

PSV7000 OPERATOR'S MANUAL

Automated Programming and Handling

with
LUMEN
programmings



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PSV7000 Machine Components

This **Visual Index** of PSV7000 features and subassemblies locates them on the machine and in this manual.

- | | | |
|--|---|---|
| 1. E-Stops • page 10 | 7. Tape Input • page 22;
Vibratory Tube Media •
page 21 | 13. Power Panel • page 3 and
Owner's Manual for more |
| 2. Light Tower • page 63 | 8. Anti-static ground strap
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| 3. Gantry & PNP head • see
Owner's Manual | 9. Monitor, keyboard, mouse | 15. Access doors (front, two rear) |
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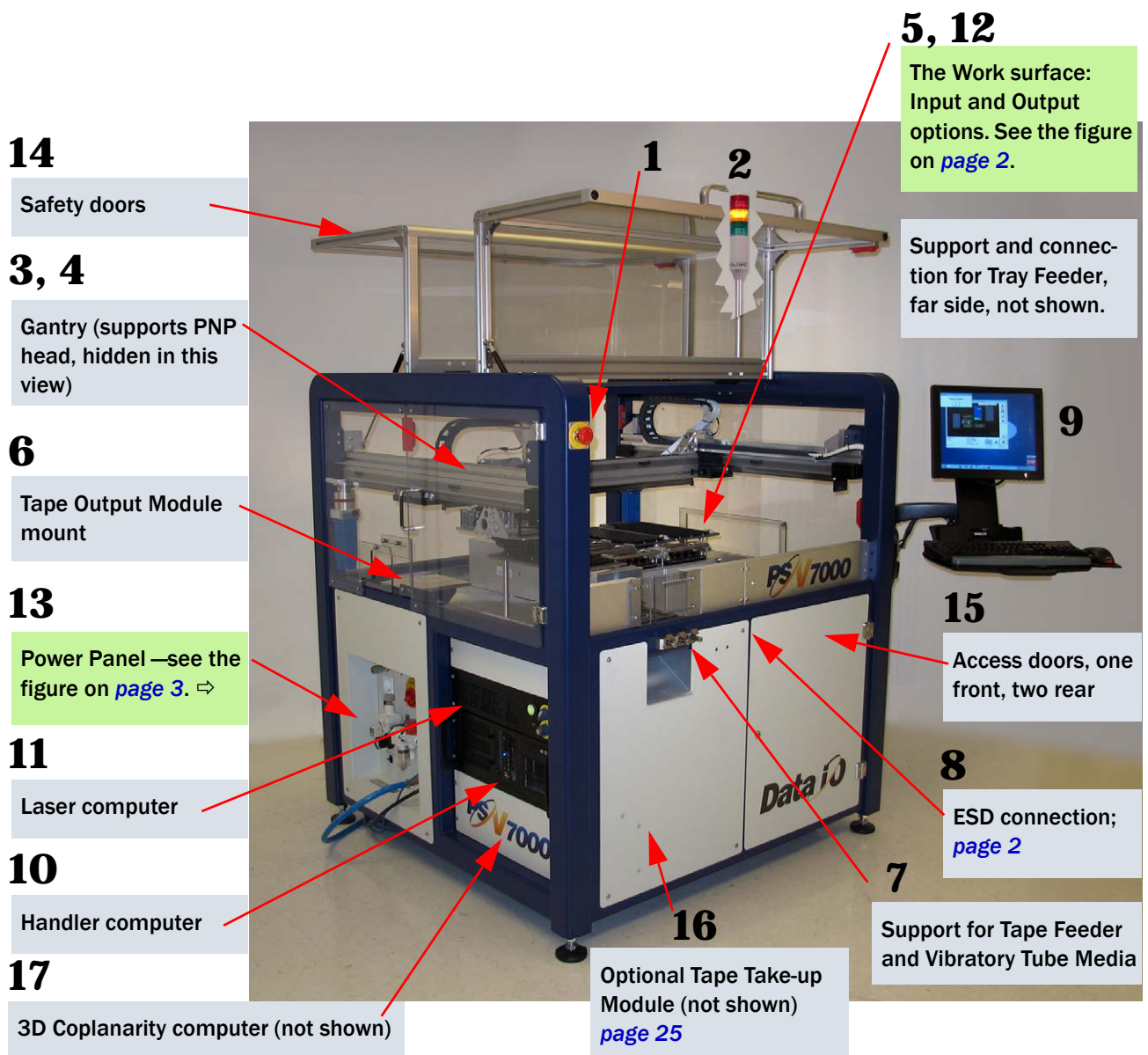


Figure 1: The Big Picture—features of PSV7000.

Work Surface Components

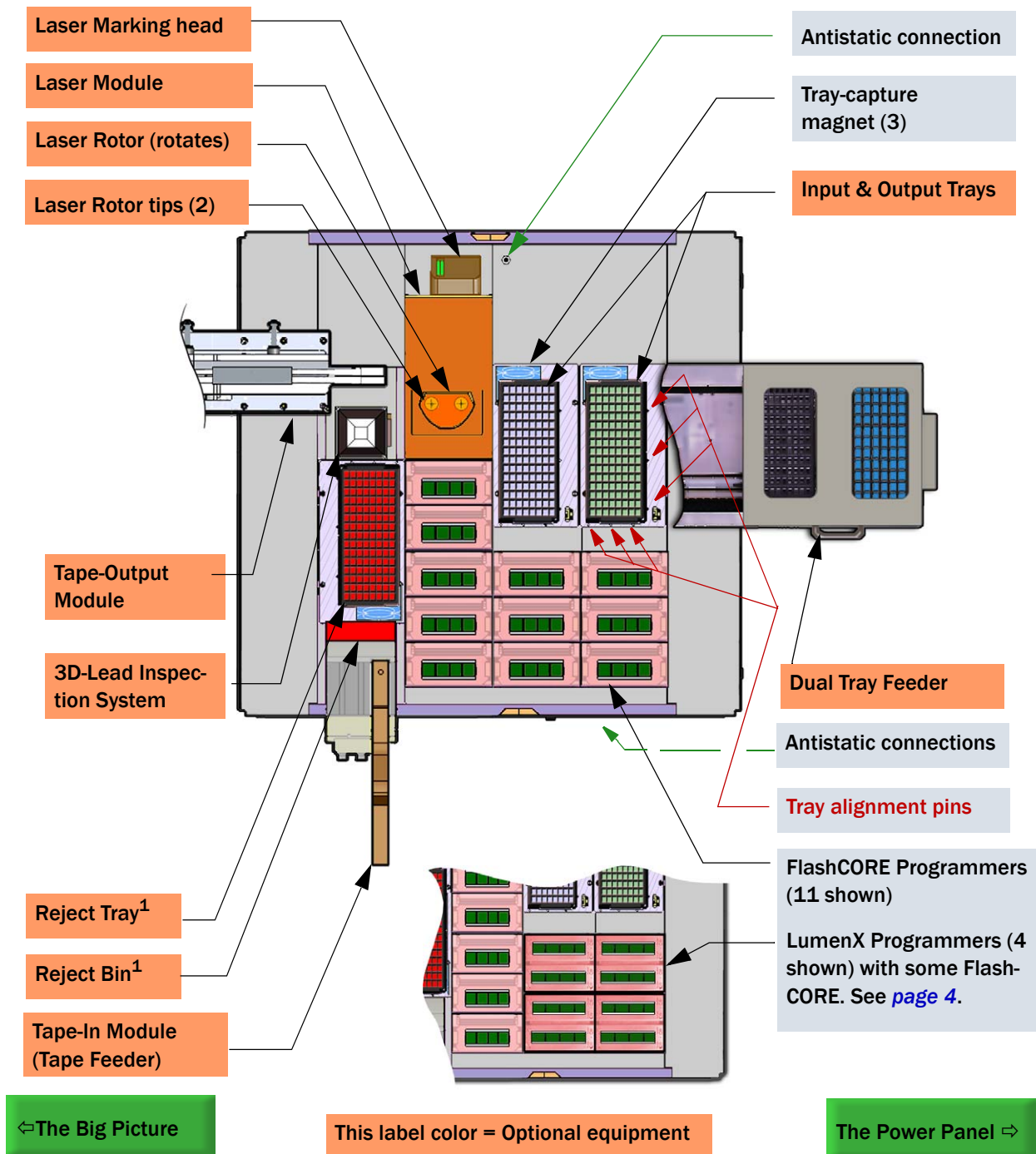


Figure 2: Some features on the PSV7000 work surface—shown here with static trays and 11 programmers.

¹The system can be configured with a reject tray or a reject bin or both. Note that the static trays and Dual Tray Feeder would not both be used. (Refer to Owner's Manual or on-screen Help).

Power Panel Components

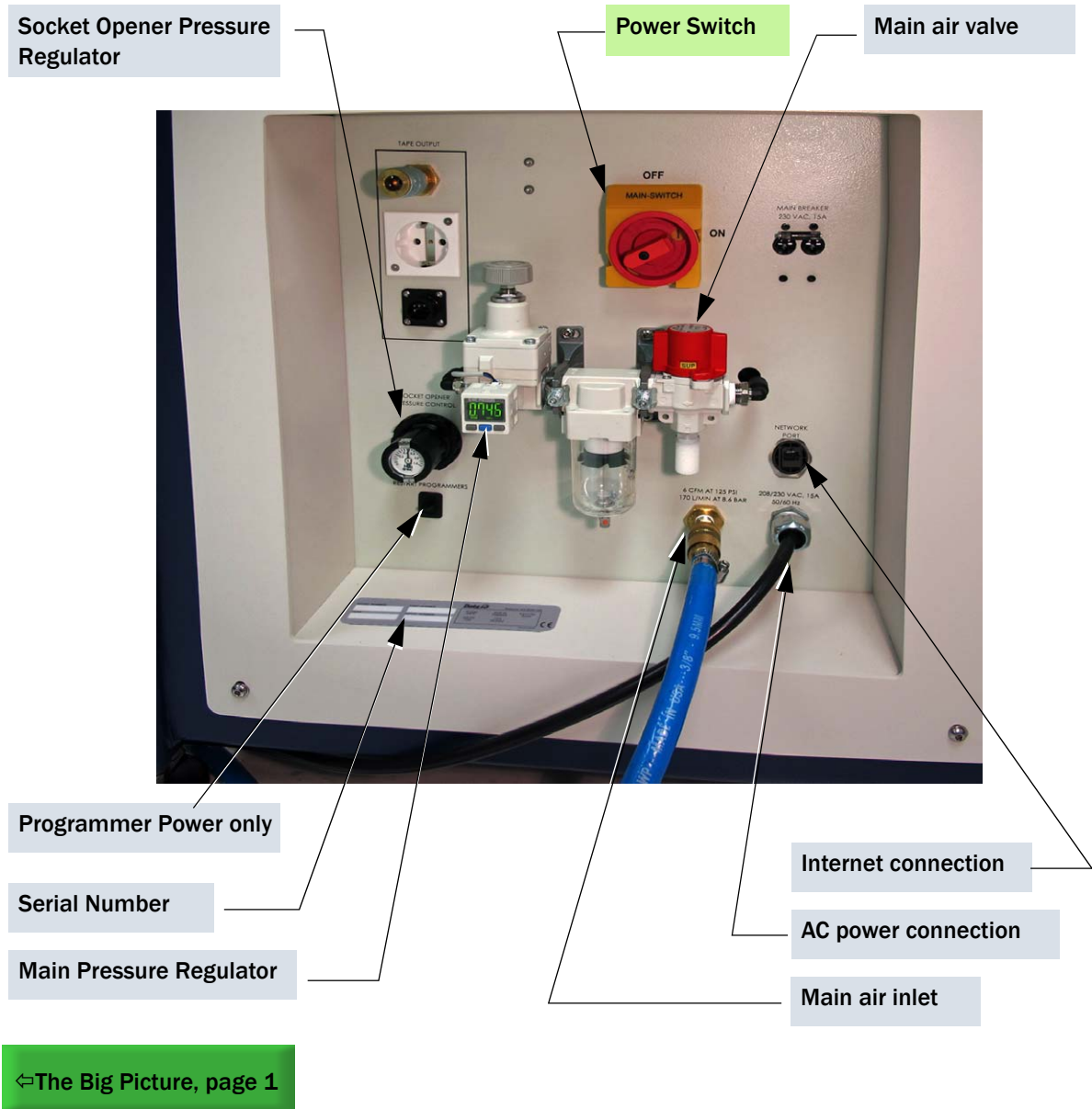


Figure 3: Rear View of PSV7000. For information on connecting the facilities, see the Owner's Manual.

Programmer Overview



Jobs for LumenX programmers are created with Job Runner Software.



LumenX

LumenX is Data I/O's latest programmer at the time of this document. Each LumenX programmer requires one to two Actuator Plates and one to eight Socket Adapters for the specific device package being programmed. Each Socket Adapter has one socket.

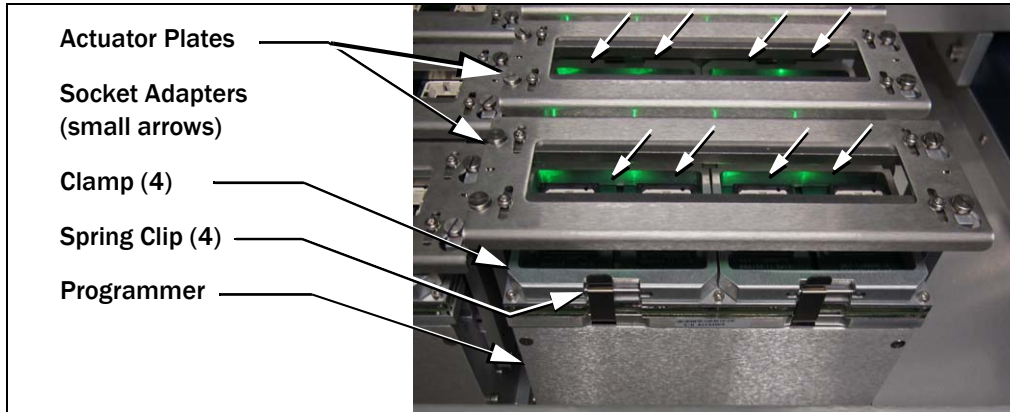


Figure 4: One LumenX programmer with eight Sockets.

LED Interpretation on LumenX Programmers

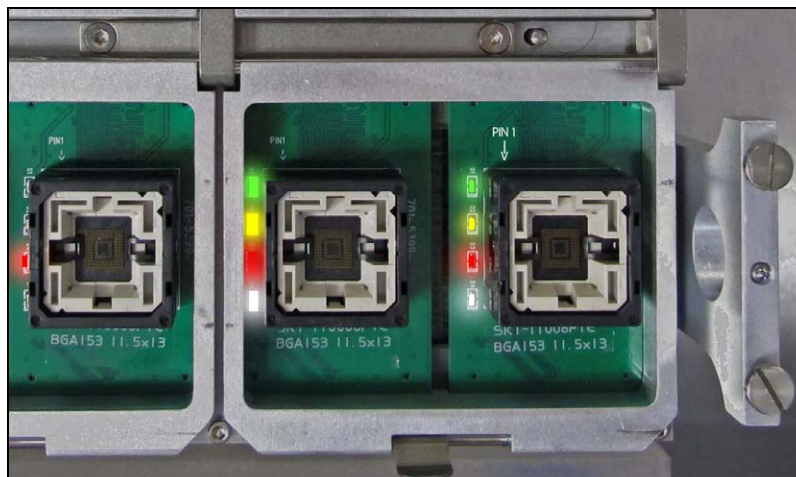


Figure 5: Each LumenX Socket Adapter has four LEDs and indicates PIN 1 as shown. All four LEDs light at once only during startup and go off when the startup procedure is complete. The Actuator Plate is not shown here for clarity.

Green = PASS PROGRAMMING
Yellow = BUSY
Red = FAILED PROGRAMMING
White = CONTINUITY ERROR



Jobs for FC programmers are created with TaskLink Software.

FC FlashCORE

FlashCORE III is a robust programming engine supplied in the PS-Family of products. Each programmer requires an Actuator Plate and a Socket Adapter for the specific device package being programmed. Socket Adapter can have up to four sockets on them.



Figure 6: FlashCORE III programmers.

LED Interpretation on FlashCORE Programmers

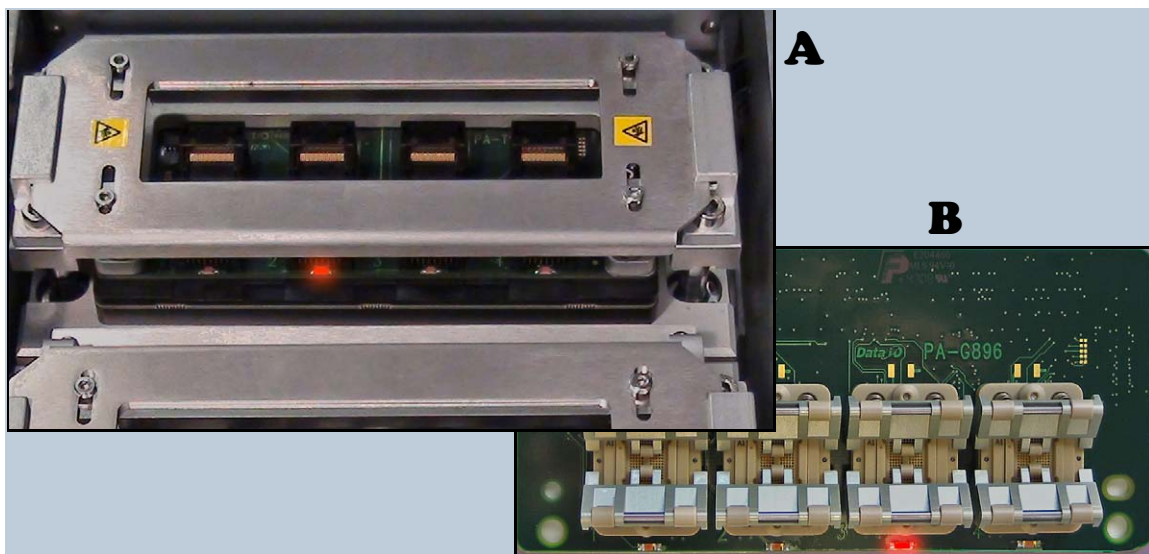


Figure 7: Each FlashCORE Socket has one red LED.

A) Standard Adapter; socket 2 has failed. B) HIC Adapter. Socket 3 has failed. The Actuator Plate is not shown on the HIC Adapter for clarity.

Steady Red = FAILED PROGRAMMING

Supported Integrated Circuits (*Devices*)



For all available devices supported, see the Data I/O website and click [Device Search](#).

- Flash Memory:
NOR, NAND, MCP, MMC, e.MMC, SD, MoviNAND, OneNAND, iNAND, Serial Flash, EEPROM, EPROM
- Microcontrollers
- Logic devices:
CPLDs, FPGAs, PLDs

Operator's Manual



Operation



For administrative functions and more, see the *PSV7000 Owner's Manual (096-0460...PDF is in C:\AH700 and also available on our Technical Library on our website).*

This manual includes basic operation of the PSV7000 System, but not functions deemed *Administrator* functions such as creating a job, teaching Package Files, or creating a data file from a master device.

PSV7000 is a programming and handling system for traditional and fine-pitched integrated circuits (devices). It accepts most all package types. The on-screen application that run PSV7000 is AH700.

Operator functions include installing some hardware, checking hardware setup, turning on power, starting TaskLink (TL) or Job Runner (JR), loading a job, and running a job.

Operators generally follow this sequence to process devices:

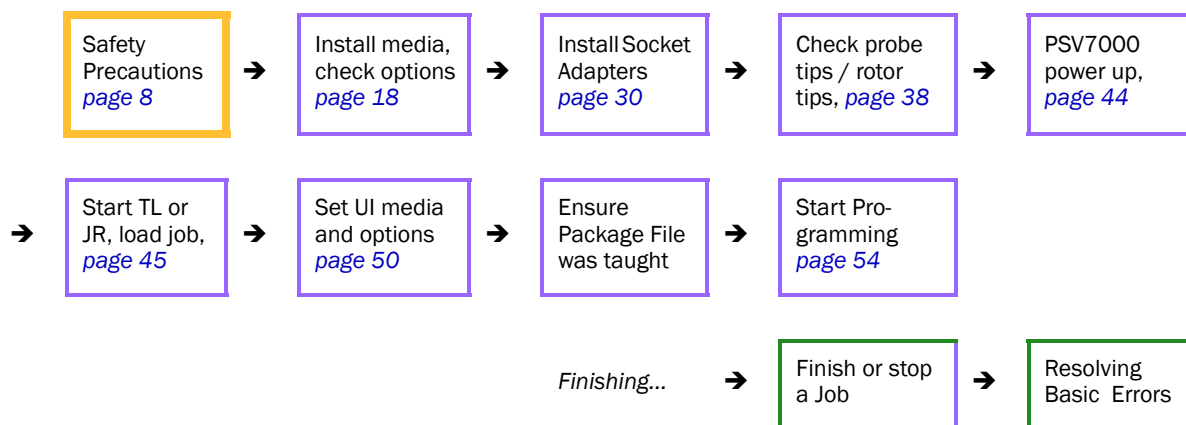


Figure 1: Operator Functions. For a list of these steps see page 15.

Safety Messages and Precautions

For your safety and preventing lost time and damage to equipment, this manual uses special symbols, paragraphs, and color to call your attention to hazardous situations and recommends safe practices to help avoid them. Please read and heed the warning messages. They look like the ones below.

Warnings and Cautions

Special paragraphs with red lines are safety warnings as follows:



Definition of a
Warning.

***WARNING:** This is a warning message!
It has red text and calls your attention to potentially hazardous situations and practices that might injure people or cause serious monetary loss.*



Definition of a Cau-
tion.

***CAUTION:** This is a caution message!
It calls your attention to potentially hazardous situations and practices that might damage equipment.
(The potential loss is not as serious as a warning.)*

Safety Symbols

Safety symbols in this manual mean this:



- Crush Point (Pinch Point) Warning
- Crush (punto de pellizco) ADVERTENCIA
- Crush (Prise Punkt) Warnung



- Electric Shock Warning
- ADVERTENCIA de descarga eléctrica
- Elektroschock Warnung



- General Hazard Warning
- ADVERTENCIA de peligro general
- General Hazard Warning



- Noise Warning; may be over 80 db
- ADVERTENCIA de ruido; puede ser más de 80 decibeles
- Lärm-Warnung; möglicherweise mehr als 80 Dezibel



- Eye Hazard Warning
- ADVERTENCIA de peligro del ojo
- Auge Hazard Warning



- Collision Warning
- ADVERTENCIA de colisión
- Collision Warning



- Laser Hazard Warning
- ADVERTENCIA de peligro del laser
- Laser-Hazard Warning



- Compressed Air Warning
- ADVERTENCIA de aire comprimido
- Druckluft-Warnung



- Electrostatic Discharge Warning (ESD)
- ADVERTENCIA de descarga electrostática
- Elektrostatische Entladung Warnung

Safety Systems

The PSV7000 System has several safety systems to prevent personal injury and system damage. These systems include E-Stops and safety doors. If your system has a Laser Module, it comes with a fume extractor.

Emergency Stop (E-Stop) Buttons

Two large, red Emergency Stop buttons are located near the top of the PSV7000 System—one on front and one on the back of the machine. When an E-Stop button is pressed, the gantry stops moving immediately. See the warning below.

To recover from an emergency stop, see *To restart the System* on page 60.

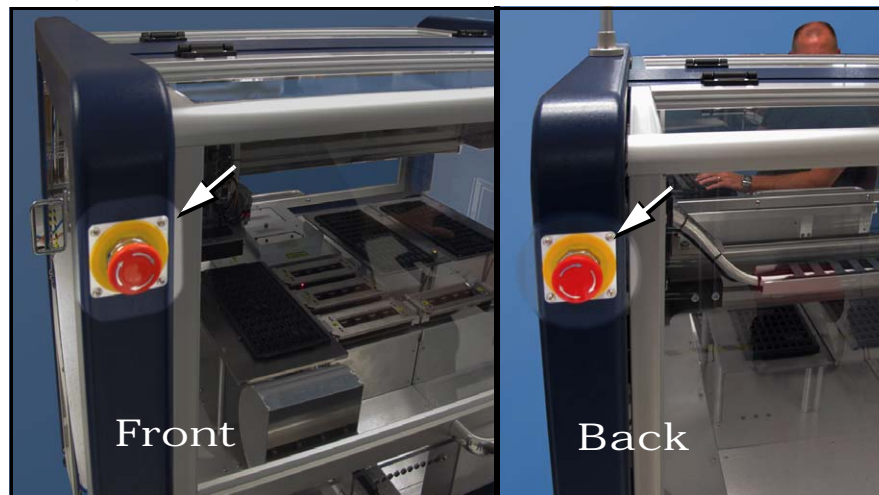


Figure 2: There are two Emergency Stop (E-Stop) buttons: on left front and on left back of the frame.



WARNING: Shock hazard! Pressing an E-Stop button removes power from the motion controller (gantry) only, and stops communication to the Laser Marking head. It does not remove electrical power from PSV7000 or any optional equipment installed. Turn the main power OFF before opening metal access doors.



Pinch hazard! The E-Stop does not shut off air. Socket actuators can still move down and up.



Park Position:

Where the head stops when a job is paused or ended; near the side at center.

Tool Position:

Near front center for easy access to the PNP head.

Home Position:

Right rear; automatic initialization when a job is started.

Safety Doors and Interlocks

During operation, when the high-speed PNP head is processing devices, the clear plastic safety doors around the workspace are closed to protect operators from injury. Each safety door has a safety interlock which stops gantry movement if the operator forgets to first park the PNP head. See next heading.

Prior to opening a safety door

Normally, if the power is ON, before opening any safety door:

- at the Run window, a job should be either Paused or Finished (stopped), or
- at the Gantry window, the PNP head should be sent to the *park* or *tool* position (by clicking Park or Tool label), or
- at the Setup window, any time before a job is started.



WARNING: Possible collision hazard! The high speed and force of the gantry can seriously harm anyone working inside the workspace.

When working within the machine workspace, moving the PNP head must be the responsibility of only one qualified individual. All others must stay clear of the machine controls to prevent injury to that person.

Ensure that a job is Paused or Finished, or the system power is OFF prior to opening any safety doors.



WARNING: Shock hazard! Opening the safety doors stops motion of the gantry only. It does not remove electrical power from the machine or any optional equipment.

Turn the main power OFF for safety unless otherwise directed.



WARNING: Crush Hazard to body parts! The gull-wing safety doors can pinch fingers and any body parts between it and the frame of the machine.

There should be

- only be one operator and all others should stand clear, and
 - the operator closing the door should announce his actions.
- See the figure below.

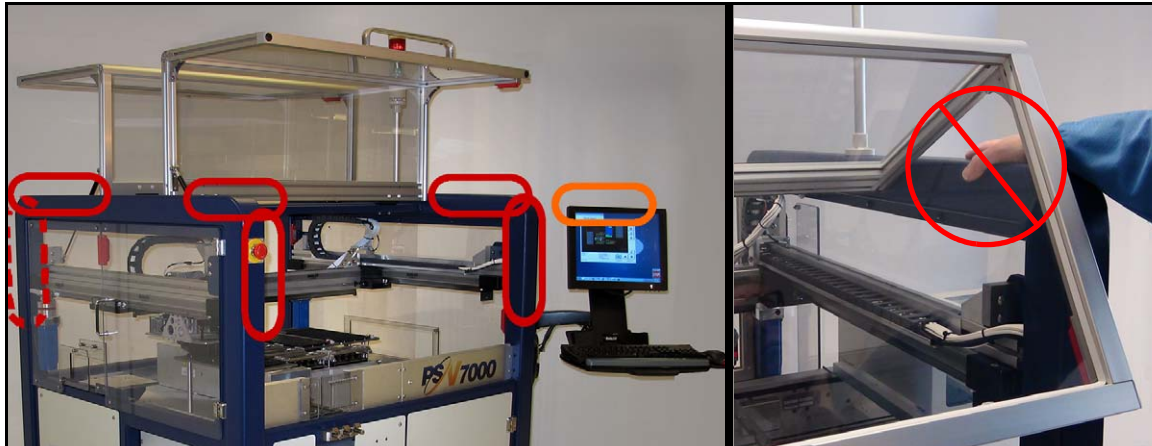


Figure 3: Possible pinch points exist at both safety doors.

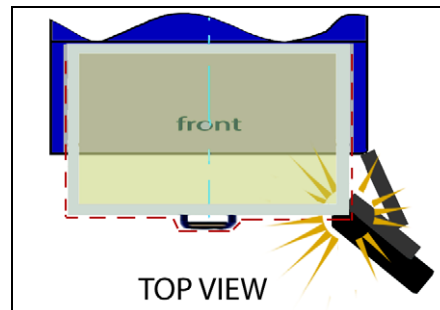


Figure 4: Interference (pinch points) could occur opening and closing the front safety door if the monitor is rotated far forward. (If the monitor is rotated to the side, out of the way of the door movement (as shown in Figure 3), it will not present a pinch point.)

Electrostatic Discharge

Devices (integrated circuits) are very sensitive to static electricity, and could be damaged by unintended electrostatic discharge while being handled. The most effective way to prevent damage from ESD is to make sure a common electric potential (ground) exists between a static-sensitive device or component, its environment, and the operator.

Operators should wear an antistatic wrist strap (Data I/O part number 440-0021-001) connected to one of the grounding connections on the machine. The wrist strap should contain a 1–10 M-ohm current limiting resistor.

Handling Devices Safely

To prevent damage to device pins, use a vacuum tool, also called a vacuum tweezer, to pick up devices. The vacuum tool is designed to handle devices without damaging them.



CAUTION: Possible device pin damage! Do not touch devices with your hands or any implement other than the vacuum tool. Doing so could damage devices with fine-pitched leads.

Vacuum tools use a squeezable air bladder for suction. There are a variety of models, sizes and tips. Some tips are replaceable.

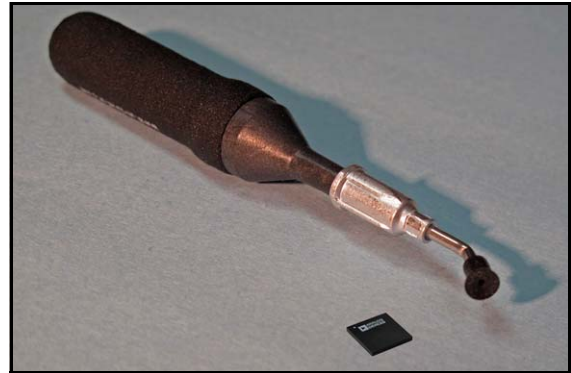


Figure 5: A Vacuum Tweezer: Data I/O PN 565-8000.

General Precautions

To avoid possible personal injury or damage to the equipment, please observe the following practices:

- Do not operate the system unless you have been thoroughly trained, and have **read and understand the instructions** in this manual, particularly those that describe the system's safety features.
- Do not operate the system if the **safety doors or access doors** are not in their normal operating positions.
- Do not place any part of your body into the direct path of **moving parts**.
- **Do not disable** or attempt to defeat any of the protective safety features of this system. Personal injury or equipment damage can occur if any safety systems are disabled. If you suspect that a safety feature is damaged or malfunctioning, stop using the machine immediately and contact Data I/O Customer Service or a local Data I/O approved service representative.
- Use extra caution when working within the work surface. **Open safety doors do not cut power** to all systems. Actuators can still operate.
- Wearing **hearing protection** is recommended while operating the machine if sound pressure levels exceed 85 decibels. Sound levels may exceed 85 decibels depending on auxiliary equipment running and your environment.
- Shut off the **pressurized air** or disconnect the air hose before servicing pneumatic parts.

Running a Job on PSV7000

Requirements



The term 'PSV7000 System' generally refers to the machine, the programmers, optional equipment, and all the onboard software including AH700 (the PSV7000 Application) and job management software (TaskLink /Job Creator /Job Runner).

Requirements prior to running a job on PSV7000:

- A *task* or *job* for your target device must already exist. This is generally an administrator function. Refer to TaskLink's (or Job Creator's) online Help and Chapter 3 of the Owner's Manual.
- You need to know the device and Socket Adapter for the target job, as well as what input and output media is needed.
- Make sure all assemblies needed for the target job, such as the Dual Tray Feeder, a Marking System or the Tape Output System, are installed on the PSV7000 Machine. Refer to Chapter 2- *Set Up* of the Owner's Manual for more information.

Operators, please read *Safety Messages and Precautions* on page 8 through page 12 (if you have not already). You should generally be familiar with the PSV7000 System.

List of Steps to Start a Job

Operator functions are in chronological order as follows:

1. *Checking the System on page 17*
2. *Installing Input/Output Media on page 18*
(See #10 below for Dual Tray Feeder)
3. *(Optional) Performing 3D Coplanarity Inspection on page 27*
4. *(Optional) Set up Other Equipment on page 29*
5. *Socket Adapters and Actuator Plates on page 30*
6. *Installing the Correct Probes on page 38*
7. *If Laser Marking—Installing the Correct Rotor Tips on page 42*
8. *Turning PSV7000 System Power ON on page 44*
9. *Selecting a Job—Starting AH700 Indirectly on page 45*
10. *(Optional) Preselecting Programmers on page 49*
(Optional) If a Dual Tray Feeder is installed, see *page 70*.
11. *Setting Media and Options—the Setup Window on page 50*

Note: The Package File should already have been taught. If not, see the on-screen Help or the PSV7000 Owner's Manual, or your administrator.

12. *Starting Programming on page 54*

After Starting a Job...

- *Stopping the System on page 59.*
- *Light Tower Interpretation on page 63.*
- (Optional) *Changing Programmer Status on page 64.*
- *Turning PSV7000 System Power OFF on page 68.*
- (Optional) *Operating the Dual Tray Feeder on page 70.*

1» Checking the System



PSV7000 Machines must be level and at room temperature before running a job.

Before you set up for your job, check that:

- All side panels and doors are closed and no one is working on the machine.
- The external air line is connected.

***Note:** If the power and air pressure switches are already ON, the pressure indicator number should be green.*

2» Installing Input/Output Media

Some optional equipment needs to be set up or their settings checked and power turned ON, or a process started. This is true even though the equipment may have been installed by another individual such as the administrator.



CAUTION: *Electrostatic discharge (ESD) hazard! Wear an ESD strap or discharge static against a common ground to prevent damage to Socket Adapters and devices.*



CAUTION: *Safety hazard! Possible personal injury from moving machinery. Always make sure that the PNP head is stopped in the Park or Tool position before opening any access doors.*



Regardless of input media used, all should proffer devices right-side-up (live bug orientation).

These input/output media are described in this section:

- Static Trays (next heading)
- Tube Input/Output (vibratory)
- Tape Feeder Input and Take up reel
- Tape Output

For Dual Tray Feeder input, see [Dual Tray Feeder](#) on page 70.

If your job or work process uses other options such as a Barcode Scanner, make sure they are installed and ready. Check with your administrator or see the PSV7000 Owner's Manual.

Setting Up Static Trays

Static trays (no Tray Feeder) are installed using magnets to hold them in place. The standard setup is described below, however many configurations are possible.

Note: *Make sure that the correct devices for the target job are loaded into the input tray and that they have the correct pin 1 orientation. (If pin 1 orientation doesn't match pin 1 that is set in the Package File it must be corrected).*

Pin 1 on Data I/O sockets is almost always toward the far side of the Socket Adapter (the back of the machine).



Your system administrator generally has information on pin 1 orientation for tray and tape input.

Standard Static Tray Orientation

FOR TRAYS ORIENTED with the long side parallel to the **Y-axis** (standard configuration), orient the input and output trays with the beveled corner to the near right.

- The **input tray** goes on the mount closest to machine center.
- The **output tray** installs on the far right mount.
- If a **reject tray** is used, install it on the far left mount.

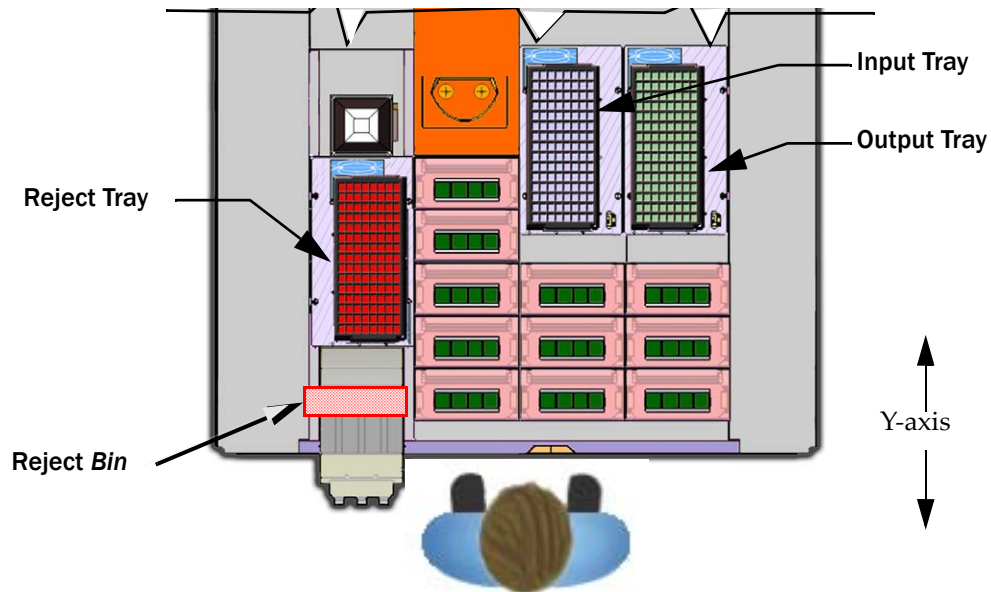


Figure 6: Common static tray locations—the long side is parallel with the Y-axis. A reject bin may be used instead of a tray.



If the PNP head is not in the Park position, A) Refer to [Turning PSV7000 System Power ON](#) on page 44, and B) then refer to the on-screen Help.

FOR STATIC TRAYS ORIENTED with the long side parallel to the **X-axis** (less common):

- The input tray goes nearest to the operator. Trays can be oriented with the beveled corner on the left or right.

Standard Static Tray Installation

When static trays are used, typically there are three tray mounts on the workspace—input, output, and reject (far left).

To set up the static trays for input and output (refer to Figure 6):

1. From the front, with the safety door open, set the *input* tray onto the mounting plate closest to the center of the machine. The chamfered corner should be next to the sensor.
2. Push the tray snug against the locating pins on two sides and place the magnet at the corner opposite the tray sensor.



To remove or install tray mounts, see the PSV7000 Owner's Manual.

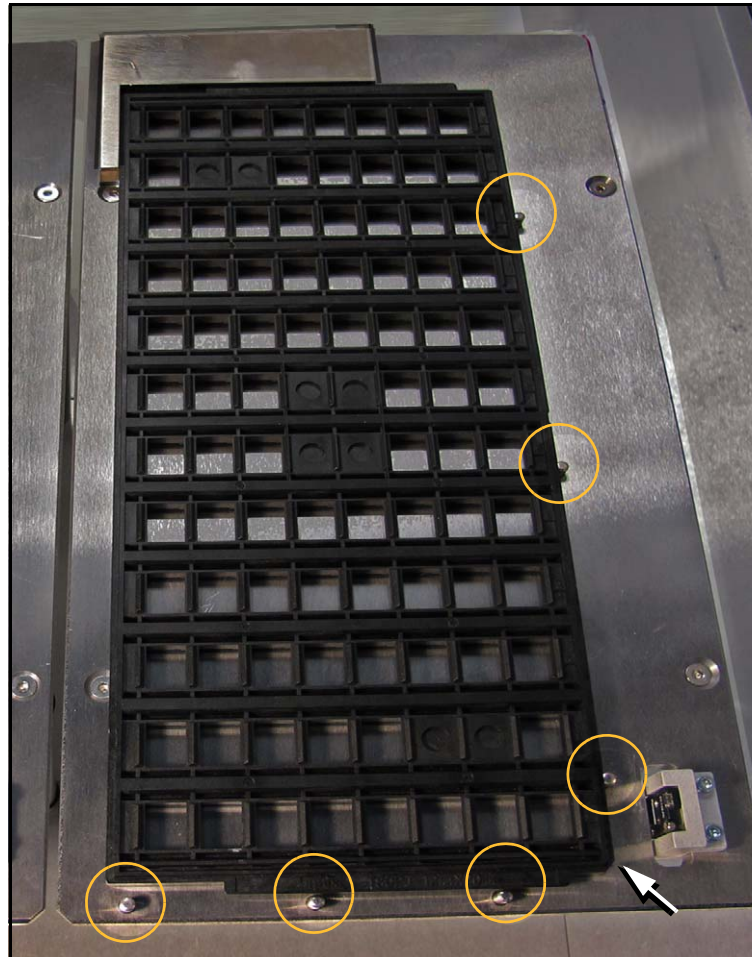


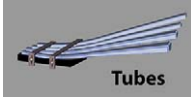
Figure 7: To install a tray, index it along the two rows of pins (circles). The chamfered corner for the *input* and *output* trays is at the front right corner (arrow). Output tray position shown.

3. The output tray installation is identical, located to the right of the input tray.
4. The reject tray is on the left. It has no tray sensor.



CAUTION: *Temporarily removing an input or output tray has consequences. Sensors register a tray's presence.*

If an input tray is removed and then returned to the mount while a job is Paused, the software proceeds as if the tray is full and all devices are unprocessed. For the output tray, the software proceeds as if the tray is empty.



Vibration Tube Input Option—Loading

With the Tube Vibration System set up and Input/Output platforms already installed, insert tubes and adjust action as described below.

Requirements

- Metric hex key set
- Empty tubes for the output platform

1. Insert **full** tubes into the input tube module and adjust the guides. (The input platform is on the left.)
2. Insert **empty** tubes into the output tube module and adjust the guides.



For Tube Feeder Installation, see the PSV7000 Owner's Manual; includes cutting a notch in the tubes for picking and placing devices.



On the AH700 Gantry window, the Tube Feeders are represented by the yellow position labels that reads Vib1 and Vib2.

Note: The Tube Feeder communication cable must be plugged into the correct connector on the front panel of the PSV7000: Input Vibration Module plugs into the left connector; Output Module into the right connector.

Note: Make sure that the correct devices for the target job are loaded into the input tray and that they have the correct pin 1 orientation. (If pin 1 orientation doesn't match pin 1 that is set in the Package File it must be corrected).

Pin 1 on Data I/O sockets is almost always toward the far side of the Socket Adapter (the back of the machine).

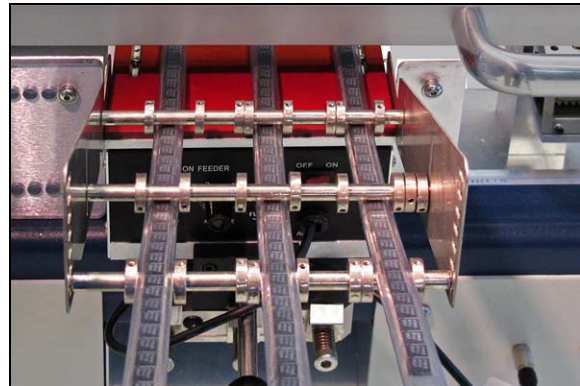


Figure 8: Three tubes for input are installed in this view.

3. Close the safety door.
4. Turn the power switch ON at both the Vibrator Input Module and Output Module.

Remember:

- The Setup window > Options tab must be set to match the workspace setup. Refer to the AH700 on-screen Help.

- The Package File must be taught the Tube locations, if it has not already been taught.

Adjusting Tube Vibration

If devices do not travel freely in either tube module, adjust the vibration using the Amplifier and Frequency controls on the front of the machine.

In general:

1. Put a tube that is not completely full into the first and last lanes of the Tube-In platform. (If full tubes are used, some devices may get bounced out.)
2. Set the amplifier control about half way up.
3. Adjust the frequency for best movement.
4. Then fine tune each again—amplifier and frequency.

Repeat for the Tube-Out platform, placing devices at the Tube-Out drop point manually with a device tweezer.



The last two digits of the Tape Input Feeder part number indicate the tape width.

Installing the Tape Feeder Module Option

PSV7000 can be configured with an optional Tape Feeder for input media. The Tape Feeder installs on the front of the machine. The left and right slots accommodate Tape Feeders (not the center slot). Safety plates cover the opening in the safety door whether a feeder is installed or not.

To install a Tape Feeder for input:

1. At the monitor, stop any job that is running.

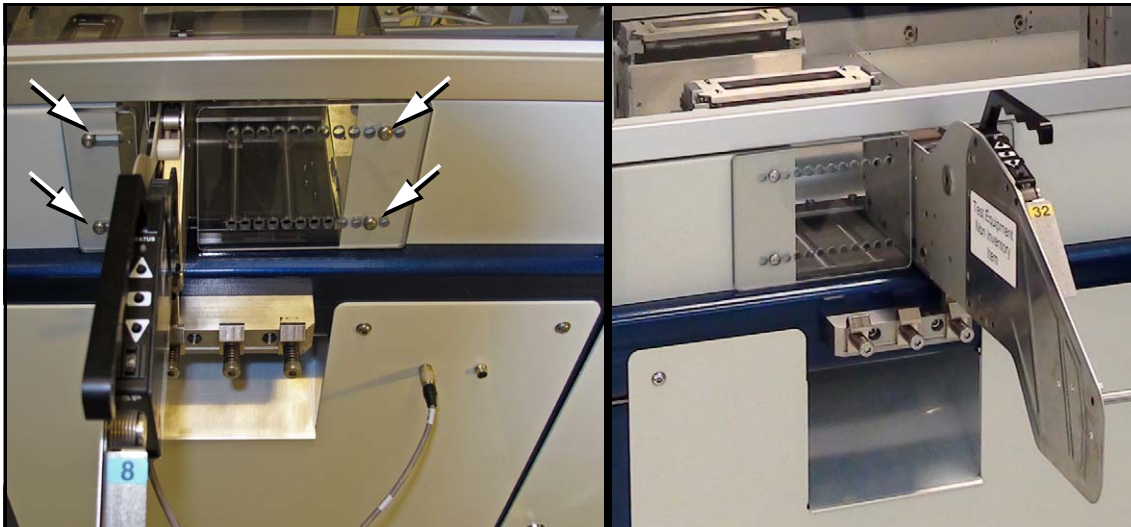


Figure 9: Use a 3 mm hex key to unscrew the two screws (arrows) securing each of the two safety plates. The location of the safety plates have been swapped in these images to accommodate the slot in use.

2. Remove the two screws securing each small safety plate as applicable for your setup (3 mm hex key) and remove the plate(s). Refer to the figures above.
3. Align the rail on the bottom of the feeder with the desired channel on the PSV7000 base plate.
4. With the feeder in the channel, slide it inward. When the feeder reaches the spring latches, lift it over to the far side of the latches and push down to secure. Refer to the figures below.

If device tape is already loaded on the feeder, ensure it gets started down the chute in the workspace.

5. Replace the two safety plates to cover all gaps. Note that the plates can be swapped to either side of the tape feeder as applicable.

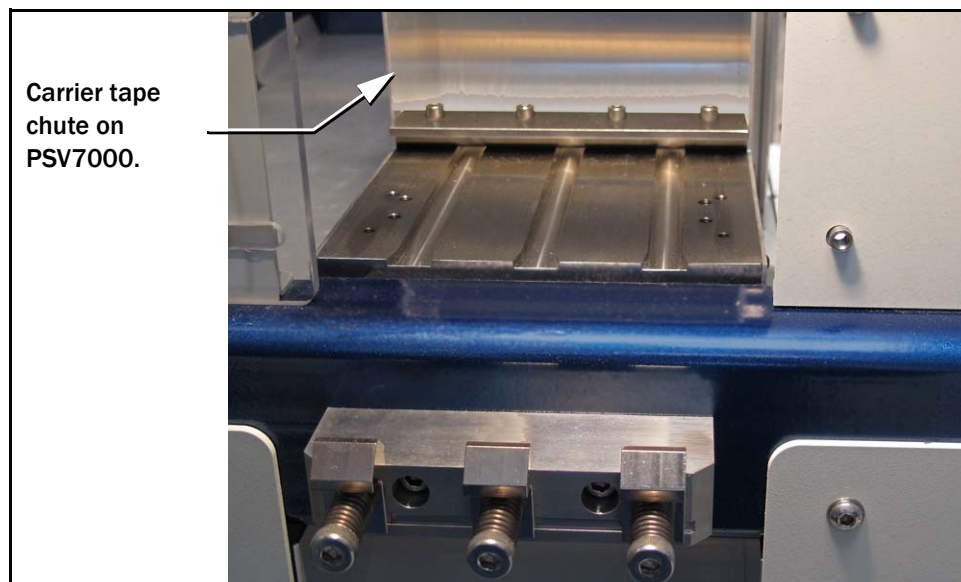


Figure 10: The media slots and spring clamps on PSV7000.

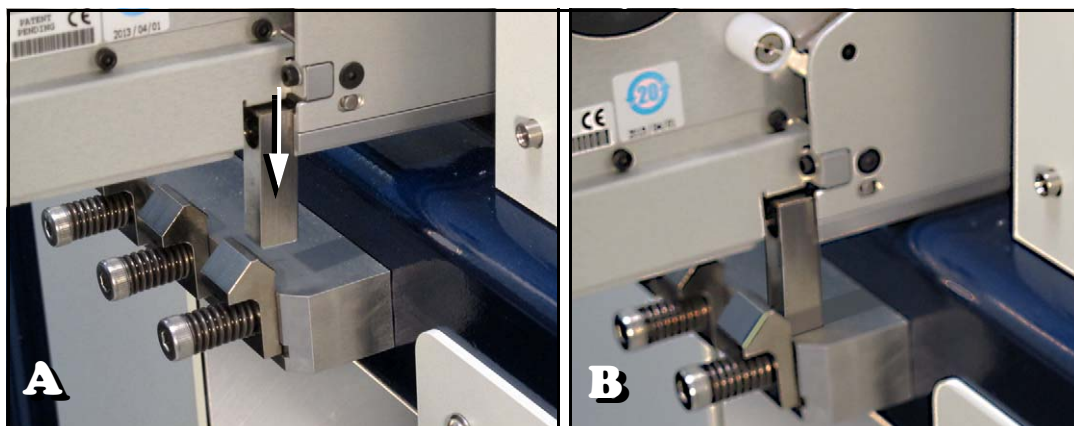


Figure 11: A. Push the mounting block of the Feeder into the spring clamp. B. Feeder has snapped into place.



To remove the Tape Feeder communication cable, grasp the collar and pull out.

6. Insert the communication cable part way into the socket on the handler and, while pushing lightly, rotate until the connector is oriented correctly (it will stop and make a slight click sound when it goes the rest of the way on).

The feeder Status lamp should light if the PSV7000 is on.

7. Install the device reel if it is not already.

Note: For more information about loading a reel of devices onto the feeder, see the documentation that came with your tape feeder.



For more information about threading carrier tape, see the documentation that came with your tape feeder.

8. Pull the carrier tape forward to start it into the sprocket wheel. Then advance the carrier tape, via the tape feeder, into the exit chute. Refer to previous figures for the tape chute.

The empty device carrier tape will come out of the slot below the mounting latch. If the Take-up Reel option is not used, place a box on the floor to contain empty carrier tape.

9. Thread the cover tape through the tape window and onto the feeder's cover tape roller.
10. Adjust pitch. Count the number of sprocket holes in the carrier tape between the center of one pocket and the center of the next pocket. Use this pitch number and follow the instructions for your particular Tape Feeder to set the pitch index.

Later, after the PSV7000 has been powered up, remember to align the pick point—

- A. On the Gantry window, press Park.
- B. Advance the carrier tape until the pick point mark on the feeder aligns with the center of a pocket.

It may be necessary to advance the tape forward one pocket.

Note: If a Tape Take-up Module is used, install it: see [the next heading](#).



Remember to remove cover tape from the cover tape reel when full. For more information, see your Tape Feeder documentation.

Installing the Tape Take-up Module Option

Install the Tape Take-up Module onto the front panel below the Tape Feeder Module as shown in the figure below.

1. Fasten the Take-up frame to the front panel.
2. Plug in the communications cable.
3. Install the correct size take-up reel.

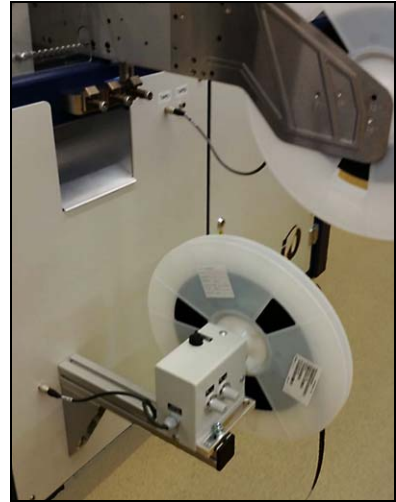
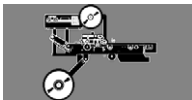


Figure 12: The Tape Take-up Module is installed.



Checking the Tape Output Option

Set up of the TM-50 Tape Output is described in the PSV7000 Owner's Manual.

When starting a job that uses Tape Output:

1. Ensure there is an empty take-up reel on the take-up reel spindle.
2. Ensure that the TM-50 is ready: set up for heat seal or pressure seal, Seal test and Peel Force test have been done, EPD Sensor is ON or OFF, leader and trailer lengths determined.
3. At the TM-50, pull the red E-Stop/On button to start it.
4. Run out enough sealed empty pockets to make the trailer that is required for the current job.
5. Check tape alignment.

Note: Use the counter on the TM-50 if desired. However, we recommend setting this counter to zero and using the pass quantity on the PSV7000 System to monitor quantity.

When the PSV7000 job is run, devices are placed by the Tape-Out at the Tape-Out pick point.

Ending a Run of Taped Devices

When the batch size has been reached:

1. If the EPD Sensor was used, in the Controller Setup Menu, select Mode, and then press 3 to disable it.
2. Reset the counter to zero (if used) and run out the desired leader length.
3. Cut the pocket tape and cover.

Replacing a Full Take-Up Reel

1. Leave the job-specified number of empty pockets on the carrier tape.
2. Cut the carrier tape.
3. Roll carrier tape onto take up reel and remove reel.
4. Install empty take up reel.
5. Continue job.



3» (Optional) Performing 3D Coplanarity Inspection

For information not found here, refer to the PSV7000 Owner's Manual, Chapter 3, *3D Coplanarity Option*.

1. Start the 3D Inspection PC as follows:
 - 1a. The 3D Inspection PC is just below the Handler PC. Open the PC door with the key and push the Power switch ON and release. See figure below.
 - 1b. Close and lock the door.



Figure 13: The 3D Coplanarity Computer is below the Handler Computer on the left side of the machine. Power Switch (arrow).

2. Confirm that the correct prism Reticle is installed for your device. (Check with your supervisor or the UltraVim manual.)

When Ready to start a job, remember to:

- select a job that has been set up for coplanarity inspection in TaskLink's **Task Manager** dialog, or Job Runner's job list.
- teach the Package File the location of the 3D Inspection System after AH700 opens if your job has not yet been run using the 3D Inspection System. (Refer to the AH700 on-screen Help for similar edits to the Package File, such as teaching a tray location.)

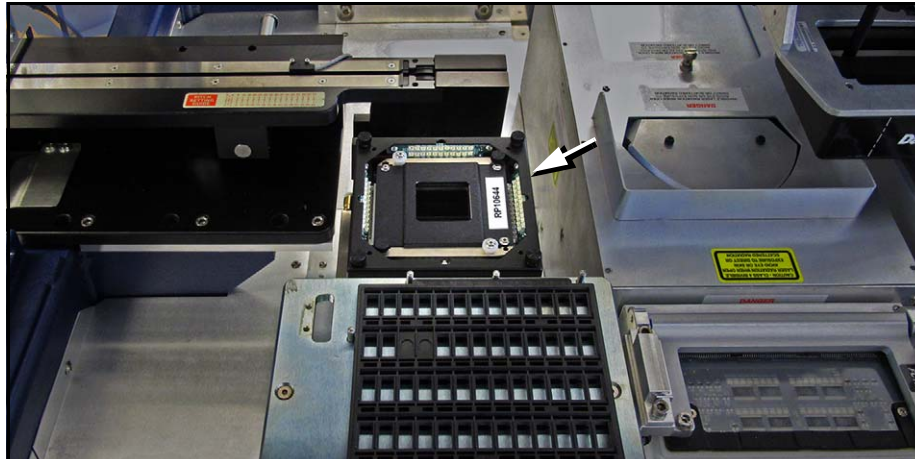


Figure 14: The 3D Coplanarity Lead Inspection System with prism Reticle installed (arrow).

*Note: Typical AH700 options are available such as the **Ignore Programmers** feature (on the **Options** tab) if 3D inspection only is desired without programming devices.*

4» (Optional) Set up Other Equipment

Set up any other equipment such as barcode scanning. (For more, see *Setting Up Input and Output Media* in Chapter 2 in the Owner's Manual or see customer letters on our Website technical library.)

5» Socket Adapters and Actuator Plates

Data I/O recommends installing Socket Adapters before a job has been started (before the AH700 Software is started). However, PSV7000 power can be ON.

***Note:** Neither Socket Adapters nor Actuator Plates are interchangeable between FlashCORE III programmers and LumenX programmers.*

Finding Socket Adapter Part Numbers

To find the correct Socket Adapter ID (part number) for your device/job—

If AH700 has not yet been started:

1. Open TaskLink (TL) (for FlashCORE) or Job Runner (JR) (for Viper).
2. Select your target job. (JR: See the Adapter column.)
3. (TL only) Click Edit, and then Footnotes.

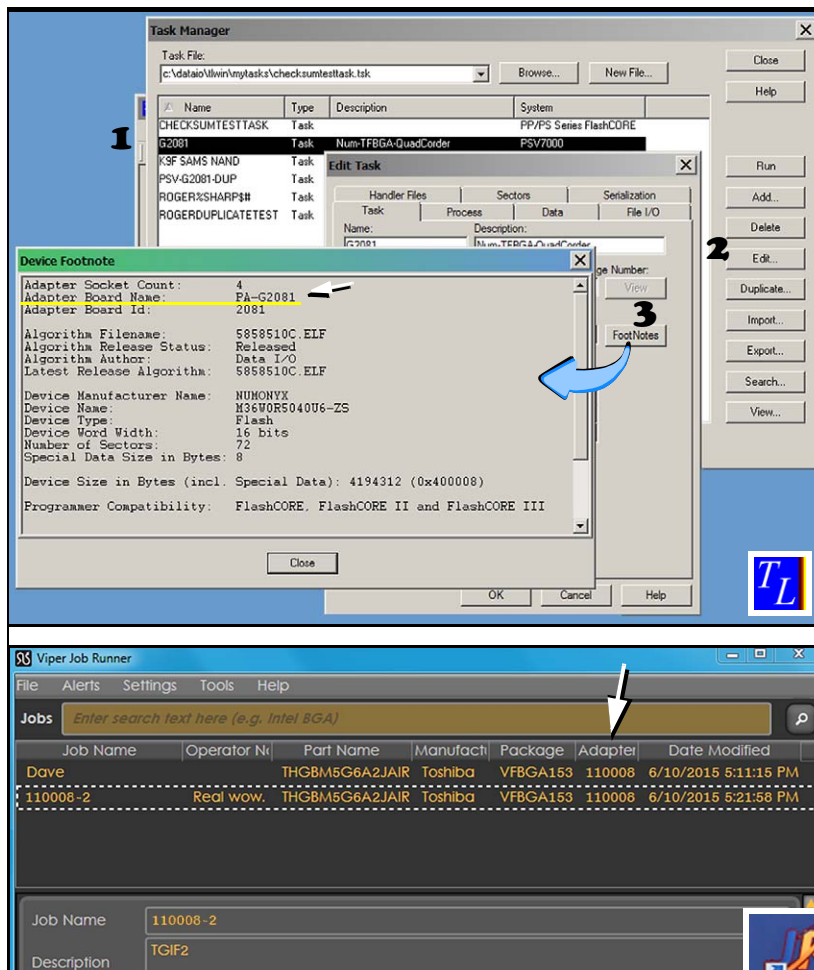


Figure 15: [Top] Footnotes dialog in TaskLink lists the Socket Adapter ID. [Bottom] Job Runner displays Socket Adapter IDs on the main window (arrow)

If AH700 has already been started, you can find the correct Socket Adapter Part Number for your device two ways without having to exit AH700:

- If you already have a Package File and you've named it after the Socket Adapter, see the last two fields of the *Setup > Job Info* window.
- On our Web site:
 - 1) Click Support > Device > Search for Support,
 - 2) Type your device PN into Device PN field,
 - 3) Click Begin Search for Devices. See the PNs in the right, results column.



CAUTION: Electrostatic discharge (ESD) hazard! To prevent damage to Socket Adapters and devices from ESD, always wear an antistatic wrist strap.

The wrist strap should be connected to the grounding socket on

the front of the machine and should contain a 1 M-ohm to 10 M-ohm current limiting resistor.



WARNING: *Pinch hazard! SOCKET ACTUATORS CAN STILL MOVE UP AND DOWN WHEN THE SAFETY DOORS ARE OPEN AND EVEN WHEN THE E-STOP IS PUSHED—the air does not shut off.*

Operation of the machine should be the responsibility of one operator and all other people should not interact with the controls at the monitor (which can trigger socket actuation).



Installing the Socket Adapters and Actuator Plates can be done later, after setting media options in the SETUP Window.



(FC) Installing Adapters and Actuators

For LumenX see [page 35](#).

To install or change a Socket Adapter on a FlashCORE programmer:

1. If a job is running, click Finish on the Run window and wait for the PNP head to empty the sockets, move to the Park position and stop.
2. Open the safety door that offers the easiest access to the target programmer(s).
3. With sockets closed (actuators up), remove the Actuator Plate by sliding it out toward the front or back of the machine. Refer to the figures below.

If the programmer is between two others, one of the adjacent Actuator Plates must be in the down position (sockets open) for access.



A job can be continued later—even after clicking Finish.



If removing all Actuator Plates in a row of programmers, start with the nearest one, and slide each plate forward.

(Ending a job leaves the Actuator Plates up for quick access.)



Figure 16: Remove the Actuator Plate by sliding it out from the bracket in either direction; sockets must be closed (up position). If the

programmer is between two others, one of the adjacent Actuator Plates must be in the down position (sockets open).

4. **Remove the Socket Adapter—**

- 4a. Unscrew the two captive screws with a 4 mm hex key and open the Adapter Bracket.
- 4b. Lift the Socket Adapter up off the dowel pins.

Note: Do not touch the gold contact surfaces on the bottom of the Socket Adapter.



Figure 17: Removing the Socket Adapter from a programmer.



Refer to Figure 16 for installing Actuator Plates.

- 5. **Insert the correct Socket Adapter** for your target device, making sure that it seats on the dowel pins.
- 6. Screw in the two bracket screws.
- 7. **Install the correct Actuator Plate** by placing it into the slot on the programmer bracket and sliding back until it snaps into place. Ensure it stops at the detents.
- 8. See heading below—ADJUST THE ACTUATOR PLATE (unless you are using the same Socket Adapter as the previous job).

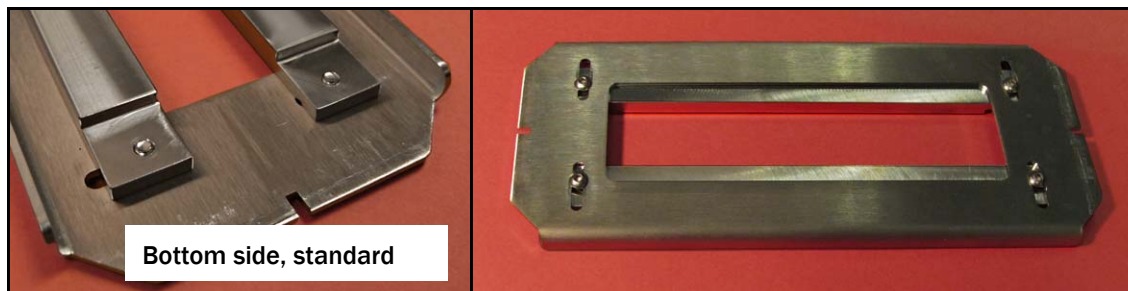


Figure 18: Standard Actuator Plate for Non-HIC Socket Adapters.

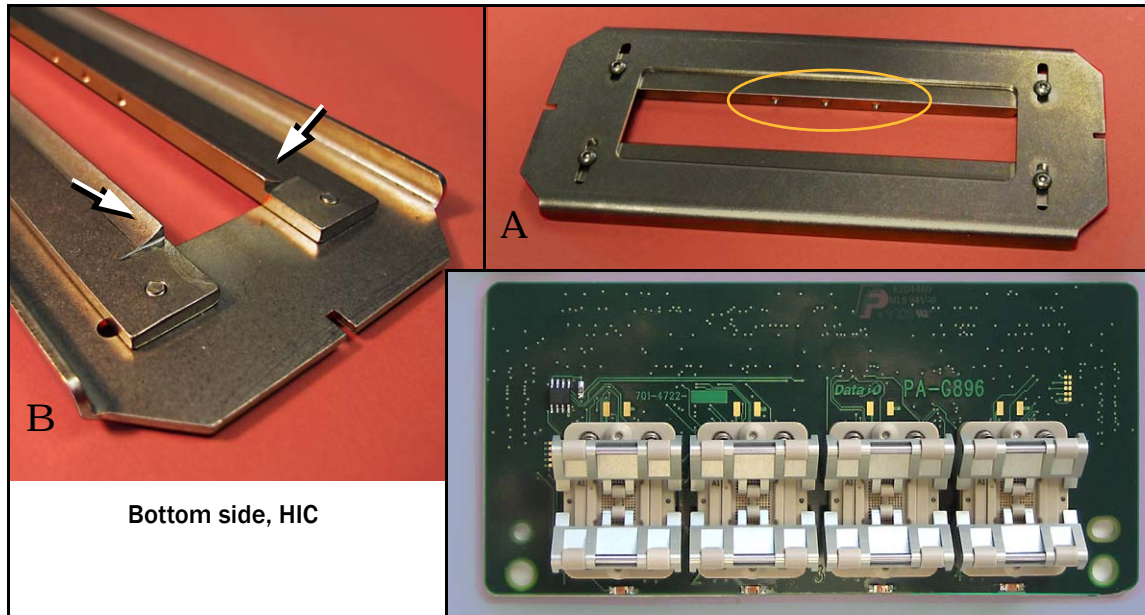


Figure 19: Special Actuation Plate for HIC (High Insertion Count) Adapters. **View A:** the three dots identify HIC Actuator Plates. **View B:** HIC bars have radii (arrows).

FC (FC) Adjusting the Actuator Plates

To adjust the Actuator Plates (both types, standard and HIC):

Requirements

- Head is parked.
- Actuator for the target programmer is in the UP position (sockets closed).
- The nearest safety door is open.



To cycle sockets at the Gantry window:

1. Click the yellow label for your target programmer.
2. On the *Actuate* tab, click the *Actuate Socket* button to ON—the socket opens. Clicking it OFF closes the socket.

1. With a 2 mm hex key, loosen both screws for one actuator sliding bar and slide it inboard (toward center) as far as it will go.
2. Then slide the bar outboard just far enough to allow a device to pass through and fit into the socket. On HIC Adapters, the bars should just cover the socket rollers.
3. Tighten the two screws for that bar.
4. Perform these steps for the second bar. The bars should be symmetrical in the plate opening.
5. With vacuum tweezers, place a device into a socket to verify clearance between the bars.
6. Before running the job, (or now if the power is already on) cycle the actuator down and up to verify the setting.



(LumenX) Installing Adapters and Actuators

Remove/Install Actuator Plates

To install or change a Socket Adapter on a LumenX programmer:



A job can be continued later—even after clicking Finish.

1. If a job is running, click Finish on the Run window and wait for the PNP head to empty the sockets, move to the Park position and stop.
2. Open the safety door that offers the easiest access to the target programmer(s).
3. Remove an Actuator Plate by rotating the end with the keyhole slots to release from the fixed shoulder screws.
4. Lift that end and pull sideways (to the right) out from under the shoulder screws at the opposite end.
5. See heading below—Adjust The Actuator Plate (unless you are using the same Socket Adapters as the previous job).

Install in the reverse order.

Note: HIC (High Insertion Count) Actuator Plates must be used with HIC Socket Adapters. HIC adapters have a radius on the underside of the adjustment bars (similar to the HIC for Flash-CORE).

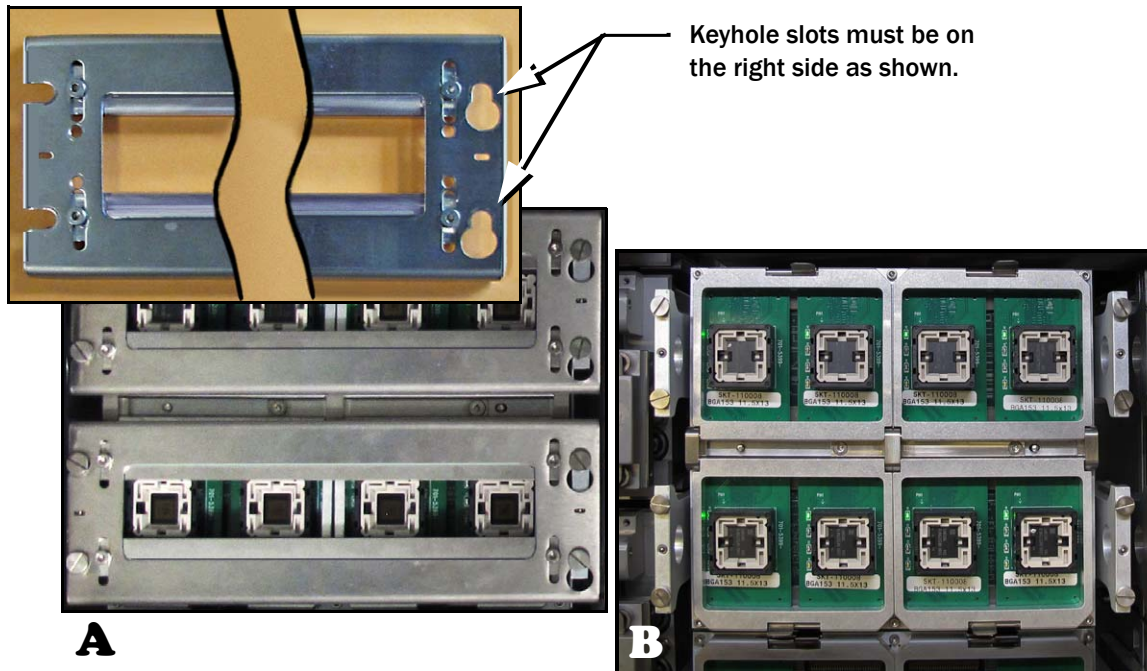


Figure 20: Actuator Plates for LumenX programmers. With plates (A) and without (B).

Note: Actuator bar adjustments may vary depending on location—the front half of the programmer or the far half.



(LumenX) Remove/Install Socket Adapters



CAUTION: Electrostatic discharge (ESD) hazard! Wear an ESD strap or discharge static against a common ground to prevent damage to Socket Adapters and devices.

1. Pull the spring clip and lift open any socket clamp. One clamp secures two Socket Adapters.
2. Orient the Socket Adapter with the chamfered corners toward the front (nearest to you). All locations orient the same.

CAUTION: Possible machine damage! Bent or damaged pins can reduce yields or prevent programming. Do not touch connector pins. Use caution installing adapters.



Figure 21: One clamp open with Socket Adapters. Two of the alignment holes are circled. The two back alignment holes are not visible in this view. Chamfers are to the front (arrows).

3. Place the adapter to match the guide pin at each corner with the holes in the adapter.
 4. (Optional) Place a second adapter at this clamp.
 5. Close the clamp. Make sure the latch snaps in place.
- Removal is the reverse procedure. Lift gently by the socket.



(LumenX) Adjusting the Actuator Plates

To adjust the Actuator Plates (both types, standard and HIC):

Requirements

- Head is parked.
 - Actuator for the target programmer is in the UP position (sockets closed).
 - The nearest safety door is open.
1. With a 2 mm hex key, loosen both screws for one actuator sliding bar and slide it to align with the socket so that it only contacts the black part of the socket body.
On HIC Adapters, the bars should just cover the socket rollers.
 2. Tighten one screw for that bar, recheck alignment and then tighten the second screw.
 3. Perform these steps for the second bar on this Actuator Plate.
 4. Test bar placement; with machine air off, manually press the actuator down to contact the socket body. Ensure it opens the socket correctly. Readjust the bar if necessary.

Adjust other Actuator Plates similarly as needed.

6» Installing the Correct Probes

Different sized devices may require a different size probe tip. **For the most reliable performance, use the largest probe tip possible for the target device.** Also, different tips must be used when using the 3-D Inspection System and they use a tip holder PN 615-0322-001.

PNP Head Probe Tips	
probe tip and Part Number	tip OD
 <p>646-0167-001 Small Tip (option) 3-D tip: 615-0227-001</p>	1.3 mm
 <p>646-0166-001 Medium Small Tip (option) 3-D tip: 615-0226-001</p>	3 mm
 <p>646-0165-001 Medium Tip supplied) 3-D tip: 615-0225-001 and 15-0228-001</p>	6 mm
 <p>646-0169-001 Medium Large Tip (option) 3-D tip: 615-0229-001</p>	9 mm
 <p>646-0164-001 Large Tip (option)</p>	12 mm

Removing and Installing a Probe



CAUTION: Safety hazard! Possible personal injury from moving machinery. Always make sure that the PNP head is stopped in the Park or Tool position before opening any access doors.



Main AH700 Start Window

1. Pause or Finish a job if one is running.
2. At the Run window, right-click a probe within the head (white rectangle).
3. In the sub-menu, click Tip Change to move the head to the Tool position (the probe motors are disabled).

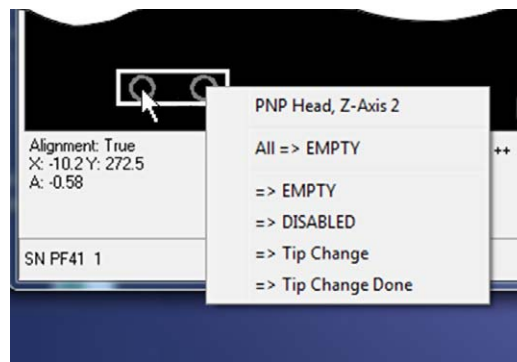


Figure 22: At the Run window, right-clicking a circle in the white rectangle representing the head displays the submenu.

4. Open the safety door (disables the gantry motion).



WARNING: Shock hazard! Opening the safety doors stops motion of the gantry only. It does not remove electrical power from the machine or any optional equipment.

Turn the main power OFF for safety unless otherwise directed.

5. Pull the spring clip out, away from the probe grasping it opposite the thin aligning pin. See figure below.

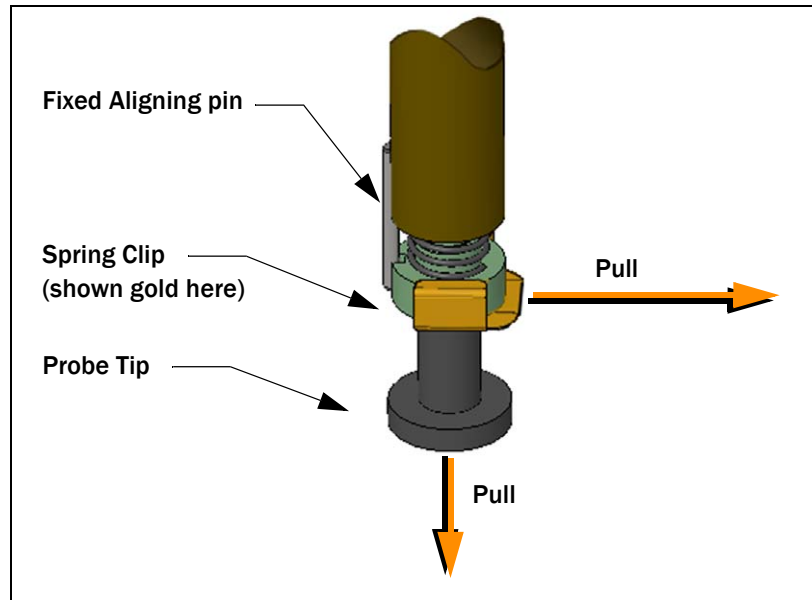


Figure 23: Remove the Spring Clip from the probe prior to pulling off the tip.

6. Pull down on the probe tip to pull it off the probe holder.
7. Insert the new probe with desired tip size, aligning the oval flange with the slot in the probe base.

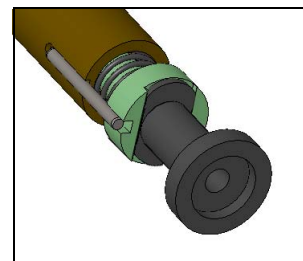
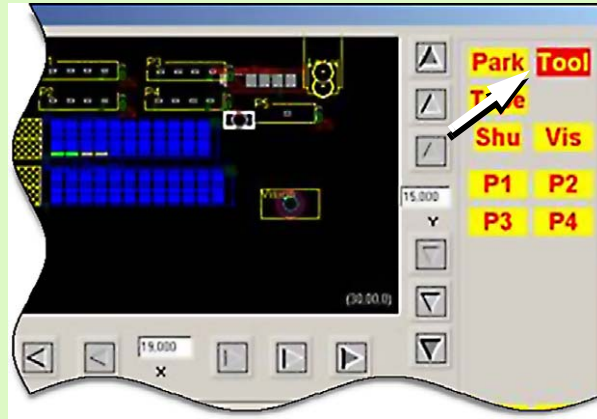


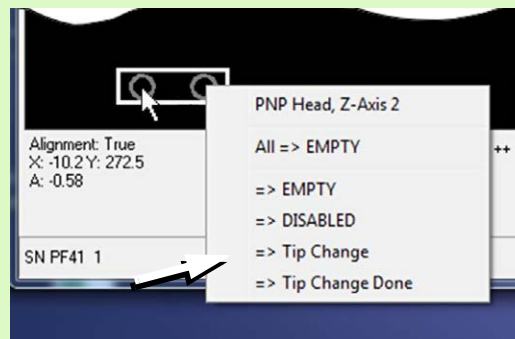
Figure 24: The tip must seat in the slot in the holder.
The Spring Clip has not been installed yet.

8. Make sure the tip is clean.
9. Repeat with the second probe if necessary.
10. Still at the RUN window, right-click the head > Tip Change Done.
(This finds the center of probe rotation, or COR.)

What's the difference between the TIP CHANGE command and the TOOL command?



THE TOOL COMMAND IN THE GANTRY WINDOW moves the head to the Tool position near the front of the machine for easy access. It does NOT disable any motors (or motion).



THE TIP CHANGE COMMAND IN THE RUN WINDOW > Head submenu disables the probe motors after moving it to the Tool position. To return the head to the previous position and re-enable the motors, click the Tip Change Done command.



7» If Laser Marking—Installing the Correct Rotor Tips

For jobs that use the laser marking option, the rotor tip must be of adequate size for the vacuum to hold the device. Devices with flat bottoms such as QFP, TSOP, and SSOP require tip diameters smaller than the shortest edge of the device. The tips supplied on the machine generally work for most devices. If you need different tips, follow the steps below.

Requirements:

- No job is running.
- 1.5 mm hex key
- Machine power will need to be turned OFF.



CAUTION: *Pinch Point! The Laser Rotor can rotate even when the safety door is open (unless the rotor motor has been disabled). The shuttle rotates up very close to the PNP head if the head is near.*

When changing rotor tips, be sure the head is not near the Laser Module and that at the laser motor is disabled with the Access Cups command. Use caution.

To remove and install Laser rotor tips:

1. If the PNP head is near the Laser rotor, move it to the Tool position. (Click RUN window > Tool).
2. At the RUN window, right-click the Laser indicator (rectangle) and select submenu command **Access cups**. This disables the rotor motor.
3. Open the rear safety door.
4. Unscrew each exposed tip with a 1 mm hex key in the center of the tip, and lift each tip out.



Figure 25: A 1.5 mm hex key fits into the center of the each laser tip to unscrew it.

5. Screw in the two new tips.
6. Rotate the Laser rotor by hand to access the other two tips.



Figure 26: The Laser rotor can be rotated by hand when the motor is disabled (or the machine power is OFF).



Hint: Select a rotor tip size that will work with the largest selection of your frequent target devices.

7. Remove and replace the second two tips.
8. Rotate the Laser rotor back to tips 1 and 2.
9. Close the safety door.
10. Re-enable the rotor motor at the RUN window by right-clicking the Laser indicator (rectangle) and select submenu command Access cups ready.

8» Turning PSV7000 System Power ON

Before you turn on power, check that:

- All safety doors are closed
- The external air line is connected, the air pressure switch is in the ON position, and the pressure indicator number is green.



CAUTION: Possible hearing loss hazard! Generally, Data I/O's offline programming systems do not exceed 85 dB. The addition of optional equipment may raise the sound level slightly. Hearing protection is recommended if the noise level in your environment exceeds 85 dB.



For location of the power switch, see page 3.

1. Turn on the power on the left side of the machine by rotating the large switch to the ON position.
2. Make sure the air line is connected and turn the air pressure switch ON. Make sure the pressure indicator number is green.



Note: Turning power ON does not start AH700 (the PSV7000 Application Software). Although the AH700 icon on the monitor can be double-clicked, the preferred way to start the application is by first starting TaskLink or Job Runner—see the next heading.

9» Selecting a Job—Starting AH700 Indirectly



For more information, see the online Help for TaskLink or Job Creator.

TaskLink (TL), Job Creator (JC), and Job Runner (JR) can all automatically start AH700 Application Software when Run is clicked. Only TL and JR are discussed here after the definitions.

TaskLink is Data I/O's software for creating FlashCORE programming jobs and programming options, but also for selecting jobs and starting AH700 to run them. Jobs created with TaskLink cannot run on LumenX programmers.

Job Creator is Data I/O's software for creating LumenX programming jobs and programming options, but it can also be used for selecting jobs and starting AH700 to run them. Jobs created with Job Creator cannot run on FlashCORE programmers.

Job Runner is Data I/O's software for selecting jobs and starting AH700 to run them. It does not allow job creation or editing.



CAUTION: Possible touchscreen damage! Hard objects such as pencils and pens can damage the screen. Use fingers only.



If AH700 is already running and you are rerunning the same job, click Run in the Run window—no need to restart AH700.



Figure 27: Desktop icons, TaskLink and Job Runner (your icons may look different).

To select a job and start AH700:

Using TaskLink (FlashCORE programmers)

—for Job Runner steps skip to page 47.

1. At the touchscreen, double-click the TaskLink icon.
2. Open the Task Manager Dialog, select your target Task from the list, and click Run.



For Tray Feeder information, refer to Dual Tray Feeder on page 70 prior to clicking Run.

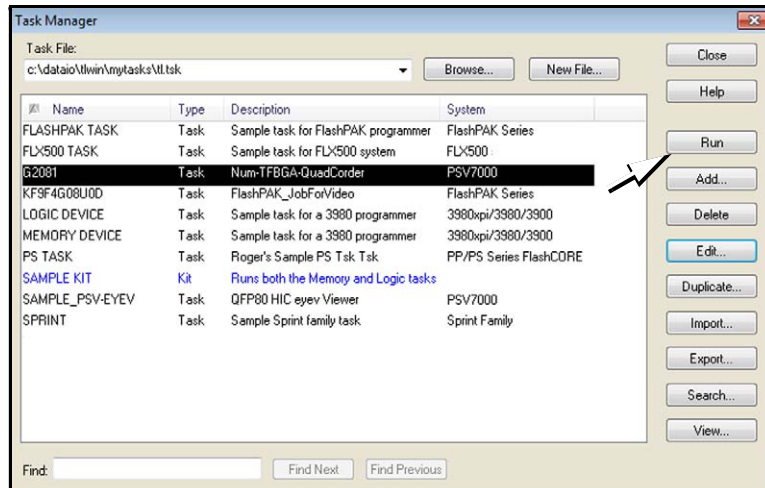


Figure 28: Select a Task and click Run to run a job on PSV7000.

3. A Footnotes Dialog displays. Take note of the **Socket Adapter and Actuator Plate part numbers required**. Click OK to close the dialog.
4. (Optional) Enter the number of devices to be processed in the Pass Limit field (0 is the default for an unlimited number of devices).
5. (Optional) Enter a description.
6. Click OK.

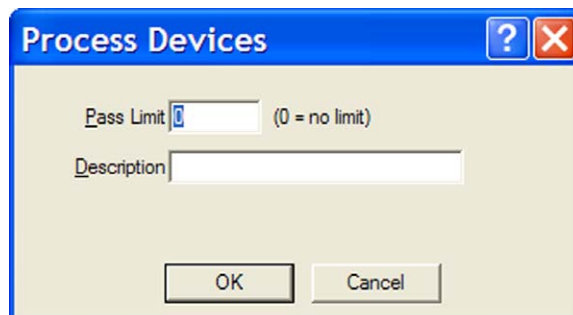


Figure 29: Both a Pass Limit and a description are optional.

7. When job setup is complete, TaskLink confirms launching the AH700 software and displays the calculated checksum (if *Display Checksum* option is checked in TaskLink). Click Yes. AH700 opens.

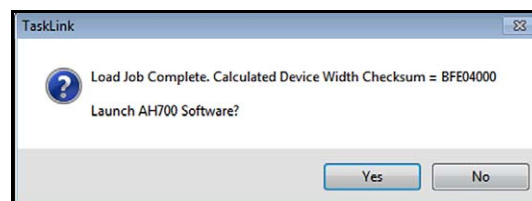



Figure 30: Click Yes to launch AH700 Software.



Using Job Runner (LumenX programmers)

1. Double-click the Job Runner icon. 
2. Click your job name.
If no jobs display, see the on-screen Help for pointing Job Runner to the correct directory.
3. Click Select.

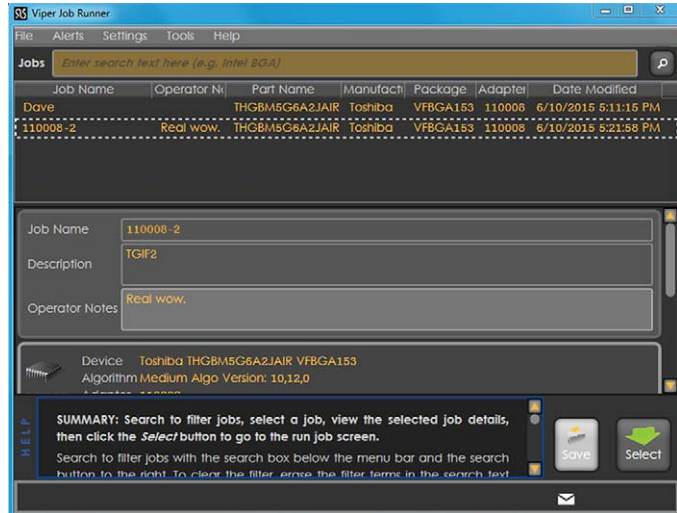


Figure 31: At the main window the selected job is boxed.

4. Check the desired programmers (right column).

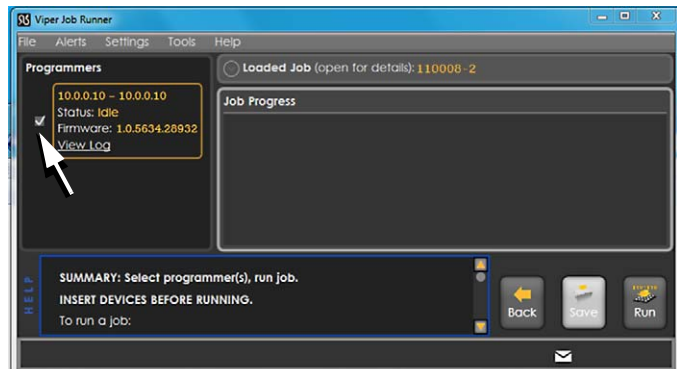


Figure 32: Only one programmer is selected (or even available) in this view of the Run window.

5. (Optional) View the job details by clicking the Loaded Job drop-down arrow.

Note: Job Runner must be in PSV Mode for it to open AH700 (Settings > Settings, set Presenter Mode to PSV Mode).

6. Click Run.



Job Runner must be in PSV Mode for it to open AH700 (Settings > Settings, set Presenter Mode to PSV Mode).

Both TaskLink and Job Runner open AH700.



Figure 33: The AH700 Main window opens with a job loaded and the job name displayed (arrow).

10» (Optional) Preselecting Programmers

PSV7000 can be configured with up to 24 FlashCORE programmers, or up to 14 LumenX programmers, or a mix of both, depending on other options installed. However, a programming job can only be run for one type of programmer at a time.

To improve efficiency, shut off programmers that are not used for a particular job as follows:

1. At the AH700 Main window, click Preselect Programmers. Refer to *Figure 34*.
2. Click **I** (green side) of the Unlock Cnf button to allow changes.
3. For each programmer, click **I** (green side) of the button to enable it or the **O** (red side) to disable it. See *Figure 34*.

Note: If a programmer does not have a Socket Adapter, or an incorrect Socket Adapter is installed, the programmer will automatically be disabled.

Note: Only programmer types for the current job are displayed.

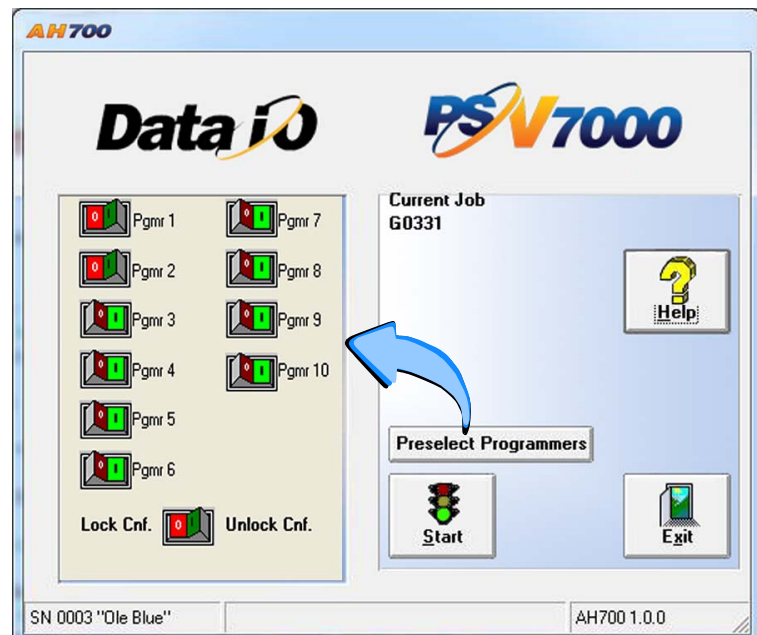
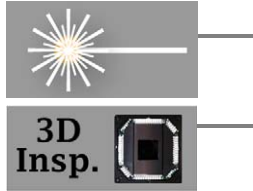


Figure 34: Preselect Programmers has been clicked. In this image, programmers 1 and 2, are disabled.

4. Lock the configuration again **only if you wish to keep this setting the next time the system is turned on** by clicking the **O** (red) side of the Lock Cnf button.

11» Setting Media and Options—the Setup Window



For rotor tips, see *If Laser Marking—Installing the Correct Rotor Tips* on page 42.

For these steps refer to the *Figure 34 on page 49* and *Figure 35* below.

1. On the AH700 Main window, click Start.
2. On the Options tab of the Setup window, select the desired Input, Output, and Reject media.
3. (Optional) For laser marking devices, click the Laser Marking switch to ON (green). Ensure the correct laser rotor tips are installed.
4. (Optional) For 3D-Lead inspection (coplanarity) click the 3D Inspection System to ON (green).

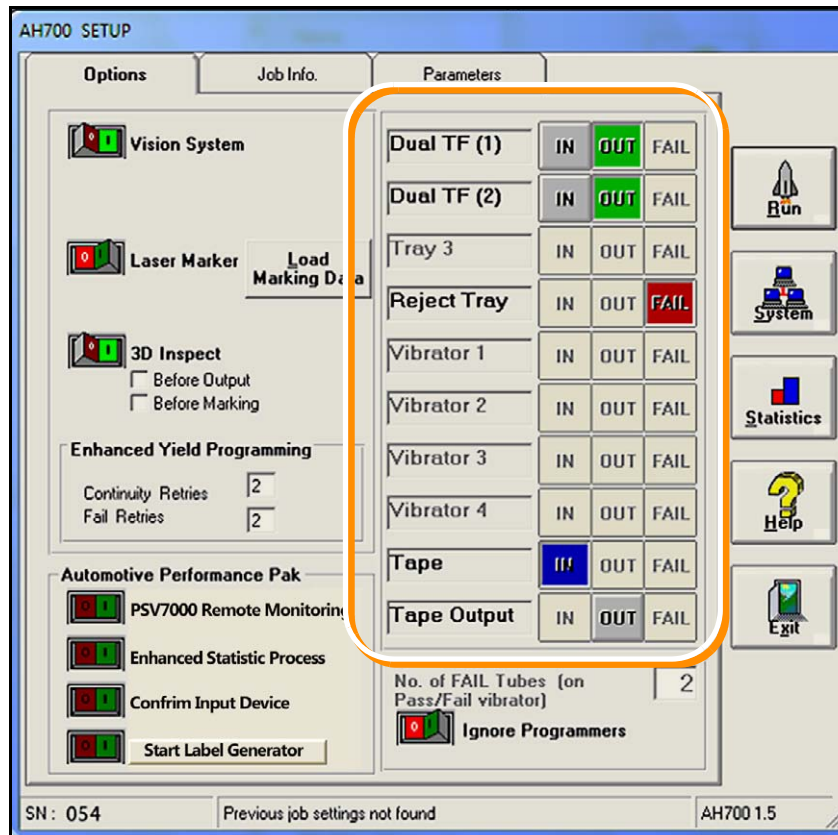


Figure 35: The SETUP window requires selections for input, output, and reject media (boxed here) on the Options tab.

Only options set in the WinAH400.ini file will display. Common setups will not display all the optional features shown here. Talk to your Administrator regarding desired options that are not displayed. This image shows Dual Tray Feeder media rather than static trays.



For Enhanced Yield option settings, you may want to confer with your administrator.

5. Set Enhanced Yield Options:



For more information on the AP Pak, see the AH700 on-screen Help.

- 5a. (Optional) In the **Continuity Retries** field, enter the number of times the system should retry continuity failures before rejecting the device.
- 5b. (Optional) In the **Fail Retries** field, enter the number of times the system should retry programming failures (excluding over-current and continuity) before rejecting the device.
6. **[Automotive Performance Pak Option only]** (Optional) Start any of the five utilities available with the AP Pak. NOTE that you may not have security rights to change these options. Check with your administrator.
7. Make sure **Ignore Programmers** is Off (red). If it is On (green), the PNP head will not stop at the programmers and will effectively transfer devices from input media to output media with no programming, and with or without laser marking. The default is Off.

***Note:** If your desired input media (tube, tape, or tray) does not display on the **Options** tab, the winAH400.ini file may need to be edited. See the online Help for instructions editing the WinAH400.int file or contact Data I/O Customer Support or a local Data I/O approved service representative.*

Verifying Media Setup

1. At the **Setup** window, click the **Job Info** tab.
2. Verify that all the information displayed for this job is accurate. Refer to the figure below of the **Job Info** tab.



For more information about External Serialization see Comma Separated Values for Serialization in the on-screen Help.

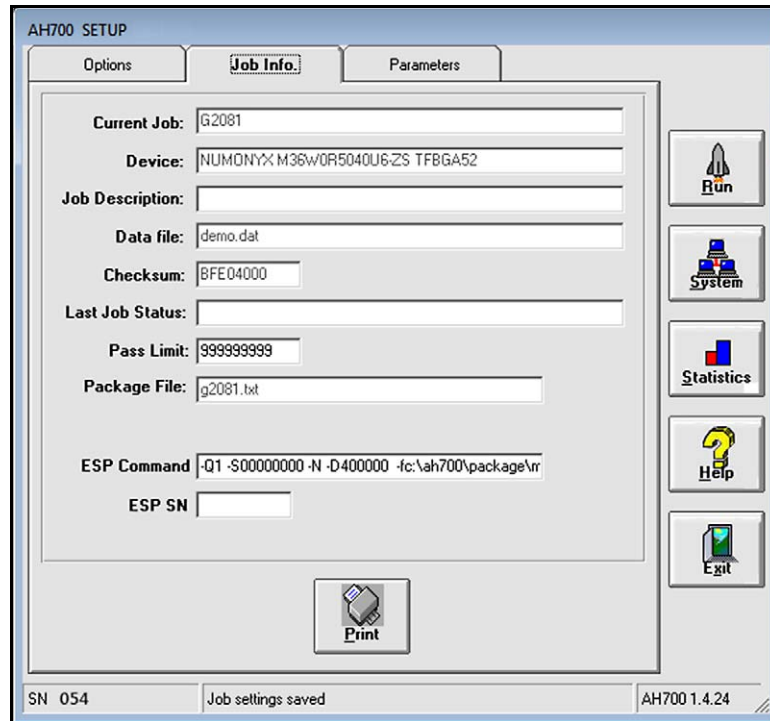


Figure 36: The Job Info Tab is a read-only review of information, with the exception of the Pass Limit field (and ESP SN field, if *External Serialization Program* is used) which are editable.

3. (Optional) Change the Pass Limit (number of devices to program)—At the Job Info tab, click the in Pass Limit field and enter the new Pass Limit value and click OK.

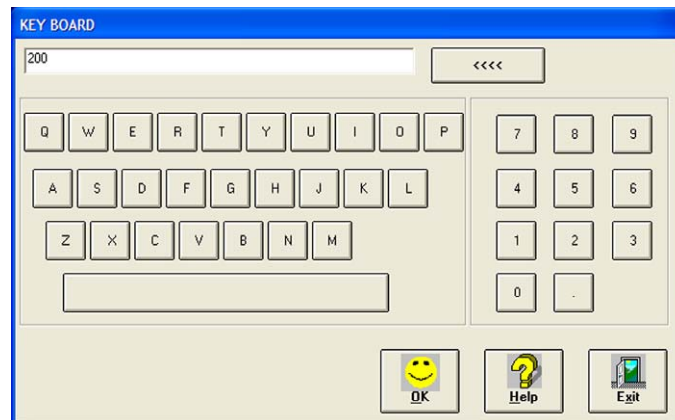


Figure 37: The Keyboard dialog opens after clicking in the Pass Limit field. The <<<< button erases the right-most digit. Exit cancels any changes.



CAUTION: Possible socket and device damage! If an incorrect Package File was selected during Task creation, or if device orientation was input incorrectly, devices or socket contacts may get

damaged. If you have any doubts about the Package File, contact your system administrator.

Aligning the Tape-Input Pick Point

If tape feeder input is used, align the pick point; see [page 24](#) for more.

Loading the Tape-In Take Up Reel (Option)

If the Take-up reel option is used in conjunction with the Tape-Input, start the pocket tape onto the take up reel as it exits the PSV7000.

12» Starting Programming

After setting up the machine hardware, input/output media and options, the job is ready to be run.

Note: Prior to starting a job on PSV7000, make sure there are no devices in the programmers. See [Removing Devices](#) on page 59.

Note: If this job uses laser marking and the marking file has not been set in the job, see [TaskLink Help/Job Runner Help](#) or contact your administrator.

1. If this job uses laser marking, make sure the Laser PC is On and the Marking Head is ready. Refer to the next heading below, [If Laser Marking—Starting the Laser PC](#) before continuing.
2. At the Setup window, click Run.
3. On the Run window, click Run.
4. Click OK to the message notifying that Tray 1, Tray 2, and Fail Tray have been found.

The PNP head begins its movements. The Run window tracks head movement (white square), and displays device placement. Socket status indicators appear inside the programmer outlines.

Note: If the input/output media are tubes, tube vibration might need adjustment if devices do not move easily. Use the vibration controls on the front of the PSV7000 System to adjust tube vibration.



For more about the live data on the Run window, see the [AH700 on-screen Help](#).



If Laser Marking—Starting the Laser PC

If a job uses laser marking, start the laser PC. The Laser status lamp must be steady red for marking. Refer to figure below.

1. When the status lamp on the laser is PC green (power to PC), turn the Key selector to ON (1). (Status lamp blinks orange temporarily during warm-up.)
2. When the status lamp is steady orange, turn the Enable selector to ON (1). The laser status lamp and the Scan Head lamps turn red.

If the status lamp is not steady read:

1. Turn Key selector OFF.
2. Turn the Enable selector OFF.

3. Turn Key selector ON.
4. Turn Enable selector ON.

Note: Depending on laser interlock status, the lamp may never turn solid RED, but blinking orange if the Laser cover is open or Laser rotor is not in marking position.

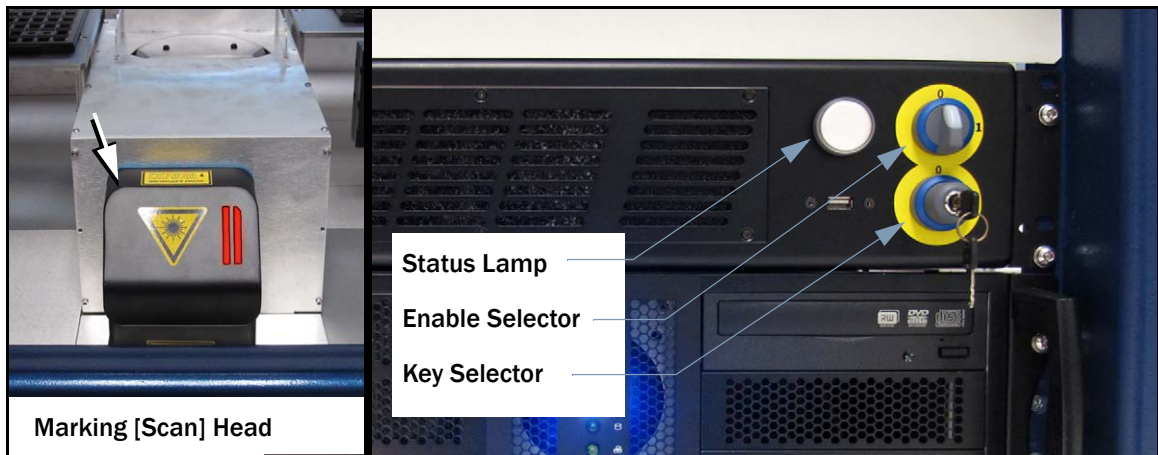


Figure 38: The Laser PC sits above the Handler PC on the left side of the PSV7000 Machine.



(Optional) View of Laser Status

The DataLogic Laser software reports status in the Windows Taskbar when that software is active.

To Start DataLogic Laser Engine software:

1. On the keyboard press keys Scroll Lock twice, then number 2 to switch to the Laser PC. (The *Lighter Engine* software should be running.)
2. Mouse-over the Lighter icon in the Windows taskbar. See [Figure 39](#).

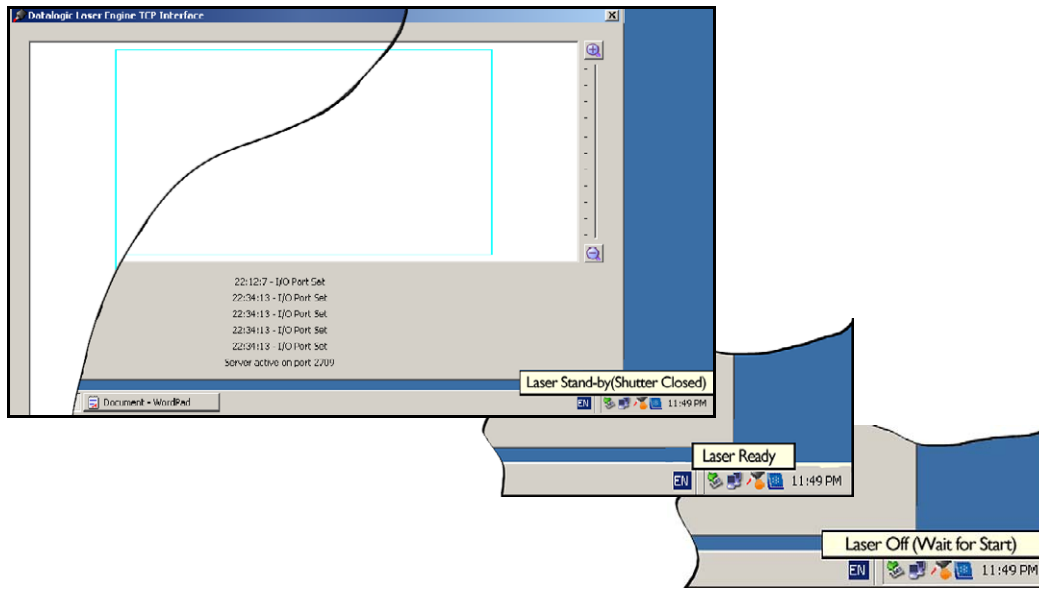


Figure 39: Tool tip icons indicating laser status.



Starting the Fume Extractor (if not already)



WARNING: Health hazard! Laser marking generates vapors, fumes, and particles that may be noxious, toxic, or even fatal.

Ensure that the fume extractor is running when laser marking devices.

Note: The Fume Extractor must run when using the Laser marker. A warning message will alert you if you are laser marking devices and the fume extractor is not on.

If for some reason the Fume Extractor is not running, follow the steps below to turn the Fume Extractor power ON.

To manually start the Laser Fume extractor,

1. Turn the PSV7000 power is OFF. Refer to [Turning PSV7000 System Power OFF](#) on page 68.
2. Open the back, lower access doors.
3. Turn the fume extractor power ON. See Figure 40.



Figure 40: Fume Extractor Power Switch (hidden behind hose).

4. Close the access doors.
Close the safety doors and turn the PSV7000 System power ON.

Programming Errors

Interpreting programming results can be done by understanding the AH700 Run window information and observing the LEDs on the Socket Adapters.

Run Window Socket Color Meanings

The Run window in AH700 displays all the sockets on the work surface. The color indicates status of each socket.

PASS	DISABLED	EMPTY	NEW CHIP
FAIL	PROGRAMMING	CONTINUITY	VACUUM ERROR

Figure 41: The AH700 Run window displays socket status.

What do the Numbers Mean?

The Run window in AH700 displays socket and adapter statistics at each programmer icon. See [Figure 42](#).

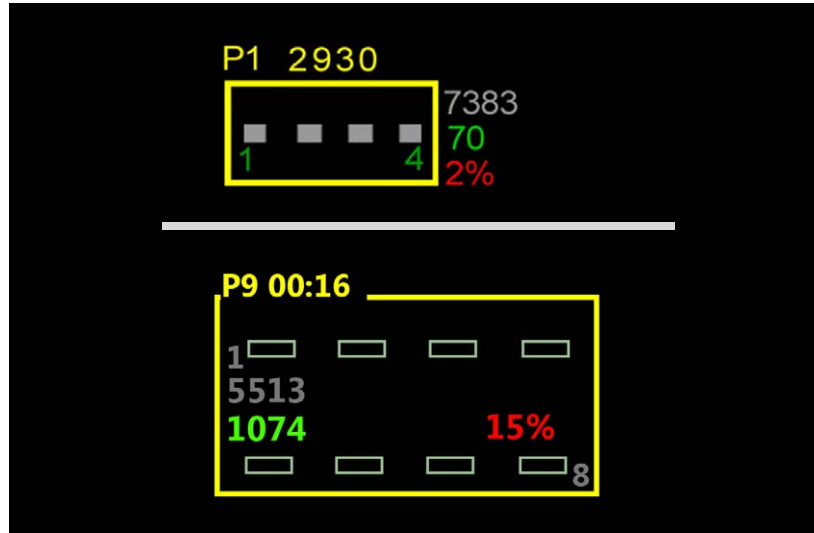


Figure 42: The numbers surrounding the programmer icons in the Run window; TOP—FlashCORE, BOTTOM—LumenX. Refer to the table below: (these numbers are examples only).

Value:	Indicates:
P1	Programmer 1
P9	Programmer 9
2930	Socket Adapter actuation count. If this number is red, the Socket Adapter lifetime actuation count has been exceeded. On LumenX, actuation count only displays when programming is stopped
00:16	LumenX only: Programming time for this cycle
7383 5513	Insertion count of all sockets in this adapter during its lifetime. Number is gray.
70 1074	Pass quantity on this adapter for current job.
2% 15%	Percentage of devices failed on this adapter for current job.

Programming Results Interpreted at the Socket

LEDs at each socket report programming status.

For LumenX programmers, see *LED Interpretation on LumenX Programmers* on page 4.

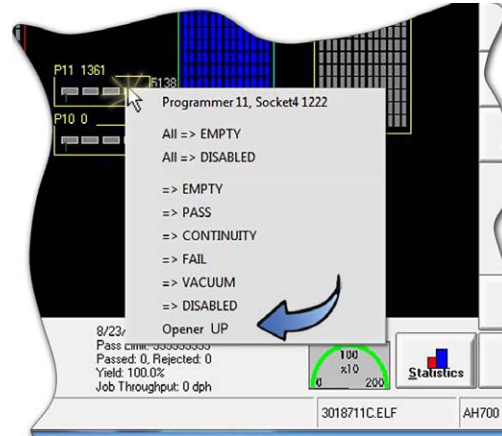
For FlashCORE programmers see *LED Interpretation on FlashCORE Programmers* on page 5.

Removing Devices

If unwanted devices are in programmer sockets, they can be removed in two ways:

Manually

1. Pause or Finish (end) a job.
2. Right-click on the desired programmer to open a submenu, and then click Opener UP.



3. Using ESD precautions, open a safety door and remove the devices with a vacuum tweezer.

At the Run Window

1. Pause or Finish (end) a job.
2. Click Clear.

Stopping the System

There are three methods for stopping the machine:

- **Emergency Stop**—Pushing any of the red E-Stop buttons stops the movement of the PNP head immediately in an emergency. (Power to the gantry motors is disconnected and communication to the Laser head is disconnected.) The AH700 Application must be closed and the job restarted in TaskLink or Job Runner.
- **Pausing a Job**—Clicking **Pause** in the Run window—stops the PNP head at its next destination. Devices finish programming if started but are not removed from sockets. The programming session can be continued.
- **Finish a Job**—Clicking **Finish** in the Run window—stops picking blank devices, finishes the current programming cycle, and removes devices from all the sockets placing them into appropriate media. The programming job can be resumed.

Note: Job throughput as displayed in the Run window is affected by the length of time a job is paused. Nominal throughput excludes paused time.

Emergency Stop

To prevent bodily injury or damage to equipment in an emergency, press the red Emergency Stop (E-Stop) button located on the front and back of the machine. Pressing an E-Stop button immediately stops motion of the PNP head and the gantry.

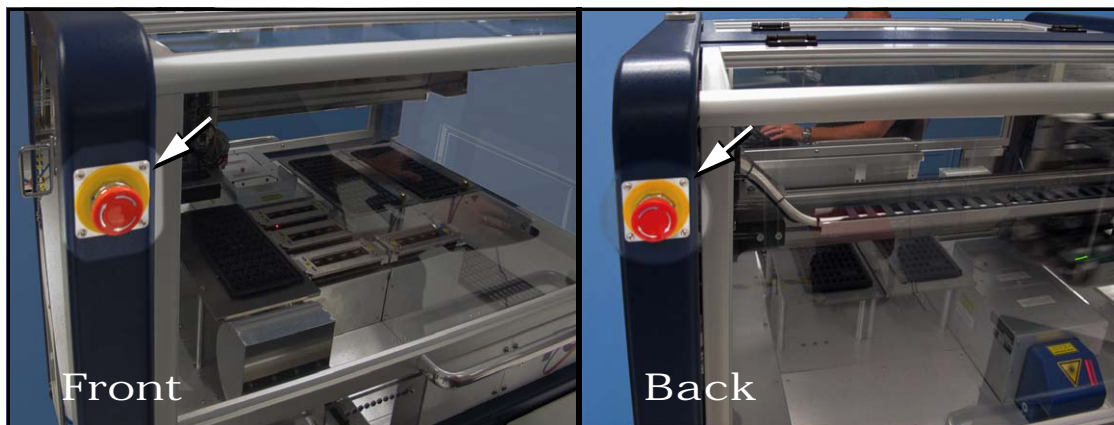


Figure 43: There are two Emergency Stop (E-Stop) buttons on the machine.

To restart the System

—after pressing E-Stop

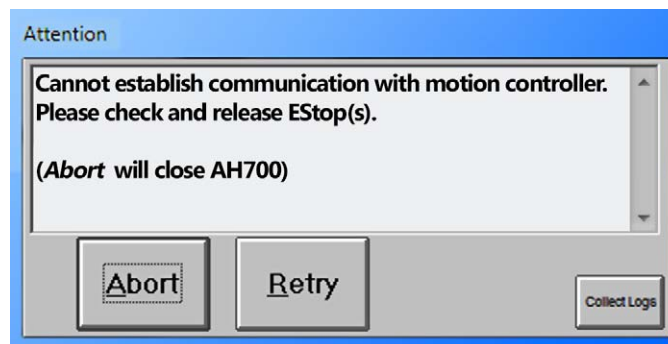


Figure 44: Popup message: Check the E-Stops.

1. Rotate the E-Stop button clockwise until it springs back to its full height. Check the second E-Stop button if necessary.
2. Click **Retry** to continue. If possible the system will re-establish communication within 30 seconds.

- If it fails, then click **Abort** to close the AH700 application.
3. Reselect the job in TaskLink or Job Runner and click **Run**.

Pausing a Job

To pause a job (stopping the Gantry) click **Pause** on the Run window. Devices being programming will finish programming. This is the preferred method of pausing the system in a non-emergency situation.

CAUTION: Personal safety hazard. Do not open safety doors until all movement of the machine has stopped.

To resume, click **Run**. Refer to *Figure 45*.

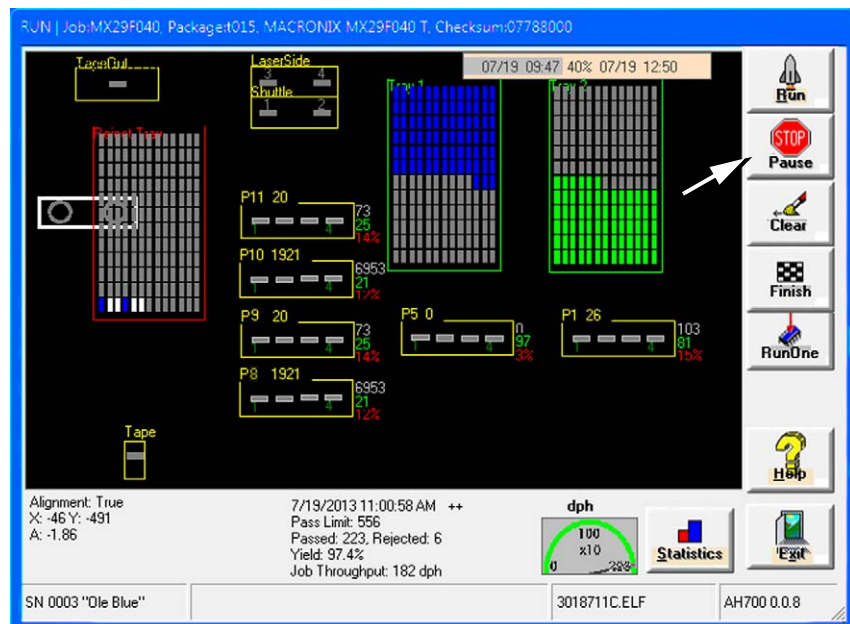


Figure 45: The Run window. Click **Pause** to stop a job you wish to continue next. After clicking **Pause**, the Tower Lamp changes to yellow.



Note: When restarting a job that uses **Tape Output**, pull the red **E-Stop/On** button on the taping machine to start it.

To remove all devices that are currently in programmers:

Click **Clear** on the Run Window. All devices will be removed from the programming sockets and placed in the reject container.

Ending a Job

To end a job prior to programming the preset number of devices, click **Finish** on the Run Window. This completes the current programming cycle. No more blank devices are picked from the input media, and all devices in the sockets are removed and placed in the appropriate output or reject container.

The job can be resumed by selecting it again in TaskLink or Job Runner and clicking Run. AH700 SW will continue the job where it left off (when Finish was clicked).






Empty the reject bin or tray after ending a job.



Empty the reject bin whenever it looks full; there is no 'Full' indicator.

Light Tower Interpretation

During operation of the PSV7000 System, you can monitor the light tower to reduce system down time. The light tower displays the following conditions:

Light	Condition	Action Required	Possible Causes	Machine Status
Red 	Operation is stopped due to major error or operator action	Operator intervention is mandatory to continue. It is likely that tools and troubleshooting skills will be required to resolve issues.	-Safety door or access door is open -E-Stop is pushed -Actuator error -Gantry collision -Insufficient air pressure; -Laser not ready -Motion Control System error -Socket opener sensor error -Software exception -Vacuum sensor malfunction	Stopped
Yellow/ Red (alternating) 	Operation is stopped due to error or operator action	Operator intervention is mandatory to continue. Correction may be through Handler Computer software (AH700) or through minor hardware adjustment.	-File read/write error -Labeler error -Laser error -No programmer can be used -PNP error -Serialization errors -Setup related errors -Tape input error -Unprogrammed devices on Input/Pass tray	Stopped
Yellow 	Operation is stopped intentionally	Operator intervention is mandatory.	-Output media is full or input media is empty. -The main Start button has been clicked (the Setup window is displayed) but no job is running.	Stopped
Yellow/ Green (alternating) 	Running below optimum or job is ended	Operator intervention is suggested.	-End of job -Some sockets are disabled -Vacuum errors are present on some programmers	Processing or Stopped (end of job)
Green 	Running normally	No operator action needed.	Processing devices, or clearing sockets to output.	Processing

Changing Programmer Status

PSV7000 may automatically disable a programmer for various reasons, for example, if there are repeated continuity errors or vacuum issues. The operator may also choose to disable a programmer, or otherwise change the status of a programmer.

Disabling Programmers

If programmers are not performing and the error cannot be cleared, disable those programmers and continue to use the other sites to process devices.

To disable a programmer:

1. At the Run window, click **Pause**.
2. Right-click on the target programmer and select **All => DISABLED**. All sockets on this programmer change to black and are effectively disabled.

Note: To disable a single socket, right-click the socket and select **=> DISABLED**. The socket changes to black and is disabled.

To resume a job click **Run**. When the job finishes, click **Clear** or manually remove any devices from the disabled programmer sockets.



The programmer status menu is shown in [Figure 46](#) on page 65.



An optional method of changing programmer and socket status is with the Programmer Interface window. (Setup window > System > Programmers) See the on-screen Help for more information.

Clearing a Disabled Status

If a programmer is disabled (the PNP head skips it) it may be re-enabled if there are no devices in it as follows:

1. At the Run window, click **Pause**.
2. Right-click on the target programmer and select **All => EMPTY**. This DOES NOT REMOVE DEVICES FROM THE SOCKETS, only changes the status.

Note: To re-enable a single, empty socket, right-click the socket and select **=> EMPTY**.

This DOES NOT REMOVE DEVICES FROM THE SOCKET, only changes the status.

All sockets on this programmer change to grey and are re-enabled UNLESS THEY WERE NOT EMPTY.

3. To resume a job click **Run**.



This right-click procedure allows changes to one socket or one programmer, while the Clear button on the Run Window clears all sockets on the all programmers in use.

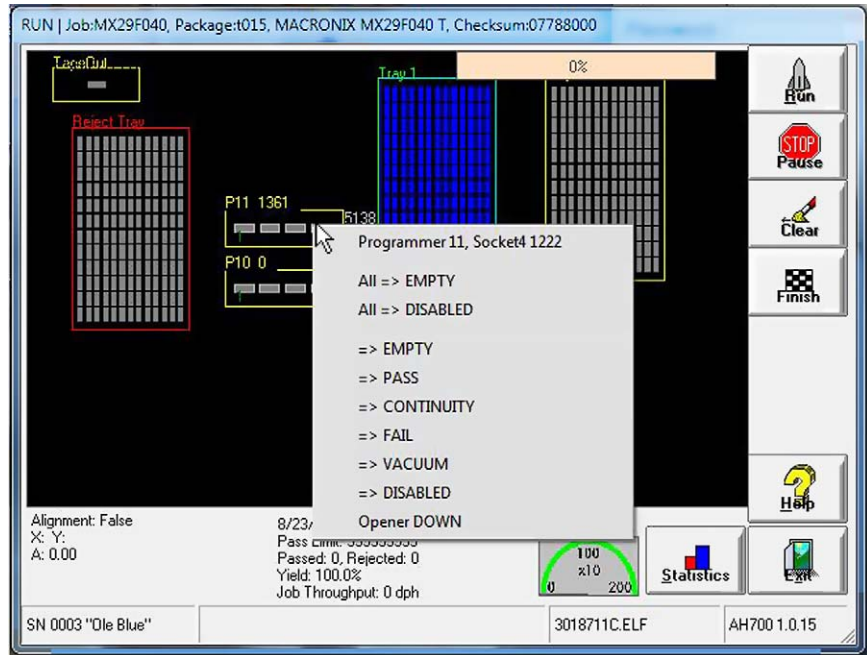


Figure 46: Right-click a programmer in the Run window to change the status of the programmer, toggle the vacuum, or perform various other functions. NOTE that “All => EMPTY” and “=>” EMPTY only change the status and do not empty the socket(s).

My Jobs that Use the Same Setup

Use this chart to determine whether a Package File from an existing job can be used.

Job Name	Uses the same device package & size as Job...	Are the Input and Output media & options for that Job (col 2) the same, Y or N	Notes
		_____ Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		_____ Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		_____ Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		_____ Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		_____ Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	

Job Name	Uses the same device package & size as Job...	Are the Input and Output media & options for that Job (col 2) the same, Y or N	Notes
		<hr/> Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		<hr/> Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		<hr/> Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		<hr/> Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		<hr/> Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	
		<hr/> Y N <input type="checkbox"/> Input <input type="checkbox"/> Output <input type="checkbox"/> Reject <input type="checkbox"/> Vision <input type="checkbox"/> Laser Mark <input type="checkbox"/> 3D Inspect after Lasing (0)	

Finishing a Job

After a job completes:

1. Wait for the PNP head to park.
2. (Optional) If Sort-On-Error-Code was employed, record the number of devices in Reject 1, (FailBox1).
3. Empty the reject container(s).
4. Remove programmed devices.

Turning PSV7000 System Power OFF

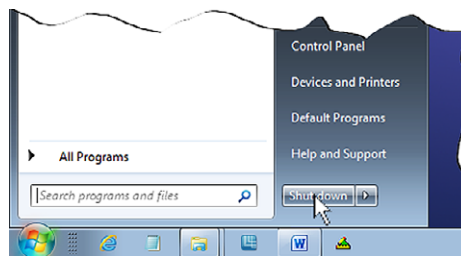
When the PSV7000 System will not be run overnight, or before performing a service procedure, turn OFF the power.

1. Finish or end the job if one is running.
2. Remove all devices from the workspace.



CAUTION: Possible damage to programmers and devices! DO NOT TURN POWER OFF to the programmers or to the PSV7000 Machine while a job is running. A job must be Finished before turning programmer power OFF. Wait for the gantry to park before turning machine power OFF.

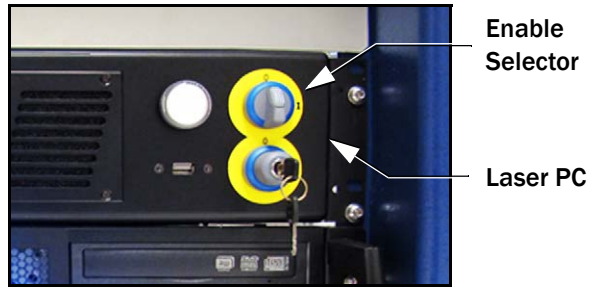
3. With Handler PC active (key sequence: scroll-lock > scroll-lock and number 1): exit AH700 and TaskLink/Job Runner, and TURN OFF THE HANDLER COMPUTER WITH THE WINDOWS Start MENU.



CAUTION: Possible loss of data or difficult restart! DO NOT TURN PSV7000 POWER OFF before shutting down the Handler PC. Always make sure the monitor is dark (and not just asleep) and any optional PCs are shut OFF prior to cutting power to the PSV7000 Machine.



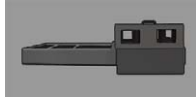
4. **[Laser Marker System only]** At the keyboard switch to the Laser PC (key sequence: scroll-lock > scroll-lock 2).
 - 4a. (Optional) Save and exit the Laser Marker software.
 - 4b. Shut down the Laser PC with the Windows START menu. Wait until it finishes shutting down—see the message “It’s now safe to shut off the computer.”
 - 4c. Turn OFF (0) the Enable Selector (Laser PC).
 - 4d. Turn OFF (0) the Key Selector (Laser PC).



Note that the On/Off switches for the Tube Media Modules do not need to be turned OFF. Power is controlled by the AH700 SW.

5. **[3D Coplanarity Inspection System only]** At the keyboard switch to the 3D Inspection PC. (key sequence: scroll-lock > scroll-lock 3).
 - 5a. Exit the UltraVim Application software. At the next dialog type **EX** to exit.
 - 5b. Shut down the 3D Inspection PC with the Windows START menu.
6. WAIT UNTIL WINDOWS COMPLETES SHUTTING DOWN, then rotate the main power switch (on the PSV7000 Power Panel) counterclockwise to the OFF (vertical) position.
7. (Optional) Padlock the main power switch so that it cannot be turned back ON while the lock is in place.

Dual Tray Feeder



There is an automatic Dual Tray Feeder option available for the PSV7000 System. Chapter 2 of the Owner's Manual discusses setting it up. Operation is discussed here.

Operating the Dual Tray Feeder



For setting up the Tray Feeder on PSV7000, see Chapter 2 of the PSV7000 Owner's Manual.

For more information about operating it, see the Dual Tray Feeder Owner's Manual under the AH700 Help menu.

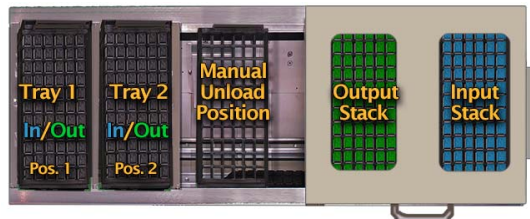
As an option, the PSV7000 System can be configured with an Dual Tray Feeder. Only basic operation of the Data I/O Automatic Tray Feeder is described here.

To start the Dual Tray Feeder:

1. Ensure the Dual Tray Feeder is plugged into the PSV7000 Machine.

Note: The Tray Feeder will power up when the PSV7000 Machine is started.

2. Prior to clicking **Start** in AH700, install up to 20 JEDEC trays of unprogrammed devices into the *Input Stack* of the Tray Feeder.



3. Start a PSV7000 job as usual (through TaskLink or Job Runner). The Tray Feeder loads the first tray.
4. In AH700, click **Start**. The Tray Feeder initializes.
5. At the **Setup > Options** tab select the tray options desired.
6. When *Setup* options are set, ensure that the machine workspace matches the settings. Rectify differences.
7. Click **Run**. A password may be required.

Note: The Dual Tray Feeder can be reloaded with trays at any time, and output trays removed. However, opening the Tray Feeder door will stop any tray movement until it is closed again.

It does not stop PSV7000 operation unless a tray exchange is required while the Tray Feeder door is open.

Additional Features

Automotive Performance Pak

Data I/O offers several utilities that are especially useful to certain industries. These utilities, labeled the *Automotive Performance Pak* (AP Pak). If your PSV7000 System has this option and you want confirm input devices or generate labels, for instance, contact your administrator.

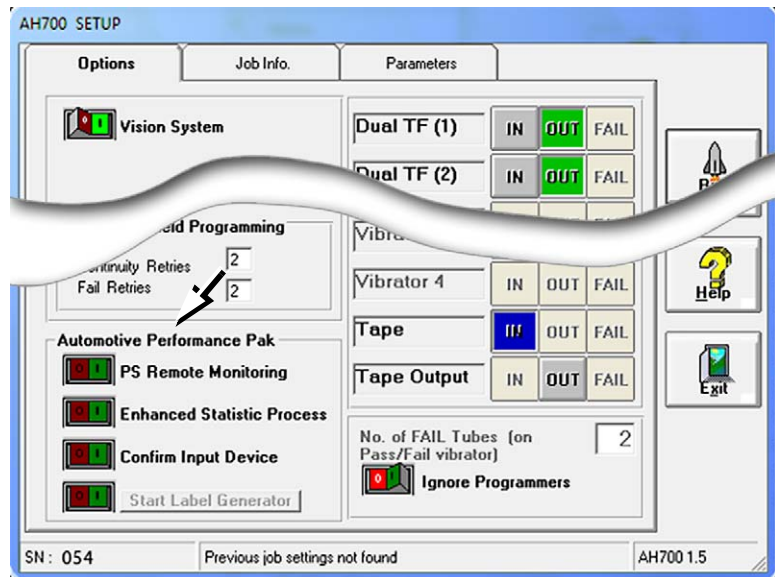


Figure 47: The Automotive Performance Pak features appear in the Setup window.

If You Have Trouble

If programmer trouble occurs you should collect system log files.

Collecting System Logs

Collect Logs is a software utility within AH700 Software that collects all log files from the Data I/O Automated Programming System. It creates a ZIP file containing all the information that Data I/O trained service technicians need to evaluate your machine status.

There are several ways to start the *Collect Logs* utility:

- If AH700 creates an error message on the monitor, it offers a Collect Logs button.
- In AH700, navigate to the System window and click Collect Logs.
- Click Windows Start button > [All Programs] > Dataio > Collect-Logs.

Programmer Related Problems

When you experience a programmer related problem:

1. Force the error to re-appear by running a job, or performing the same steps that led to the trouble.
2. Close all Data I/O software such as AH700, TaskLink/Job Runner. (Close AH700 the usual way: click Finish to stop a job, Exit the Run Window, Exit the program.)
3. Start *Collect PSV7000 Logs* by clicking the windows Start button > Dataio > CollectLogs.
4. (Optional) In Collect PSV7000 Logs, click Add Description.
5. In Collect PSV7000 Logs, click Collect and ZIP and save the ZIP file to a desired folder.
6. To send to Data I/O Support,
 - 6a. If your system doesn't have Internet connection, copy the ZIP file to a USB Flash Drive.
 - 6b. At the machine or a PC with Internet connection, open a browser and navigate to www.Dataio.com and click Technical Support.
 - 6c. Fill out the support for form, click Browse to locate the ZIP file.
 - 6d. Click Submit.

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UserDocs@dataio.com

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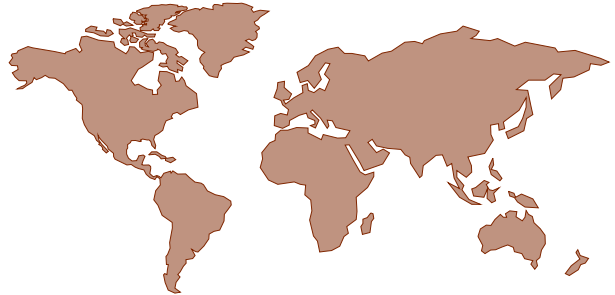
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Contact Data I/O World Wide Support or your local representative. To find your local representative on our Web site, go to <http://www.dataio.com> and click **Contact Sales** (upper right), and then **Representative Search**. Then follow the instructions.

The best way to get support is by using our online form.

Go to the desired Web site and click the **Technical Support** link or the **Contact Sales** link.



For quick accurate support, please provide the following information:

- PSV7000 Serial number
- Software Version (lower right corner of AH700)
- Type of programmer (FlashCORE or LumenX)
- Dual Tray Feeder Serial Number (if Tray Feeder related)
- Detailed description of the problem you are experiencing (if any)
- Error messages (if any)
- Device manufacturer, part number, package style and number of pins (if device related)
- Name, telephone number, address, and e-mail address

Check the Technical Library on our website for occasional updates to this manual.



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