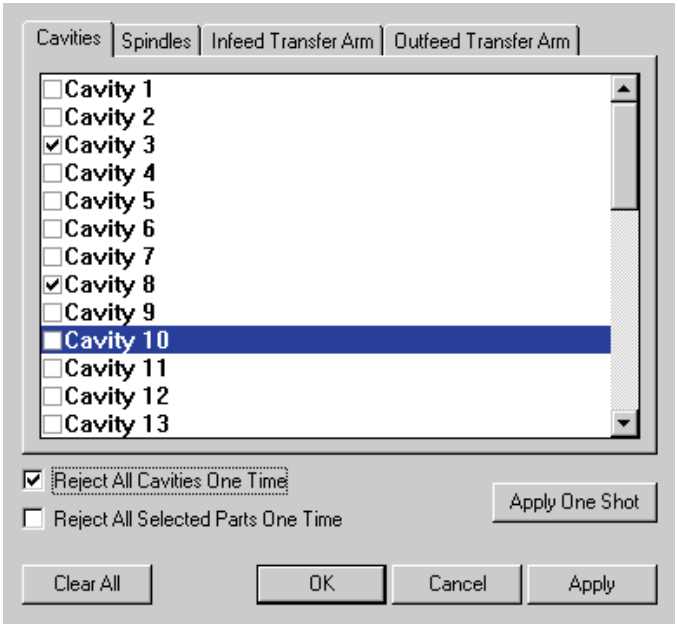

## Sidel or Lane n Overview




The name of this tab varies depending on your system configuration. The information under this tab reports statistics for a group of channels.

**Print Statistics** You can print channel group statistics if your Intellispec has a printer attached and configured. You may print these statistics whether the system is online or offline. If you encounter an error, make sure your printer is properly attached, configured, and ready.

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




The Forced Reject Menu allows you to force any part associated with a particular cavity, spindle, infeed transfer arm, or outfeed transfer arm to be rejected. The system will reject all parts associated with the checked components, regardless of the condition of those parts.

*Reject parts associated with known-defective machine components*

This feature provides a means of handling an emergency situation until the repairs on the machine can be made. If you know there is a serious problem with a particular machine component, you can use this method to ensure that no part from the defective component passes the inspection process.

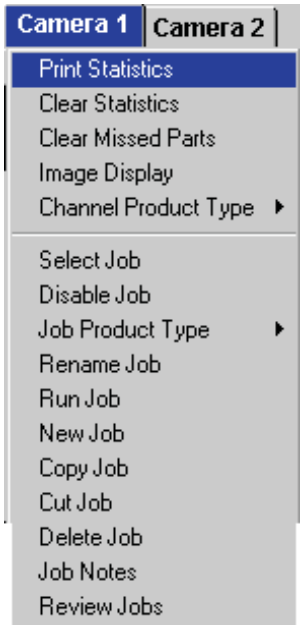
Any component that is checked will cause the system to reject all parts correlated to that component, regardless of inspection criteria. The Clear All button clears the check marks from all components at once (i.e. Cavities, Spindles, Transfer Arms). Click the Apply button to make the changes you have made to this menu.

- Reject All Cavities One Time – Check this box to purge the blow-molder or machine of all parts currently associated with all cavities. Click Apply One Shot to reject these parts.
- Reject All Selected Parts One Time – Check this box to reject the parts associated with all the components you have checked. Click Apply One Shot to reject these parts.

**Display Graphs** Display the summary graphs for defects on all channels, or correlation graphs if you have the correlation option installed.

**Clear Sidel Statistics** Resets the statistics for the group of channels reported in this tab.

## Job options




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

**Print Statistics** You can print channel statistics if your Intellispec has a printer attached and configured. You may print these statistics whether the system is online or offline. If you encounter an error, make sure your printer is properly attached, configured, and ready.

**Clear Statistics** Resets the number of inspected parts, the number of defective parts, and the number of warning parts to zero for this channel. All channels that are part of the same channel group will have their statistics cleared as well.

**Clear Missed Parts** Resets the number of Missed Parts for the current channel to zero. Please see page 15 for more information about Missed Parts.

**Image Display** Set Freeze Frame settings, or Image Display settings to display images online. See pages 22 and 24 for information about these settings.

**Channel Product Type** (Mechanic user level and higher) Offline only. View the default product type for the current channel. Product Type limits the available inspections to those that are most commonly used for a certain type of part.

**Select Job** Offline only. Select the job to run on the current channel. Note that if Part Management (page 21) is available, all jobs are loaded for all channels by choosing one part name.

**Disable Job** (Mechanic user level and higher) Disable the current job. This can be done online so that other channels continue to inspect while you make changes to this job.

**Job Product Type** (Mechanic user level and higher) 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 channel's Default Product Type.

**Rename Job** (Mechanic user level and higher) Offline only. Change the name of the current job.

**Run Job** 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. (See page 15 for a description of results screen)



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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 channel, 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 channel or another channel.

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

**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 channel.

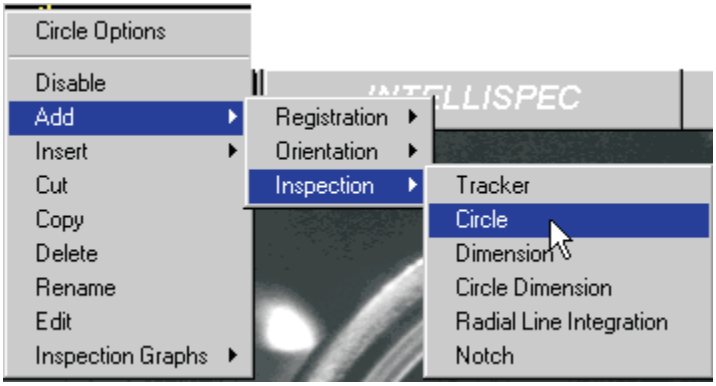
**Delete Job** (Administrator only) Offline only. Removes a job from the selected channel. This removes it completely from memory. It will also remove the job from the current database if you save the database again.

**Job Notes** (Editing: Mechanic user level and higher) Select the job to review job notes. When Editing is Enabled, enter notes about the job (e.g., 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, the channel to which they are assigned, whether the jobs are assigned to Parts, the number of inspections per job, and whether any of the jobs are currently assigned to channels (active job). (See example on page 9)

## Inspection options

When the System Overview or individual channel 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 menu.




Note that your user access level limits available menu options.

**Disable** (Administrator only) Disables the selected inspection. This can be done online, so you can modify the inspection without stopping inspection on the channel, if desired.

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

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

**Cut** (Administrator only) 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** (Administrator only) 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** (Administrator only) 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.

**Delete** (Administrator only) 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.

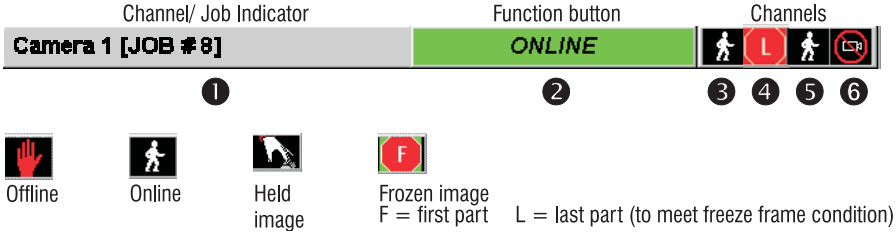
**Rename** (Mechanic user level and higher) Offline only. Rename the currently selected inspection.

**Edit** (Mechanic user level and higher) The inspection menus are displayed on screen right, and the proper channel's image is displayed.

☛ *Alternative to using Edit in menu: simply double-click the desired inspection name in the black area.*

**Inspection Graphs** Select an inspection graph to display on the Online Graphs screen. (See page 36 for more information about graphs)

# Image toolbar




This allows you to easily select a channel to display, release frozen images (online), and see the active channel and job. The next few paragraphs explain how the above-numbered buttons of the image toolbar can be used.

## Change channel

Click one of these ❸❹❺❻ to display desired channel. Click ❷ to scroll through all channels (online). Current channel, job name displayed on ❶.

## Hold/ Freeze channel (online)

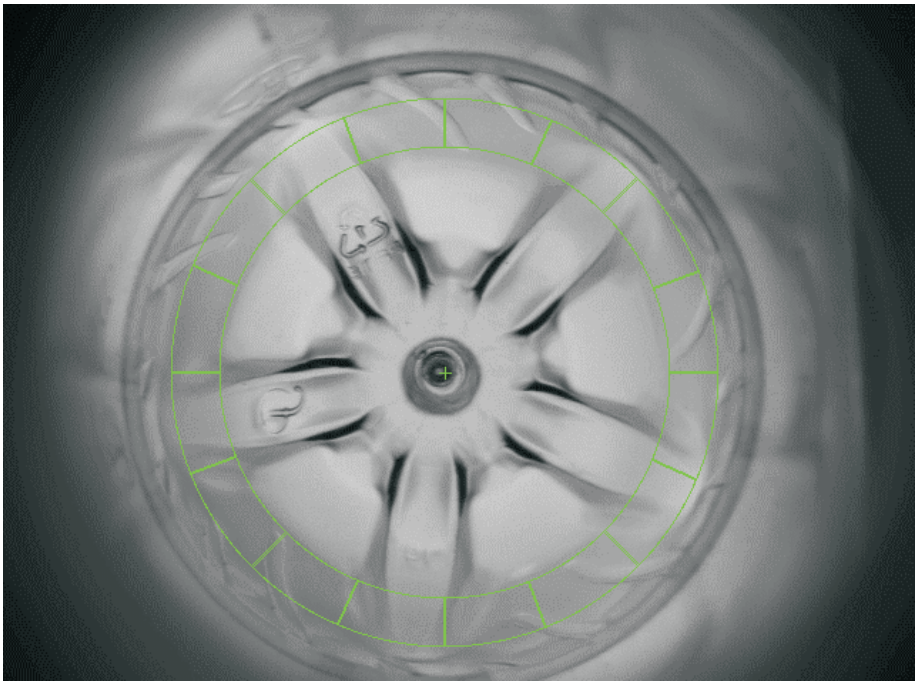
Hold image: Select desired channel (❸❹❺❻), then left-click on image.

Freeze Frame setup (for all channels): Click any channel's Statistics tab, right-click for menu, select Image Display. Select desired freeze frame condition in menus on screen right. Click OK [✓].

## Release channel (online)

Right-click one of these ❸❹❺❻ to release a frozen channel. Right-click ❷ to release all frozen channels. Note: Freeze Frame conditions may cause another image to freeze.

## 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. For example, Camera Control and lighting options are available to Administrators.

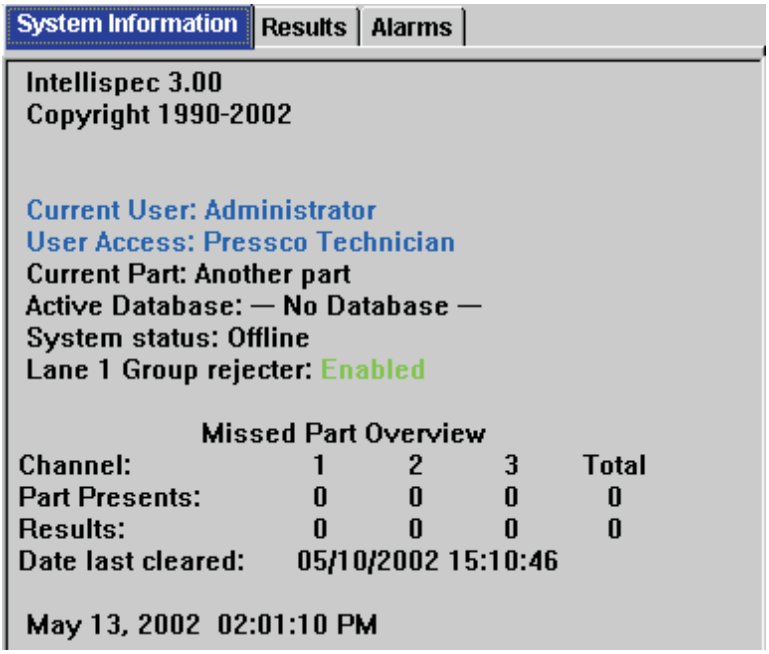
### Clear Image Graphics

This menu item, available by right-clicking on the image, removes inspection/ orientation/ registration graphics from the grayscale image.

## 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. The system tabs are described next.

## System Information




This screen displays information such as the current software version, the user currently logged in, the name of the part being inspected (see Part Management, page 21), and whether the system is online or offline.

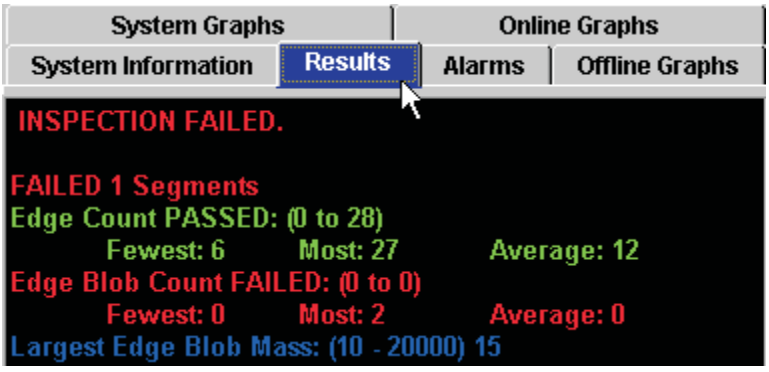
### *Missed Parts*

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.

A Missed Part is defined in two ways: either a missed part present signal or missed part results. A missed part present signal indicates the system was busy processing other parts when this part present inspection request came in. Missed part results means that the inspection was still being processed when the part made it to the reject station. Effectively, these parts were not inspected.

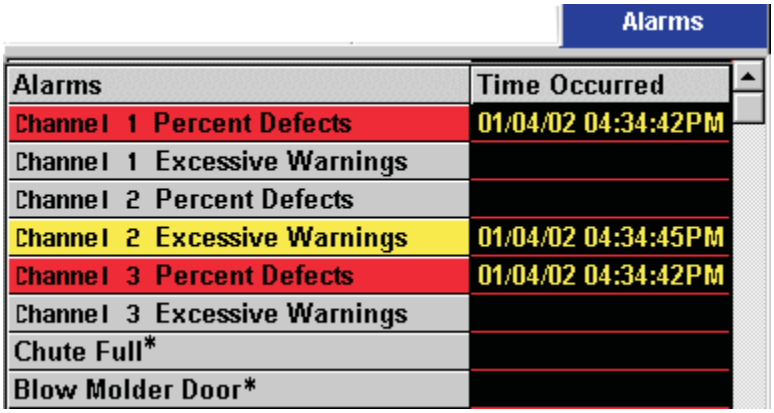
To clear missed parts statistics, click the System Overview tab (upper left screen), right-click, and select Clear Missed Parts.

## Results




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

## Alarms



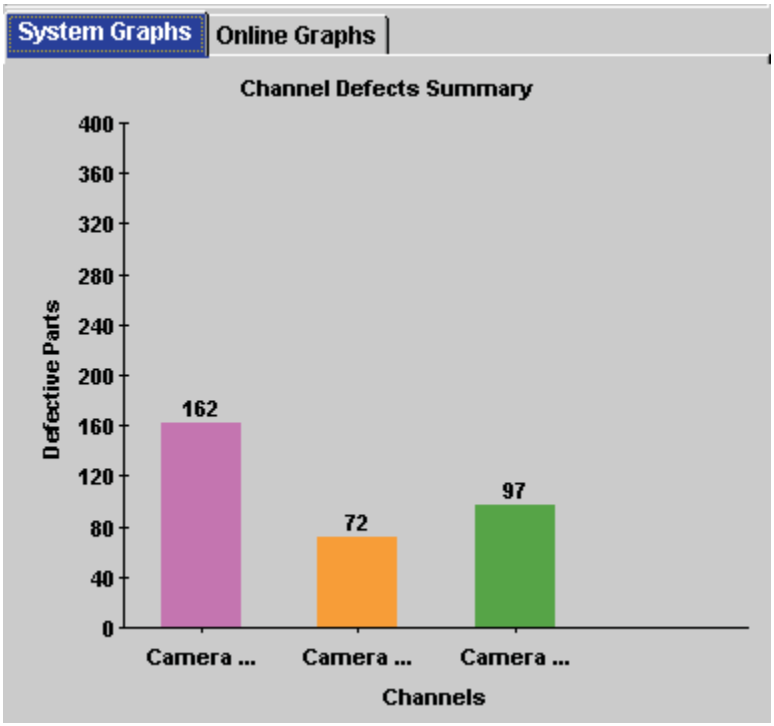

*Red is Alarm, Yellow is Warning.*
**PET-specific application alarms. Chute full alarm – clear chute. Blow molder door alarm – close door.*

This screen displays the status of all enabled alarms. If an alarm has been triggered, it is displayed in red, along with the time and date at which it was triggered. If an alarm reaches warning status, it is displayed in yellow. If an alarm has not been triggered, it is simply listed in gray.

To clear alarms, click the Alarms tab. Right-click for menu. Clear all alarms or a selected alarm.

When the system is online, if any alarms have been triggered, this screen remains displayed on top of the other screens until you clear the alarm(s).

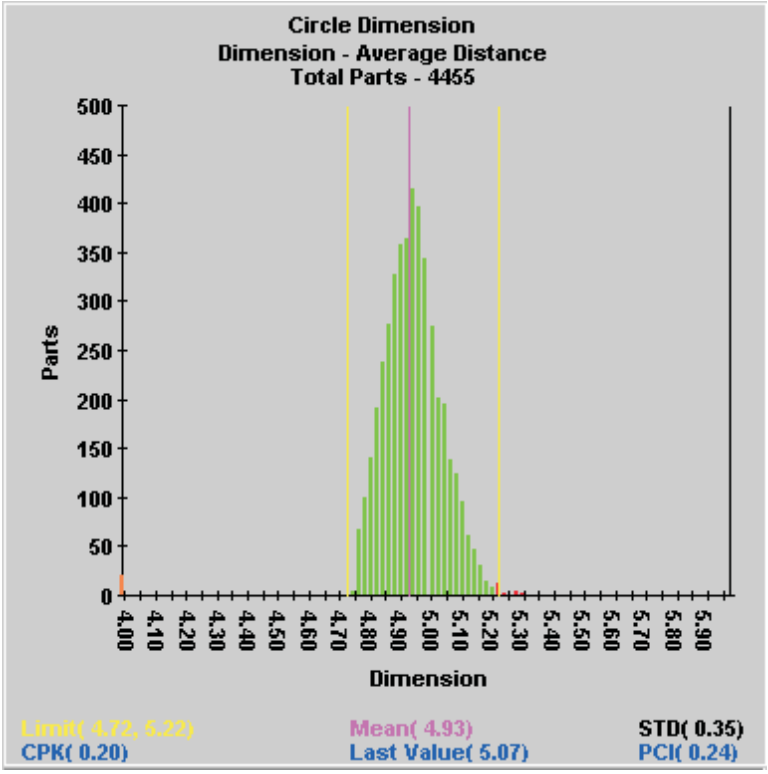
## System Graphs




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, right-click the System Graphs tab, and make your selection from the available graphs. You may also choose a graph by selecting System Overview tab or Sidel or Lane n Overview tab. Right-click, and select a graph from the list.

## Online Graphs




These are the inspection graphs. To select a graph, right-click the name of an inspection in the Statistics area, click Inspection Graphs, and 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.

☛ *See page 36 for more information about graphs.*

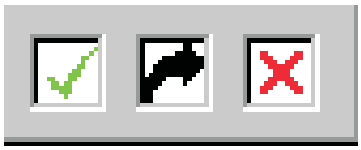
## Offline Graphs

These are inspection graphs available when you are editing an inspection (Mechanic user level and higher). They are useful when setting up and testing an inspection as you can adjust parameter limits while viewing the test data on the graph.

To view a graph, edit an inspection – double-click on the inspection name. Right-click the Offline Graphs tab, and select a graph.

Offline graphs are only updated when you re-test inspection during inspection modification. When you exit from modifying a job, offline graphs are removed from screen.

## Exiting menus



To exit inspection menus, configuration menus, etc., 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.

# Passwords

To protect system configuration and parameters from being changed by unauthorized users, the Intellispec has multiple user levels to allow different users different privileges.

The levels and the general areas they can access are illustrated below:

| User Level | Online access: edit jobs | Assign jobs, view & print statistics, put system online & offline | Offline: edit jobs, database access, load & save images, image analysis | User account management, create jobs, light control, camera control, system configuration |
|---|---|---|---|---|
| Operator | | ■ | | |
| Mechanic | ■ | ■ | ■ | |
| Administrator | ■ | ■ | ■ | ■ |

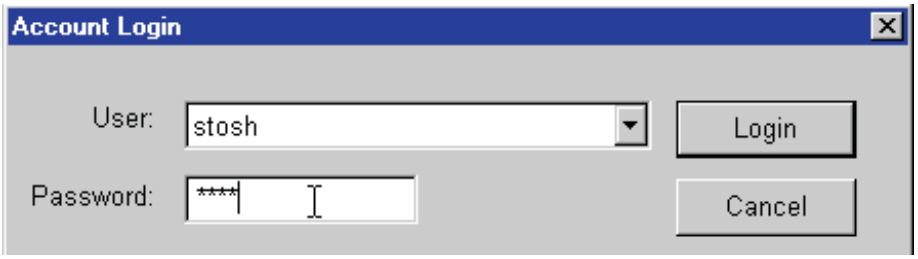
Additionally, there is a built-in Pressco Technician account that you cannot modify, for use by Pressco Service Engineers.

## Login

**Offline login**

To log in, click the button. 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. 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.

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

You must log in to access most system functions. If your access level does not allow you to enter a certain area of the system, you will not be allowed to enter that menu.

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.

**Online login**

When the system is online, you will be required to log in if you want to edit a job (Mechanic user level and higher), or if your system requires a password to take the system offline. The Administrator can specify whether a password is required to take the system offline through System Configuration, System menu. It is an advanced parameter.

## Logoff

Once you are finished modifying a job, for example, you would probably want to log off to prevent unauthorized users from altering the system setup. To log off, simply click the button.

If you put the system online, the system automatically logs you off.

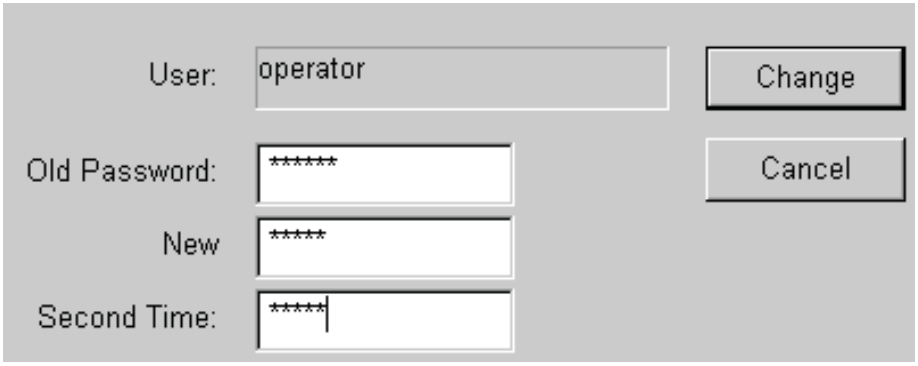
## What is my user access level?

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

## Change Password

To change your password, you must first log in (in offline mode). Click the Miscellaneous button. Under the Users tab, click Change Password. Enter your current password (Old Password), move the cursor and enter the New Password, then move the cursor and enter your new password a Second Time to verify. Click

Change to complete the changing of your password, or Cancel if you decide not to change your password.



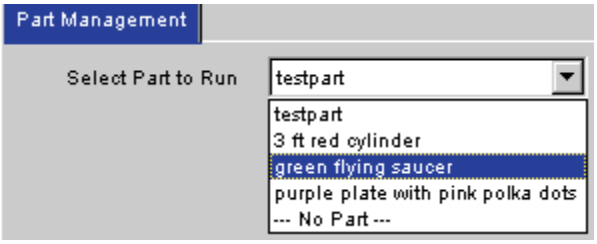
# Inspection

## Before Going Online

Before you put the system online, you must select which job to run for each of your channels. Log in. Choose the proper job(s) for the part you are inspecting, either by selecting a part or selecting a job for each channel.

### Select a part

If Part Management button is active, click the button and select a part from the drop-down menu.

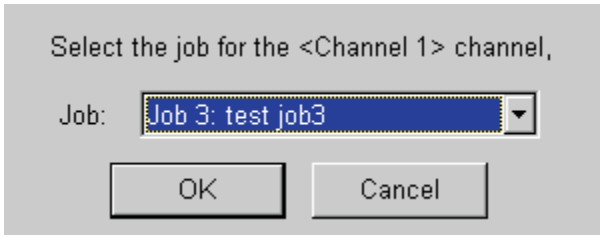



Your Administrator must first have programmed these parts. Part Management is configured through System Configuration, System menu. It is an advanced parameter.

This feature allows you to select a part name, and all the correct jobs for all channels are loaded. Note that one or more channels may be disabled – this is okay. See No Job below.

### Select jobs

If Part Management is not available, select a job for each channel. Click the channel's statistics tab (e.g., Camera 1), right-click the tab, Select Job. Select a job from the drop-down menu, click OK.




### No Job

You can select No Job for any channel. This disables the channel. In the event of a hardware error on a specific channel (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 channel if you run a different type of product, and want the system to ignore a certain channel's inspection view.

# Go Online

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

## 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 Hold freeze frame indicator becomes active when you hold an image. Please see below for a description of all the freeze frame indicators.

## Releasing an image

Right-click the channel's indicator to release a held or frozen image. Or right-click the function button to release all channels. Note that a freeze frame setting might cause another image to freeze.

See also Image Toolbar, page 13.


## Freezing an image (Freeze Frame settings)

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.

To set Freeze Frame, click one of the channel statistics tabs, right-click, and select Image Display. The menu is displayed on screen right. Selecting a freeze frame mode affects all channels. Click OK [✓] for it to take effect.

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, Passing, Good, or Warning part.

### 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. See page 24 for a description.

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

**First Pass** The system freezes the image of the first part to pass inspection. This could be either a good part or a part with a warning status.

**First Good** The system freezes the image of the first good part — no defects, no warnings.

**First Warning** The system freezes the image of the first part to pass inspection with a warning status.

**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 Pass** The system freezes the image of the last part to pass inspection. This could be either a good part or a part with a warning status.

**Last Good** The system freezes the image of the last good part — no defects, no warnings.

**Last Warning** The system freezes the image of the last part to pass inspection with a warning status.

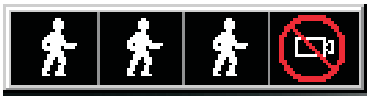
### Graphics Display

**Show Failed Regions** Displays only the inspection regions that caused the job to meet the Freeze Frame condition.

**Show All Regions** Displays all the inspection regions on the Freeze Frame image.

**Show No Regions** Displays only the Freeze Frame image.

Click [✓] OK to accept menu changes.



## Freeze Frame Indicators

These indicators change depending on the system mode. During Setup mode, these will indicate a Halt status. There is one indicator for each of four possible channels.

During Run mode, these change to a figure running. In Run mode, if you have the system in certain freeze frame modes, these will change accordingly.

If you see a picture of a camera with a line through it as shown above, this indicates that a channel is not configured.


In Freeze frame conditions in Run mode, these indicators change based on your freeze choices. If you choose to have the First Failed part frozen, the indicators for any channel 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” - yellow background | First warning part frozen |
| “F” - blue background | First passing part frozen, either warning or good part |
| “F” - green background | First good part frozen |
| “L” - red background | Last failed part frozen |
| “L” - yellow background | Last warning part frozen |
| “L” - blue background | Last passing part frozen, either warning or good part |
| “L” - green background | Last good part frozen |

When you hold an image, the current channel will have a touch key icon. When you release that image, the icon switches back to the previous mode. Also, the image is automatically held and this icon appears on the current channel when you are editing a job online.

# Displaying a channel

To display a channel:

- Click one of the channel indicators, or
- Right-click on the image, click Display, and select one channel or All Channels

The length of time between image updates depends on the settings in the Image Display Control menu. Select this menu by clicking one of the channel statistics tabs, right-click, and select Image Display.

## Image Display settings

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

### Display Control

☛ *This feature works only if you have chosen “All Channels” by right-clicking the image and selecting All Channels. If you are displaying only Channel 1, for instance, only Channel 1 is displayed on screen. Also, if you have Freeze Frame enabled, it overrides Display Control.*

**By Channel** Display images by channel number. That is, Channel 1, Channel 2, Channel 3, etc. Channel 1’s image will be displayed until the system processes an image for Channel 2, etc. This is a good way to sample activity on all the channels.

**As Received** Display images from all channels by the order in which they were processed. This is not necessarily in order by channel number.

### Display Units

**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.

Click OK [✓] to accept menu changes.

# Go Offline

If you want to take the system offline, simply click the  button. The light on the online/ offline button turns red to indicate that the system is offline.

You may be required to enter your user account name and password to take the system offline. The Administrator can specify whether a password is required to take the system offline through System Configuration, System menu. It is an advanced parameter.

# Reports

## Overview

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 some statistics automatically, at intervals programmable by your Administrator. Statistics graphs can also be printed or saved on demand.

In this section, we will describe how to save statistics or graphs manually, and how to copy this information to floppy diskette for you to use outside of the Intellispec.

## What data is collected?

The following data is collected by the Intellispec:

1. Job statistics – parts inspected, parts rejected, which inspections failed
2. Correlation data – how many defects were associated with each cavity, infeed/outfeed transfer arm, and spindle. Only available if you have the correlation option.
3. Individual inspection graphs – 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.
4. Online/ offline history report
5. System setup parameters

The next few sections describe how to view, print, and save these items.

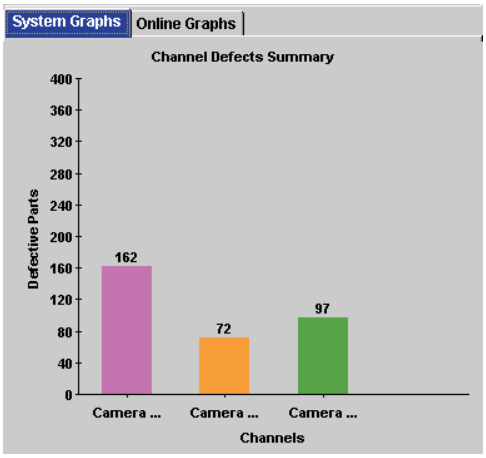
## 1 – Job statistics

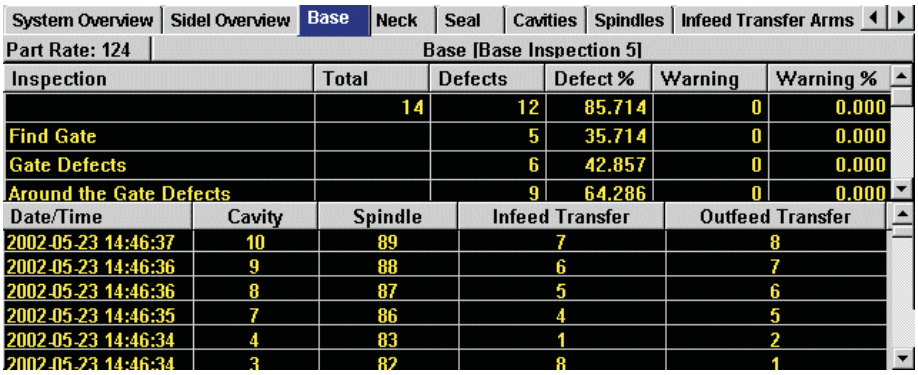
This consists of the number of parts inspected, parts rejected, percent rejected, and the number of rejects or warnings that occurred with each inspection. A report is generated for each channel, either on demand or at scheduled intervals.

### Viewing job statistics on screen

The Channel Defects Summary graph displays the overall statistics for all channels. This is a graph that shows the defects found from all the channels. There is a vertical color-coded bar for each of the channels. The bar height represents how many parts have failed for each channel. This can be displayed whether the system is offline or

online. To display, click System Graphs tab, right-click, and choose Channel Defects Summary.




*Statistics*

The Statistics area displays detailed job information in tabular format. These graphs display the Part Rate, job name, total number of inspected parts for each channel, total number of defective parts for each channel, and the percentage of defective parts from each channel. The results for each inspection of the active job are also displayed.

You can select which statistics to display whether the system is online or offline:

- To display defect information for all channels, click the System Overview tab.
- Group statistics – may be labeled Sidel Overview if you have the correlation option, or Lane n Overview – displays statistics for a group of channels. It displays the total number of parts inspected, and the number of defective or warning parts. This tab also displays correlation data for this group of channels if you have the correlation option.
- To display defect information by channel, click the Channel n Statistics tabs. If your system has the correlation option, the cavity, spindle, and transfer arm data is displayed by channel. Each occurrence is listed by time (most recent first).
- If your system has the correlation option, additional tabs are available – Cavities, Spindles, Transfer Arm correlation statistics.

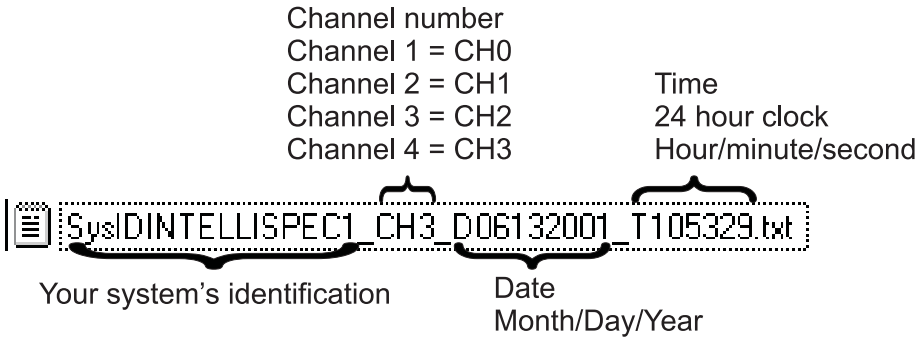
# Printing and saving job statistics

## Automatic print or save

Job statistics information can be printed or saved automatically by the Intellispec if the system is set up to do so. The data can be saved every shift, hour, minute, or any time interval you find useful. Ask your Administrator if you want to have the system save data automatically. This is programmed through System Configuration, Reports.

The statistics are saved to a text (.txt) file into the C:\PETProvision\Reports folder. These text files can be imported into a spreadsheet such as Microsoft® Excel, so you can plot trend data. The files are tab delimited. In Excel, simply open the text file, choose delimited (tab), and the file will import into several columns, much as it appears when you print the file to a printer.

The text files are named as shown below:




## Print on demand

You can print job statistics on demand if your Intellispec has a printer attached and configured. Click the desired Statistics tab, right-click, and select Print. You may print these statistics whether the system is online or offline.

If you encounter an error, make sure your printer is properly attached, configured, and online.

The inspection results for the jobs are printed, including the number of rejects, reject percentage, warning parts, warning percentage, and passing parts. These are listed by inspection name so that you know which inspection failed or had a warning status, and how many times. Note that the totals listed on the bottom are the maximum number in that column, not the sum of the column.

Intellispec Statistics Report

System ID: DOCUMENTATION
Job[Channel]: Job #49 [Neck]
Current Time: May 08, 2000 02:51 PM
Last Reset: May 08, 2000 02:12 PM

| Inspection Name | Reject | Rej% | Warning | Warn% | Passing | Pass% | Total |
|---|---|---|---|---|---|---|---|
| Horiz Reg | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| NECK REG | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| NECK REG | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| NECK REG | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| upperneck | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| chokedneck | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| lowerneck | 77 | 8.12% | 0 | 0.00% | 871 | 91.88% | 948 |
| color | 0 | 0.00% | 429 | 45.25% | 948 | 100.00% | 948 |
| RECTANGLE | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| RECTANGLE | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| DENSITY | 0 | 0.00% | 0 | 0.00% | 948 | 100.00% | 948 |
| Total | 77 | 8.12% | 429 | 45.25% | 871 | 91.88% | 948 |

Definitions:

Reject: Number of inspections reporting a Reject.
Warning: Number of inspections reporting a Warning.
Total: Total number of parts inspected.

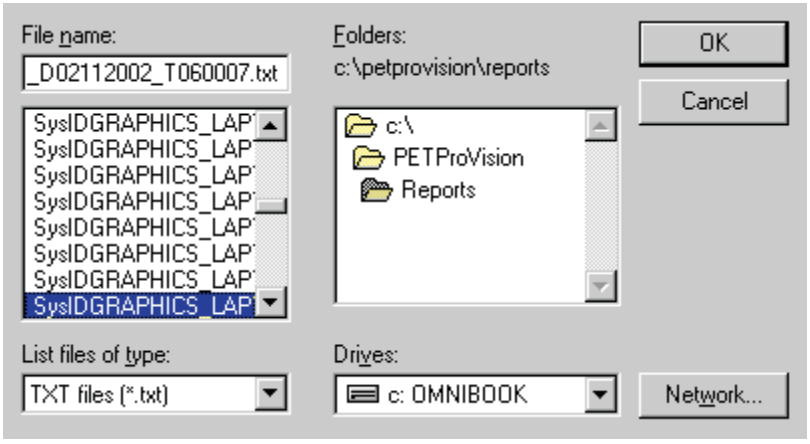
Note: Totals under the Reject and Warning columns may not reflect a sum of that column since one part may trigger a reject or warning for more than one inspection.

# Saving job statistics to floppy diskette

System must be offline. Log in as Mechanic user level or higher. Use the Database Detective tool to quickly select files and copy them to diskette. Click Database Tools , Database Utilities, and select Database Detective.

For Job Statistics, click the Other tab in the Database Detective, select Copy Files to Floppy, and select Reports. Select the appropriate files to copy.

When selecting a file, look in the box directly underneath “File Name”. This box shows the part of the file name that lists the date and time when the file was created. You can scroll through the names of files with the up and down arrow keys on the keyboard.




See the Database Detective section (page 43) for more information about this tool.

## Clearing job statistics

You can clear the Intellispec screen statistics for one channel group or all channels, whether the system is online or offline. This does not clear setup parameters; it clears the number of parts inspected, defects, percent defects, etc.

- To clear all job statistics as well as correlation statistics: Log in. Click System Overview tab, right-click, and select Clear All Channel Statistics.
- To clear a channel group's statistics: Log in. Click a channel's statistics tab, right-click, and select Clear Statistics. All channels that are part of the same channel group will have their statistics cleared as well. Note: this does not clear correlation statistics.

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

# 2 - Correlation data

Correlation data associates defects to certain machine components – cavities, spindles, and transfer arms. This data can be generated by the Intellispec only if you have the correlation option installed.

## Viewing correlation statistics on screen

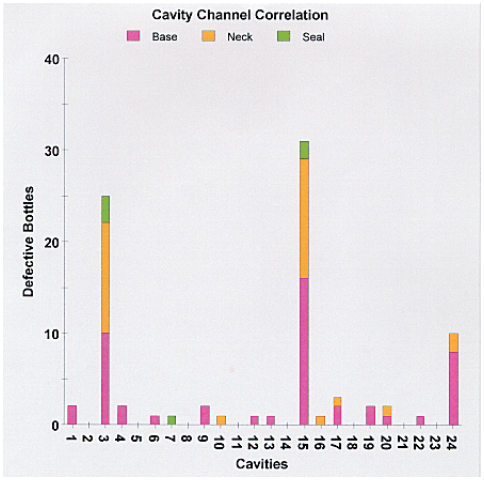
### Graphs

To select a graph, click the System Graphs tab, right-click, and select a graph.

The available correlation graphs are described next.

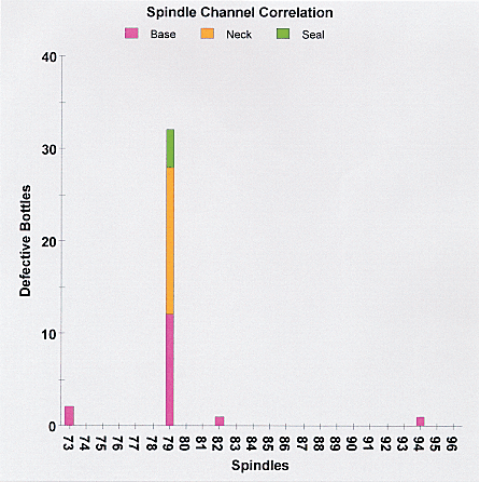
**Cavities Correlation**

The graph displays data for the machine cavities. Vertical color-coded bars are displayed, representing the number of parts that failed from each channel, that were manufactured in their corresponding cavities.



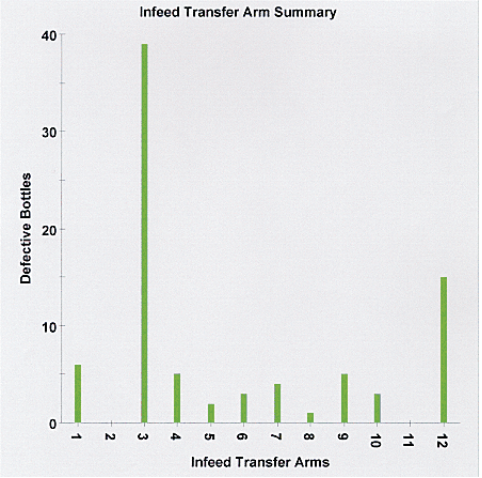

**Spindles Correlation**

Similar to Cavities Correlation described above, this graph displays the defects found for each channel, correlated to each spindle. The graph is color-coded for defects that occurred on each channel.



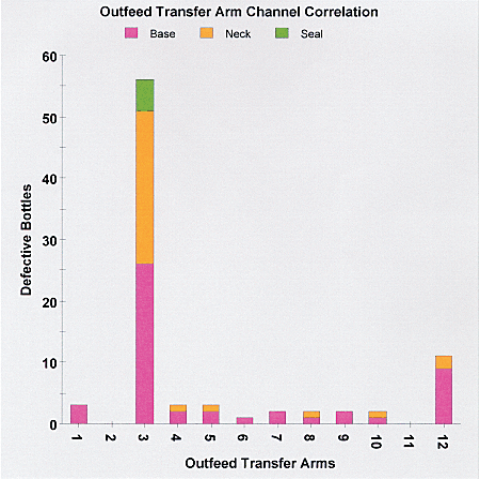

**Infeed Transfer Arms Correlation**

Similar to Cavities Correlation described above, this graph displays the defects found for each channel, correlated to each infeed transfer arm.

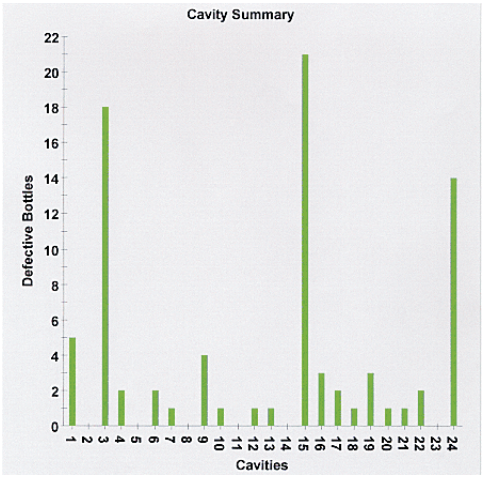



**Outfeed Transfer Arms Correlation**

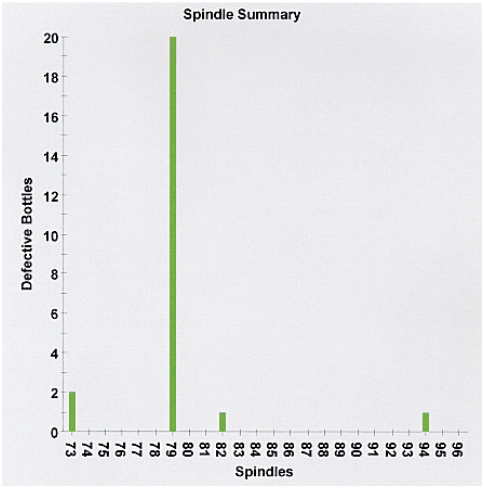
Similar to Cavities Correlation described above, this graph displays the defects found for each channel, correlated to each outfeed transfer arm.



**Cavities Summary** This graph is a summary of all the defects that were correlated to all of the cavities in the machine. (All channels combined)




**Spindles Summary** This graph is a summary of all the defective parts correlated to all of the spindles in the machine. (All channels combined)




**Infeed Transfer Arms Summary** This graph is a summary of all the defective parts correlated to all of the infeed transfer arms in the machine. (All channels combined)

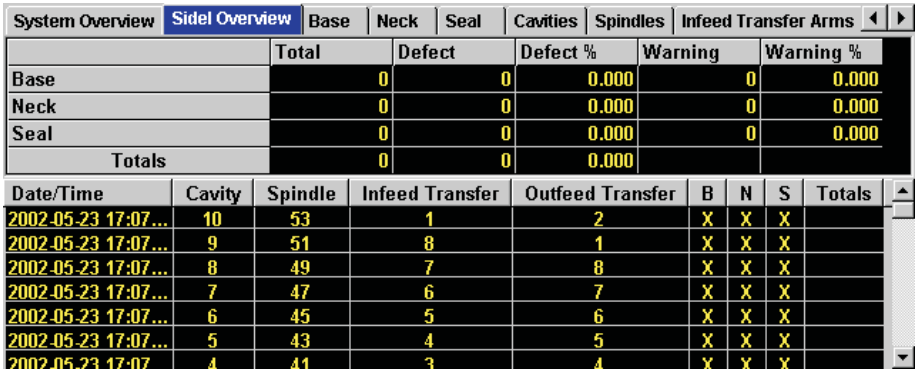
**Outfeed Transfer Arms Summary** This graph is a summary of all the defective parts correlated to all of the outfeed transfer arms in the machine. (All channels combined)

## Correlation tables

You can also 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 Sidel Overview, Cavities, Spindles, or Infeed or Outfeed Transfer Arms for correlation data. These are described next.

**Sidel Overview** Lists the machine correlation data for all channels. The lower part of the table shows the correlation data for part failures (most recent first). There is an X in the column for the channel that failed. In this example, the Seal Surface “S” channel had defects. Base channel = “B”, and Neck = “N”. The data for the last 50 failed parts is displayed.




**Cavities Summary** This table shows how many parts were rejected that were correlated to each cavity. This is useful for determining failure trends on specific components, especially if one cavity in particular generated a large number of defects.

**Spindles Summary** Similar to the Cavities Summary. This table displays defects that were correlated to each spindle.

**Infeed Transfer Arms Summary** Similar to the Cavities Summary. This table displays defects that were correlated to each infeed transfer arm.

**Outfeed Transfer Arms Summary** Similar to the Cavities Summary. This table displays defects that were correlated to each outfeed transfer arm.

# Printing and saving correlation statistics

## Automatic print or save

Correlation information can be printed or saved automatically by the Intellispec if the system is set up to do so. The data can be saved every shift, hour, minute, or any time interval you find useful. Ask your Administrator if you want to have the system save data automatically. This is programmed through System Configuration, Reports.

Print Destination can be specified as Printer, File, or Printer & File.

If Print Destination is File or Printer & File, one file per time interval is saved to the C:\PetProvision\Reports folder. It contains the correlation data from all the machine parts you are tracking (cavities, spindles, transfer arms). The correlation file is named AllCorrelation*.txt, where * specifies the date_time at which the file was saved. It also lists the data for the last 50 defective parts at the end of the file.

## Printing graphs on demand

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. Click System Graphs tab, right-click, and select desired graph. Right-click again and select Print.

AllCorrelation02262002_102814.txt - Notepad

File Edit Search Help

```
Correlation Statistics

System ID:      SAMPLE_SYSTEM
Date:                   February 26, 2002 10:28:14 AM

_____________________________________________________________________

Total Cavity Defects

_____________________________________________________________________
Cavity          Defects
_____________________________________
1               6
2               6
3               5
4               5
5               5
6               5
7               5
8               6
9               6
10              6

Total Spindle Defects

_____________________________________________________________________
Spindle         Defects
_____________________________________
1               1
2               0
3               0
```

...

AllCorrelation02262002_102814.txt - Notepad

File Edit Search Help

Last 50 Defective Parts

| Date/Time | Cavity | Spindle |
|---|---|---|
| 2002-02-26 10:22:03 | 2 | 1 |
| 2002-02-26 10:22:03 | 1 | 100 |
| 2002-02-26 10:22:02 | 10 | 99 |
| 2002-02-26 10:22:02 | 9 | 98 |
| 2002-02-26 10:22:01 | 8 | 97 |
| 2002-02-26 10:22:01 | 7 | 96 |
| 2002-02-26 10:22:00 | 6 | 95 |
| 2002-02-26 10:22:00 | 5 | 94 |
| 2002-02-26 10:21:59 | 4 | 93 |
| 2002-02-26 10:21:59 | 3 | 92 |
| 2002-02-26 10:21:58 | 2 | 91 |
| 2002-02-26 10:21:58 | 1 | 90 |
| 2002-02-26 10:21:57 | 10 | 89 |
| 2002-02-26 10:21:57 | 9 | 88 |
| 2002-02-26 10:21:56 | 8 | 87 |
| 2002-02-26 10:21:56 | 7 | 86 |
| 2002-02-26 10:21:55 | 6 | 85 |

## Saving correlation statistics to floppy diskette

Use the Database Detective tool to quickly select files and copy them to diskette. First you must log in as Mechanic user level or higher. Click the Database Tools button, Database Utilities, and select Database Detective.

For Correlation Statistics, click the Other tab in the Database Detective, select Copy Files to Floppy, and select Reports. Select the appropriate files to copy (AllCorrelation*.txt).

When selecting a file, look in the box directly underneath “File Name”. This box shows the part of the file name that lists the date and time when the file was created. You can scroll through the names of files with the up and down arrow keys on the keyboard.

See the Database Detective section (page 43) for more information on this tool.

These text files can be imported into a spreadsheet such as Microsoft® Excel, so you can plot trend data. The files are tab delimited. In Excel, simply open the text file, choose delimited (tab), and the file will import into several columns, much as it appears when you print the file to a printer.

## Clearing correlation statistics

You can clear the correlation statistics from the Intellispec screen whether the system is offline or online. First log in. Click the Sidel Overview tab, right-click it, and select Clear Sidel Statistics.

The data will be cleared from all correlation graphs and tables on the screen. The system updates statistics every few seconds, so you may have to wait to see the results on the screen. Note: the job statistics (number of defects) are not cleared.

To clear all job statistics and correlation statistics at once: Log in. Click System Overview tab, right-click it, and select Clear All Channel Statistics.

# 3 - Inspection graphs

## Online graphs vs. Offline graphs

Online graphs are inspection graphs that receive data when the system is inspecting online. They remain on screen when the system is offline, but the inspection data will not change offline.

Offline graphs are inspection graphs that are only displayed when the system is offline and when you are editing an inspection (Mechanic user level and higher). The data is updated when you test an inspection. This is, run a job, or snap images while you are editing the inspection. When you exit from editing the inspection, offline graphs are removed from the screen.

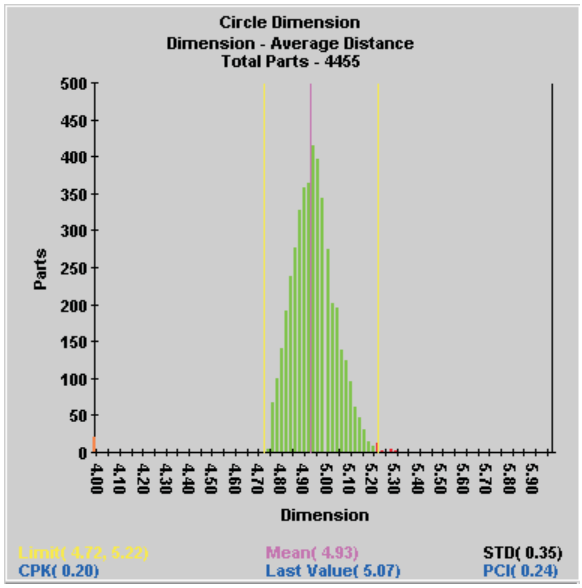
The inspection graphs can help you adjust the performance of an inspection. For example, they can help you set the minimum and maximum ambient allowed for a specific inspection. These graphs also show statistical information about how well the process is performing.

# Viewing the inspection graphs on screen

The types of inspection graphs available varies, depending on the types of inspections programmed in your job. For example, the Polygons inspection can have 21 available graphs.

To display a graph:

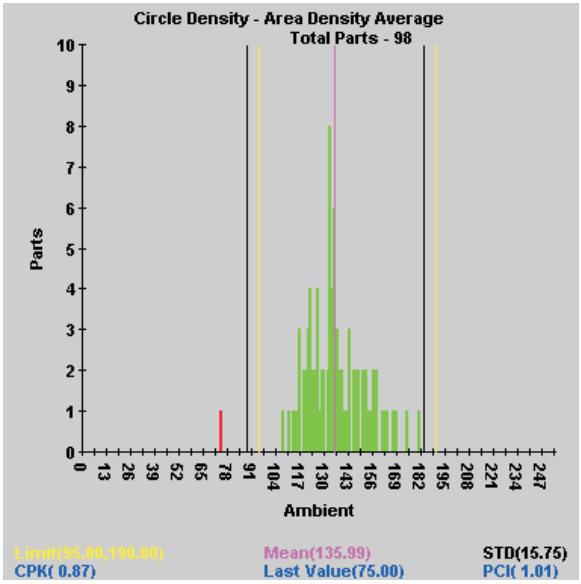
**Online graphs** Right-click on an inspection name in the statistics area. Click Inspection Graphs, and select the desired graph.




**Offline graphs** Double-click an inspection name to edit the inspection (Mechanic user level and higher). Offline Graphs tab will be displayed. Click Offline Graphs tab, right-click it, and select a graph.

# 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.




The information displayed in the inspection graphs is described next:

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

**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 vectors 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 vectors 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.

☛ *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.

## Inspection graphs with error details

These graphs display a summary of the total number of defective parts found within each enabled portion of an inspection. For example, an inspection has Ambient, Edge, and Zone analysis enabled. This graph will display the number of defective parts that failed the Ambient, Edge, and Zone portions of that inspection.

To view the error details, make sure inspection graphs are displayed (see page 37). Select the Online Graphs or Offline Graphs tab, right-click it, and select Error Details.

More information about specific inspection graphs and error details graphs may be found in the Intellispec Programming Guide, or one of its Inspection Addendums.

## Clearing inspection graphs

Right-click the Online Graphs or Offline Graphs tab; select Clear. The graph data is reset to zero parts.

## Printing inspection graphs

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. Make sure inspection graphs are displayed (see page 37).

Right-click the Online Graphs or Offline Graphs tab. Select Print.

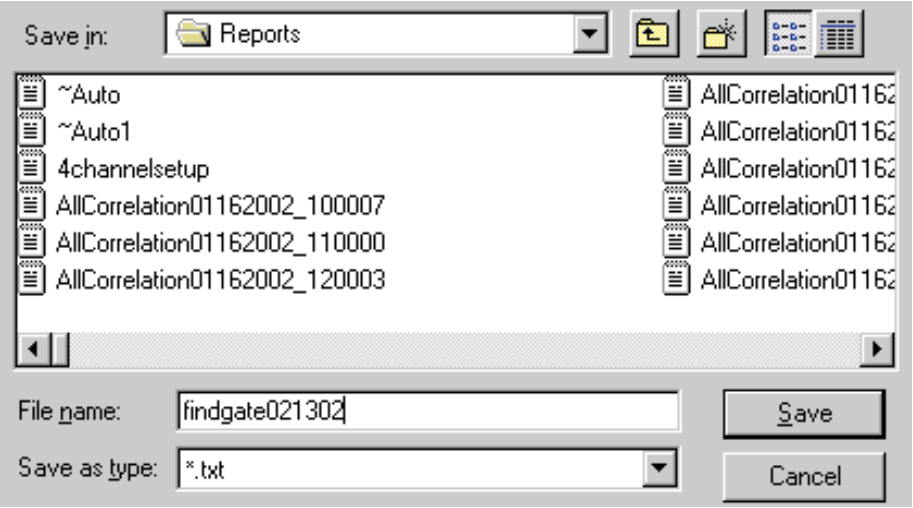
## Saving inspection graph data

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 graph data, make sure inspection graphs are displayed (see page 37).

**Save** To save the data, click the Online Graphs or Offline Graphs (if available) tab.

Right-click it, and select Save. Name the file. The data will be saved as a text file. The default folder is C:\PetProvision\Reports.




**Save All** With Offline Graphs, 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.

## Saving graph data to floppy diskette

Use the Database Detective tool to quickly select files and copy them to diskette. Log in as Mechanic user level or higher. Click the Database Tools button, Database Utilities, and select Database Detective.

For Graphs, click the Other tab in the Database Detective, and select Copy Files to Floppy, and select Reports. Select the appropriate file to copy (your graph name*.txt). If you did not save the graph to the Reports folder, scroll to the appropriate folder and choose the file.

See the Database Detective section (page 43) for more information on this tool.

# 4 - Online/ offline history report

The Intellispec's Database Detective tool allows you to view or print a simple report that lists when the Intellispec went online, and when it was taken offline. This report also lists what user was logged into the system when the system was taken offline (if system is password-protected to go offline).

To view this report, log in as Mechanic user level or higher. Click the Database Tools button, Database Utilities, and select Database Detective. Select the "Other" tab, and choose Online-Offline History. You can view the report on screen, or print it to a file.

See the Database Detective section (page 43) for more information about this tool.

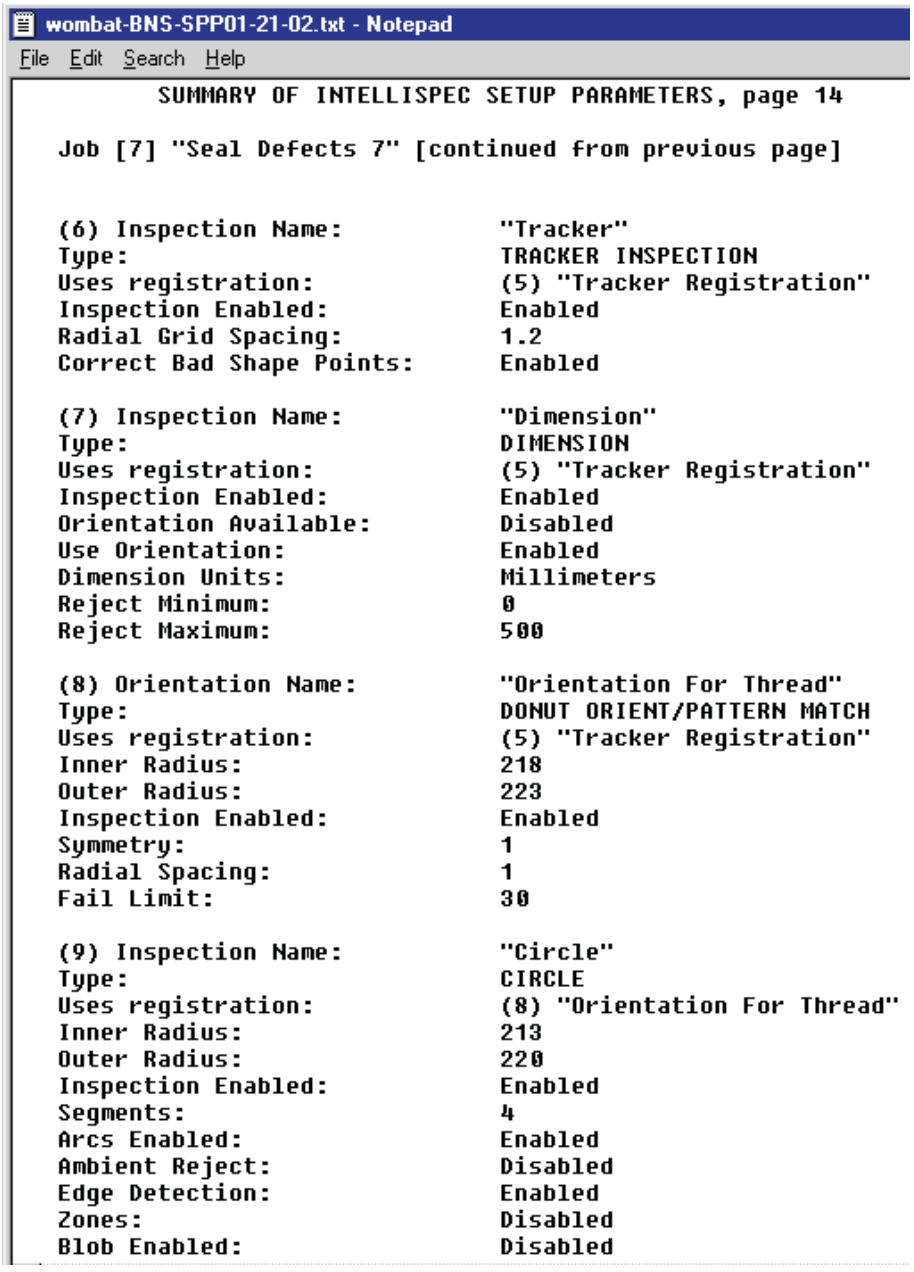
# 5 - System setup parameters

The Intellispec's 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 channel.

To view this report, log in as Mechanic user level or higher. Click the Database Tools button, select Database Utilities, and select Database Detective. Select Make Process Sheet and click Next. Choose a database to display its parameters.

See the Database Detective section (page 43) for more information about this tool.

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

(9) Inspection Name:          "Circle"
Type:                         CIRCLE
Uses registration:            (8) "Orientation For Thread"
Inner Radius:                 213
Outer Radius:                 220
Inspection Enabled:           Enabled
Segments:                     4
Arcs Enabled:                 Enabled
Ambient Reject:               Disabled
Edge Detection:               Enabled
Zones:                        Disabled
Blob Enabled:                 Disabled
```

# Database Detective

## Overview

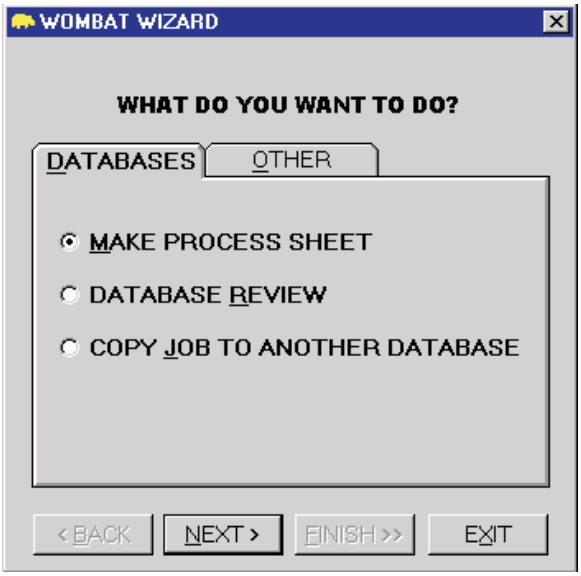
☛ *You must have a user access level of Mechanic or higher to use the Database Detective.*

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.

This program is available through Database Tools, Database Utilities.

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.

From one of the tabs, choose a task to perform. The choices are described below:




## Databases

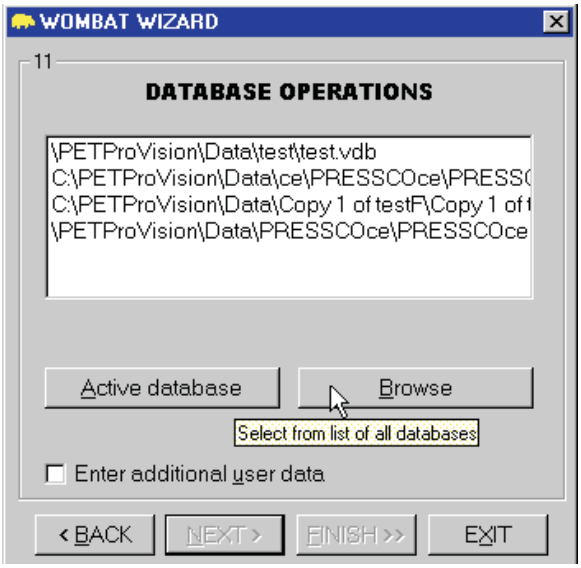
### Make a Process Sheet

A process sheet is composed of two parts: a summary of the system and channel 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 channels.

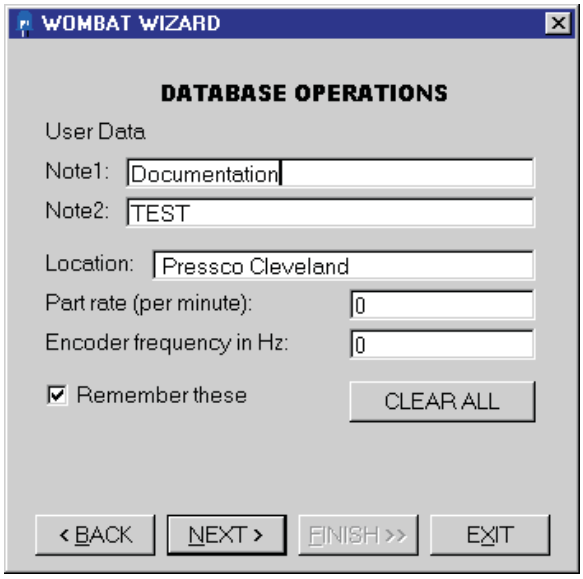
To make a process sheet:

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.

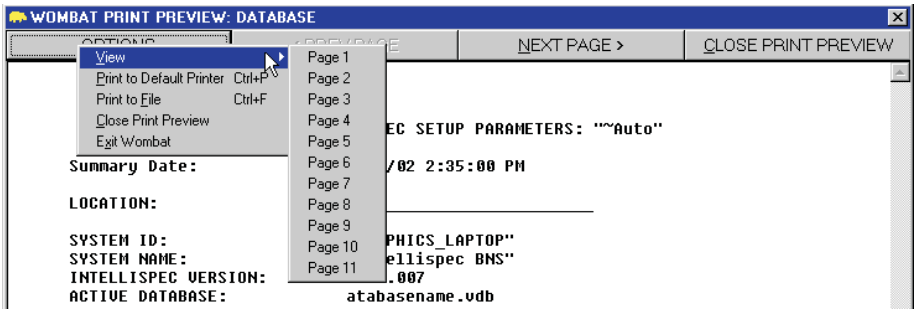



   - Active database – This is the database that is currently running on the Intellispec. If you choose this option, you are assured of the most up-to-date information. Go to step 3.
   - If you click the Browse button, Wombat will search your Intellispec and provide a list of all databases. Select the desired database and click OK. Go to step 3.
3. Check the 'Enter additional user data' box, if desired, to add more detailed information about your system.

4. Click Next. If you have checked ‘Enter additional user data’, the screen below is displayed. This information will be entered on your process sheet. If you check ‘Remember these’, this information will remain in this program so you do not have to enter it the next time you run the Database Detective. However, you must check the ‘Enter additional user data’ box for the program to include it in your process sheet. Click Next.



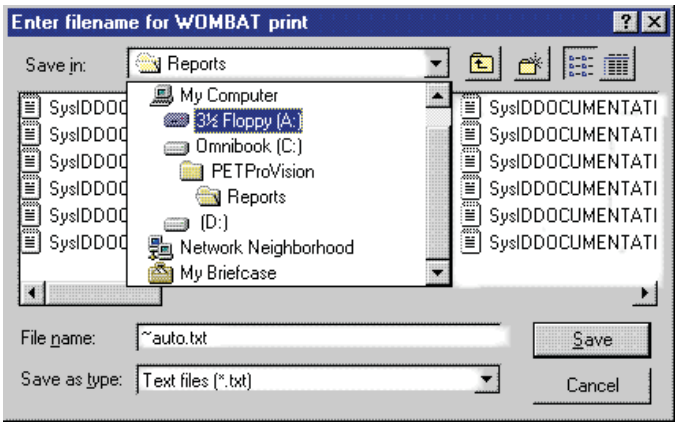

The system creates the Process Sheet and displays the information as a print preview, so you can view it, print it, or save it. Click the Options button to make your choice. The choices are described below.




**View** This displays a list of pages. Choose one to view. The number of pages will vary depending on the size of your database.

**Print to Default Printer** Prints the report to the attached printer (if you have one already set up).

**Print to File** Wombat saves the Process Sheet as a text (.txt) file to the default Reports folder, which happens to be the same folder where the system statistics are printed. If you would like to save this data to disk instead, and use it outside of the Intellispec, scroll up to the A: drive and allow Wombat to print it to a floppy disk. Or, you can save reports to the Reports folder and copy them to floppy at a later time, as you will see later in this chapter.




**Close Print Preview** Closes the report. No Process Sheet is saved to disk.

**Exit Wombat** Closes the Wombat program.

# Database Review

This feature provides a printable list of databases within the Intellispec. This information is useful, especially prior to a software upgrade. It contains the number of jobs in the database, the number of parts[1] created in the database, obsolete inspections, and more.

```
                    DATABASE SUMMARY

      Summary Date:   5/20/02 2:36:26 PM

      Abbreviations:  C   Channels
                      CG  Channel Groups
                      CW  (reserved)
                      IN  Inspections
                      J   Jobs
                      MRJ Jobs with Multiple Registrations
                      OI  Obsolete Inspections
                      P   Parts

      NAME            VERSION   DATE&TIME SAVED   CW CG C P  J   IN  MRJ OI

 PREFORM CLEAR        2.00.023  10-29-2001 17:20  0  1  4 1  3   31  3   0
 PRESSCO             |2.00.023  10-29-2001 17:20  0  1  4 1  14  66  6   0

      2 databases found.

      Databases saved outside of the 2.x convention may not be found.
      Presence of {%} in name means the name was shortened for this list.
      Non-zero value/s in columns MRJ or OI indicates need for conversion if
      database is intended for use with upgraded Intellispec version.
      Intellispec version 3.0 allows 20 jobs maximum, * after job count
      indicates presence of job/s numbered higher than 20 (or no jobs).
      Use Wombat's DATABASE BUSTER to split up a large multi-PART database.
```

# Copy a Job to Another Database

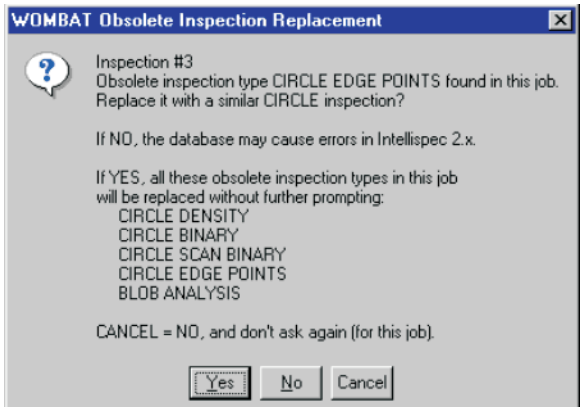
This option allows you to take a job you have already created, and use it within another database.

To copy a job to another database:

1 See Part Management, page 21

1. Click Next. Wombat will search your Intellispec and display all available databases.
2. Choose the database that contains the job you want to copy. Click OK.
3. Choose a database into which you want to copy the job (except ~Auto). Click OK.
4. Select the job to copy. Click Next. Wombat tells you that it is about to copy a job. Click OK to continue or Cancel if you do not want to copy the job.

### Obsolete inspection notification




If you copy a job that was created in an earlier version of Intellispec, Wombat will notify you that certain inspections are obsolete. It recommends replacement inspections.

If you want Wombat to replace the obsolete inspections in the copy of the job, click Yes. You may need to modify these new inspections to work properly in your application.

If you click No, the obsolete inspection* mentioned in the dialog box will remain in the new copy.

If you click Cancel, the obsolete inspection* will remain, as will subsequent obsolete inspections (if any) from the job being copied. You will not be prompted again during this job copy operation.

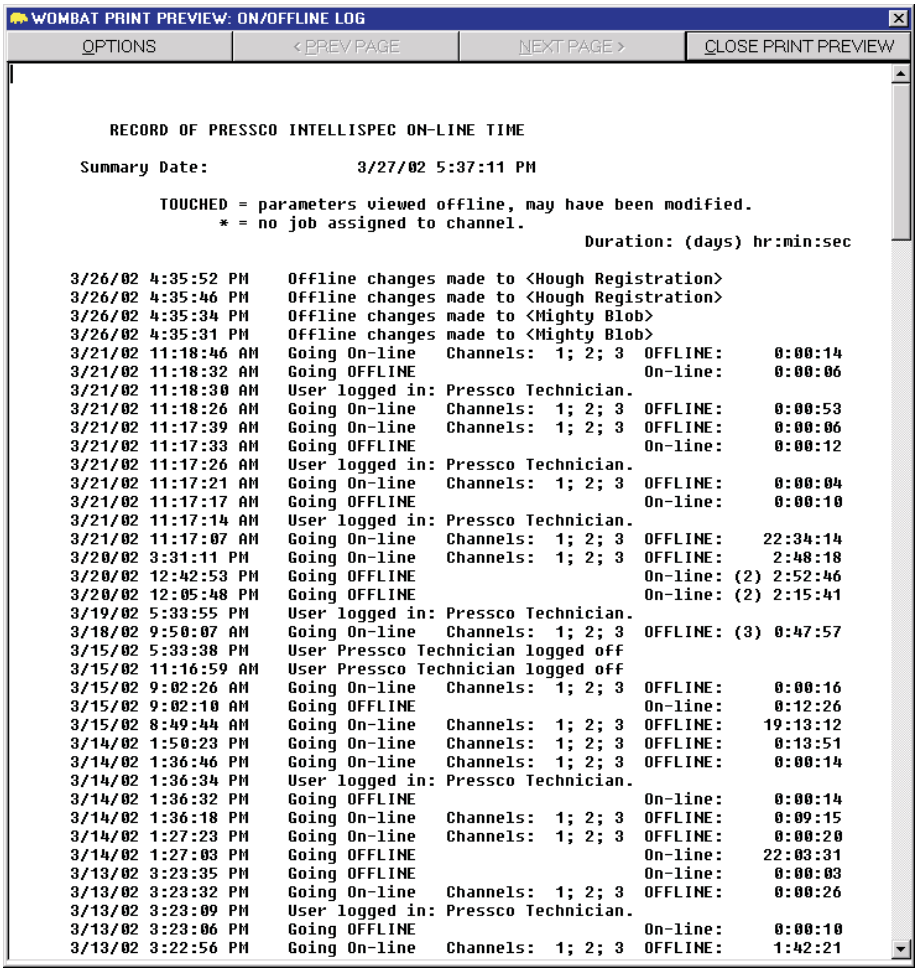
☛ **These inspections will cause errors if you try to run them in a newer version of Intellispec.*

# Other Database Detective options

## Online - Offline History

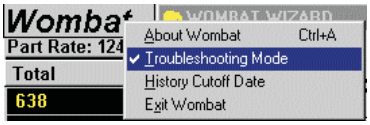
This option reports the time and date of when the system went online, and when it was taken offline. It also lists which user was logged into the system when the system went offline. This information is displayed in reverse order, with the most recent information first.

The duration of online/ offline history is displayed. If the report reads “Going OFFLINE.... Online (4) 14:54:16”, this indicates that the system was online for four days, 14 hours, 54 minutes, and 16 seconds.




Wombat prints or saves the history since the last time the System Log was cleared. If the system has not been online since the System Log was cleared, no report will be created.

You have the same options to print or save as a text file as described under Make Process Sheet.




## Troubleshooting Mode

If Troubleshooting mode is enabled, more information is displayed in the online-offline history. This information includes Missed Parts, Missed Results, and inspections that were modified online. Also, inspections that were changed offline are listed.

Troubleshooting mode can be enabled or disabled. It displays the additional information, such as inspections being changed, so that you can determine exactly what was accessed in your system. To enable troubleshooting mode, right-click the Wombat name. Click Troubleshooting Mode. If a check appears next to Troubleshooting Mode, it is enabled. If you remove the check mark, Troubleshooting Mode is disabled.

## History Cutoff Date

You can choose how far back the online/ offline history report goes. To enable this feature, right-click the Wombat name and check History Cutoff Date. Enter the earliest date from which you want to see the data.

# Make PVL files

A PVL file is a special Intellispec text file that contains a list of bitmap (.bmp) images for up to four channels. The Intellispec can display images stored on its hard drive, rather than acquiring new images from a production line. This is useful for programming jobs or testing jobs offline, so that actual parts do not get rejected.

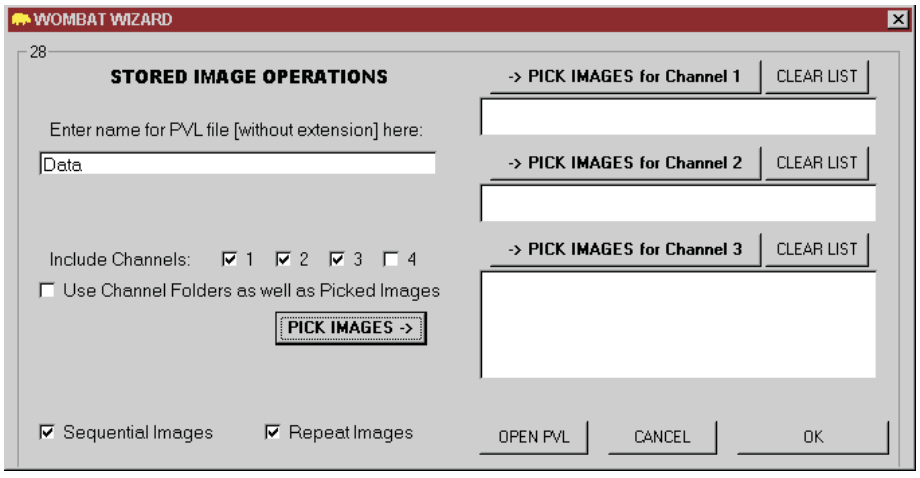
## Restoring image files on Intellispec

You can restore images, one at a time per channel, by right-clicking the image area, selecting Image, Open, and selecting a bitmap (.bmp) file.

With a PVL file, you can load one file and have the Intellispec load multiple images for multiple channels at once. When you are testing a job, each time you click the Snap Image button, or use the Continuous Snap feature, a different image is displayed, just as though a new part image was acquired from a production line.

## Creating the PVL file

1. Select “Make PVL” from the Other tab of the Database Detective. Click Next.
2. From the Stored Image Operations screen, Enter a name for your PVL file.
   - You do not need to have image folders already created, nor images already stored. Wombat can create the image folders. Later, you can save images to them after they are created.
3. Pick Images (see instructions for screen options below). Click OK. Click Finish. Your PVL file will be written to the Data folder.




The options on the screen are described next:

**Include Channels** Select all the channels for which you want to have PVL files loaded.

**Use Channel Folders as well as Picked Images** This option allows you to pick images you have already saved on the Intellispec regardless of the folders where they are stored. It also creates a new set of folders into which you can move or save images. Wombat will create a folder for each

selected channel (unless these folders were created previously). The folders will be named based on Channel name or Product Type. If your application uses the same Product Type on more than one channel, they will be named by Channel name.

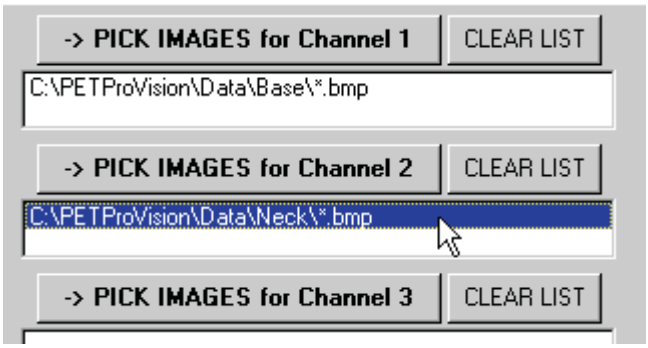
You can store images in each channel's folder (e.g., Panel images in Channel_1 folder, and Rivet images in Channel_2 folder).

**Pick Images**

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

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

- To select more than one contiguous file, select the first file, hold the Shift key, and scroll to the last desired file. Click OK.
- To select more than one non-contiguous file, select the first file, hold the Control (Ctrl) key, and select the remaining desired images. Click OK.
- To select all bitmap files within one folder: Click the Pick Images for Channel n button. Browse to the desired folder, select one file name and click OK. Select that file name, and right-click. The file name will change to C:\PETProvision\Data\~folder name***.bmp**. This indicates that all bitmap files within that folder will be part of the PVL. If you right-click again, the name will toggle back to its original file name.




- Click Clear List to remove all the files from the channel's list.

## Modifying PVL image lists

You can use these items whether you are initially creating the PVL file, or you have an existing PVL file.

### *Modifying an existing PVL*

To change items in an existing PVL file, select Make PVL from the Other tab of the Database Detective. Click Next. Click Pick Images, and click the Open PVL button. Browse to the desired folder and select the desired PVL file. Click Open.

If Wombat asks "Clear existing entries?", it wants to know if it should clear the image names currently on screen under the Pick Images for Channel n lists. If Yes, just those entries are cleared, not the images you previously saved with the PVL file. If No, the images currently on screen will be added to the PVL file when you save it.

- To add more images to a channel's list, click the Pick Images for Channel n button. Add desired images.
- Use the techniques described above in Pick Images topic to add new images
- To clear all images from the channel's image list, click the Clear List button

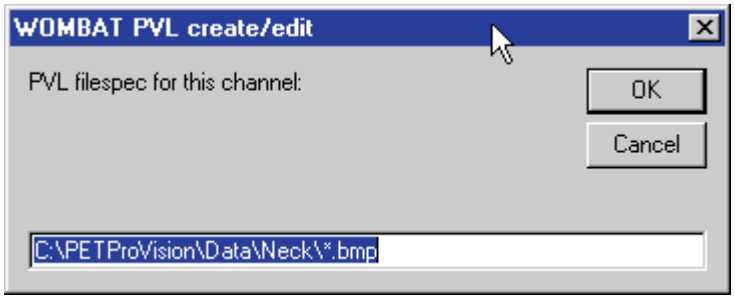
- To remove one item from the image list, shift-right-click on the image file name in the list

To save the PVL file, click OK after adding or deleting images. Enter a new PVL name, or keep the old name. Click Finish. If you use the same name, Wombat will ask whether to overwrite the existing file. If Yes, the new image lists will be saved under the old PVL file name. If No, you will be required to enter a new PVL file name.

### *Manually entering image file names in PVL*

To type a known image file name or folder into a PVL file:

- From the Pick Images list, click an image name that you want to change. Shift-left-click to bring up the create/edit box. Type or change the file name, and click OK.




- You may type a known path and folder name that contains bitmap files, and type "*.bmp" as the image name. The PVL will use all bitmap images within that folder.
- If you type an unknown file name, you will get an error when you try to restore the .pvl file on the image screen.

## Saving images for use with PVL file

### *Saving a Single image*

Log in – Mechanic user level and higher. Select channel, right-click on image area, choose Save, Grayscale. Scroll to the desired folder, name the file, and click Save. Intellispec will save the file as a bitmap (.bmp).

Select the other channels, and save an image into each channel's folder.

### *Autosave multiple images*

A quick way to save multiple images for each channel is to use the Autosave feature when your production line is running, provided the camera is able to snap multiple images (i.e., your production line is running and enough parts trigger the part present sensor).

1. Select a channel. Right-click on image, choose Image, Autosave.
2. Select the folder into which you want to save the images. Scroll through the directories if desired. Note: the default folder that opens when you open an image is \Data.
3. Enter a file name; Intellispec will add numbers to this file name.
4. Enter the number of images you want to save into one channel's folder.
5. Click Start. Intellispec will capture the specified number of images, then display "Done". Click Exit.

Repeat steps 1-5 for each additional channel.

## Using the PVL file

1. Right-click on the image area, choose Image, Tools, Image Source, SmartCAL Images. This tells the system to acquire an image from disk instead of reading a new image from the camera.
2. Right-click on the image area, choose Image, Restore. Select the desired PVL file. The Intellispec will load all the images you have saved to the PVL folders, and display them on their proper channels. Note: you may have to click the Snap button to update the screen.

# Copy Files to Floppy


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

## Copying Images to Floppy

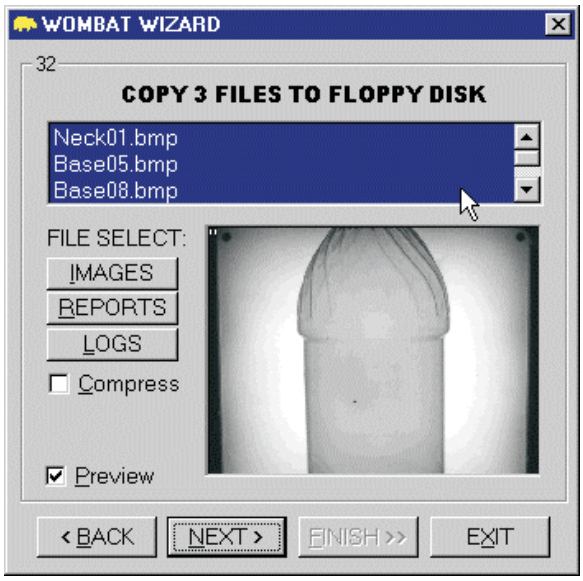
You must first save images to Intellispec's hard drive before you can copy them to floppy disk. This can be done by right-clicking on an image, choosing Image, and Save.

- To copy an image, click the Images button on the Wombat Wizard. You will see a dialog box in which you can search for image files. The default image folder will be opened for you. Highlight the desired file. 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. Click OK.
- To select more than one non-contiguous file, select one file, hold the Control (Ctrl) key, and select the remaining desired files. Click OK.
- To remove any file from the list of files to copy in the Wombat Wizard, right-click the file name.

Make sure all the files you want to copy are highlighted in the upper window of the dialog box, and click Next. Insert a diskette into Intellispec's floppy drive, and Wombat will copy these files to your diskette.

### *File size*

The bitmap files in the Intellispec are approximately 302KB each, so you will be able to copy about four uncompressed images to a blank floppy diskette at one time. If you encounter a disk error, make sure that you have enough room on your diskette.




**Compress** Use the Compress option to copy more files to one disk at a time, especially if the total file size exceeds the free space of the floppy.

☛ *You must have a compression program (such as Winzip) on your PC to extract the zipped files.*

Click the Compress box to create a single zipped file, using all the files highlighted in the upper window of the dialog box. Click Next. Wombat will give you the name of the zipped file.

The bitmap files in the Intellispec are approximately 302KB each. Uncompressed, approximately four images will fit on a blank floppy diskette at one time. However, with compression, several more can be copied at one time.

You will be asked to insert the first disk of a multi-volume set.


Click OK. Wombat will store as much information as possible onto the disk in the drive. If it runs out of space, you will be asked to insert another disk, until all the information has been copied.

Take out the diskette and insert it into your own PC to verify its contents.

☛ *You must have a compression program (such as Winzip) to unzip the files. Consult your compression program's instructions for extracting files.*

**Preview** If the preview button is selected, the first selected image will be displayed in the preview window.

## Copying Defective Parts Database to floppy

Another file that can be easily copied through the Images button is the Defective Parts Database as it usually resides in the default C:\PETProVision\Data folder. This is not an image, but rather a Microsoft Access Database that contains defective parts data. Therefore, Wombat's Preview option cannot display it. Also, you must choose MDB files as file type (*.mdb) to see it in the list.

This database can be saved by Administrators in System Configuration, Reports. See the Intellispec Programming Guide for more information about this database.

☛ *Use the Compact Defective Parts DB... option to compress this database before copying it to floppy disk, as it can be rather large.*

## Copying databases to floppy

System or Vision databases are also usually saved under the default C:\PETProVision\Data folder. Click the Images button in the Wombat Wizard to open this default folder. Look for Vision and Config. (*.vdb, *.cfg) in the List Files of Type box.

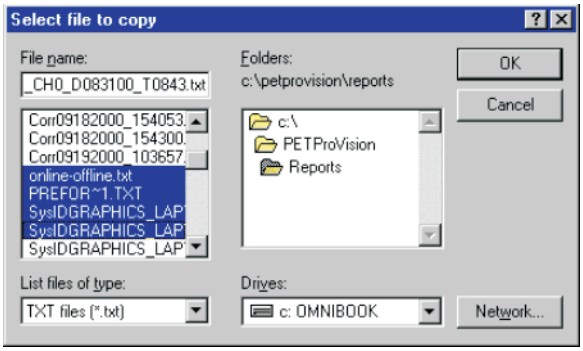
## Copying reports to floppy

Select the Other tab from Database Detective. Select Copy files to Floppy. Click Next. Click the Reports button to save Job Statistics, correlation data, or any other report that was previously saved to the Intellispec's hard disk.

☛ *See the Reports section beginning on page 27 for information on saving and printing reports.*

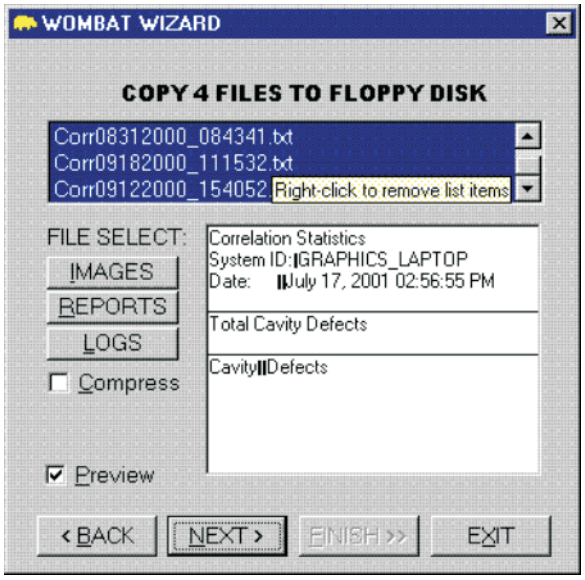
The default Reports folder is opened for you, from which you can select the desired reports. Highlight the desired file. The latest files are at the top of the list.

- 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. Click OK.
- To select more than one non-contiguous file, select one file, hold the Control (Ctrl) key, and select the remaining desired files. Click OK.




- To add more reports, click the Reports button again and select the desired files.

- To remove an item from the list, right-click the unwanted item.




Select all files in the top area of the window to copy all of them to diskette. (Click the first file, hold down the left trackball button, and move the cursor down to the last file.) Insert a diskette into Intellispec's floppy drive and click Next. The selected files will be copied to diskette.

The Compress and Preview options are discussed on pages 53 and 54.

## Copying logs to floppy

Follow the same procedure as described under "Copying reports to floppy". In this option, you can select and copy alarm logs, change logs, or event logs.

# Periodic Maintenance

## Maintenance Frequency

Clean the following surfaces as recommended in the table below.

| Item | Description | Once Per Shift | Once Per Month |
|---|---|---|---|
| Camera Glass windows | Clean with soft, clean, oil-free cloth dampened with glass cleaning solution. (See page 58) | X | |
| Plastic backlights | Clean with soft, clean, oil-free cloth dampened with mild soap and water. (See page 58) | X | |
| Part Detect Sensor and Reflector | Clean with soft, clean, oil-free cloth dampened with mild soap and water. (See page 59) | X | |
| Processor Cabinet circulation filters | Rinse in clean water, or mild soapy water if oily. (See page 60) | | X |
| PC Air Filter | Rinse in clean water, or mild soapy water if oily. (See page 60) | | X |

## Optical Surface Cleaning

To maintain proper image quality and system performance, the clear glass and plastic surfaces on the Inspection Modules must be kept clean. The windows that the cameras view through are glass. The windows that some cameras' back-lights shine through are plastic.

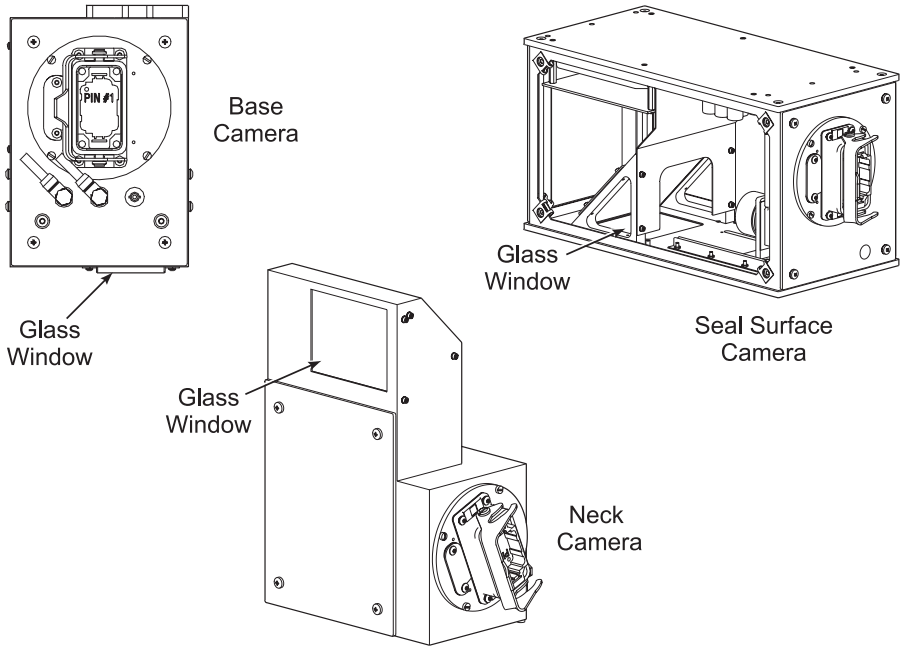
***Important***

*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. Clean often to prevent this from occurring.*

# Glass Cleaning

Some inspection modules have glass surfaces that need to be cleaned regularly. Some examples are shown below. Look at your inspection module to determine whether it has a glass surface.

Glass surfaces can be cleaned with a soft, clean, oil-free cloth dampened with a glass cleaning solution.

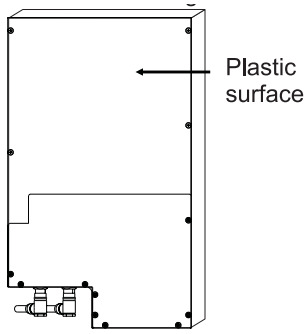



Be especially careful to ensure the Seal Surface window remains clean. A build up of oil film on this window will cause a glare to appear on the image, degrading system performance.

Frequency of cleaning will depend upon plant and process conditions.

# Plastic Cleaning

Some inspection module cameras have backlights with plastic windows. Look at your inspection module's backlight to determine whether it has a plastic surface to be cleaned.



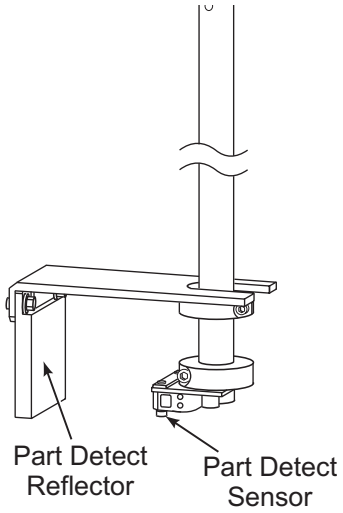

Plastic surfaces can be cleaned with a soft, clean, oil-free cloth dampened with a mild soap and water solution. Don't use a glass cleaning solution or strong solvent on the plastic surfaces as they might be damaged.

The Base back-light 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 occasional cleaning.

Frequency of  cleaning will depend upon plant and process conditions.

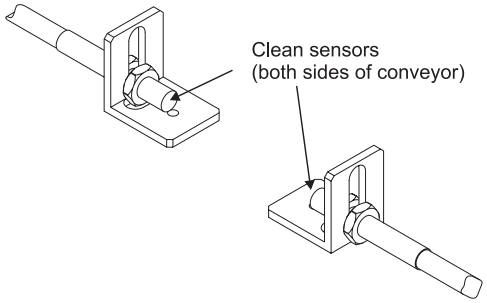
## Part Detector Cleaning

Both the sensor and reflector surfaces of the part detector must remain clean to properly detect parts. Clean these surfaces to prevent dirt and oil build-up. Shown below are a couple examples of part detectors. Your system may have different components.




Clean these surfaces with a soft, clean, oil-free 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.

Frequency of  cleaning will depend upon plant and process conditions.




# 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.

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

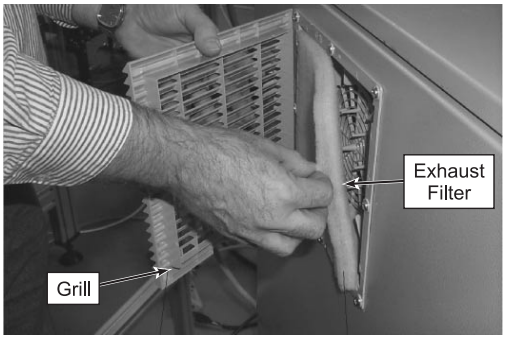
If filters contain only dry dust and dirt, rinse them in plain water to clean them. If they contain oily dust and dirt, clean them in soapy water.

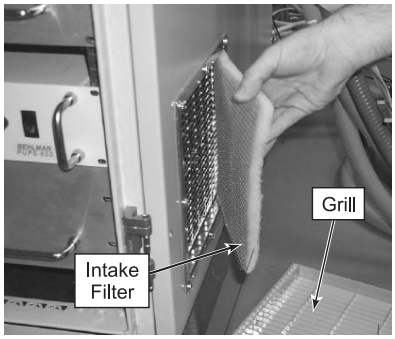
Frequency of cleaning will depend upon plant conditions.

## Processor Cabinet Circulation Filters

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

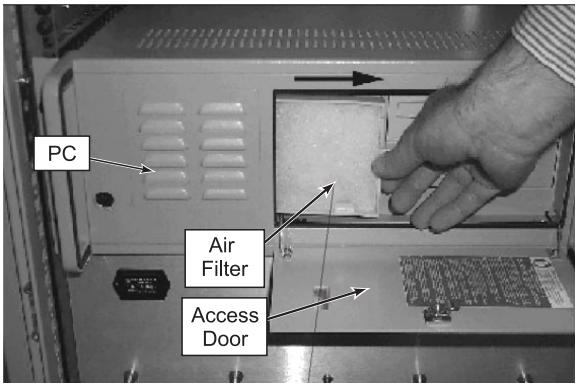
The Processor Cabinet has two air circulation fans, and each has an associated filter. The fan on the lower right side of the cabinet is the intake; the fan on the upper left side is the output. To remove the filters, simply pull off the grill vent. Refer to the illustrations below.




## PC Air Filter

The PC (computer) within the Processor Cabinet has one air circulation fan and filter. To remove the filter, open the front cabinet door, open the door on the front of the PC, push the plastic tab on the left side of the opening, and slide the tab to the right. The filter will be exposed and can be removed. Refer to the illustration below.




# Other maintenance

Some systems have other components, such as cylinders that require oiling. Refer to your Intellispec Hardware Guide for specific information regarding these other components.

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