OPERATION AND INSTALLATION MANUAL

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SERIAL# 10449

IMPORTANT: PLEASE READ CAREFULLY BEFORE ATTEMPTING TO INSTALL OR OPERATE EQUIPMENT

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NOTE: Performance figures stated in this manual are based on a Standard Atmosphere of 59° F. (15° C.) and 29.92" Hg (10,331 Kg/m^2) at sea level and using 60 Hz electrical current. All of these factors are important considerations when selecting a hydraulic press. **WABASH MPI** can advise you on proper selection and sizing of systems for the operating environment at your location.

WABASH MPI is committed to a continuing program of product improvement. Specifications, prices, appearance, and dimensions described in this manual are subject to change without notice.

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SECTION ONE INTRODUCTION

1-1 INTRODUCTION

We are pleased to supply **WABASH** Equipment for your operation. **WABASH** presses are used in many applications including research and development, production, and quality testing. Thousands of presses are in use all over the world in many applications in the electronics, automotive, and aerospace fields wherever pressing is required.

1-2 MODELS COVERED

This manual provides instructions for the installation and operation of **WABASH MPI "VANTAGE"** series hydraulic presses ranging in size from 50 to 1000 tons.

Standard unheated presses do not include platens. The mold or die is attached directly to the bolsters with the optional tapped holes or T- slots, if necessary.

Presses equipped with heated platens, include steel platens, cartridge heaters and full insulation. Mounting holes and T-slots are optional.

1-3 OPTIONAL FEATURES

A variety of options are available for the **"VANTAGE"** Series presses. **WABASH MPI** can tailor your equipment to meet the exact requirements of the task being performed.

STANDARD HEATED PLATENS with digital temperature controllers to precisely control platen temperature.

ADDITIONAL TEMPERATURE CONTROL ZONES for controlling platen temperatures within a narrower range of accuracy.

PRESSING SPEED CONTROL to accurately control the clamping speed of the press after Clamp Sealed or activation of the Slowdown proximity switch.

LOW PRESSURE SYSTEM allows the clamp to be closed under low pressure for a possible preheat application.

UPPER AND/OR LOWER CORE LIFTERS for hydraulically or mechanically lifting mold cores, or ejecting parts.

LOWER SLIDING PLATEN for indexing the bottom mold half out to the operator for ease of insert placement and part removal.

LEFT-TO-RIGHT SHUTTLE SYSTEMS for dual station operation and increased efficiencies for insert placement and part removal.
TAIL PUMP for powered secondary functions. (e.g. core pull)

AMMETERS for heater burn-out detection.

VACUUM PUMPS for evacuating mold cavities.

CENTRALIZED LUBRICATION SYSTEMS for ease of maintenance.

There were many variables considered in the selection of your molding press: including type of materials, cure time, ambient air temperature, molding pressure required, cure temperature, cooling requirements, and the altitude at the processing site.

Should your operating environment change, **WABASH MPI** can advise you on necessary equipment, as well as cure time and temperature modifications.

NOTE:	Many other options and features may be incorporated into your **WABASH MPI** machine. Special manual pages will be provided to cover the use of these features.

1-4 CUSTOMER SERVICE

The intent of this manual is to familiarize the operator and maintenance personnel with this equipment and help your organization get the maximum service from your press. If you have any questions regarding installation, service, repair, custom equipment or applications, please do not hesitate to call or write for the information required. Prices for presses, accessories, or repair parts will be furnished promptly on request.

NOTICE:	If you desire to use a press for an application other than that for which it was purchased, please contact our factory to verify compatibility of the equipment with the new process. Misapplication of the equipment could result in injury to the operator or damage to the equipment.

1-5 UNPACKING AND INSPECTION

The **WABASH** Press should be inspected for possible shipping damage. If the container and packing materials are in reusable condition, save them for return shipment, if necessary.

Thoroughly check the equipment for any damage that might have occurred in transit (such as broken or loose wiring or components, loose hardware, mounting screws, etc.) Refer to the following section in case of damage, loss, shortage, or incorrect shipment.

1-6 SHIPPING DAMAGES

A. Freight, Express or Truck Delivery

IMPORTANT:	According to the contract terms and conditions of the carrier, the responsibility of the shipper ends at the time and place of shipment. The carrier then assumes full responsibility for the shipment.

1. Notify your local agent of the transportation company if there is damage.

2. Hold the damaged goods with the container and packing for inspection by the examining agent. Do not return any goods to **WABASH MPI** prior to the inspection and authorization of the transportation company.

3. File a claim against the transportation company. Substantiate the claim by referring to the agent's report. A certified copy of our invoice is available upon request. The original Bill of Lading will be attached to our original invoice. If the shipment was prepaid, write us for a receipted transportation bill.

4. Advise **WABASH MPI** Service Department at (260) 563-1184, Ext.238, or the Customer Service Department at Ext. 254 or 262 regarding your wish for replacement.

5. Hold the damaged item(s) until a RMA number is issued and shipping I instructions are received from our Service Department.

B. <u>Parcel Post Shipment</u>

1. Contact your local United States Post office regarding damage and insurance claims.

2. Hold the damaged goods with the container and packing for possible inspection by postal authorities.

3. Hold the damaged item(s) until a RMA number is issued and shipping instructions are received.

C. <u>United Parcel Service, Federal Express or other package service</u>

1. Contact the proper local package service office regarding damage and insurance claims.

2. Retain the container and package for possible inspection by the package service.

3. Notify **WABASH MPI** Service Department at (260) 563-1184, Ext. 238, immediately.

4. Hold the damaged item(s) until a RMA number is issued and shipping instructions are received.

D. Shortage

1. Check the packing list. The apparent shortage may be intentional, and back ordered items will be noted on the packing list.

2. Inspect the container and packing material to see if smaller items have been missed during unpacking.

3. Determine that the item was not taken from the area before the shipment was checked in.

4. Notify **WABASH MPI** immediately of the shortage.

E. Incorrect shipment

1. If the shipment was not what you ordered, contact the **WABASH MPI** Sales Department at (260) 563-1184, immediately. Include the order number and item descriptions.

2. Hold the incorrect item(s) until a RMA number is issued and shipping instructions are received.

F. Returns

DO NOT RETURN ANY DAMAGED OR INCORRECT ITEMS UNTIL A RMA NUMBER IS ISSUED AND SHIPPING INSTRUCTIONS ARE RECEIVED FROM WABASH MPI.

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SECTION TWO **SAFETY**

2-1 MANAGEMENT SAFETY GUIDELINES

It would be impossible to cover every situation that could arise in the use of molding machines, this data is not intended to be complete, nor is it presented in any particular order of importance. It is good, safe practice to evaluate the safety concerns of every molding setup and operating procedure **before** starting the machine.

These guidelines are intended to define and point out specified areas of responsibility that should receive the participation and leadership of all levels of management concerned with machine operation. General and specific safety guidelines and cautions are included here and throughout the manual for your protection and to help avoid injury to you and to your co-workers. You are responsible for evaluating the total manufacturing process and identifying and implementing the best method of protecting the operator from injury at the point of operation in accordance with current federal, state and local codes and standards.

Machine owners, managers and supervisors, must accept the responsibility for the safe operation of the machines under their control. Read and understand the safety guidelines and checking procedures outlined in this section and in the sections for operators, die setters and maintenance personnel. Establish and promote a program of safety objectives with defined employee responsibilities that assure safe machine working practices in your plant.

Whether new to machines, or with many years of operating experience, this section is for your benefit.

It is your responsibility to immediately report any unsafe condition or unusual machine performance to your supervisor.

The terms **NOTICE, CAUTION, WARNING,** and **DANGER** have specific meanings in this manual. As explained in Section 2-9.

2-2 GENERAL OPERATING SAFETY

1. Management should promote safe practices and safe machine operating procedures by establishing an effective plant safety program.

2. A knowledgeable and well-trained safety coordinator should be responsible for plant safety requirements, regulations and enforcement.

3. The safety coordinator must investigate all accidents and "close calls". The causes should be analyzed, corrective action taken and accurate records maintained.

4. Establish machine safety rules and inform each employee of his responsibilities.

5. Display in prominent locations, the procedures to be followed in case of accidents. List names, addresses, and phone numbers of physicians, hospitals and personnel who are to be notified.

6. It is the employer's responsibility to provide an adequate work area around the machine that is clean, safe and uncluttered.

7. Provide safe and convenient methods and procedures for material handling.

8. Do not allow a machine to be operated if it is poorly maintained, malfunctioning or in need of guards or safety devices that protect the operator from potential hazards.

9. Pay strict attention to all caution, warning, and danger signs.

10. Do not wear loose clothing or jewelry of any kind that could get caught in moving parts.

11. Never reach into moving parts to clear a jam of any type.

2-3 SAFEGUARDING THE POINT-OF-OPERATION

1. It is the employer's responsibility to evaluate each molding setup and to determine and implement the best method of protecting the operator from injury at the point-of-operation.

2. Each molding application must be examined and evaluated to determine which type of safeguarding offers maximum operator protection.

3. The employer should become familiar with the many types of safety devices available in order to determine which type offers maximum operator protection for each molding application.

4. The use of automated loaders is highly recommended for handling work loads. Provisions for safe material removal are equally as important as safe feeding method.

5. Never allow machine guards or safety devices to be bypassed or removed.

6. Do not release the machine for production before installing and testing all protective guards covers and safety devices.

7. Evaluate all point-of-operation guards, safety devices and work procedures frequently while the machine is in operation. Immediately correct any unsafe condition.

2-4 SUPERVISION AND SAFETY ENFORCEMENT

1. All levels of management must enforce every safety rule and regulation. To make machine safety effective, every violation should be reported, recorded and results in appropriate disciplinary action.

2. Never allow any operator, regardless of his experience, to start a new job assignment without a complete and detailed explanation of the job and the safe procedures to be followed.

3. It is the supervisor's responsibility to maintain absolute authority over the machine controls. The actuation of the main disconnect switch, mode selector switch and other keyed switches should always be under his supervision. The keys should be removed and in his possession at all times to prevent unauthorized use or adjustment of the machine.

4. Conduct frequent inspections of the machine operations. Be sure the operator and helpers are using proper safety devices and are working safely.

5. Never allow machine guards or safety devices to be removed, altered or bypassed.

6. Never allow untrained personnel to operate the machine.

7. Never allow personnel who are under the influence of drugs or alcohol, or otherwise not physically or mentally alert, to operate the machine.

8. Never allow minors to operate or assist in the operation of a machine.

9. Be alert to unsafe machine or operating conditions. A poorly maintained machine or a machine that is malfunctioning should be shut down until the safe condition has been corrected.

2-5 INSPECTION AND MAINTENANCE

1. To maintain a high level of machine reliability and to obtain advance warning of any possible hazards or malfunctions, a daily, weekly and monthly program of machine inspection and preventive maintenance should be established.

2. A check list should be used and records maintained of all maintenance and repair work performed.

3. Only highly qualified, competent personnel should be assigned this job of inspection and maintaining the machine. They should be specifically instructed and have thorough understanding of the controls and the operating and maintenance procedures outlined in this manual.

4. Establish and follow a safe shutdown procedure for machine inspection.

5. To ensure optimum performance and safe operating condition of the machine, careful inspections of the electrical and hydraulic systems should be made.

6. Auxiliary equipment and safeguards must be inspected and maintained in safe operating condition.

7. Releasing the machine for production after inspection and maintenance should be the responsibility of qualified personnel assigned by management.

8. Never perform maintenance or repair work until you are sure the power is turned off at the main control panel and cannot be turned back on without your knowledge. Use a padlock or other safe lockout device.

2-6 TRAINING

1. All personnel who will be associated with the operation of the machine must read and have complete understanding of the contents of this manual.

2. Management must assume the responsibility of training all personnel associated with machine operation to eliminate accidents and injuries.

3. Only employees who understand and can communicate their knowledge of the machine, its operation, its dies and safety requirements, should be assigned the responsibility of training.

4. A supervisor must be knowledgeable in machine operation, machine guarding, safety guidelines, operator supervision, job instructions, and causes of accidents. He is also responsible for promoting safe working habits and attitudes of machine operators.

5. An operator training program should include specific instructions in safety, safety devices, guarding, proper use of the machine and correct procedures in performing every machine job.

6. No operator should be given a machine assignment that they do not fully understand.

7. Only thoroughly trained and responsible personnel should be allowed to operate or work on the machine.

2-7 SAFETY EQUIPMENT DIRECTORY

In order to assist the end user select the type of additional machine guarding best suited for each installation, **WABASH MPI** has assembled the following list of manufacturers who can furnish machine guards and safety equipment. The list is not all-inclusive nor is it intended to be a recommendation or approval by **WABASH MPI** as to the merits of the products or other suitability for any particular application. This list is included in the interest of safety and to provide the end user with several sources and products in order to obtain the best possible solution for a safe machine installation.

2-8 POINT-OF-OPERATION SAFETY DEVICES

Manufacturer	Presence Sensing Device	Pull-Back Device	Interlocked Barrier Guards	Safety Blocks
Triad Controls, Inc. 174 Easy Street Carol Stream, IL 60188 708-462-0099 www.triadcontrols.com	X		X	
Rockford Systems, Inc. American Road Rockford, IL 61109-2658 800-922-7533 www.rockfordsystems.com	X		X	X
Link Electric & Safety Control Company 444 McNally Drive Nashville, TN 37211 615-833-4168	X			
Protech Systems 4035 Cheyenne Court Chino, CA 91710 714-590-9521 www.protechsystems.com	X	X	X	X
Banner Engineering Corp. 9714 10th Avenue North Minneapolis, MN 55441 612-544-3154 www.bannerengineering.com	X			
Data Instrument, Inc. 100 Discovery Way Acton, MA 01720 508-264-9550	X			
Weldotron Corporation 1532 S. Washington Avenue Piscataway, NJ 08854 201-752-6700	X			
Avalon Imaging, INC. 3417 Highway 5, Suite F Douglasville, GA 30135 800-842-4722 www.avalonimaging.com	X			
Sti 6550 Dumbarton Circle Freemont, CA 94555 888-510-4357 www.sti.com	X			
Omron Omron Management Center of America,inc. (OMCA) Regional Management Centre 1300 Basswood, Suite 100 Schaumburg, Illinois 60173 U.S.A. 847-884-0322 www.omron.com			X	

2-9 SAFETY PRECAUTIONS

The terms **NOTICE**, **CAUTION**, **WARNING**, and **DANGER** have specific meanings in this manual.

A **NOTICE** is used to indicate a statement of company policy directly or indirectly related to the safety of personnel or protection of property.

A **CAUTION** indicates a potentially hazardous situation that, if not avoid, may result in minor or moderate injury.

A **WARNING** indicates potentially hazardous situation that, if not avoided, could result in death or serious injury.

A **DANGER** indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This word will be limited to the most serious situations(s).

The term **IMPORTANT** emphasizes areas where equipment damage could result, or provides additional information to make a step or procedure easier to understand. Disregarding information marked **IMPORTANT** would not be likely to cause personal injury.

WARNING:	**BEFORE OPERATING THE MACHINE**...Be sure that all personnel in your company who will have contact with hydraulic machine equipment thoroughly read and understand this Installation and Operation Manual provided by **WABASH MPI.**

2-10 SAFETY GUIDELINES FOR OPERATORS

This section of the manual is directed to all personnel who are associated with the operation of **WABASH MPI** Compression Molding Presses. Whether you have years of experience working with presses or whether you are new on the job, this section is for your benefit. General and specific safety guidelines and caution notes are include here and throughout the manual for your protection and to help you avoid injury to yourself and to your co-workers. Since it would be impossible to cover every situation that could arise, the following list of points is not intended to be complete, nor does the order in which they are listed relate to their importance. It is your responsibility to immediately report any unsafe condition or unusual machine performance to your supervisor.

2-11 BEFORE STARTING MACHINE

1. Never operate the machine until you have read and fully understand the safety, control description and operating sections in this manual.

2. Make absolutely sure hydraulic pump motor is off and safety blocks are in place before servicing anything inside the clamp/molding area.

3. Inspect the machine before each shift for loose, worn or broken parts. Report any unsafe conditions to your supervisor immediately and do not operate the machine until the necessary repairs are made.

4. An important part of machine safety is good preventive maintenance. Keep your machine clean and in good condition by cleaning daily.

5. Clean your work area frequently. Keep it uncluttered and free of loose tools, discarded work pieces, rags, wires, oil, grease, water or anything that can inhibit your movement or cause you to trip or fall.

6. Be sure machine guards and safety devices are correctly installed in their proper position.

7. It is your employer's responsibility to evaluate each machine operation and to determine and implement the best method of protecting you from injury at the point-of-operation in accordance with current federal, state and local codes and standards.

8. Never attempt to bypass or remove any point-of-operation guard or safety device on your machine. They are there for your protection.

9. Be alert for possible hazards or safety irregularities that could cause injury.

2-12 STARTING THE MACHINE

1. Never start the machine until you have made the inspections outlined in Section 2-11.

2. Before you start the machine, be sure you know how to stop it instantly.

3. Follow the start-up procedures as outlined in Section 4-4.

4. Before starting production, be sure machine is pre-heated to process temperature and then test-cycle the machine to verify proper operating sequence. Observe carefully that all functions are properly sequenced by the machine control. Report any unsafe condition or unusual machine performance to your supervisor.

2-13 MACHINE OPERATION

1. Never place hands, fingers, arms or any part of your body in the machine daylight area while it is moving, or near loading and unloading automation systems.

2. Pay attention to the warning tags on the machine. They are there for your benefit.

3. Do not reach around, under or over any guards while the machine is running.

4. Never bypass, remove or alter any machine guards or safety devices.

5. Never stack parts or other objects on the bolster or platens. Use part containers and scrap bins of sufficient size to accommodate the job.

6. Use care and judgment in the work you are doing. Take the time to evaluate the operation - **Is it safe? Are you working a safe procedure?**

7. Stay alert at all times. Do not become overconfident and careless. Avoid inattention, pre-occupation and distractions.

8. If you leave the machine for any length of time, always check to make sure the set-up parameters are as you left them before restarting the machine. They may have been modified during your absence.

9. Know who or where to call for immediate help in the event of any emergency or injury.

10. Have all injuries treated, no matter how small.

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SECTION THREE INSTALLATION

3-1 WORK RULES

The installation, operation, and maintenance of this equipment must be conducted in accordance with all applicable work and safety codes for the installation location. This may include, but is not limited to OSHA, NEC, BSI, IEC, CEN/CENELEC, VDE, TUV, CSA, and any other local, national, and international regulations.

Read and follow these operating instructions when installing, operating, and maintaining this equipment. If the instructions become damaged or unreadable, additional copies can be purchased from **WABASH MPI**.

To assist in the installation and operation of this press, an assembly drawing (including part numbers) is included in the appendix of this manual.

CAUTION:	Only qualified personnel who are familiar with this equipment should operate or work on this press.

WARNING:	Work only with approved tools and devices.

WARNING:	Disconnect the electricity before maintenance or service. If the press is installed with a power cord that can be disconnected, unplug it. If the press is permanently wired to a power main, a fused power disconnect must be installed to allow the disconnect to be locked in the **OFF** position.

3-2 FOUNDATION

General assembly drawings are forwarded in advance of the machine shipment. The drawings show limiting dimensions and other details. Reinforced concrete details are to be determined by the customer to suit local soil conditions. The shipping skid mounting holes are not recommended for the attachment of machine leveling feet. A minimum of three feet must be allowed around the machine to provide access for servicing. When determining the location of the machine, the following additional requirements must be considered.

A. The foundation must comply with applicable local codes regarding the load per square inch rating necessary to support the machine. Consult your building contractor or foundation consultants.

B. Adequate space must be provided for the addition of any peripheral equipment that may be used with the machine.

3-3 UNLOADING AND LIFTING

All machine components should remain on shipping skids until ready for re-assembly.

WARNING:	Check capacity of crane or hoist. Be sure it is capable of safely lifting the total weight of the machine.

Check the condition of cables, hooks and other lifting equipment. Adjust cable length so the machine will remain upright while suspended.

WARNING:	Always use extreme caution when moving the machine. Do not lift one end only as this may cause the machine to fall over.

CAUTION:	Do not remove any blocking or fasteners from the machine until it is set in its permanent location. Failure to follow this instruction may result in machine damage or personal injury.

3-4 CLEANING

Soon after delivery, each shipment should be thoroughly cleaned and staged near the machine foundation ready for re-assembly. Cleaning should be done using a good grade of commercial solvent to remove the rust preventive and any dirt that may have accumulated on the platens and guide rods during transport.

3-5 LIFTING THE MACHINE

DANGER:	Failure to follow the following guidelines may result in fatal injury.

It is STRONGLY recommended that you employ a rigger who has experience installing this particular type of equipment. In addition, the following guidelines must be followed when lifting the machine:

If you are using an overhead crane, make sure the slings you are using are rated for weight capacities greater than the machine weight. (The term "sling" as used in this section refers equally to slings and chains.) The actual weight capacity of any sling is affected by the angle between the sling and the load it is lifting. This factor must be taken into account when determining whether or not a sling can lift a certain load. In order to maintain the maximum weight rating of a sling, the sling-to-load angle should be kept as close to 90° as possible. The following figure illustrates how the lifting capacity of a sling is decreased as the sling-to-load angle decreases.(see figure 3-1)

Before lifting the machine, make sure that all moving components are properly blocked to prevent them from moving while the machine is being lifted.

To lift the machine with an overhead crane, fasten a clevis to each of the lifting holes located on the top bolster. Then using an appropriate lifting means, attachment can be made by hook/sling to the clevises for lifting from above.

On models supplied with lifting tubes built into the base of the machine, a forklift of suitable capacity, and with **forks long enough to extend fully beneath the frame**, can be used to lift and move the machine.

To lift the machine with a fork lift, spread the forks apart to match the lifting holes in the base of the machine. Lift the machine from the operator side, raising the machine only as high as necessary. Do not lift the machine higher than necessary.

One
Leg

As the sling-to-load angle decreases, so does the rated capacity of a sling. Use this chart for all types of slings: rope chain ,or nylon.

SLING-TO-LOAD ANGLE IS ALWAYS THE ANGLE BETWEEN THE SLING LEG AND THE HORIZONTAL SURFACE.	RATED SLING CAPACITY		
	SLING LIFTING EFFICIENCY	SLING CAPACITY AT 90°	ACTUAL SLING CAPACITY
90°	100%	1000	1000
75°	96.6%	1000	966
60°	86.6%	1000	866
45°	70.7%	1000	707
30°	50.0%	1000	500
15°	25.8%	1000	258
5°	8.7%	1000	87

LIFTING THE MACHINE - Figure 3-1

DANGER:	Never place any part of your body under a suspended load. Failure to follow this instruction may result in serious personal injury.

IMPORTANT:	Please contact the factory for special needs, advice, or consultation about rigging.

A. Do not shorten the slings with knots, bolts or any other unproved methods.

B. Never use a damaged sling.

C. Correct kinks and twists in the slings before lifting.

D. Make sure that the sling is securely attached to the load.

E. Pack any sharp corners with material of sufficient strength to withstand the load and protect the sling.

F. Attach the slings to the center of the lifting hook. Do not lift any load by attaching the slings to the point on the lifting hook.

G. Make sure that the load is free to move before attempting to lift it. Also, make sure that there is a clear spot for depositing the load before lifting it.

H. Avoid shock loading the slings - especially when working at temperatures below 40°F.

I. Never place your hands or fingers between the sling and the load.

J. Never place a suspended load over any part of another person's body.

3-6 LEVELING THE MACHINE

The machine must be leveled utilizing the platens or bolster as the leveling surface. When checking the machine level, use a graduated spirit level, or any good quality level. The machine should be as level as possible.

WARNING:	Turn off and lock out the main disconnect switch before you begin the leveling procedure. Failure to follow this instruction may result in serious personal injury.

IMPORTANT:	Failure to properly level the machine may result in machine damage. The machine must be leveled when it is installed, and the level should be checked at least once a year after installation.

When making adjustments to the machine level, always retract the screws on the (optional) leveling pads (lower the machine). **Do not attempt to level the machine by extending these screws.**

3-7 CONNECTING THE ELECTRICAL SERVICE

WARNING:	Only a qualified electrician should hook up or perform maintenance on the electrical system. Read and completely understand the electrical schematics

	for the machine before beginning.

DANGER:	Turn off all electrical power to the circuit before making electrical connections. Failure to follow this instruction may result in fatal injury.

A positive earth grounding system for the machine/control is required for proper and safe operation. A correct grounding system minimizes the introduction of random electrical noise into low voltage, quick response electronic circuits. This noise could cause erratic operation.

The recommendations of this section are intended to conform to the grounding requirements of the National Fire Protection Association publication **NFPA-79-National Electrical Code**. The machine must be grounded in conformance to these codes and applicable national, state and local electrical codes.

All parts of the system, machine and control are tied to a single ground terminal of the ground block, which is located inside the door of the electrical cabinet. This terminal must be grounded upon installation of the machine. The methods of grounding which follow are listed in the order of preference ("a" is the most preferred, "b" is next, and "c" is least preferred).

a. The central ground terminal is connected via a stranded conductor to the protective conductor.

b. The central ground terminal is connected via a stranded conductor to a building column or electrical mass that is determined to be at "true earth" potential.

c. The central ground terminal is connected via a stranded conductor directly to a grounding electrode installed for use with the particular machine to be installed. A separate grounding electrode should be used for each machine.

Water pipes should not be used as grounding electrodes since the use of plastic pipe and sealant may result in an inadequate ground.

The grounding conductor should be sized to conform to **NFPA-79** requirements and any applicable national, state, and local codes. The conductor size listed in these codes is the minimum for safe operation of the equipment. However, larger size AWG No. 2 is recommended to minimize electrical noise.
If grounding electrodes are used, the maximum resistance to true earth potential should be three ohms or less. The resistance to true earth should be checked at the time of installation and after the third, sixth, ninth, and twelfth month of operation. This resistance should be checked annually thereafter, and any time the grounding electrode installation is altered. Refer to **NFPA-79** for specific grounding electrode requirements.

WARNING:	The earth ground must meet local code requirements. If this ground is not properly connected, erratic machine operation could result or a shock hazard could exist. Failure to follow this instruction could result in serious personal injury or machine damage.

Check the electrical prints for correct power requirements (voltage, phase, and frequency). If in doubt, check the electrical cabinet tags. The machine will operate with uniform accuracy at voltages within ± 10% of normal, with maximum phase imbalance of 5%. This voltage tolerance is based on a line supply that is either constant at some voltage within the range, or that varies slowly within the range. Sharp line voltage changes (transients) caused, for example, by starting a welder or heavy compressor, may adversely affect performance of the equipment and must be avoided. Although the machine and the control are designed to minimize these effects, sharp drops and surges are dangerous. Additional equipment required to regulate the power supply, and to provide voltages within the acceptable tolerances, should be installed in the electrical system of the factory by the customer.

Connect the proper voltage to the circuit breaker in the electrical cabinet. (Refer to the wiring diagrams shipped with the machine.)

WARNING:	Failure to connect the proper voltages to the machine may result in personal injury or machine damage.

WARNING:	If, for any reason, the electrical work cannot be completed and the machine must be left unattended, always lock the main disconnect switch in the [OFF] position. Never bypass or wire around safety limit switches. Failure to heed these warnings may result in personal injury or machine damage.

3-8 WATER AND DRAIN CONNECTIONS - Hydraulic Oil Cooling

A water supply line and a drain line must be connected to the heat exchanger located on the hydraulic power unit on the rear of the machine.

Supply 5-6 GPM (19-23 LPM) of 60°-70°F (16°-21°C). water to 3/4" NPT on inlet side of the heat exchanger. Plumb 3/4" NPT form outlet side of heat exchanger to drain connection, or water recovery system. If the **optional** inlet strainer and WaterSaver valve are not purchased, then the customer **should** supply a 3/4" NPT water line strainer on the inlet equipped with some sort of throttling valve on the outlet to regulate water flow passing through the heat exchanger.

In addition, the water supply piping should be insulated to eliminate condensation.

If your machine is equipped with a WaterSaver valve on the outlet of the heat exchanger, it has been adjusted at the factory for optimum oil temperature.

If the oil temperature is too hot or cold, adjust the WaterSaver valve by turning the adjusting screw in the direction indicated on the valve body.

3-8-1 COMPRESSED AIR AND WATER CONNECTION - Platen Cooling

(Required for Optional Platen Cooling)

Connect a water line to the 3/4" NPT port in the solenoid valve labeled SOL-W1 (typically located on the top bolster). A water supply of 10 GPM @ 60° F. (38 LPM @ 16° C.) and 40 to 60 PSI (2.7-4.1 bar) is required for proper cooling.

Connect a clean, dry, regulated compressed air source to the 1/2" NPT port in the solenoid valve labeled SOL-P1 (typically on the top bolster). Approximately 0.5 SCFM (.014 M^3/min.) of air is required for each cooling cycle.

Refer to the drawings on the following pages.

IMPORTANT:	The inlet manifold is typically mounted on the top bolster. Air and water solenoids should be plumbed with flexible connections to allow daylight adjustment, platen leveling and clamp closing. The outlet manifold (typically located on the lower left side of the press) must be vented for steam through a 3/4" NPT steel pipe. DO NOT vent with copper or plastic. Use only steel pipe and install to standard steam specifications.

IMPORTANT:	The outlet manifold must be plumbed downward to drain the platens properly. If the manifold is plumbed upward, **WABASH MPI** recommends the use of a check valve to eliminate back flow into the platens, and a pump must be used to remove the drain water. (Refer to the drawing 845.0007A on the next page).

IMPORTANT:	**WABASH MPI** will not guarantee proper cooling if the drain is not plumbed according to **WABASH MPI** recommendations.

A pressure gauge and regulator are recommended components for your plant air supply.

A manual shut-off valve in each line will aid in future maintenance procedures.

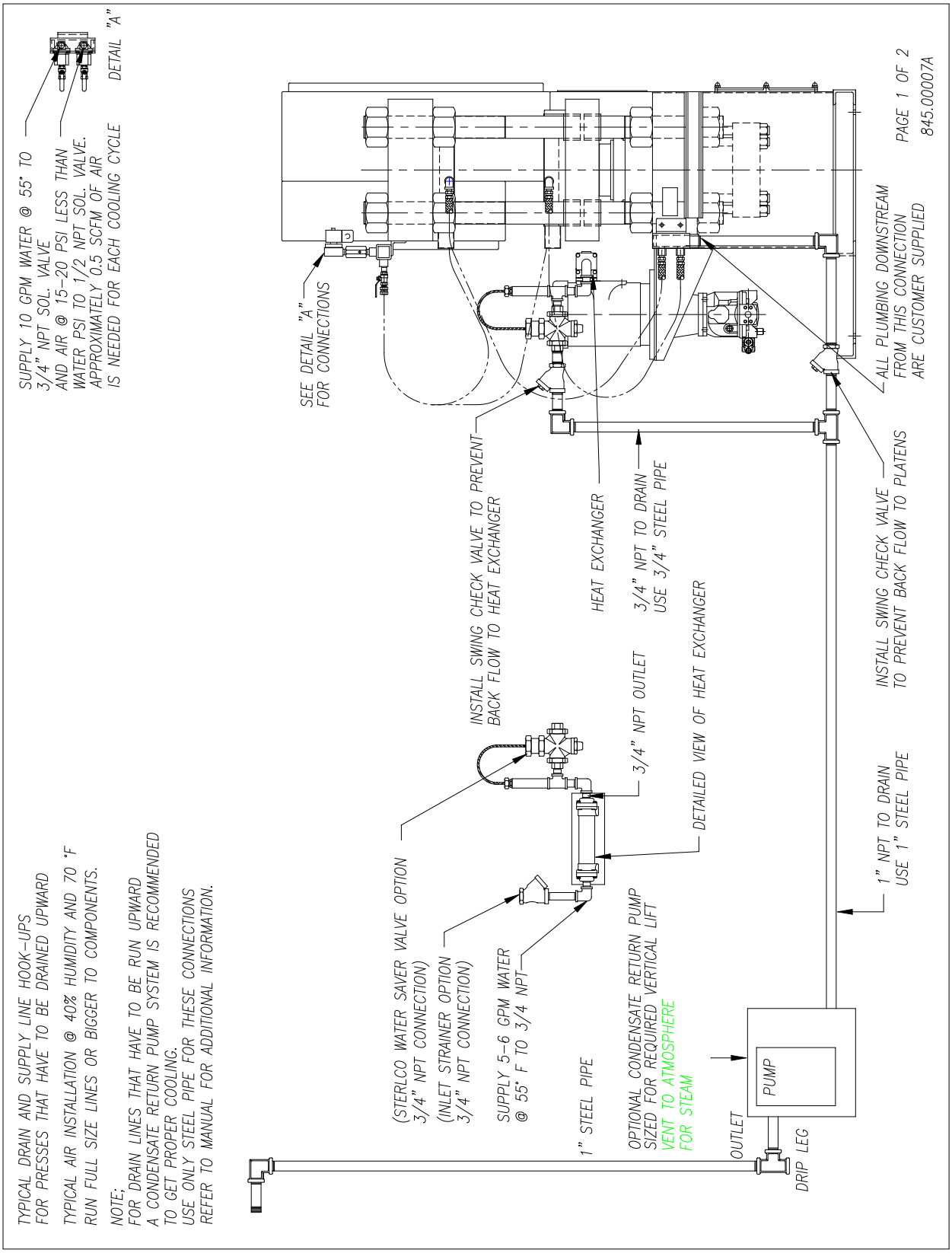
IMPORTANT:	Verify that the water pressure is greater than the air pressure or the water will not enter the platen cooling channels. Set air regulator BELOW water pressure. (approximately 10-15 PSI (.69-1.03 bar) less than water pressure) but at a minimum of 20 PSI.

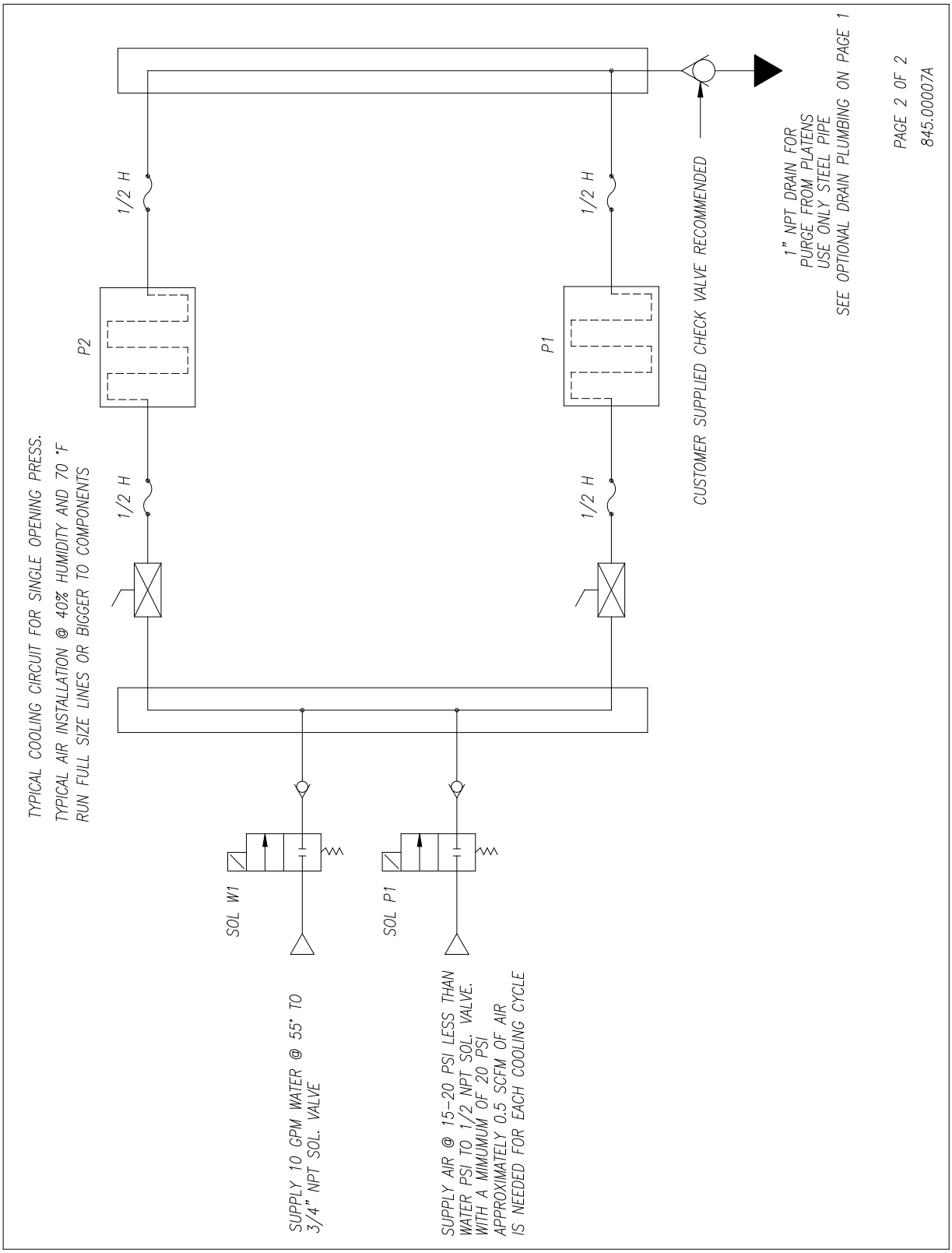
The following is to be used when determining the cooling media required for the temperature being used.

AIR ONLY when platen temperature is above 650° F.(343 ° C.)

AIR/WATER MIX when platen temperature is between 650° & 350° F. (343° & 177° C.)

WATER ONLY when platen temperature is below 350° F. (177° C.)


SUPPLY 10 GPM WATER @ 55° TO
3/4" NPT SOL. VALVE
AND AIR @ 15-20 PSI LESS THAN
WATER PSI TO 1/2 NPT SOL. VALVE.
APPROXIMATELY 0.5 SCFM OF AIR
IS NEEDED FOR EACH COOLING CYCLE
DETAIL "A"
SEE DETAIL "A"
FOR CONNECTIONS
ALL PLUMBING DOWNSTREAM
FROM THIS CONNECTION
ARE CUSTOMER SUPPLIED
PAGE 1 OF 2
845.00007A
INSTALL SWING CHECK VALVE TO PREVENT
BACK FLOW TO HEAT EXCHANGER
HEAT EXCHANGER
3/4" NPT TO DRAIN
USE 3/4" STEEL PIPE
INSTALL SWING CHECK VALVE
TO PREVENT BACK FLOW TO PLATENS
3/4" NPT OUTLET
DETAILED VIEW OF HEAT EXCHANGER
1" NPT TO DRAIN
USE 1" STEEL PIPE
TYPICAL DRAIN AND SUPPLY LINE HOOK-UPS
FOR PRESSES THAT HAVE TO BE DRAINED UPWARD
TYPICAL AIR INSTALLATION @ 40% HUMIDITY AND 70 °F
RUN FULL SIZE LINES OR BIGGER TO COMPONENTS.
NOTE;
FOR DRAIN LINES THAT HAVE TO BE RUN UPWARD
A CONDENSATE RETURN PUMP SYSTEM IS RECOMMENDED
TO GET PROPER COOLING.
USE ONLY STEEL PIPE FOR THESE CONNECTIONS
REFER TO MANUAL FOR ADDITIONAL INFORMATION.
(STERLCO WATER SAVER VALVE OPTION
3/4" NPT CONNECTION)
(INLET STRAINER OPTION
3/4" NPT CONNECTION)
SUPPLY 5-6 GPM WATER
@ 55° F TO 3/4 NPT
1" STEEL PIPE
OPTIONAL CONDENSATE RETURN PUMP
SIZED FOR REQUIRED VERTICAL LIFT
VENT TO ATMOSPHERE
FOR STEAM
OUTLET
PUMP
DRIP LEG


TYPICAL COOLING CIRCUIT FOR SINGLE OPENING PRESS.
TYPICAL AIR INSTALLATION @ 40% HUMIDITY AND 70 °F
RUN FULL SIZE LINES OR BIGGER TO COMPONENTS
1/2 H
1/2 H
1/2 H
1/2 H
P2
P1
CUSTOMER SUPPLIED CHECK VALVE RECOMMENDED
1" NPT DRAIN FOR
PURGE FROM PLATENS
USE ONLY STEEL PIPE
SEE OPTIONAL DRAIN PLUMBING ON PAGE 1
PAGE 2 OF 2
845.00007A
SOL W1
SOL P1
SUPPLY 10 GPM WATER @ 55° TO
3/4" NPT SOL. VALVE
SUPPLY AIR @ 15-20 PSI LESS THAN
WATER PSI TO 1/2 NPT SOL. VALVE.
WITH A MIMUMUM OF 20 PSI
APPROXIMATELY 0.5 SCFM OF AIR
IS NEEDED FOR EACH COOLING CYCLE

3-9 HYDRAULIC OIL & LUBRICATION

The lubrication points, types of lubricants, and lubrication services required are listed below in Table 3-1. Refer to the **WABASH MPI** lubrication specifications at the end of this section for a listing of approved products for your machine. Use only new or refined, properly formulated oil in this machine. **Do not use recycled oil.** Turn off main disconnect switch before performing any maintenance or lubrication work.

IMPORTANT:	**All hydraulic oil should be pre-filtered to 10 microns before it is added to the system.**

LUBRICATION POINT	LUBRICATION SERVICE
Oil reservoir	**Fill oil reservoir through fill port on top of tank. Using an auxiliary filter unit with 10 micron filter is recommended. Fill tank with filtered oil until the oil level is approximately 3/4 of the way up on the sight gauge.**
Electric motor	**Two shots of grease.**
Moving platen	**After wiping away old grease from guide rods add grease until fresh grease is seen.**

Table 3-1: Initial Lubrication

NOTE:	**Do not** use high temperature grease on guide rods, damage to bushings may occur.

3-10 LUBRICANT SPECIFICATIONS AND SUPPLIES

The following, provides specifications and supplier information for each type of lubricant needed for your machine.

3-11 GREASE

Any premium quality multipurpose grease is recommended for proper lubrication. The following products are suggested for use with this machine.

RECOMMENDED GREASE

SUPPLIER	PRODUCT NAME
Chevron Rykon	Premium Grease EP
Shell	Alvania®EP-2
Phillips.	Philube Polytac™EP-2
Marathon	Maratech®HDP

The following products are suggested for use with this machine when you need to use food grade grease instead of conventional grease. Therefore, it is strongly recommended that these products not be mixed.

WABASH MPI does not certify the food grade nature of these greases. Contact the fluid manufacturer for certification of properties.

RECOMMENDED FOOD GRADE GREASE

SUPPLIER	PRODUCT NAME
Fiske Brothers	Lubriplate ACL Series
JAX Industrial Lubricants	JAX Magna-Plate 36 Series
Kluber Lubricating Corp.	Paraliq GA 531 (NLGI #1.5 only)
Master Lubricants	Lubriko CW-606-B (NLGI #2 only)
Witco Chemical	Aluminum Complex EP2 Food

3-12 FILLING THE OIL RESERVOIR

The oil reservoir should be filled with of hydraulic oil as specified below. Oil should be pumped through a filter cart with a 10 **micron absolute** filter element. **Do not** pour oil directly into the reservoir. After start-up, check oil level and add oil to full mark on oil level gauge if required.

STANDARD MODEL	APPROXIMATE OIL CAPACITY
V50 THRU V150	35 GALLONS
200 THRU 350	75 GALLONS
NOTE: Presses equipped with special options, ie faster speeds, may require larger oil reservoirs.	

3-13 RECOMMENDED HYDRAULIC OIL

A premium grade of mineral base, high pressure, hydraulic oil with anti-wear and anti-foaming additives with an ISO viscosity rating of 46 cSt (Centistokes)at 40°C (100°F) and a viscosity index of 90+ with equivalent or greater specification of the oil listed below, can be used, provided it is filtered through a 10 micron absolute filter, prior to being added to the hydraulic reservoir.

WARNING:	If oil is not filtered through a **10 MICRON ABSOLUTE FILTER** before being placed into the hydraulic reservoir, the **WARRANTY MAY BE VOID**.

IMPORTANT:	**Do not** use fire retardant ester based oils, transmission fluid, brake fluid, or water-glycol mixes. Always add **clean** oil to the reservoir from a **clean** container through a 10 Micron absolute filter.

WARNING:	If oil is not filtered through a **10 MICRON ABSOLUTE FILTER** before being placed into the hydraulic reservoir, the **WARRANTY MAY BE VOID**.

RECOMMENDED HYDRAULIC OIL

SUPPLIER	PRODUCT NAME
Exxon	NUTO H46
Gulf	Harmony 46AW
Kendall	Kenoil 051
Amoco	Rykon 46R or Amoco AW46
Shell	Tellus 46

NOTE:	The oil temperature must be maintained between 105°F and 120°F, connect the cooling if necessary, for the machine to operate properly.

3-14 CHECK FOR PROPER PUMP MOTOR ROTATION

Verify the motor is rotating properly by looking through the slot in the motor housing at the direction of the cooling fan rotation. If the motor is rotating improperly, reverse any two wires at the disconnect.

IMPORTANT:	DO NOT reverse the wires at the motor starter.

3-15 MACHINE SPECIFICATIONS

Model Number AIL10010-4028-X

Clamp Force	**Hot Press** 100 Tons **Cool Press** 150 Tons

Platens	40” x 28”
Ram Stroke	Hot Press 30” Cool Press 30”
6 Daylight Openings	3” each opening
Footprint W x D	Press 58” x 62” Hyd Unit 34” x 62” Hot Oil Unit 45” x 25”
Height	Approx. 127”
Weight	Press 40,000# Hydraulic unit 2100# Hot Oil Unit 930#
Full Load Current	Press 35amps (approximate) Hot Oil Unit 50 amps
Voltage	550 VAC
Phase	3
Hertz	60

3-16 EXHAUST GAS OR DUST REMOVAL

If the product you use in the press produces dust or gases that could be harmful to the operator, attach an exhaust system to the press. This can be done by either attaching the exhaust vent hood to the top of the guard, or by cutting a hole in the back of the guard and attaching the exhaust vent over the cutout. The cutout must be completely covered. The vent hood could also be mounted to the top bolster with flexible tubing, to allow for daylight adjustment. Airflow will then be drawn up, around the material, and out through the exhaust system.

SECTION 4: OPERATION

TABLE CONTENTS

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SECTION FOUR **OPERATION**

4-1 OPERATOR SAFETY

1. When operating a **WABASH** press, proper personal protective equipment should be worn at all times.

CAUTION:	When using a press with heated platens, gauntlet gloves should be worn to protect the forearms and hands.

CAUTION:	**WABASH MPI** recommends the use of safety glasses and guards while operating this equipment.

4-2 PRE START-UP CHECKS

1. Check that all auxiliary equipment (such as the hot oil unit, steam generator, or chiller) are ready for operation.

2. Check the electrical and mechanical connections. Verify the electrical supply is the correct voltage, phase and frequency.

3. Check that all optional safety shields are installed and gates are closed.

4. Check that there are no objects in the mold area.

5. Check that the reservoir oil level is correct.

4-3 OPERATOR CONTROLS

The following lists are an explanation of each pushbutton, pilot light and selector switch located on the operator pendant.

1. "CONTROL POWER ON" - This is a green, illuminated pushbutton that, when pressed will energize the control circuit. When the control circuit is energized, this button will be illuminated.

2. "CONTROL POWER OFF" - This is a red pushbutton that when pressed will de-energize the control circuit.

3. "EMERGENCY STOP" – This over sized, maintained push/pull button is used to terminate machine operation in the event of an emergency.

4. "MOTORS ENABLE" - This is a green, illuminated pushbutton that when pressed will enable the Hydraulic pump motor, and the conveyor drive motors.

5. "MOTORS OFF" - This is a red pushbutton that, when pressed will disable the hydraulic pump motor and the conveyor drive motors.

6. MODE "MANUAL - AUTO" - This is a two position selector switch that selects the mode of operation of the press. "MANUAL" mode allows the press to operate by manual initiation of the controls. "AUTO" mode allows the press to operate with the operator entered values with the initiation of the depressing of the F1 key on the operator interface keypad.

7. "ALARM" - This is a red pilot light that indicates an "Alarm" condition exists.

8. "OPERATOR INTERFACE" - Allen Bradley PanelView 600 Color touch screen allows the operator to enter process parameters and view various aspects of the cycle.

The following lists are an explanation of each pushbutton, pilot light and selector switch located on the machine Load Station.

1. "EMERGENCY STOP" – This over sized, maintained push/pull button is used to terminate machine operation in the event of an emergency.

2. "COOL CLAMP CLOSE" - This is a guarded black pushbutton that works in conjunction with item 3. Pressing and holding these two buttons simultaneously will close the Cool press. Releasing one or both of these buttons before the "CLAMP SEALED" pilot light illuminates will stop the closing of the press.

3. "COOL CLAMP CLOSE" - Same as item 2.

4. "COOL CLAMP SEALED" - This is a white pilot light that indicates the clamp has closed to the slowdown position. The operator can release the "CLOSE" buttons when this light illuminates.

5. "COOL CLAMP OPEN" - This is a yellow mushroom head pushbutton that, when pressed, in the "AUTO" mode of operation, will open the press. When the press is in the "MANUAL" mode of operation this button must be pressed and held to open the cool press. Releasing the button at any point before the full open position is reached will stop the opening of the press.

6. "HOT CLAMP CLOSE" - This is a guarded black pushbutton that works in conjunction with item 7. Pressing and holding these two buttons simultaneously will close the Hot press. Releasing one or both of these buttons before the "CLAMP SEALED" pilot light illuminates will stop the closing of the press.

7. "HOT CLAMP CLOSE" - Same as item 6.

8. "HOT CLAMP SEALED" - This is a white pilot light that indicates the clamp has closed to the slowdown position. The operator can release the "CLOSE" buttons when this light illuminates.

9. "HOT CLAMP OPEN" - This is a yellow mushroom head pushbutton that, when pressed, in the "AUTO" mode of operation, will open the press. When the press is in the "MANUAL" mode of operation this button must be pressed and held to open the hot press. Releasing the button at any point before the full open position is reached will stop the opening of the press.

10. LOADER "UP - DOWN" - This is a two position selector switch that is used to raise and lower the press loader.

11. LOADER "EXTEND - RETRACT" - This is a two position selector switch that is used to extend and retract the press loader.

12. LOAD TABLE "UP - DOWN" - This is a two position selector switch that is used to raise and lower the load table to the press loader.

13. LOAD TABLE "EXTEND - RETRACT" - This is a two position selector switch that is used to extend and retract the tray pusher on the load table.

The following lists are an explanation of each pushbutton, pilot light and selector switch located on the machine Unload Station.

1. "EMERGENCY STOP" – This over sized, maintained push/pull button is used to terminate machine operation in the event of an emergency.
2. OFF LOADER "UP - DOWN" - This is a two position selector switch that is used to raise and lower the press off loader.

3. OFF LOADER PUSH OFF "EXTEND - RETRACT" - This is a two position selector switch that is used to extend and retract the press off loader.

4. OFF LOADER PULL ON "EXTEND - RETRACT"- This is a two position selector switch that is used to move the off loader into and out of the press when pulling trays out of the Cool Press.

The following lists are an explanation of each pushbutton, located on each of the machine Conveyor Continue Stations

1. "EMERGENCY STOP" – This over sized, maintained push/pull button is used to terminate machine operation in the event of an emergency.

2. "CONVEYOR ADVANCE" - This is a black pushbutton that when pressed will energize the conveyor motors to move trays to the operator work station.

4-4 START-UP

After the pre start-up checks in Section 4-2 have been completed, perform the following steps to start-up the press.

1. Turn on the water supply.

2. Turn on (close) the disconnect switch.

3. Press the "CONTROL POWER ON" pushbutton.

4. Press "MOTORS ENABLE" push button to energize the hydraulic motor, then press the "MOTORS OFF" push button quickly. The motor should spin, confirm proper motor rotation by observing, the direction of the cooling fan rotation, through the slots in the motor housing. There is a directional arrow on the motor housing to indicate proper rotation. If motor is rotating improperly, reverse any two wires at the disconnect.

IMPORTANT:	DO NOT reverse the wires on the motor starter.

IMPORTANT:	The hydraulic pump can be damaged if the motor is running in the wrong direction.

4-5 SHUT DOWN

1. Press the "CONTROL POWER OFF" pushbutton.

For maintenance or long-term shutdown, turn off (open) the disconnect switch and lock out. In addition, turn off the water and air supplies.

NOTICE:	The "EMERGENCY STOP" pushbuttons supplied on this press, will de-energize the control circuit, stopping all press movement. To restart the press, the button must be pulled out and the control power and pump must be turned back on. (See Section 4 -4).

4-6 MANUAL OPERATION

1. Press "CONTROL POWER ON" pushbutton and it will illuminate.

2. Press "MOTORS ENABLE" pushbutton to energize the hydraulic and conveyor motors.

3. Select the "MANUAL" position of the "MAN/AUTO" selector switch.

4. Select the levels to be loaded. On the PanelView Main Menu press F1 to go to the Machine Setup Screen, then press F1 to go to the Loader Level Select Screen, select the openings to be loaded, by touching the touch cell on the screen making sure you have selected "ON" the levels desired and selected "OFF" the levels not wanted, and press the Accept Changes button

5. Place tray on load table until the photo eye is blocked and the conveyor starts, taking the tray to the load position on the load table. If more than one loader level is turned "ON" and not loaded, another tray needs to be put on the Load Table, Push the second tray onto the Load Table until the photo eye is blocked and the conveyor starts.

6. Lower the Loader to full down position using the "Down" position of the Loader Up/Down selector switch then the raise the loader to the ready to accept the tray position using the "Up" position of the Loader Up/Down selector switch.

7. Raise the Load Table to the full up position using the "Up" position of the Load Table Up/Down selector switch.

8. Move tray onto the Loader by selecting the "EXT" position of the Load Table Ext/Ret selector switch.

9. Retract the tray pusher by selecting the "RET" position of the Load Table Ext/Ret selector switch.

10. Move the second tray onto the Loader by selecting the "EXTEND" position of the LOAD TABLE "EXTEND/RETRACT" selector switch.

11. Repeat steps 6 through 10 as needed until all of the active Loader levels are loaded.

12. Raise the Loader to the load position by selecting the “UP” position of the Loader Up/Down selector switch, the loader will raise to the load position and stop.

13. Move trays into Hot Clamp by selecting the “EXT” position of the Loader Ext/Ret selector switch.

14. Retreat pusher out of Hot Clamp by selecting the “RET” position of the Loader Ext/Ret selector switch.

15. Close the Hot clamp by simultaneously depressing and holding the dual “HOT CLAMP CLOSE” push buttons. The clamp will close at a rapid speed until the “SLOWDOWN” proximity switch is actuated.

16. When the “SLOWDOWN” proximity switch is actuated, the “HOT CLAMP SEALED” light illuminates, indicating that the operator may release the “HOT CLAMP CLOSE” push buttons. If the “LOW PRESSURE” feature is activated, the “LOW PRESSURE” light illuminates and the clamp will continue to build pressure to the setting of the panel mounted adjustable “LOW PRESSURE” relief valve. The pump runs continuously to maintain this pressure setting.

17. When high pressure is desired, push the “HIGH PRESSURE” button on the Clamp Setup Screen. The pump will then build pressure to the setting of the adjustable “HIGH PRESSURE” relief valve.

18. Open the clamp by depressing and holding the “HOT CLAMP OPEN” pushbutton. The “HOT CLAMPED SEALED” light will de-energize and the clamp will open until the pushbutton is released or the “CYCLE RESET” proximity switch is actuated.

19. Move tray into Cool Clamp by selecting the “EXT” position of the Loader Ext/Ret selector switch.

20. Retreat pusher out of Cool Clamp by selecting the “RET” position of the Loader Ext/Ret selector switch.

21. Close the Cool clamp by simultaneously depressing and holding the dual “COOL CLAMP CLOSE” push buttons. The clamp will close at a rapid speed until the “SLOWDOWN” proximity switch is actuated.

22. When the “SLOWDOWN” proximity switch is actuated, the “COOL CLAMP SEALED” light illuminates, indicating that the operator may release the “COOL CLAMP CLOSE” push buttons.

23. Open the clamp by depressing and holding the "COOL CLAMP OPEN" pushbutton. The "COOL CLAMPED SEALED" light will de-energize and the clamp will open until the pushbutton is released or the "CYCLE RESET" proximity switch is actuated.

24. Raise the Off Loader to the level to be unloaded by selecting the "UP" position of the Off Loader Up/Down selector switch at the Off Load Pushbutton Station.

25. Move tray out of the Cool Clamp by selecting the "EXTEND" position of the Off Loader Pull On "EXTEND/RETRACT" selector switch. When the Tray puller is fully in then select the "RETRACT" position of the Off Loader Pull On "EXTEND/RETRACT" selector switch.

26. of Move the Off Loader down to the Conveyor by selecting the "DOWN" position the Off Loader "UP/DOWN" selector switch.

27. Push tray onto the Off Load conveyor By selecting the "EXT" position of the Off Loader Push Off "EXTEND/RETRACT" selector switch.

28. Repeat steps 23 through 27 until the Cool Press has been unloaded.

4-7 AUTOMATIC OPERATION

2. Press the "CONTROL POWER ON" pushbutton it will illuminate.

3. Press "MOTORS ENABLE" pushbutton to energize the hydraulic and conveyor motors.

4. Select the "AUTO" position of the "MAN/AUTO" selector switch.

5. Select the levels to be loaded. On the PanelView Main Menu press F1 to go to the Machine Setup Screen, then press F1 to go to the Loader Level Select Screen, select the openings to be loaded, by touching the touch cell on the screen making sure you have selected "ON" the levels desired and selected "OFF" the levels not wanted, and press the Accept Changes button.

6. Place tray on load table until the photo eye is made and the conveyor starts, taking the tray to the first stop position on the load table.

7. Place second tray on load table until the photo eye is made and the conveyor starts, taking the tray to the stop position on the load table.

8. Press the F1 button on the operator interface to start the "Automatic" cycle.

9. The Load table will raise to the first load position and the Load table pusher will descend and push the tray into the selected opening, the conveyor will start taking the second tray to the front position on the load table.
10. The Load table will return to the bottom position and is ready to be loaded with more trays, as previously described.

11. Continue to load trays until all selected openings on the Loader are full.

12. The Loader will then raise to the Load position and the loader will extend, pushing the trays into the Hot Clamp.

13. The Hot Clamp will close and build pressure to the desired tonnage, for the programmed Hot Clamp Cure time.

14. Continue loading trays into the loader, to be ready for the next cycle.

15. When the Hot Clamp Cure time has expired the Clamp will open, if the loader has been filled with trays, the Loader will extend, pushing the trays from the loader into the Hot Clamp and simultaneously pushing the trays from the Hot Press into the Cool press.

16. When the Pusher begins to retract the Cool will close and build pressure for the programmed time.

17. When the Pusher has retracted and the Cool Press is closed, the Hot Press will close and build pressure for the programmed time.

18. Continue loading trays into the loader, to be ready for the next cycle.

19. When the Cool Press Time expires, the Cool press will open, The unloader will raise to the highest loaded opening, the Unloader will extend into the opening and the Pull arms will rotate until the pull fingers are in position to remove the tray. The Unloader will retract pulling the tray from the Cool Press onto the unloader.

20. The unloader will descend to it's lowest position, the pull arms will rotate to release the tray and the pusher on the Unloader will extend pushing the tray onto the unload conveyor, the conveyor will start taking the tray away from the unloader.

21. The tray will move down the conveyor to the "END OF CONVEYOR" proximity switch. If there is not a tray at the end of the second conveyor, both conveyors will turn on and move the tray around the corner to the end of the second conveyor.

22. When the tray breaks the photo eye it stops the conveyor and the "CONVEYOR ADVANCE" must be pushed to allow more trays to be unloaded.

23. At the end of the shift, or when the press is to be shut down at the end of a run the "LAST SET OF TRAYS IN LOADER" button on the Cycle Overview Screen must be pressed. This will allow the press to cycle the current trays in the machine to be processed through without loading new trays onto the Loader.

24. When shutting the press down, de-energize the control circuit by pressing the "CONTROL POWER OFF" pushbutton, the light will extinguish.

IMPORTANT:	Momentarily pressing the "CLAMP OPEN" pushbutton at any time will interrupt the cycle and the clamp will open.

4-8 VIEWPOINT

OIT SCREEN

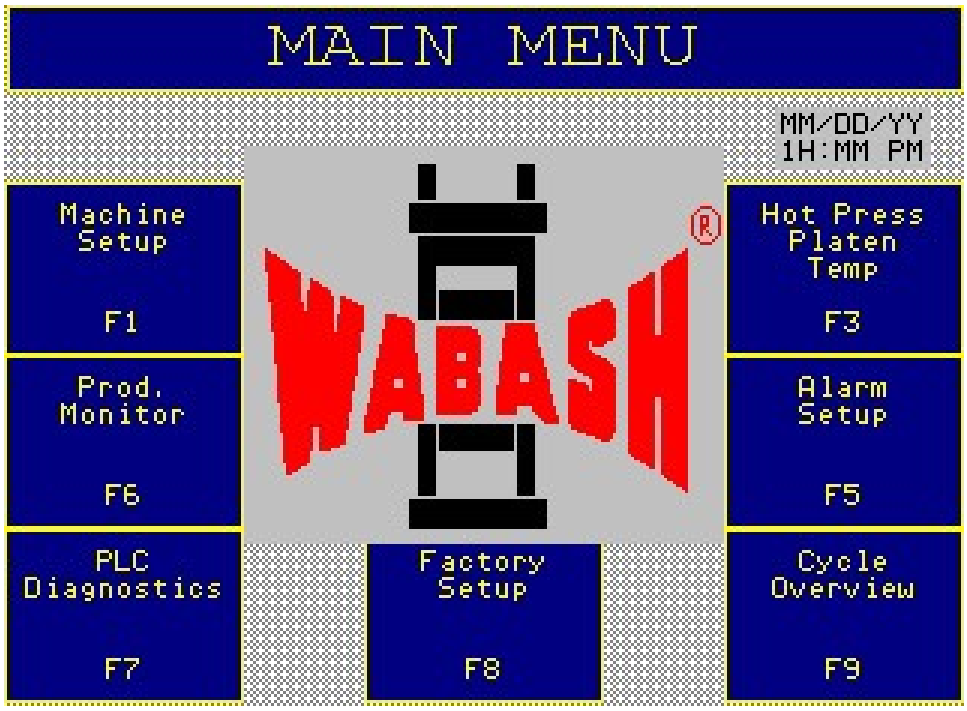
The machine is equipped with an Allen Bradley **"PANELVIEW 600"** operator interface terminal (OIT), that is used to set, and monitor machine functions that are managed by the base PLC control system. Entries through the OIT are sent to the

central processing unit of the PLC, and are stored in the memory registers and the machine logic.

The base PLC control system has various internal timers, that are used to time the molding cycle, and the timers can be displayed during AUTOMATIC operation.
The following paragraphs outline the OIT functions, and their relationship to the molding cycle.
The OIT screen consists of four major sections; the function keys, the numerical key pad, touch screen display, and cursor keys.
The following paragraphs outline each section of the OIT, and explain how to set the machine parameters using the OIT control.

PANELVIEW SCREENS

Depress the machine **"Power on"** pushbutton and the **OIT** will power up to the **MAIN MENU** screen. This screen has the following selections,

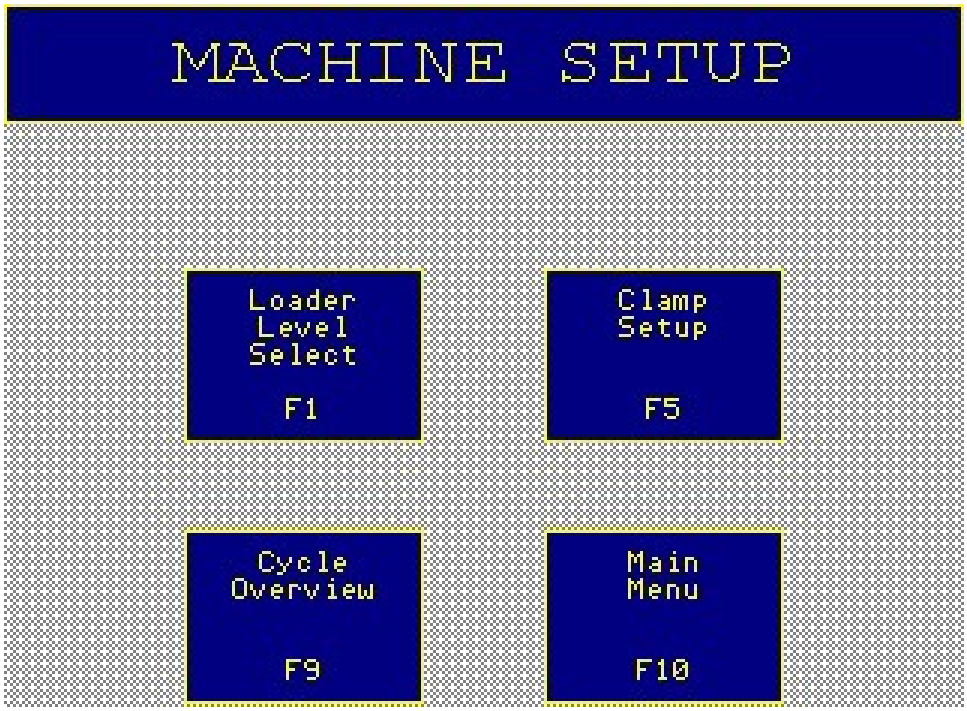


F1	Machine Setup
F3	Hot Press Platen Temperature
F5	Alarm Setup
F6	Production Monitor
F7	PLC Diagnostics
F8	Factory Setup
F9	Cycle Overview

NOTE: Either, the function keys <u>or</u> the **"Panelview"** or the button on the **"Touch Screen"** can be pushed to select the function desired.
This is true for **All** screens.

MACHINE SETUP SCREEN

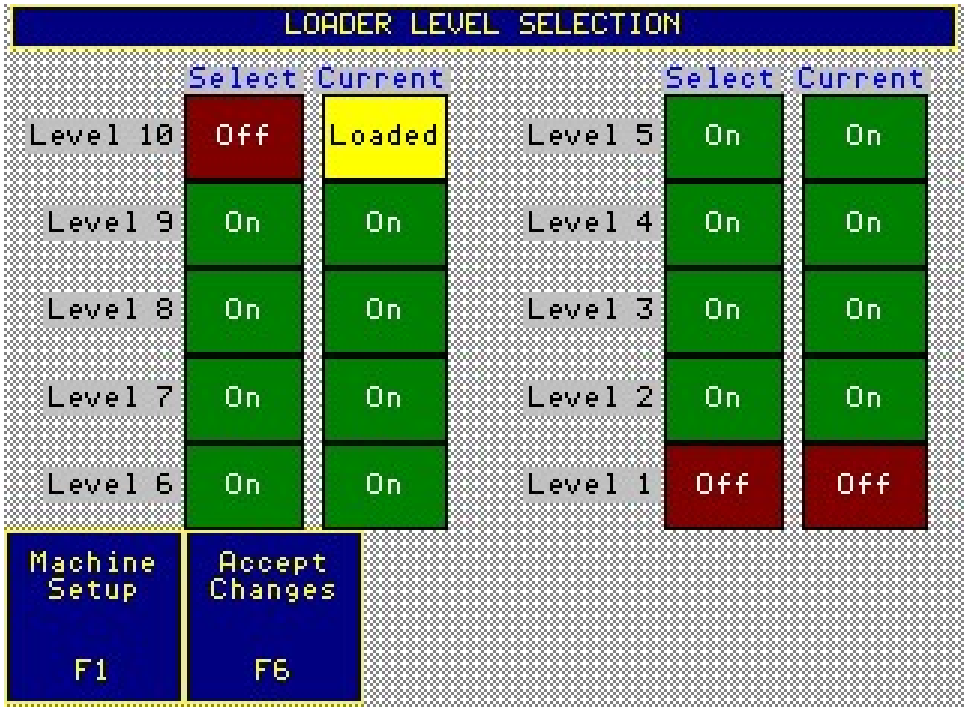
Press F1 on the **Main Menu Screen** to display the **Machine Setup Screen**. The following will be displayed.



F1 - Loader Level Select
F5 - Clamp Setup
F9 - Cycle Overview
F10 - Main Menu

LOADER LEVEL SELECT

Press F1 on the **Machine Setup Screen** to bring up the **Loader Level Select Screen**.



On this screen machine openings to be active are selected.

Buttons active on this screen are as listed;

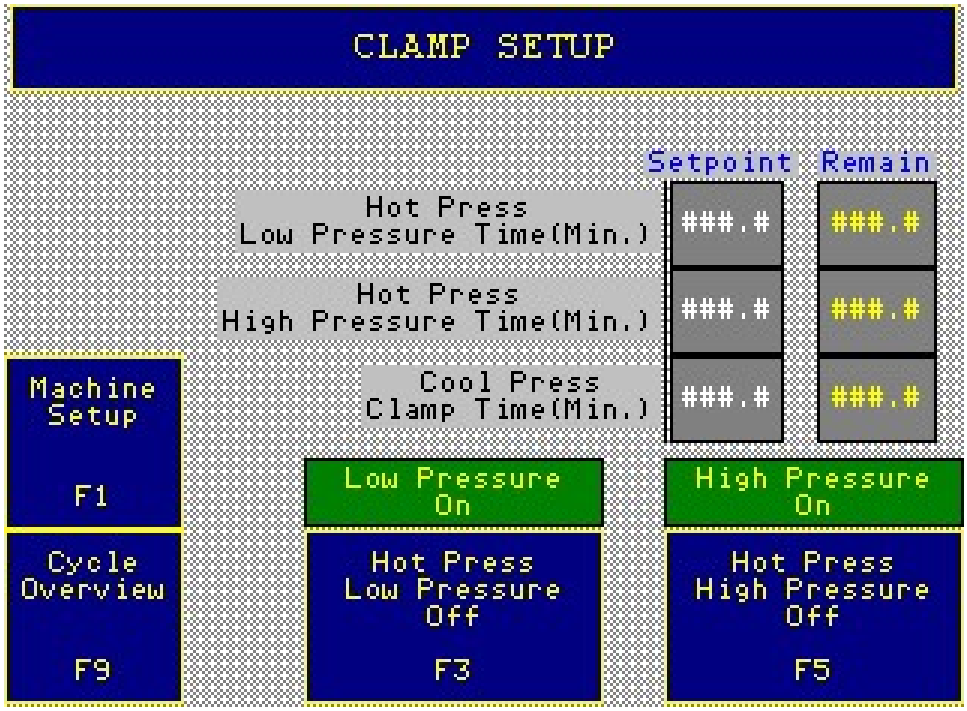
F1 Machine Setup - This button returns to the **Machine Setup Screen**.

F6 Accept Changes - Press this button after changes have been made to the Loader Levels.

This screen also shows the current status of each opening, whether it is on, off or loaded.

CLAMP SETUP

Press F5 on the **Machine Setup Screen** to bring up the **Clamp Setup Screen**.



On this screen Clamp Force and Platen Temperature setpoints can be entered and edited.

Buttons active on this screen are as listed;

F1 Machine Setup -	This button returns to the **Machine Setup Screen**.
F3 Hot Press - Low Pressure Enabled/Off	This button toggles the Hot Press low pressure between enabled and off.
F3 Hot Press - High Pressure Enabled/Off	This button toggles the Hot Press high pressure between enabled and off.
F9 Cycle Overview -	This button returns to the **Cycle Overview Screen**.

NOTE:	All of the Setpoints on this screen are active as soon as they are entered, as long as the respective Clamp Sealed Light is no on.

To edit parameters on the Clamp Setup Screen, move the cursor to the desired parameter and enter a new setpoint value.
The cursor can be moved by using the ◁ or ▷ arrow keys, or by touching the desired cell to display the numeric scratch pad. Once the changes have been made, press the ∑ enter key.

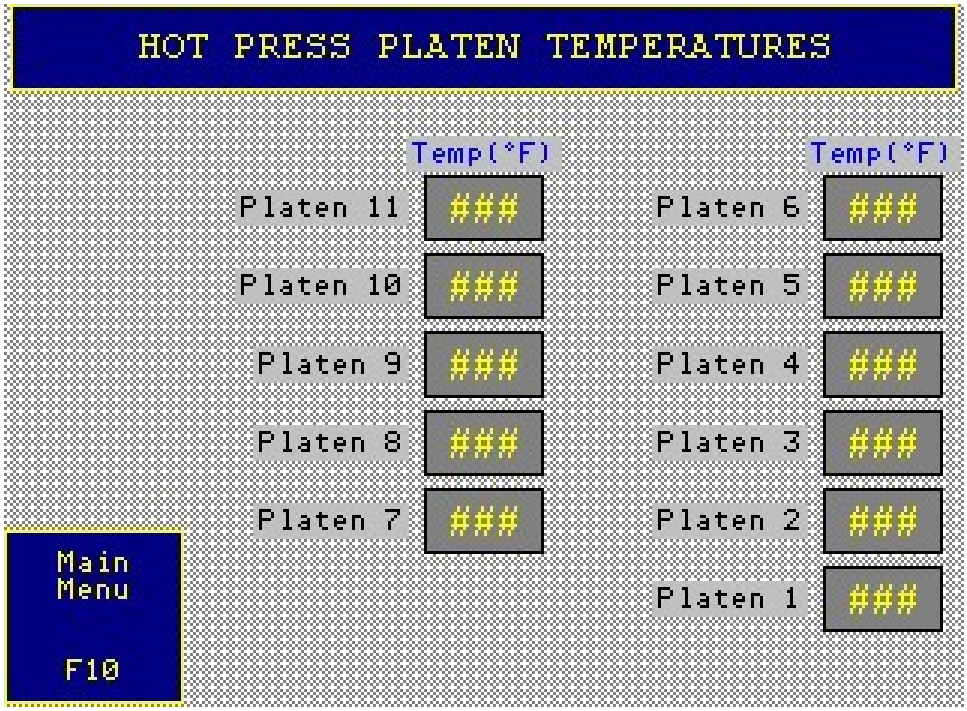
Parameters to be edited;

Hot Press Low Pressure Time -	The Low Pressure Time Setpoint, entered in minutes. The clamp will remain in low pressure for this amount of the cure cycle
Hot Press High Pressure Time -	The High Pressure Time Setpoint, entered in minutes. The clamp will remain in high pressure for this amount of the cure cycle
Cool Press Time -	The Time Setpoint, entered in minutes. The cool clamp will remain closed.

Edit these parameters using the procedure as previously described.

HOT PRESS PLATEN TEMPERATURE

Press F3 on the **Main Menu Screen** to bring up the **Hot press Platen Temperature Screen**.



On this screen Hot Press Platen temperatures can be observed.

Buttons active on this screen are as listed;

F10 Main Menu - This button returns to the **Main Menu Screen**.

ALARM SETUP

Press F5 on the **Main Menu Screen** to display the first **Watch Dog Timer Screen**.

Active buttons on this screen are as listed;

F2 - Next Screen

F5 - Alarm History

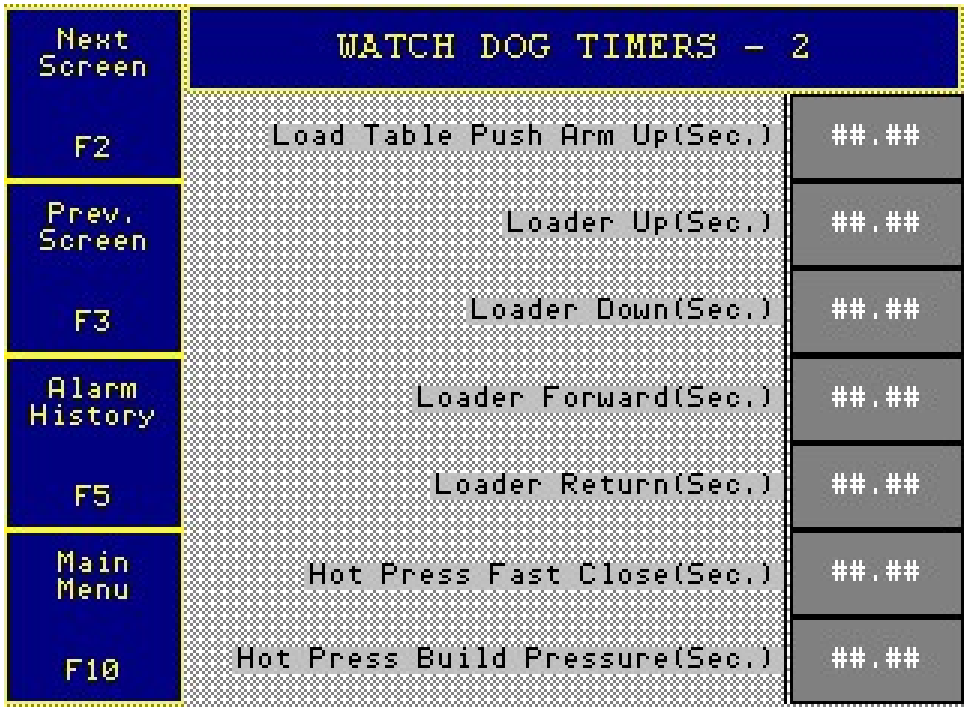
F10 - Main Menu

This Screen has the Hot Press low and high temperature Alarm Limit Setpoints and the Watchdog Timer setpoints for the various machine functions.

The Hot Press Temperature Alarms become active after the respective actual platen is within the Alarm Limits.

After the Alarm is active and the Platen temperature goes outside the temperature limits an Alarm condition will be displayed on the operator interface.

The Watchdog Timers for the various machine functions start when the corresponding movement starts. If the movement is not completed in the allotted time, an Alarm condition is displayed on the operator Interface and the Alarm light will flash.



Active buttons on this screen are as listed;

F2 - Next Screen

F3 - Previous Screen

F5 - Alarm History

F10 - Main Menu

Active buttons on this screen are as listed;

F2 - Next Screen

F3 - Previous Screen

F5 - Alarm History

F10 - Main Menu

Active buttons on this screen are as listed;

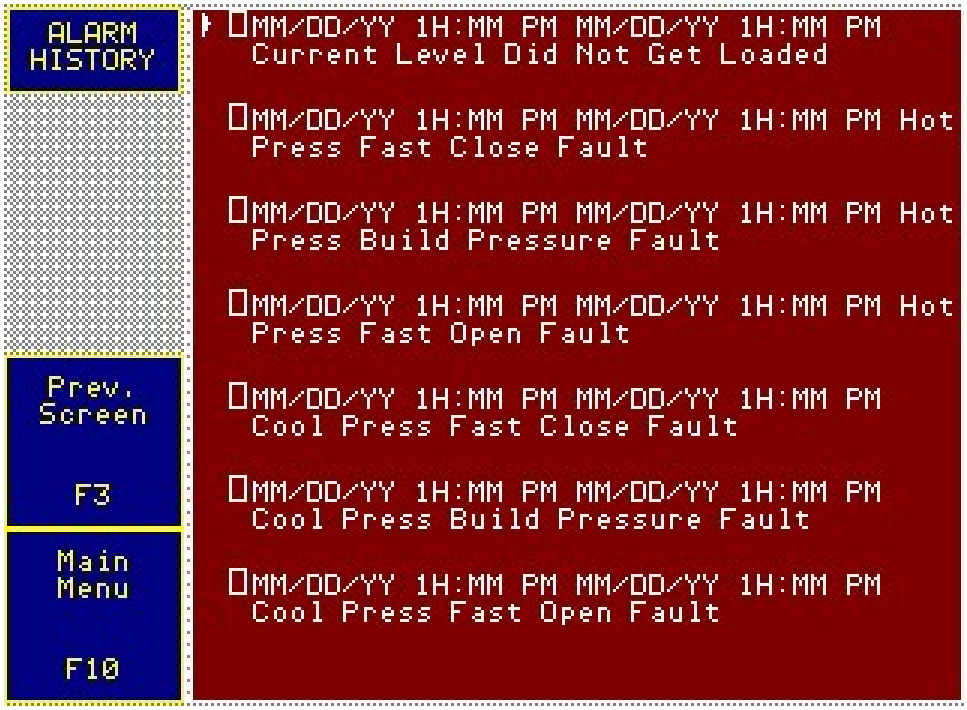
F3 - Previous Screen

F5 - Alarm History

F10 - Main Menu

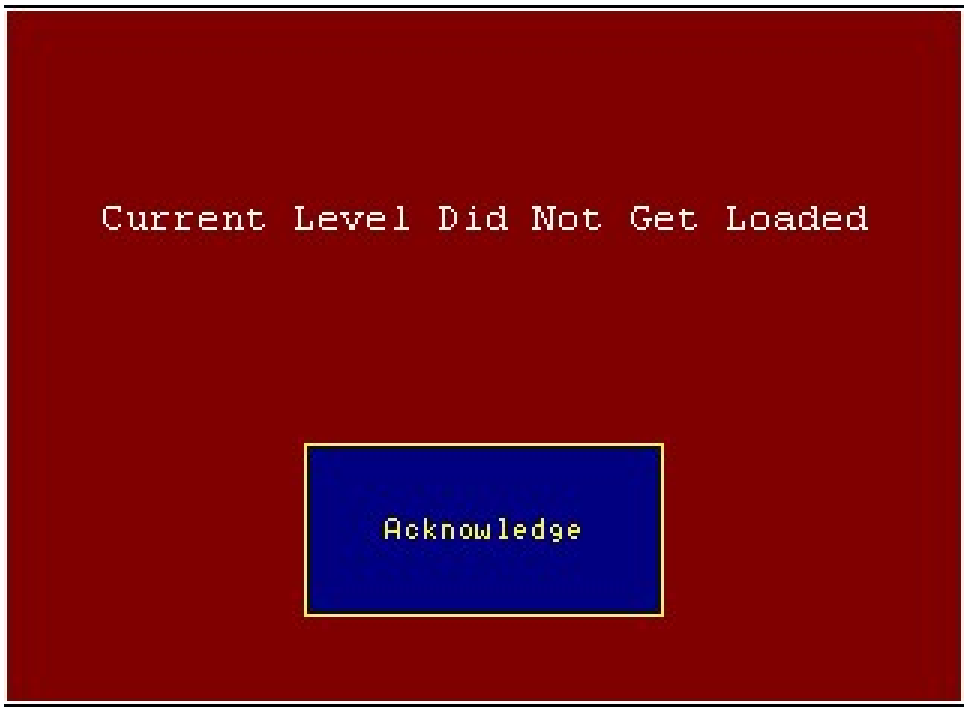
ALARM HISTORY

On this screen is a record of the **Alarm History** of the machine.



This screen displays the month, day, and year of the alarm along with a description of the alarm. When viewing of this screen is complete press F3 to return to the **Watch Dog Timer Screen**, or press F10 to return to the **Main Menu Screen**.

ALARM BANNER



This screen is displayed when an alarm becomes active and is no longer displayed after acknowledging the alarm displayed.

Acknowledging an alarm removes the Alarm Banner from the PanelView display, and resets the alarm in the PLC. The alarm Banner would not reappear upon powering up the PanelView.

PLC Fault Code - This alarm is displayed when the PLC goes into a fault condition. The PLC fault code is displayed along with the file and rung number where the fault occurred. The PLC fault will need to be cleared before the press can be ran again.

Load Table Up Fault - The load table did not move to the full up position in the allotted time period.

Load Table Down Fault - The load table did not move to the down position in the allotted time period.

Load Table Forward Fault - The load table did not move to the forward position in the allotted time period.

Load Table Return Fault -	The load table did not return to the load position in the allotted time period.
Load Table Pusher Arm Down Fault -	The load table pusher arm did not move to the down position in the allotted time period.
Load Table Pusher Arm Up Fault -	The load table pusher arm did not move to the up position in the allotted time period.
Loader Up Fault -	The loader did not move to the up position in the allotted time period.
Loader Down Fault -	The loader did not move to the down position in the allotted time period.
Loader Forward Fault -	The loader did not move to the forward position in the allotted time period.
Loader Return Fault -	The Loader did not return to the load position in the allotted time period.
Current Level Did Not Get Loaded -	The Current Level did not get loaded in the allotted time period.
Hot Press Fast Close Fault -	The Hot Press did not go into Fast Close Speed in the allotted time period.
Hot Press Build Pressure Fault -	The Hot Press did not build pressure in the allotted time period.
Hot Press Fast Open Fault -	The Hot Press did not go into Fast Open Speed in the allotted time period.
Cool Press Fast Close Fault -	The Cool Press did not go into Fast Close Speed in the allotted time period.
Cool Press Build Pressure Fault -	The Cool Press did not build pressure in the allotted time period.
Cool Press Fast Open Fault -	The Cool Press did not go into Fast Open Speed in the allotted time period.
Off Loader Up Fault -	The Off Loader did not move to the up position in the allotted time period.

Off Loader Down Fault -	The Off Loader did not move to the down position in the allotted time period.
Off Loader Pull On Forward Fault -	The Off Loader Pull On did not move to the forward position in the allotted time period.
Off Loader Pull On Return Fault -	The Off Loader Pull On did not return to position in the allotted time period.
Off Loader Left Catch Down Fault -	The Off Loader left catch did not move to the down position in the allotted time period..
Off Loader Left Catch Up Fault -	The Off Loader left catch did not move to the up position in the allotted time period.
Off Loader Right Catch Down Fault -	The Off Loader right catch did not move to the down position in the allotted time period.
Off Loader Right Catch Up Fault -	The Off Loader right catch did not move to the up position in the allotted time period.
Off Loader Push Off Forward Fault -	The Off Loader did not extend to position position in the allotted time period.
Off Loader Push Off Return Fault -	The Off Loader did not return to position in the allotted time period.
Platen 1 Temperature Out Of Range -	This alarm indicates that the platen 1 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen
Platen 2 Temperature Out Of Range -	This alarm indicates that the platen 2 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen
Platen 3 Temperature Out Of Range -	This alarm indicates that the platen 3 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

Platen 4 Temperature Out Of Range - This alarm indicates that the platen 4 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

Platen 5 Temperature Out Of Range - This alarm indicates that the platen 5 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

Platen 6 Temperature Out Of Range - This alarm indicates that the platen 6 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

Platen 7 Temperature Out Of Range - This alarm indicates that the platen 7 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

Platen 8 Temperature Out Of Range - This alarm indicates that the platen 8 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

Platen 9 Temperature Out Of Range - This alarm indicates that the platen 9 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

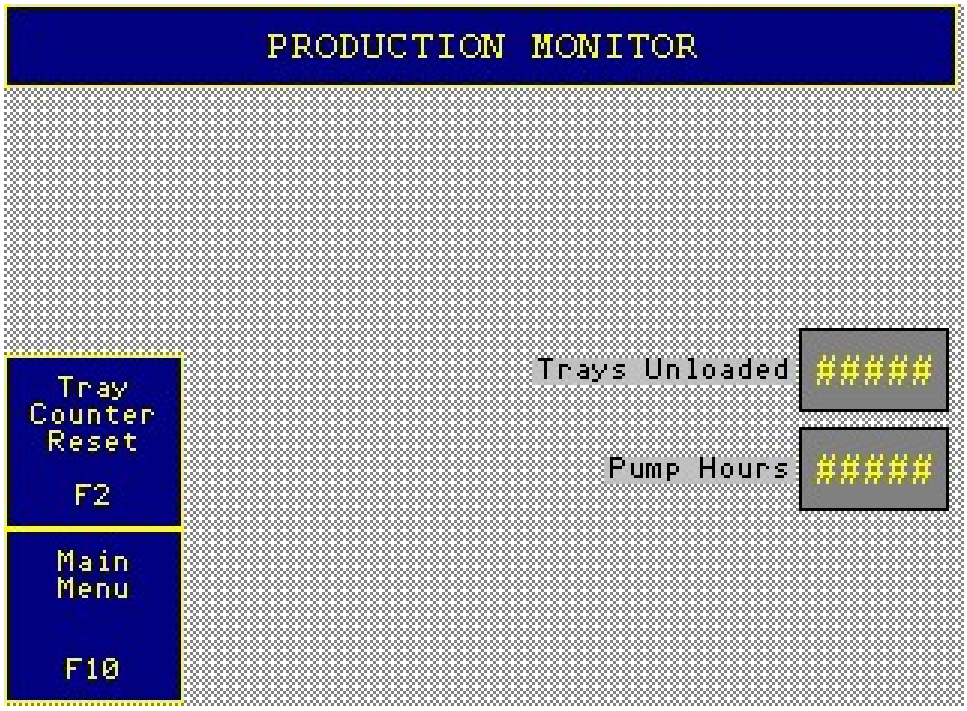
Platen 10 Temperature Out Of Range - This alarm indicates that the platen 10 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

Platen 11 Temperature Out Of Range - This alarm indicates that the platen 11 temperature has gone outside of platen temperature deviation limit. The deviation limit is set on the Alarm Setup Screen

Dirty Hydraulic Oil Filter - The Hydraulic oil filter is dirty

PRODUCTION MONITOR SCREEN

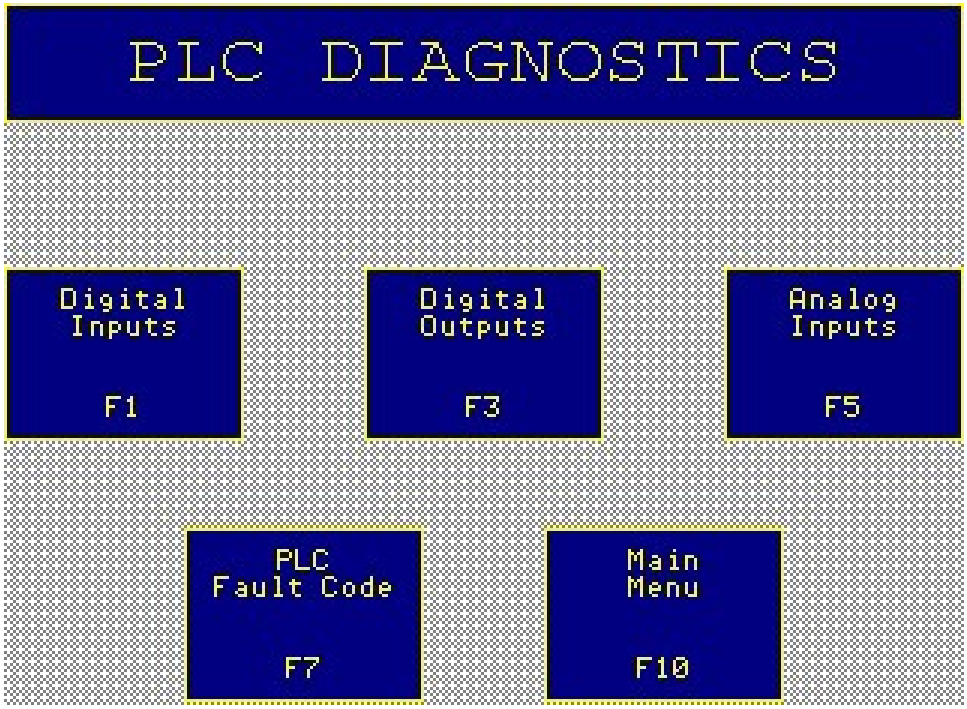
Press F6 on the **Main Menu Screen** to bring up the **Production Monitor Screen.**



This Screen displays a variety of items useful to monitor Production. Displayed on this screen is the Pump hours, Trays Unloaded counter. To reset the Trays Unloaded counter use the F2 key.

PLC DIAGNOSTICS

Press F7 on the **Main Menu Screen** to bring up the **PLC Diagnostic Screen**. This Screen allows the Operator to bring up and observe the Analog and Digital inputs and outputs.

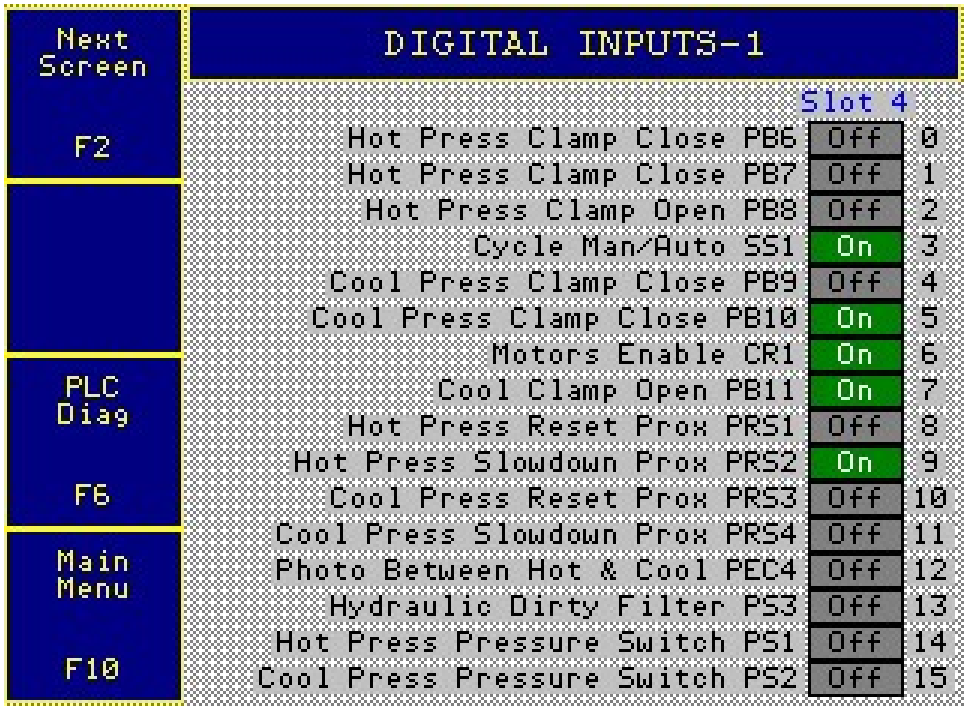


Active buttons on this screen are as listed;

F1 Digital Inputs -	Brings up the **Digital Input Screen**.
F3 Digital Outputs -	Brings up the **Digital Output Screen**.
F5 Analog Inputs -	Brings up the **Analog Input Screen**.
F7 PLC Fault Codes -	Brings up the **PLC Fault Codes Screen**.
F10 Main Menu -	Returns to the **Main Menu Screen**.

DIGITAL INPUTS

Press F1 on the **PLC Diagnostic Screen** to bring up the **Digital Input Screen**.



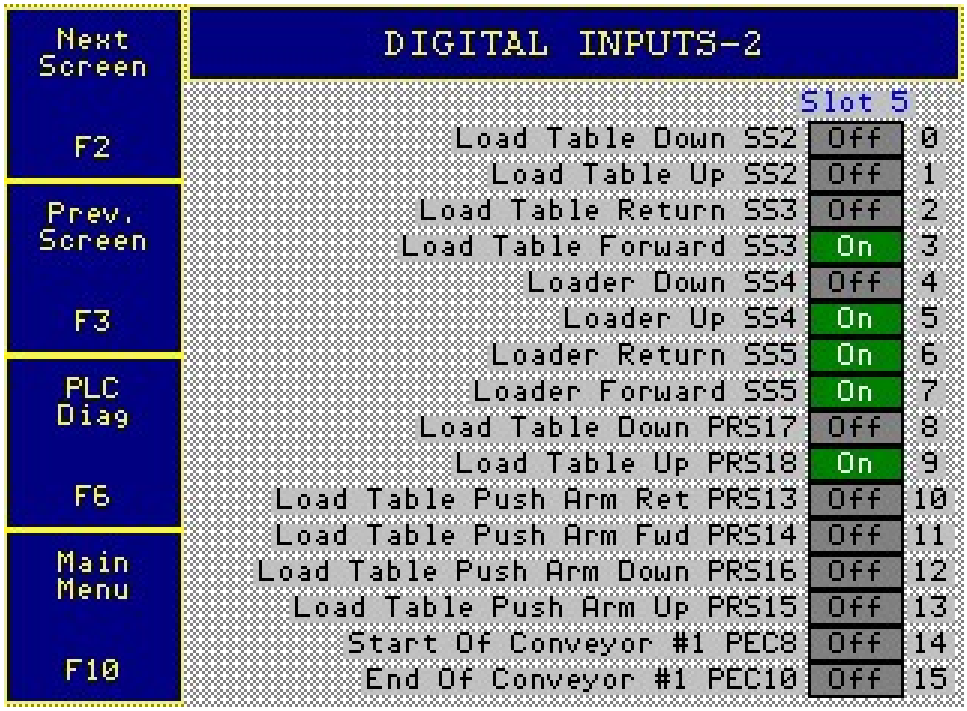
These Screens displays a description and the state of each Digital Input of the Machine. These Screens are display only, no inputs can be accessed.

Active buttons on this screen are as listed;

F1 PLC Diagnostic - Returns to the **PLC Diagnostic Screen**.

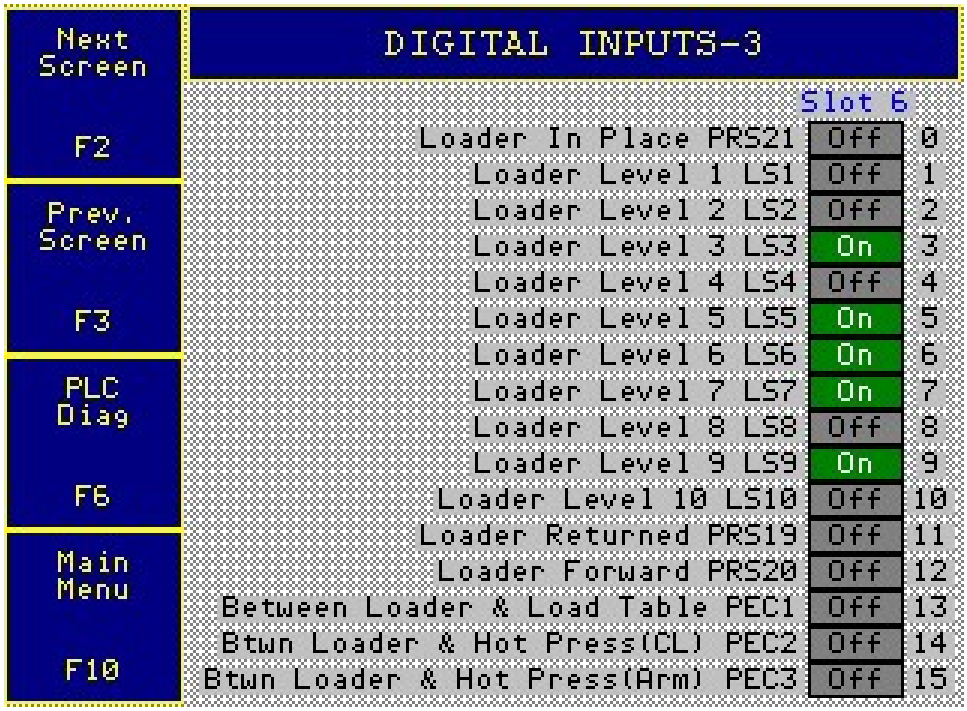
F2 - Next Screen - Proceeds to the next **Digital Input Screen**.

F10 Main Menu - Returns to the **Main Menu Screen**.



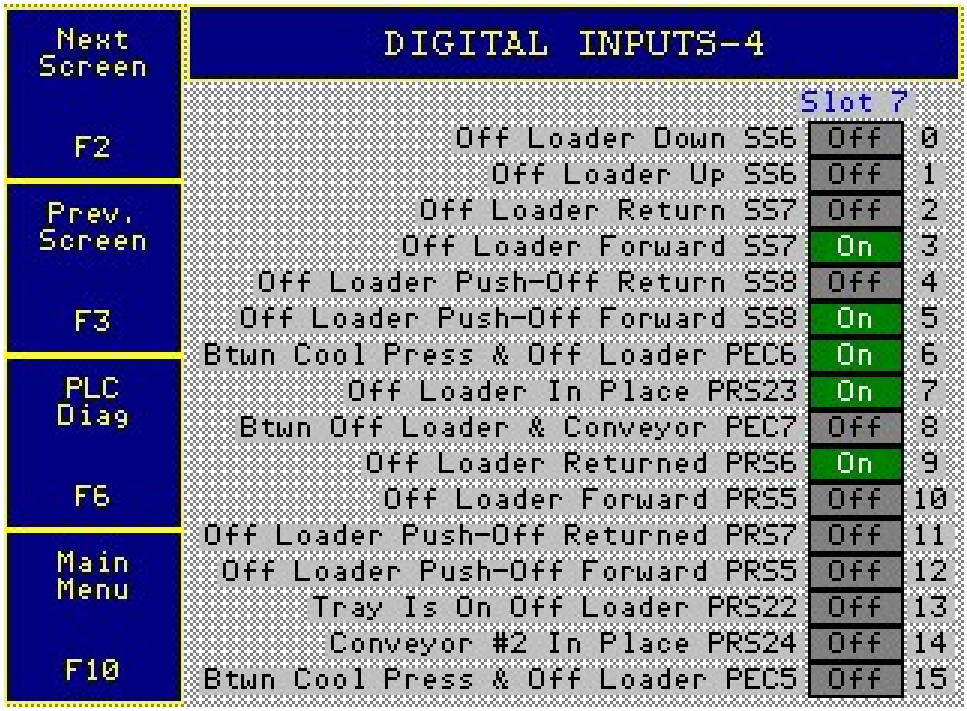
Active buttons on this screen are as listed;

F1 PLC Diagnostic -	Returns to the **PLC Diagnostic Screen**.
F2 - Next Screen -	Proceeds to the next **Digital Input Screen**.
F3 - Previous Screen -	Returns to the Previous **Digital Input Screen**.
F10 Main Menu -	Returns to the **Main Menu Screen**.



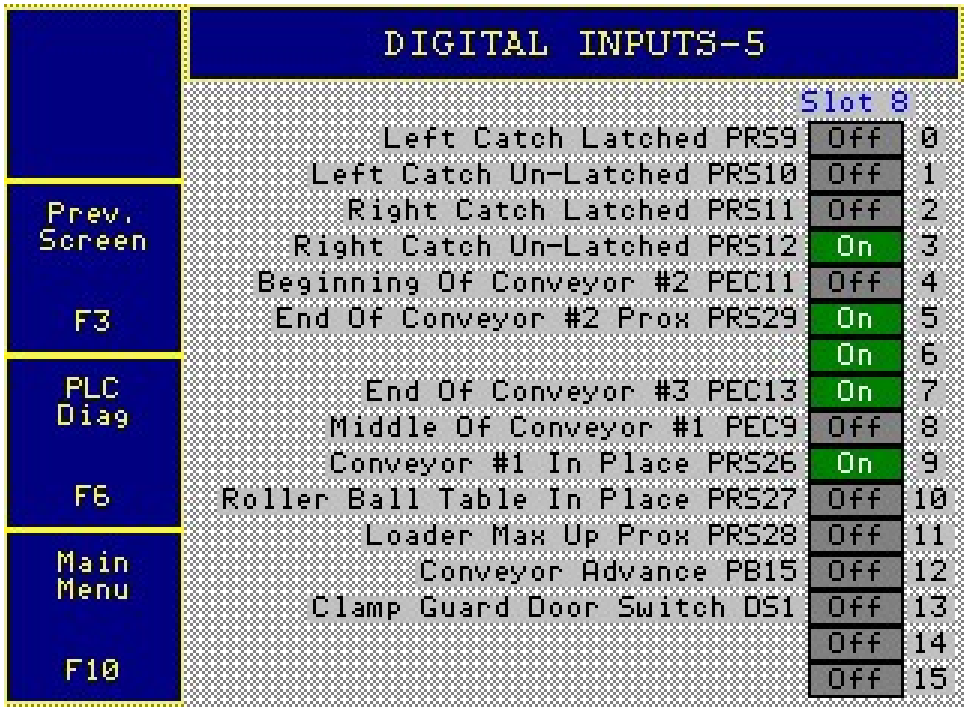
Active buttons on this screen are as listed;

F1 PLC Diagnostic -	Returns to the **PLC Diagnostic Screen**.
F2 - Next Screen -	Proceeds to the next **Digital Input Screen**.
F3 - Previous Screen -	Returns to the previous **Digital Input Screen**.
F10 Main Menu -	Returns to the **Main Menu Screen**.



Active buttons on this screen are as listed;

F1 PLC Diagnostic -	Returns to the **PLC Diagnostic Screen**.
F2 - Next Screen -	Proceeds to the next **Digital Input Screen**.
F3 - Previous Screen -	Returns to the previous **Digital Input Screen**.
F10 Main Menu -	Returns to the **Main Menu Screen**.

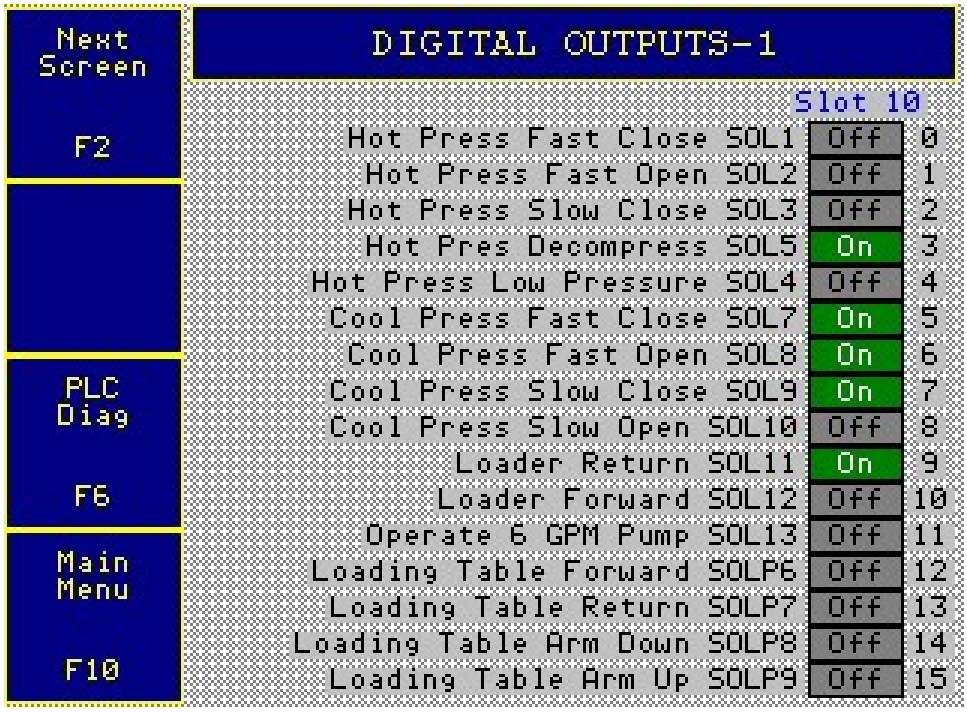


Active buttons on this screen are as listed;

F1 PLC Diagnostic -	Returns to the **PLC Diagnostic Screen**.
F3 - Previous Screen -	Returns to the previous **Digital Input Screen**.
F10 Main Menu -	Returns to the **Main Menu Screen**.

DIGITAL OUTPUTS

Press F3 on the **PLC Diagnostic Screen** to bring up the **#1Digital Output Screen**.

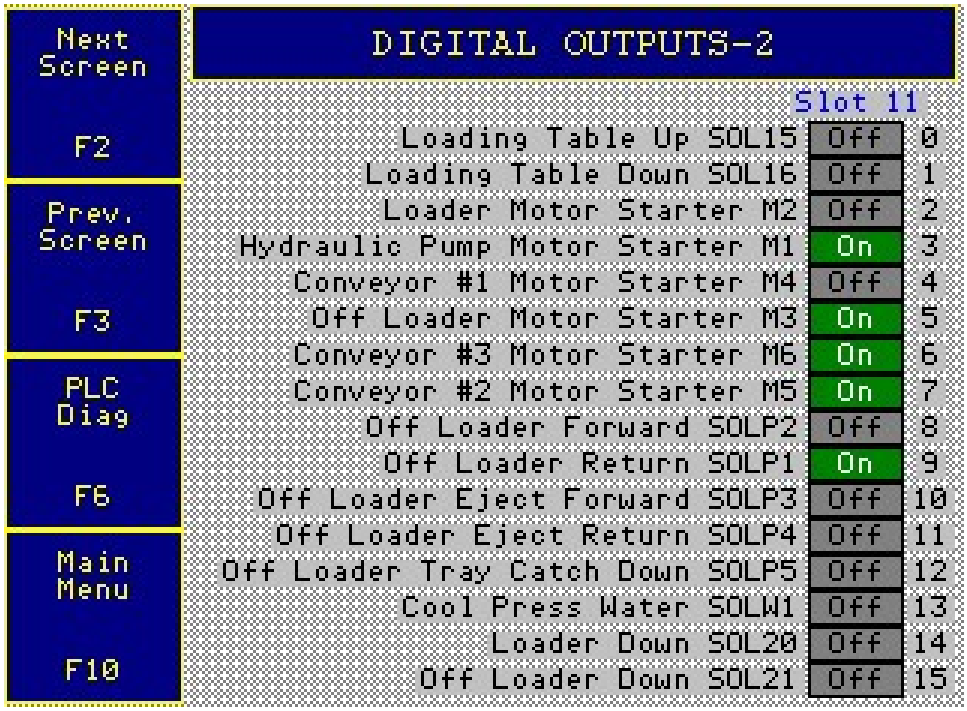


These Screens display a description and the state of each Digital Output of the Machine. These Screens are display only, no outputs can be accessed.
Active buttons on this screen are as listed;

F6 PLC Diagnostic - Returns to the **PLC Diagnostic Screen**.

F2 - Next Screen - Proceeds to the next **Digital Output Screen**.

F10 Main Menu - Returns to the **Main Menu Screen**.

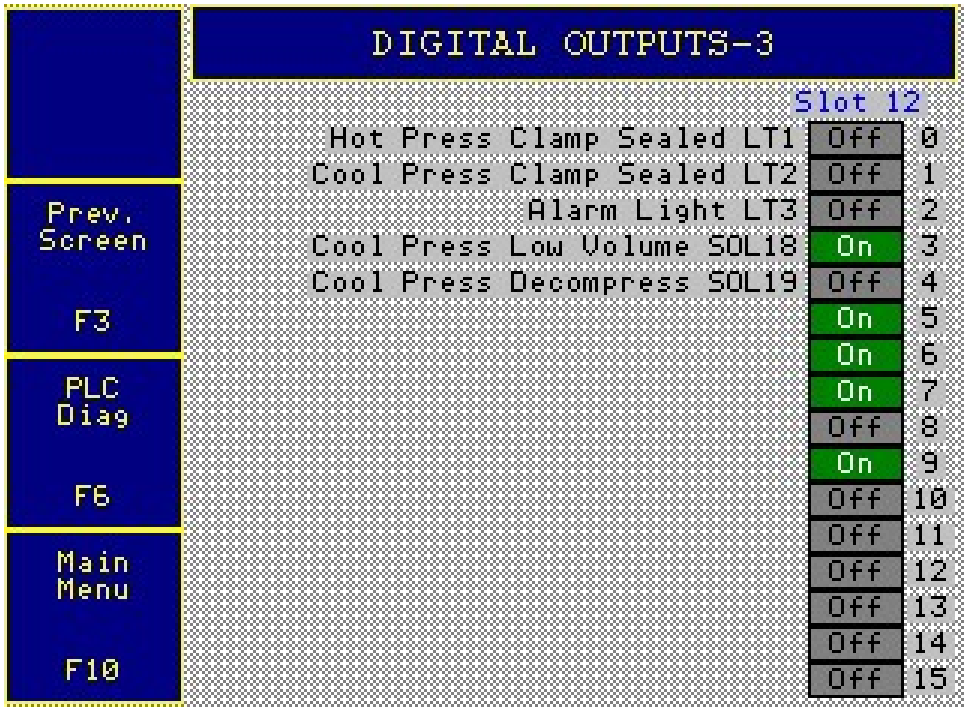


F6 PLC Diagnostic - Returns to the **PLC Diagnostic Screen**.

F2 - Next Screen - Proceeds to the next **Digital Output Screen**.

F3 - Previous Screen - Returns to the previous **Digital Output Screen**.

F10 Main Menu - Returns to the **Main Menu Screen**.



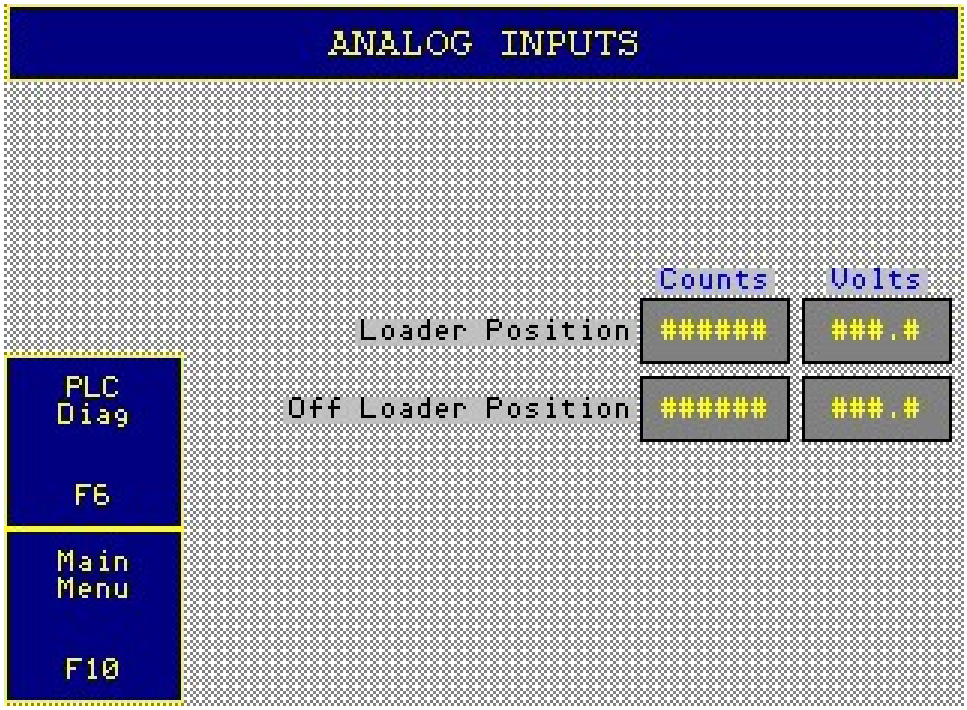
F6 PLC Diagnostic - Returns to the **PLC Diagnostic Screen**.

F3 - Previous Screen - Returns to the previous **Digital Output Screen**.

F10 Main Menu - Returns to the **Main Menu Screen**.

ANALOG INPUTS

Press F5 on the **PLC Diagnostic Screen** to bring up the **Analog Input Screen**.



There are two Analog Inputs, Loader Position, and Off Loader Position. The input signal is a 0 -10 volt DC signal sent from the position transducer. The PLC reads this input signal as 0 - 32767 counts, where 0 volts = 0 counts and 10 volts = 32767 counts. The PLC count value for the Analog Input is displayed on this screen.

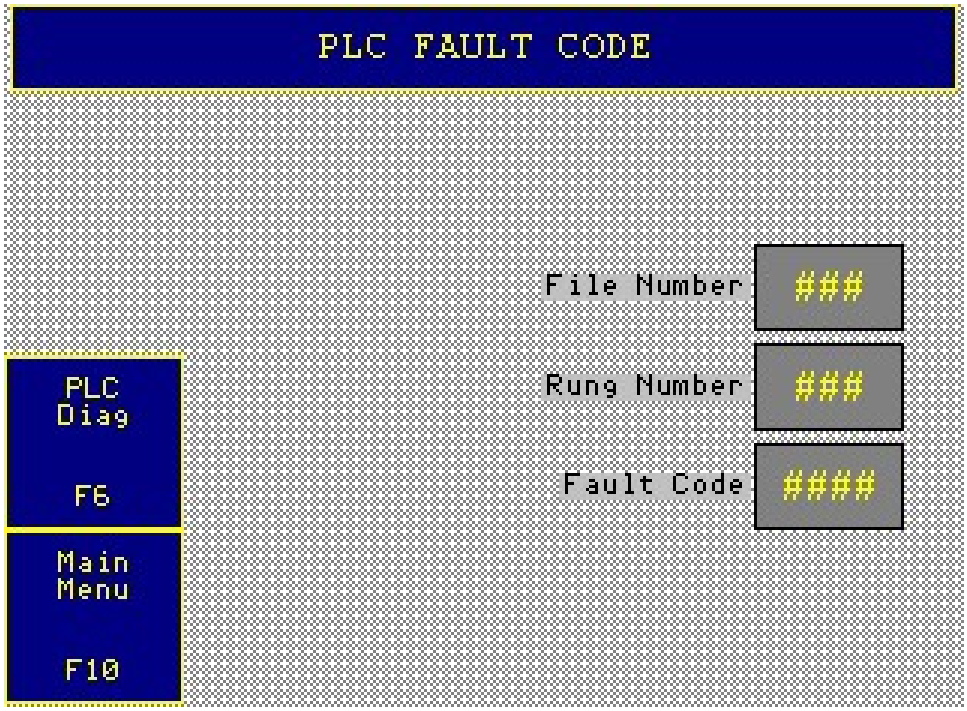
Active buttons on this screen are as listed;

F6 PLC Diagnostic - Returns to the **PLC Diagnostic Screen**.

F10 Main Menu - Returns to the **Main Menu Screen**.

PLC FAULT CODES

Press F7 on the **PLC Diagnostic Screen** to bring up the **PLC Fault Codes Screen**.



Active buttons on this screen are as listed;

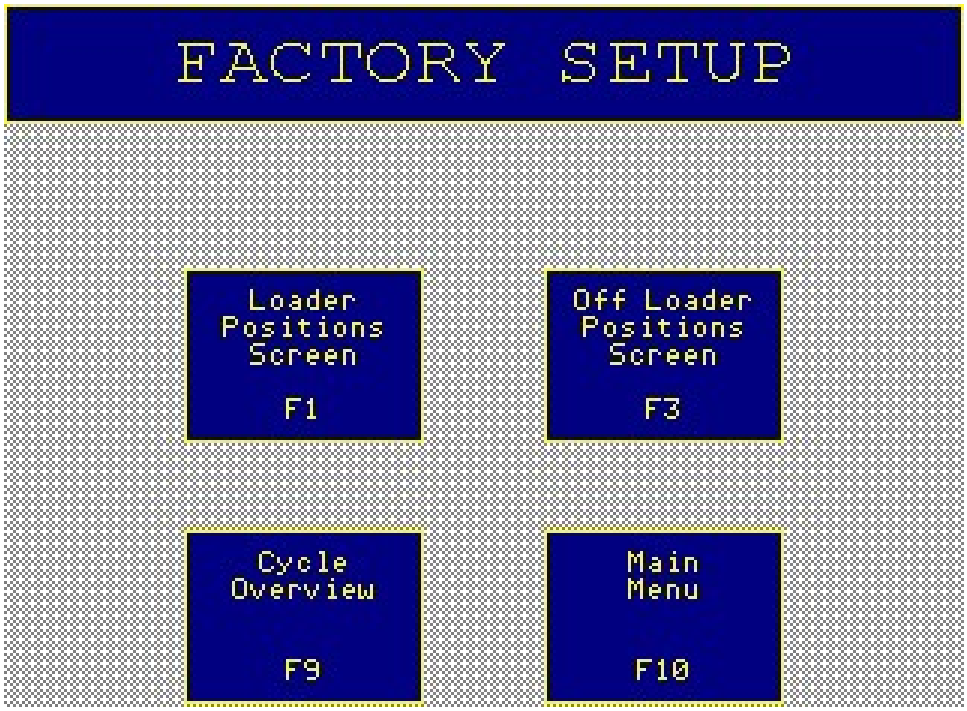
F6 PLC Diagnostic - Returns to the **PLC Diagnostic Screen**.

F10 Main Menu - Returns to the **Main Menu Screen**.

This Screen displays the most recent PLC Fault Code and Fault Power Down file and rung number.

FACTORY SETUP

Press F8 on the **Main Menu** to bring up the **Factory Setup Screen**.

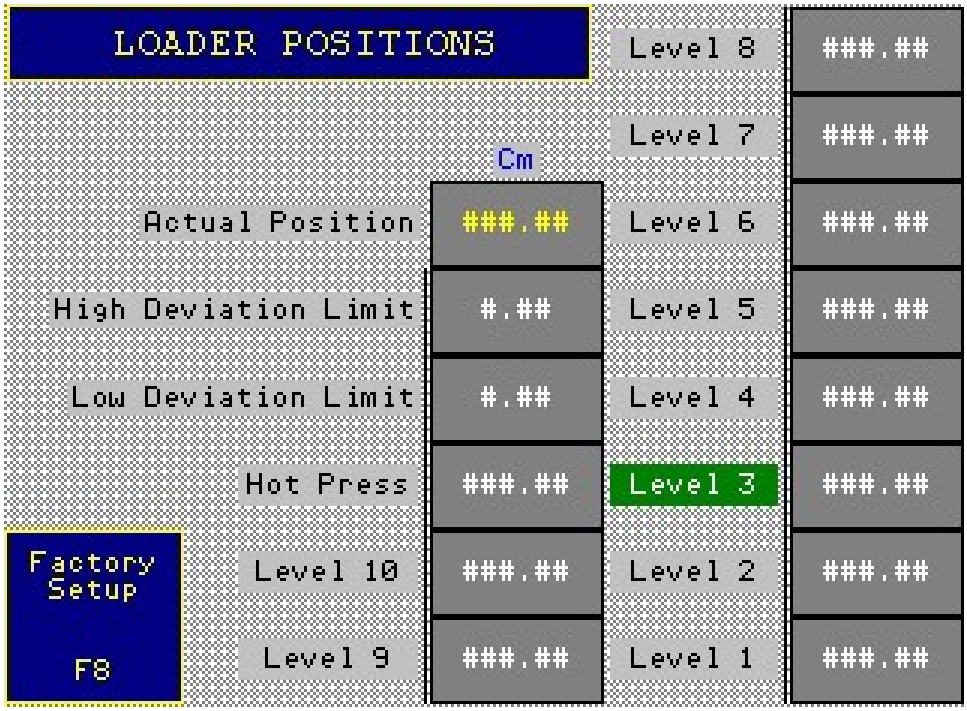


Active buttons on this screen are as listed;

F1 Loader Positions Screen -	This button brings up the **Loader Positions Screen.**
F3 Off Loader Positions Screen -	This button brings up the **Off Loader Positions Screen.**
F9 Cycle Overview -	This button returns to the **Cycle Overview Screen**.
F10 Main Menu -	This button returns to the **Main Menu Screen**.

LOADER POSITIONS

Press F1 on the **Factory Setup Screen** to bring up the **Loader Positions Screen**.



Active buttons on this screen are as listed;

F8 Factory Setup - This button returns to the **Factory Setup Screen.**

This Screen is used to set the Loader Positions for each of the ten levels. A larger number will make the Loader Stop Height higher. A smaller number will make the Loader Stop Height lower.
The Loader will stop and allow trays to be moved while the Current Loader position is within the High and Low deviation window.

The Actual Position display shows the current position of the Loader in centimeters, and is display only.

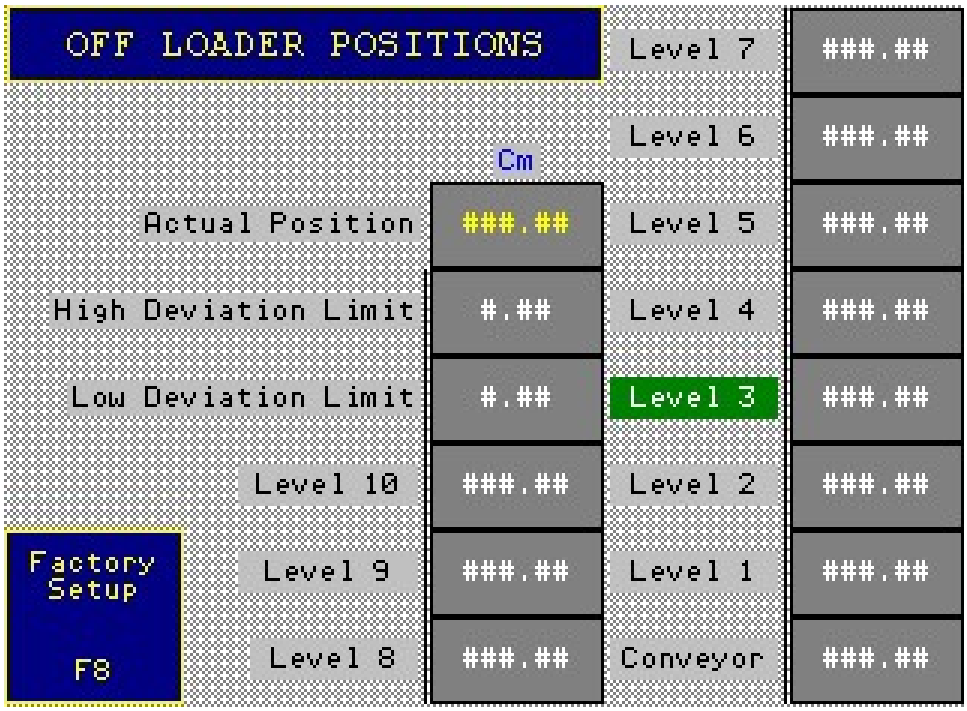
To edit other parameters on the Loader Positions Screen, move the cursor to the desired parameter and enter a new setpoint value.
The cursor can be moved by using the ◁ or ▷ arrow keys, or by touching the desired cell to display the numeric scratch pad. Once the changes have been made, press the ∑ enter key.

Parameters to be edited;

High Deviation Limit -	Position limit in centimeters higher than the current level stop position.
Low Deviation Limit -	Position limit in centimeters lower than the current level stop position.
Hot Press -	The stop position setpoint in centimeters for pushing trays from the loader into the hot press.
Level 10 -	Stop position setpoint in centimeters for level 10.
Level 9 -	Stop position setpoint in centimeters for level 9.
Level 8 -	Stop position setpoint in centimeters for level 8.
Level 7 -	Stop position setpoint in centimeters for level 7.
Level 6 -	Stop position setpoint in centimeters for level 6.
Level 5 -	Stop position setpoint in centimeters for level 5.
Level 4 -	Stop position setpoint in centimeters for level 4.
Level 3 -	Stop position setpoint in centimeters for level 3.
Level 2 -	Stop position setpoint in centimeters for level 2.
Level 1 -	Stop position setpoint in centimeters for level 1.

OFF LOADER POSITIONS

Press F3 on the **Factory Setup Screen** to bring up the **Off Loader Positions Screen**.



Active buttons on this screen are as listed;

F8 Factory Setup - This button returns to the **Factory Setup Screen.**

This Screen is used to set the Off Loader Positions for each of the ten levels. A larger number will make the Off Loader Stop Height higher. A smaller number will make the Off Loader Stop Height lower.
The Off Loader will stop and allow trays to be moved while the Current Off Loader position is within the High and Low deviation window.

The Actual Position display shows the current position of the Off Loader in centimeters, and is display only.

To edit other parameters on the Off Loader Positions Screen, move the cursor to the desired parameter and enter a new setpoint value.
The cursor can be moved by using the ◁ or ▷ arrow keys, or by touching the desired cell to display the numeric scratch pad. Once the changes have been made, press the ∑ enter key.

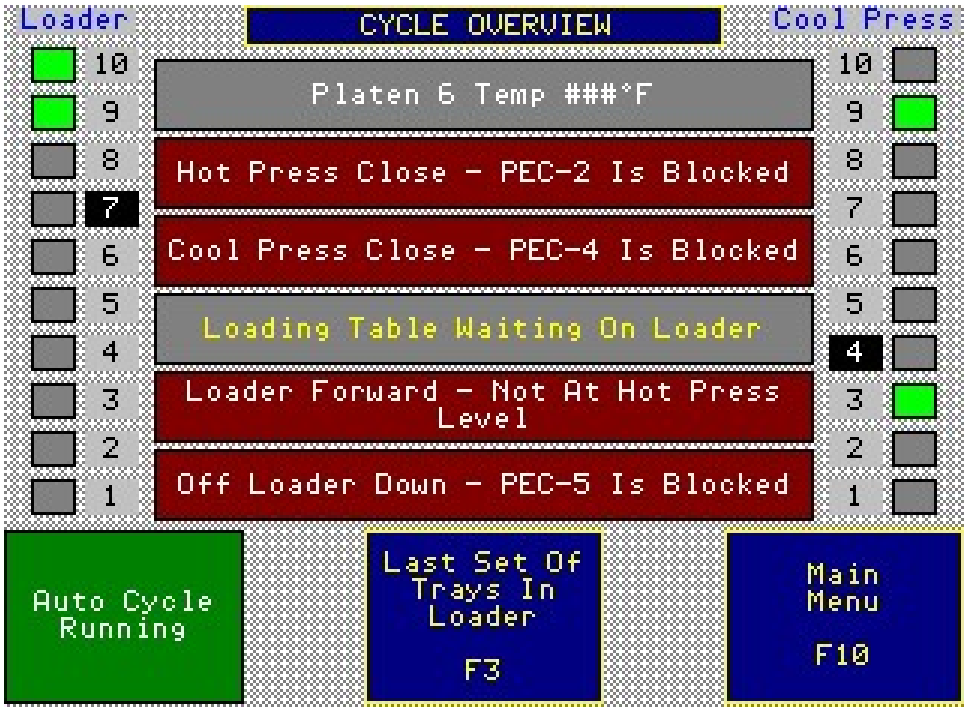
Parameters to be edited;

High Deviation Limit - Position limit in centimeters higher than the current level stop position.

Low Deviation Limit -	Position limit in centimeters lower than the current level stop position.
Level 10 -	Stop position setpoint in centimeters for level 10.
Level 9 -	Stop position setpoint in centimeters for level 9.
Level 8 -	Stop position setpoint in centimeters for level 8.
Level 7 -	Stop position setpoint in centimeters for level 7.
Level 6 -	Stop position setpoint in centimeters for level 6.
Level 5 -	Stop position setpoint in centimeters for level 5.
Level 4 -	Stop position setpoint in centimeters for level 4.
Level 3 -	Stop position setpoint in centimeters for level 3.
Level 2 -	Stop position setpoint in centimeters for level 2.
Level 1 -	Stop position setpoint in centimeters for level 1.

CYCLE OVER VIEW

Press F9 on **Main Menu Screen** to bring up the **Cycle Overview Screen**.



The **Cycle Overview Screen** shows the current status of an automatic cycle.

Active buttons on this screen are as listed;

F1 Start Automatic Cycle -	When in the Automatic Mode this button will start an Automatic Cycle.
F3 Last Set of Trays in Loader -	Depressing this button before the trays in the loader are pushed into the Hot Press will allow the machine to cycle the last set of trays through the entire process..
F10 Main Menu -	Returns to the **Main Menu Screen**.

The loader level status is shown on the left side of the Cycle Overview screen. Each level of the Loader has an indicator showing the status of the level. If there is no indicating box shown on the left side, that level is turned off. If the indicating box is Gray the level ha not been loaded. If the indicating box is Green the level has been loaded.

The Cool Press level status is shown on the right side of the Cycle Overview screen. Each level of the Cool Press has an indicator showing the status of the level. If there is no indicating box shown on the left side, that level is turned off. If the indicating box is Gray the level ha not been loaded. If the indicating box is Green the level has been loaded.

The top message display continuously cycles through all 11 Hot Press platen temperatures.

The five remaining message displays show different messages related to each of the machine functions, the Loading Table, Loader, Hot Press, Cool Press and the Off Loader. The messages indicate what each unit is doing or waiting to do.

RESET BUTTONS

Press the hidden button on the middle of the Main Menu Screen (Center of the Wabash Logo) and enter the correct password to gain access to the machine reset screens. These screens can be used to reset the control logic for the various machine functions.

F2 Next Screen - This button will display the second reset screen.
F10 Main Menu - This button will return to the main menu.

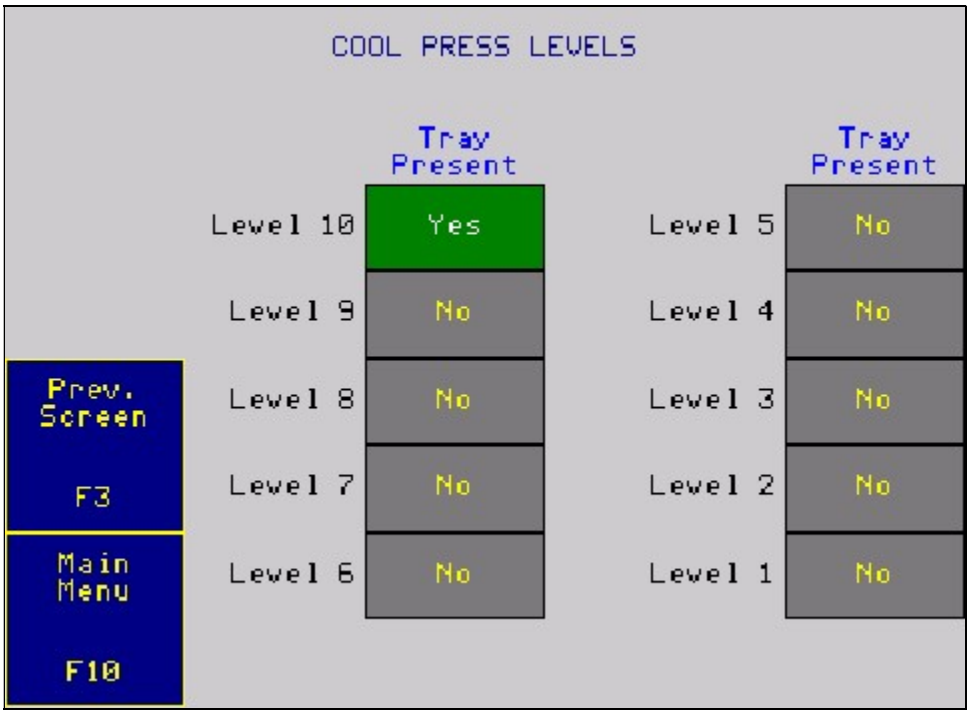
F1 Reset Load Table - This button will reset the load table program. Note: the load table needs to be empty (no trays) before this button is pressed.

F3 Reset Loader - This button will reset the loader program. Note: the loader needs to be empty (no trays in any level) before this button is pressed.

F5 Reset Off Loader - This button will reset the off loader program. Note: The cool press should be empty before this button is pressed. If that is not possible, go to the second reset screen after the Reset Off Loader button is pressed and select the cool press openings that still have trays present.

F7 Conveyor #2 On - While in manual mode this button will turn conveyor #2 on. The conveyor will remain on as long as the button is held.

F8 Conveyor #3 On - While in manual mode this button will turn conveyor #3 on. The conveyor will remain on as long as the button is held.



To access the Cool Press Levels reset screen press F2 on the first reset screen. This screen is used to set or reset the cool press levels. After the Reset Off Loader button is pressed on the first reset screen and there are still trays present in the cool press, the levels with trays need to be shown as ON. Press the ON/OFF box beside the level number until the box is set to ON.

F3 Prev. Screen -	This button will return to the first reset screen
F10 Main Menu -	This button will return to the main menu.

SECTION 5: MAINTENANCE

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SECTION FIVE **MAINTENANCE**

5-1 SERVICING THE HYDRAULIC SYSTEM

CAUTION:	Remove hydraulic pressure from system before loosening any hydraulic fittings.

IMPORTANT:	Operating the press without filters installed will void the warranty.

IMPORTANT:	Filter cleaning or replacement is an important part of press maintenance.

WABASH MPI Vantage Presses are equipped with a 100 mesh strainer on the suction lines and a spin-on 10 micron return line cartridge filter. These filters protect the pump from contamination. Regular filter cleaning and/or replacement will keep your press operating at peak efficiency.

The strainer is located in the hydraulic oil reservoir.

To clean or replace the strainer:

A. Open the press so the system is not under pressure.

B. Turn off and lock out electrical power to the press.

C. Drain the oil reservoir. Dispose of the contaminated oil following local and federal regulations.

D. Loosen the clean-out door and remove it from the reservoir.

E. Remove the strainer.

F. Clean the inside of the reservoir to remove any foreign material.

G. Install a new, or clean the used, strainer on the suction line.

H. Replace and secure the clean-out door.

I. Refill the oil reservoir with clean hydraulic oil pumped through a filter cart. (See Section 3-12)

J. Fill the case drain on the pump with oil.

K. Jog the pump until primed. You may need to loosen a fitting on the outlet of the pump to bleed the air out of the system.

To replace the return line filter:

A. Open the press so the system is not under pressure.

B. Turn off and lock out electrical power to the press.

C. Place a pan under the filter to catch any oil that may leak.

D. This is a spin-on canister type filter. Remove the canister and dispose of it following all local and federal regulations.

E. Screw the new filter canister on hand tight; do not over tighten.

Optional Pressure Line Filter

This is a canister filter with a replaceable cartridge filter that is recommended whenever the hydraulics are either proportional or servo controlled. This filter is located between the hydraulic pump and directional valve manifold at the back of the press. We recommend that the filter element be replaced when the filter indicator is in the yellow or red zone, and every time the oil is changed.

A. Open the press so the system is not under pressure.

B. Turn off and lock out electrical power to the press.

C. Place a pan under the filter to catch any oil that may leak.

D. This is a cartridge type filter. Remove the canister and dispose of the filter element following all local and federal regulations.

E. Replace the element with a new unit, and reinstall filter canister.

5-2 SYMPTOMS OF CONTAMINATED HYDRAULIC OIL

The hydraulic oil required for use in the **WABASH** press, like all hydraulic oils, degrades after an indefinite period of time. Useful life depends on variables such as moisture content, contamination, and operating conditions.

Your **WABASH press** may need new hydraulic oil if it exhibits any of the following symptoms:

- Elevated oil temperature with recommended cooling system operating properly.
- Milky color rather than clear.
- Burnt odor.

5-3 PLATEN PARALLELISM

EQUIPMENT REQUIRED:

- .125” (3mm) Solid Core Solder
- 1” (25mm) Micrometer
- Suitable sized wrench
- Hex key wrench

CHECKING PLATEN LEVEL

(1) Cut (9) strips of solder 1” (25mm) long.

(2) Place the solder in the opening of the press. (In multi-opening presses, do one opening at a time.)

(3) and Solder should be placed approximately 2” (50mm) from the edge of the platen one piece in the center.

7	8	9
4	5	6
1	2	3

(FRONT of platen) Solder location on platen or bolster

(4) Close press and put approximately 15 to 30 tons of force on solder. (Maintain pressure for about 30 seconds)

(5) Open the press.

(6) Measure the thickness of the solder with a micrometer.

(7) Solder should be compressed to approximately 2/3 of the original thickness for an accurate reading to be taken.

EXAMPLE: Reading

1. = .033 (.837mm)	4. = .033 (.837mm)	7. = .033 (.837mm)
2. = .033 (.837mm)	5. = .033 (.837mm)	8. = .034 (.862mm)
3. = .032 (.812mm)	6. = .034 (.862mm)	9. = .037 (.939mm)

Based on these findings, the back right corner of the top head will have to be lowered.

(8) If all four corners are within specifications and the platen is still not within specifications, the following changes will need to be made:

(a) Use shims to level the platens.

(b) Have platens resurfaced. The insulation board should be replaced anytime the platens are removed to be resurfaced.

NOTE: On a multi-opening press start the leveling process with the upper most opening.

NOTE: Heated platen mounting bolts must be checked regularly for proper torque specifications. The thermal expansion and contraction of the platens and bolts have allowed the bolts to loosen in some instances. Platen mounting bolts should be checked weekly when in a standard production cycle.

RECOMMENDED HEATED PLATEN BOLT TORQUE SPECIFICATIONS

SCREW SIZE	TORQUE
INCHES	FT-LBS
.375	15
.500	15
.625	25
.750	40

MOLD SIZE VERSUS TONNAGE CHART

Maximum tonnage allowed on different mold sizes before platen coining occurs.

MOLD SHAPE				MOLD AREA		MAXIMUM ALLOWABLE FORCE	
SQUARE		ROUND				TONS	
IN.	CM	IN.	CM	IN.^{2}	CM^2	U.S.	METRIC
		3	7.62	7.07	45.62	4.25	3.86
3	7.62			9.00	58.07	5.50	4.99
		4	10.16	12.56	81.04	7.50	6.80
4	10.16			16.00	103.23	9.60	8.71
		5	12.70	19.64	126.72	11.75	10.66
5	12.70			25.00	161.30	15.00	13.61
		6	15.24	28.27	182.40	17.00	15.42
6	15.24			36.00	232.27	21.60	19.59
		7	17.78	38.48	248.27	23.00	20.87
7	17.78			49.00	316.15	29.40	26.67
		8	20.32	50.27	324.34	30.15	27.35
8	20.32			64.00	412.93	38.40	34.84
		9	22.86	63.62	410.48	38.17	34.63
9	22.86			81.00	522.61	48.60	44.09
		10	25.40	78.54	506.74	47.12	42.75
10	25.40			100.00	645.20	60.00	54.43
		11	27.94	95.03	613.13	57.02	51.73
11	27.94			121.00	780.69	72.60	65.86
		12	30.48	113.13	729.91	67.85	61.55
12	30.48			144.00	929.09	86.40	78.38
		14	35.56	153.94	993.22	92.35	83.78
14	35.56			196.00	1264.59	117.60	106.68
		16	40.64	201.06	1297.24	120.60	109.40
16	40.64			256	1651.71	153.60	139.34
		18		254.47	1641.84	152.65	138.48
18	45.72		45.72	324	2090.45	194.40	176.35

5-4 RECOMMENDED SPARE PARTS

The following parts should be kept in stock to minimize downtime:

Wabash Part #	Qty.	Description	Ref.

019.01409	4	Flanged Bearing	Cool Press offload rollers
019.00202	5	Flange mounted roller ball	On the offloader
020.00222	1	1-3/8" Rodseal kit-Hanna 2H Hyd.	Cyl. on the loader
020.00223	1	5.5" Cyl. Rod Sealkit-Hanna 2H Hyd.	Cyl's. on the Cool Press
020.00616	1	1" Cyl. Rod Sealkit-Parker 2H Hyd.	On the lift table
020.00667	1	5" Cyl. Rod Sealkit-Hanna 2H Hyd.	Cyl's. on the Hot Press
020.00747	2	Size D03 valve coil w/DIN plug	Hydraulic valves
020.01160	1	40mm Bore Rodless Cyl. Repair Kit	Parker L074840040
020.01161	1	63mm Bore Rodless Cyl. Repair Kit	Parker L074840063
103.00057	1	Buss FNM-2.5 fuse (Or Equal)	FU5
103.00059	1	Buss FNM-10 fuse (Or Equal)	FU9
103.00248	1	Buss LPJ-60SP fuse (Or Equal)	FU3
103.00213	3	Buss LPJ-30SP fuse (Or Equal)	FU1
103.00270	2	Buss LPJ-12SP fuse (Or Equal)	FU2
103.00307	5	Buss GMA-1.5 fuse (Or Equal)	FU4
103.00321	3	Buss LPJ-6SP fuse (Or Equal)	FU7
103.00142	3	Buss KTK-4 fuse (Or Equal)	FU8
103.00324	3	Buss LPJ-4SP fuse (Or Equal)	FU6
106.00171	2	Reed-type Prox. Switch	On all rodless Cylinders
106.00173	2	18mm dia. Prox. Switch	2-wire DC
106.00178	1	Reed-type Prox. Switch	On the tray catch cyl's.
106.00166	1	8mm dia. Prox Switch	End of conveyor #2
106.00201	2	Photo Eye Transmitter	
106.00201	2	Photo Eye Reciever	
106.00202	2	Limit Switch	Trays in loader levels
110.00152	10	Pilot light & pushbutton bulbs	ANSI # 949
118.00318	2	Type-J thermocouple	On Hot Press platens
160.00144	1	Return Line Filter Element	10-Micron Absolute
543.00021A	6	Tray Catch	On the offloader
551.01043C	5	Loading Tray	Type 316 S.S. material
566.00001A	3	Offload roller	Cool Press offload rollers

5-8 RECOMMENDED PREVENTIVE MAINTENANCE

1. **Daily Maintenance Checks**

   A. Clean platen surfaces of any foreign materials. Wipe with clean dry cloth.

B. Check platen mounting bolts for tightness (180 in/lbs).

C. Check for any hydraulic fluid or cooling water leakage.

D. Check stress rod lubrication. (Do not over lubricate.)

E. Check air line filters for water accumulation and drain if water is present.

F. During platen heat up, at approximately 100-125°F use a hand held pyrometer to check for any HOT or COOL spots. HOT or COOL spots could indicate a bad heating element or water leaking by the valves into the platen.(If a HOT or COOL spot is detected, have Maintenance personnel check for a possible problem.)

2. **Bi-Annual Inspections**

PLATENS

A. Check platen mounting bolts for tightness (180 in/lbs).

B. Run solder test to check for flatness and parallelism. Clean all foreign material from platens before solder test is performed.

C. Make proper adjustment if platens do not meet required specifications. (Refer to Section 5-5)

D. Check for any leaks in the platen cooling system. (replace cooling hoses with direct replacement.)

TEMPERATURE CONTROLLERS ON HOT OIL UNIT

Check that the temperature controller is displaying the proper temperature.

Check that the temperature controller is controlling temperature at setpoint.

THERMOCOUPLE

A. Remove the thermocouple from the platen, clean the tip with steel wool.

B. Check for loose or damaged wires and conduit.

C. Replace thermocouple if there is any noticeable damage.

HYDRAULIC SYSTEM

A. Check for any leakage of hydraulic fluid.

B. Repair or replace any defective hydraulic component.

C. Check hydraulic fluid level, which should be ¾ full on the sight glass.

D. Replace (optional) high pressure or return line filter element. Refer to hydraulic circuit.

E. Clean hydraulic heat exchanger water inlet screen. Refer to hydraulic circuit.

CLEANING THE PRESS

A. Painted surfaces should be cleaned with a household cleaner.

B. Non-painted surfaces should be kept clean and wiped down with a light coat of oil or grease

3. Annual Inspections

A. Replace hydraulic fluid. Refer to sections 3-12 and 3-13.

B. Clean the inside of the hydraulic reservoir.

C. Clean or replace suction line screen.

D. Calibrate the clamp pressure gauge. *

E. Calibrate the platen temperature controllers. *

* This should be completed by a WABASH MPI service technician.

WABASH MPI PRESS
PREVENTATIVE MAINTENANCE CHECK LIST

INSPECTION DATE:_____

Model # _____ Serial # _____

WEEKLY INSPECTION	WK 1	BY	WK 2	BY	WK 3	BY	WK 4	BY

Inspect all bushings for wear; replace if worn, grease weekly.								
Check all platen mounting bolts for proper tightness								
Check all mold mounting bolts for proper tightness								
Filter hydraulic oil with external filter cart.								

MONTHLY INSPECTION	**Performed by**	**Date**
Disconnect and lock out power. Check the heater element for continuity with an ohmmeter.		/ /
Check the platen temperature tracking with an external pyrometer.		/ /

YEARLY INSPECTION	**Date of last Inspection**	**Next Scheduled Inspection**
Replace hydraulic oil		
Calibrate Temperature Controllers*		
Calibrate Pressure Gauge*		
Level Platens*		

* Should be performed by WABASH MPI Service Technician.

SECTION 6: WABASH MPI SERVICES

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SECTION SIX **WABASH MPI SERVICES**

6-1 TECHNICAL ASSISTANCE

WABASH MPI PARTS DEPARTMENT
Call from 7:30 a.m. to 4:30 p.m., Eastern Standard Time
(260) 563-1184, Extension 254 or 262
E-mail, wabashmpi@corpemail.com

The Parts Department at **WABASH MPI** is ready to provide the parts to keep your equipment up and running. Original replacement parts ensure operation at design specifications. Please have the model and serial number of your equipment available when you call. Consult the Parts List included in your information packet for replacement part numbers.

WABASH MPI SERVICE DEPARTMENT
Call from 7:30 a.m. to 4:30 p.m., Eastern Standard Time
(260) 563-1184, Extension 238 or 243
E-mail, wabashmpi@corpemail.com

WABASH MPI has a qualified Service Department ready to install, start-up, or service your press. Gauge calibration services are available. Contact Service Department for details. Yearly calibration and preventive maintenance by a **WABASH MPI** service technician is recommended.

WABASH MPI SALES DEPARTMENT
Call from 7:30 a.m. to 4:30 p.m., Eastern Standard Time
(260) 563-1184, Extension 230 or 233
E-mail, wabashmpi@corpemail.com

WABASH MPI products are sold through a worldwide network of independent sales representatives and distributors, as well as in-house sales personnel. Contact our Sales Department for the name of the sales representative or distributor nearest you.

6-2 RETURNED MATERIAL POLICY

1. Prior to the return of any material, authorization must be given by **WABASH MPI.** An RMA number will be assigned for the equipment to be returned.

2. A reason for requesting the return must be given.

3. All returned material purchased from **WABASH MPI** is subject to a 15% ($75.00 minimum) restocking charge.

4. All Returns are to be shipped prepaid.

5. The invoice number and date, or purchase order number and date, must be supplied.

6. No credit will be issued for material that is not within the manufacturer's warranty period, and/or in new and unused condition, suitable for resale.

SECTION 7: WARRANTY

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SECTION SEVEN **WARRANTY**

7-1 WARRANTY RETURNS

1. Prior to the return of any material, authorization must be given by **WABASH MPI**. An RMA number will be assigned for the part or equipment to be returned. All warranty returns require a Purchase Order.

2. Reason for requesting the return must be given.

3. All returns are to be shipped prepaid. Return freight, and replacement parts freight, are the responsibility of the customer.

4. The invoice number and date, or purchase order number and date, must be supplied.

5. After inspecting the material, a replacement or credit will be given at **WABASH'S** discretion, if the item is found to be defective in materials or workmanship and it was manufactured by **WABASH MPI**. Purchased components are covered under their specific warranty terms.

7-2 WARRANTY

WABASH MPI warrants all equipment we manufacture to be free from defects in workmanship and materials when used under recommended conditions. The Company's obligation under this warranty is limited to those parts which, within twelve (12) months from delivery of equipment to original purchaser, are returned to the factory with transportation prepaid, and upon examination shall be found to be defective.

WABASH MPI neither assumes, nor authorizes any other persons to assume any liability in connection with the sale of its equipment, except under the conditions of this warranty.

This warranty does not cover any labor charges for replacement of parts, adjustment, repair, or any other work done. This warranty shall not apply to any apparatus which, in our opinion, has been subjected to misuse, negligence, or pressures in excess of the limit recommended, or which shall have been repaired or altered outside of the factory.

Replacement of defective material(s) will be FOB from the **WABASH MPI** factory. Replacement of component parts not manufactured by **WABASH MPI** will be limited to the warranty of the manufacturer of such parts.

APPENDIX

Glossary of Terms
Hydraulic Schematic

Electrical Circuit
General Arrangement Drawings

GLOSSARY OF TERMS

AIR PURGE:

A timed cycle of air pressure used at the end of the cooling cycle or when the heat is turned on that purges (expels) any residual (left over) water left in the cooling cores of a platen after the cooling cycle.

BOLSTERS:

Base Bolster : The plate attached to the press frame that supports the clamp assembly.

Moving Bolster : The main moving press member that the platen or mold half is mounted to. (Normally actuated by the clamp cylinders.)

Top Bolster : The stationary press member that is mounted to the top of the stress/tie rods.

BUMP/BREATHE:

An operation in the cycle when the clamp pressure is relieved for a short time period to vent trapped gases from the material and/or mold. This operation can occur multiple times when it is initiated.

CARTRIDGE HEATER:

A cylindrical shaped electric resistive heating device that is typically inserted into drilled holes of a platen or mold.

CAUTION:

A term used to indicate a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

CLAMP:

The portion of the press that holds the two mold halves and opens and closes the mold.

CLOSING SPEED:

The speed at which the clamp travels until making the slowdown position. Usually stated in inches per minute (IPM).

CONTACT GAUGE:

A control feature that shuts the hydraulic system off at the manual setpoint of the gauge and restarts it if the pressure bleeds off.

COUNTERBALANCE SYSTEM:

A system that provides for slowing, stopping or supporting, or any combination thereof, of a bolster and its attachments.

CURE TIME:

The amount of time the press clamp stays closed and under pressure after making the slowdown position.

DANGER:

A term used to indicate an imminently hazardous situation that, if not avoided, will result in death or serious injury.

DAYLIGHT:

The distance between the platen or bolster work surfaces when the moving bolster is in its home or fully retracted position.

DOWN-ACTING CLAMP:

A clamp assembly where the moving bolsters travels downward to apply pressure.

FLOATER:

A bolster or platen assembly that is suspended in the clamp opening with cylinders or hanger rods to provide multiple daylights.

GUARD:

A barrier or barriers which prevents entry of an individual's hand or other body part into the point of operation or other hazard area.

GUARD DOOR:

An interlocked device arranged to enclose the point of operation.

HAZARD:

A condition or set of circumstances that can cause physical harm to exposed personnel.

HANGER ROD:

A steel rod used to suspend a floater to create multiple daylight.

IMPORTANT:

A term used to emphasize areas where equipment damage could result, or provides additional information to make a step or procedure easier to understand.

INTERLOCK:

An arrangement in which the operation of one control or mechanism automatically brings about or prevents the operation of another.

INTERLOCKED GUARD:

A fixed or movable barrier attached and interlocked in such a manner that the press will not cycle or will not continue to cycle unless the guard itself or its hinged or movable sections enclose the hazardous area.

LIFTING POINT/HOLES:

Threaded holes or drilled holes used for the sole purpose of lifting the press or one of its components.

MOLD AREA:

The zone between the mold mounting surfaces of the press. This could be the zone between the platens if supplied, or the moving bolster and top or base bolster.

MOLD/DIE:

The tooling used in a press for shearing, punching, forming, drawing, or assembling metal or other material.

NOTICE:

A term used to indicate a statement of company policy directly or indirectly related to the safety of personnel or protection of property.

OPENING SPEED:

The speed the clamp travels at when coming open. Usually stated in inches per minute (IPM).

OPERATOR:

An individual who performs production work on the press or who controls the movement of the bolsters.

PLATEN:

The plates attached to the moving and top bolsters of the press, they can be heated and or cooled, also they can have mounting provisions for the customers old/die.

POINT OF OPERATION:

The location in the press where material is positioned and a process is performed.

PRESSING SPEED:

The speed the clamp travels at after making the slowdown position. Usually stated in inches per minute (IPM) and considerably slower than closing speed. Sometimes called slowdown speed.

QUALIFIED PERSONNEL:

One that is familiar with the construction and operation of the equipment or process and the hazards involved.

RESERVOIR:

The tank mounted to the press that holds the hydraulic fluid used to operate the press.

RESET POSITION:

The position of the moving bolster when the clamp cylinder(s) has retracted to switch position. This is usually full open position.

RIGGER:

One that is familiar with the moving, transporting, and installation of machinery.

SAFETY BLOCK:

A prop that, when inserted between opposing machine or tool members, prevents the press from closing of its own dead weight.

SLING:

A device used to lift or support a machine or component.

SLOWDOWN POSITION:

The position of the moving bolster when the clamp speed slows to pressing speed. This is usually 1/8 inch of being fully closed.

STRESS/TIE ROD:

The round bar that is usually threaded at on both ends that the bolsters are mounted to and support the total load (tonnage) of the clamp assembly. The moving bolster slides on these rods also.

STRIP HEATER:

A flat rectangular shaped electric resistive heating device that is typically placed under a platen or mold.

STROKE:

The amount of travel the rod of a cylinder can extend and retract.

TWO HAND CONTROL:

The control that requires the concurrent use (at the same time) of both of the operator's hands to both initiate and continue the press cycle during the hazardous portion of the press cycle.

UP-ACTING CLAMP:

A clamp assembly where the moving bolsters travels upward to apply pressure.

WARNING:

A term used to indicate a potentially hazardous situation that, if not avoided could result in death or serious injury.