

The M&R **ECLIPSE**



GRAPHIC SCREEN PRINTING SYSTEM

M&R PRINTING EQUIPMENT, INC.

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INTRODUCTION

Thank you and congratulations on the purchase of your new M&R Eclipse™ Flatbed Press.

The Eclipse™ is part of a "new generation" of graphic screen printing systems offered by M&R Printing Equipment, Inc.

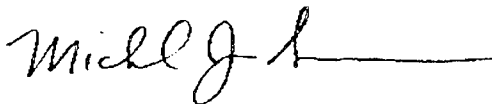
The M&R Eclipse™ brings to mid- and small-format graphic printing the sophisticated microprocessor technology currently available on M&R's larger Patriot family of graphic presses. This technology is complemented by a design that emphasizes quick set-up, excellent output and complete operator control to deliver unsurpassed print quality.

This Operator's Manual is provided to help guide your employees in the proper operation and preventive maintenance of your new Eclipse™ press. Please take the time to read through this manual completely before attempting to operate your new Eclipse™ press.

Should it be needed, our nationwide network of Technical Service Representatives are as close as your telephone at 1 (708) 858-6101 or during weekends and holidays on our 24-hour Service Hotline at 1 (708) 462-4715.

Again, thank you and congratulations.

Michael J. Sweers



Director of Technical Services
M&R Printing Equipment, Inc.



CHAPTER 1 – Features and Specifications

Standard equipment

- Dependable microprocessor controls
- On-board production monitor
- On-board self-diagnostic system
- Programmable dwell and blowback timing
- Pneumatic squeegee pressure equalizer
- Independent, tool-free squeegee/floodbar height and angle adjustments
- Independent print/flood speed adjustments
- Adjustable solid state stroke length sensors
- Four-corner off-contact adjustments
- Automatic, synchronized screen peel
- "Whisper quiet" vacuum system with up-front vacuum/blowback pressure adjustments
- Master frame detaches from raised print head for easy setup
- Micro-registration adjustments with reference grids
- Manual vacuum/blowback capability
- Head up/head down capability
- Flood/non-flood capability
- Emergency stop button
- Safety bar with reverse action on print head
- All-metal vacuum bed treated w/solvent-resistant epoxy
- Brushless AC motors
- Two-stage foot pedal operation
- One year limited parts warranty
- 24-hour, 7-day/week service hot line

Optional equipment

- Fully adjustable, gripper-style takeoff
- Automatic registration pins (round or square)
- Provision to add takeoff at a later date
- Automatic lift pins
- Pneumatic squeegee/floodbar locks
- Pneumatic frame locks
- Production Management Report software

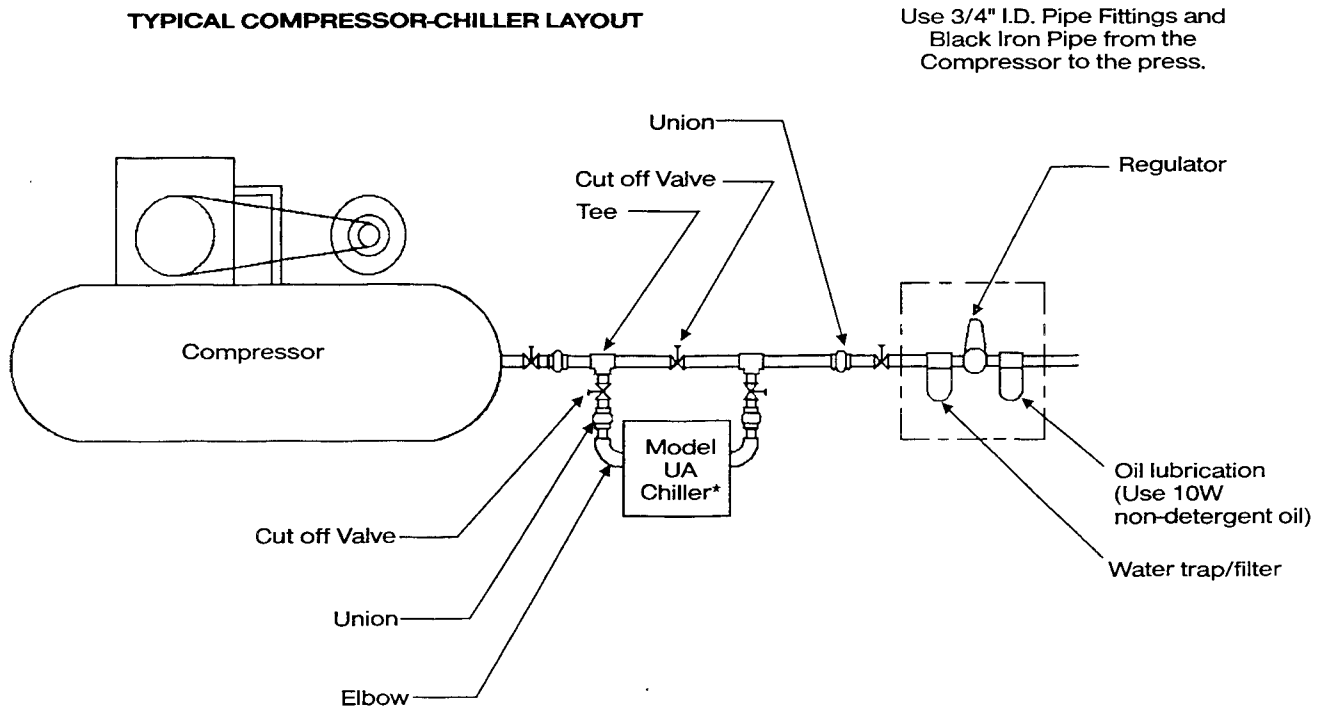


Specifications (Shown in Width x Depth Dims.)

Total Floor Area	Max. Allowable Frame	Print Area	Total Bed Area	Takeoff Size	Crate Size		Weight	
					w/o takeoff	with takeoff	w/o takeoff	with takeoff
60 x 66 in	49 x 52 in*	26 x 38 in	42 x 46 in	97 x 49 in	72 x 67 x 65 in	72 x 102 x 80 in	900 lbs	1500 lbs
60 x 66 in	49 x 52 in*	30 x 40 in	42 x 46 in	97 x 49 in	72 x 67 x 65 in	72 x 102 x 80 in	900 lbs	1500 lbs
76 x 77 in	59 x 68 in*	38 x 50 in	52 x 62 in	115 x 59 in	83 x 83 x 65 in	122 x 83 x 80 in	1000 lbs	1800 lbs
76 x 77 in	59 x 68 in*	40 x 56 in	52 x 62 in	115 x 59 in	83 x 83 x 65 in	122 x 83 x 80 in	1000 lbs	1800 lbs

* Less 2" deep if press includes tool-free off-contact

- **Electrical Requirements**
 - 220 Volt, 3 Phase, 60 HZ, 20 AMPS
- **Air Requirements**
 - 100 PSI @ 3 CFM
- A clean, moisture-free air supply must be installed onto pneumatically operated equipment. To keep your warranty valid a chiller must be installed. (See installation diagram below.)



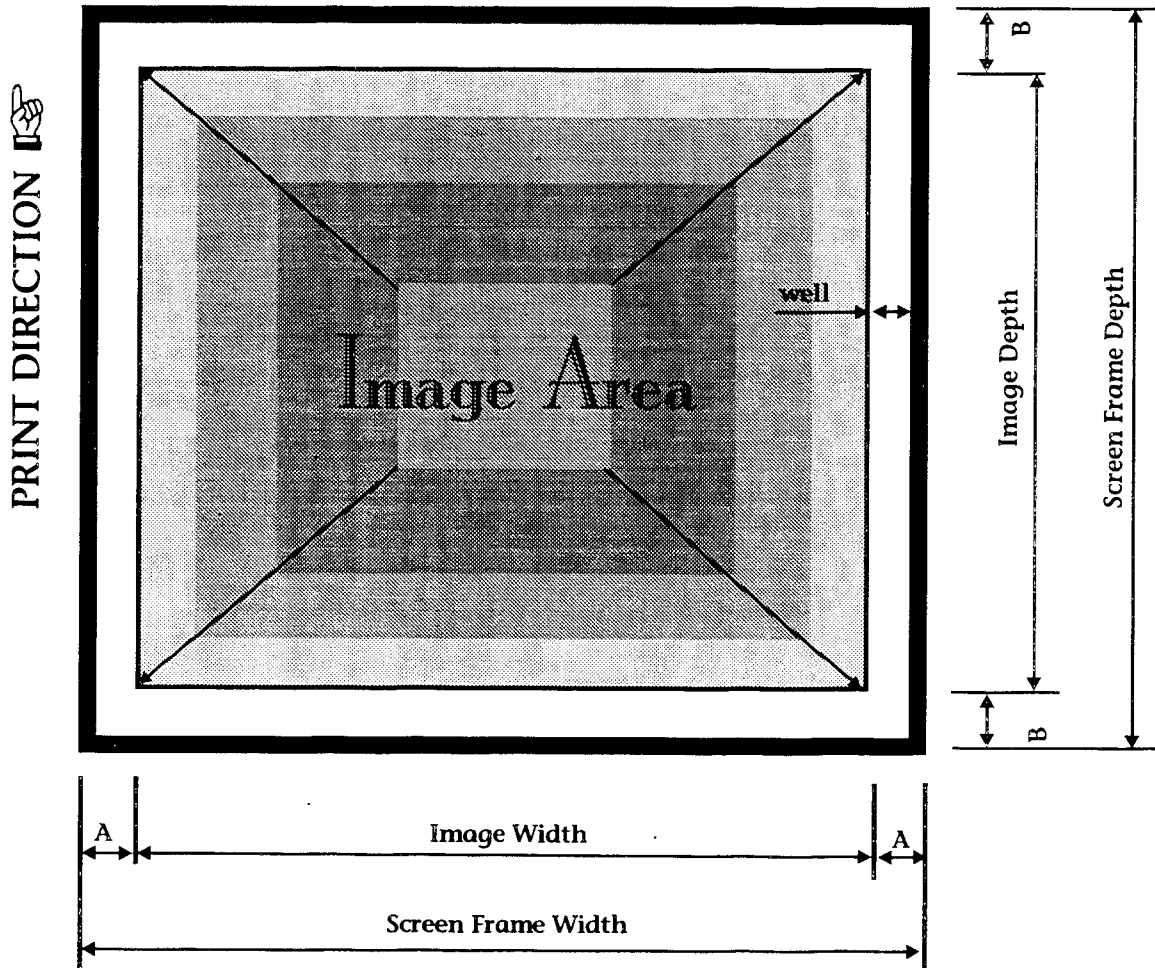
NOTE: If the Chiller is to be installed within fifty feet of the Compressor, a high temperature Model HT must be used. When the Chiller is fifty feet or more from the Compressor, then the standard UA Model may be used.



CHAPTER 2 – Screen Frame Requirements

Max. Image Area Size	Max. Allowable Frame	*A* Dim.	*B* Dim.
26 in x 38 in	49 in x 52 in*	7 in	11 1/2 in
30 in x 40 in	49 in x 52 in*	6 in	9 1/2 in
38 in x 50 in	59 in x 68 in*	9 in	10 1/2 in
40 in x 56 in	59 in x 68 in*	6 in	9 1/2 in

* Less 2" deep if press includes tool-free of-contact



CHAPTER 3 – Overview

The Eclipse™ features a sophisticated upfront microprocessor that monitors all press operations, safety systems and output while regulating print parameters such as dwell time, vacuum/blowback and more. The microprocessor can be used to simplify production management, and it automatically monitors the length of each cycle, cycles per hour and overall productivity. Quality control is easy to maintain from job to job.

Set-up of the Eclipse™ is fast and easy. The master frame/screen holder is adjustable from both the back and front, and it detaches from the raised print head for easy screen loading. Proper registration is insured by micro-registration adjustments and a convenient manual vacuum option that holds stock to the bed during set-up. Off-contact is easily set at each corner and flood/non-flood and head up/head down features provide essential control during set-up.

Operation of the Eclipse™ is simple, and there are numerous standard features for optimal production. Pressure along the squeegee/floodbar is pneumatically equalized for consistent print quality. Adjustable solid state stroke length sensors increase efficiency and a two-step foot pedal is standard. The pneumatically controlled screen peel is accurately and

automatically synchronized with the travel of the print carriage for crisp print output.

The Eclipse's "whisper quiet" vacuum/blowback system can accommodate virtually all production requirements and stock thicknesses. The press features an automatic print mode that allows the operator to float the stock into position on a cushion of air, hold the stock firmly to the bed for printing, and then resume blowback for easy removal. The timing is adjustable and the pressure of the vacuum/blowback can be adjusted with a simple, upfront controls.

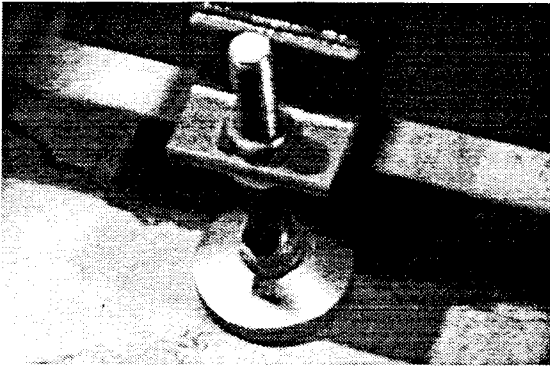
The Eclipse™ features a durable all-steel chassis; an extruded aluminum print head and chain-driven carriage for vibration-free travel; an all-metal, solvent-resistant vacuum bed; and maintenance-free brushless AC motors. The result is years of unsurpassed reliability and performance.

The Eclipse™ is available with the optional Sentry Takeoff, a fully adjustable gripper-style takeoff that works with lift pins in the bed to guarantee consistent removal of all lengths and thicknesses. The press also can be formatted to add the takeoff at a later date.



CHAPTER 4 – Installation Checklist

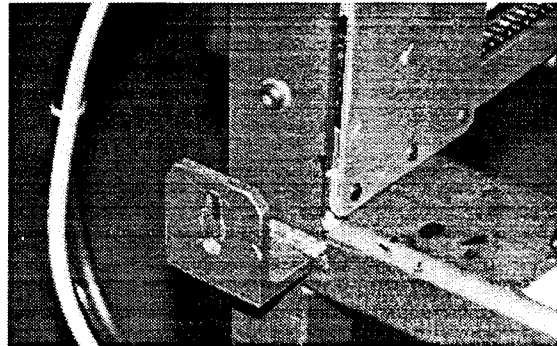
- Uncrate your Eclipse™ and check for any obvious damage and report damage to freight company.
- Prepare a space that will accommodate the press (See Specification Chart on page 3) and leave additional open space to accommodate frame loading.
- Once the press is moved into position, it must be leveled using the leveling bolts provided. A carpenter's level should be placed on the press chassis when leveling the press. (See Fig. Below).



Press Leveling Bolts

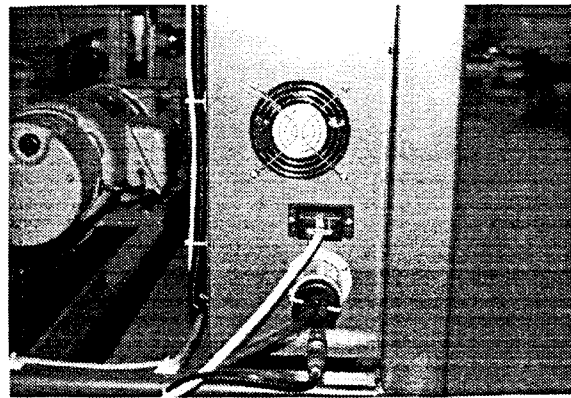
- When the press is leveled, move the Sentry Takeoff into position adjacent to the mounting brackets on the side of the press. Adjust the takeoff height so that the grippers are approximately 1/8" above the bed. Manually slide the grippers over the press bed. Adjust the position of the two far takeoff legs as close as possible to the dryer conveyor. Bolting the takeoff legs to the floor is recommended if the dryer width requires

that the legs be positioned in the widest position possible. Once the takeoff is attached, level it using a carpenter's level.



Mounting Brackets attach Take-off to press

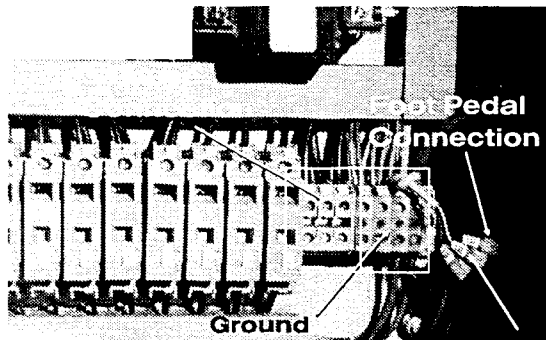
- The electrical and air connections for the takeoff are located at the back of the press. Remove the rear panel to access the connections. Run the wires and hose under the chassis and up to the appropriate connection ports. Replace rear panel. (See Fig. Below).



Make electrical and air connections for Takeoff



- The electrical requirements for the Eclipse™ are 220 volts, 3 phase, 60 Hz. Have a qualified electrician connect the electrical hookup located in the lower right corner of the control box. Connect the foot pedal to the three wires provided. (See Fig. Below).



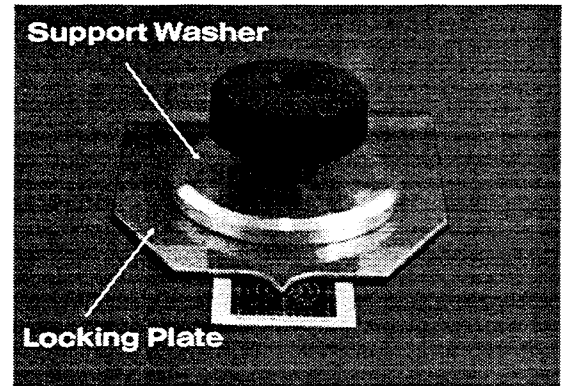
Location of electrical connections

- The air requirements for the Eclipse™ are 100 PSI at 3 CFM. The air connection is located in the rear of the press.

NOTE: A clean, moisture-free air supply is required to insure the performance and longevity of the press pneumatics.

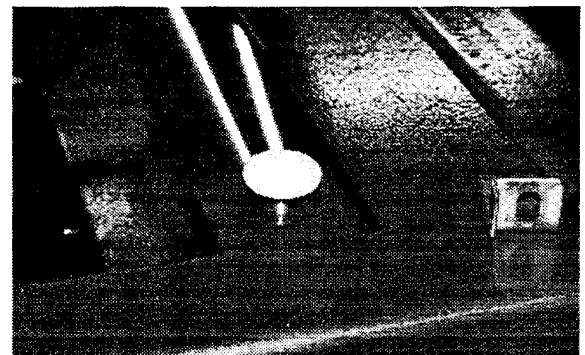
- The Eclipse™ vacuum bed is leveled at the factory before shipment. However, the leveling should be checked and adjusted if necessary following delivery and set-up.
- To level the bed, the print head must be in the full down position. If it is not down, use the Head Lift Control on the control panel. Flip the Head Up/Head Down toggle switch to the down position and press the Up/Down Start button.
- Adjust the two locking knobs located adjacent to the bed so that the support washers are slightly tightened against the locking plates. Remove the side panels on the

press to allow access to the four under-bed leveling adjustments



Locking knob, support washer and locking plate

- Using a square, measure the distance from a point at the bottom of the print head down to the top of the vacuum bed. With this measurement as a standard distance, use the under-bed leveling adjustments to level the bed beginning with the two front corners. Repeat at the two rear corners. Finalize leveling with a carpenter's level.



Under-bed leveling adjustment

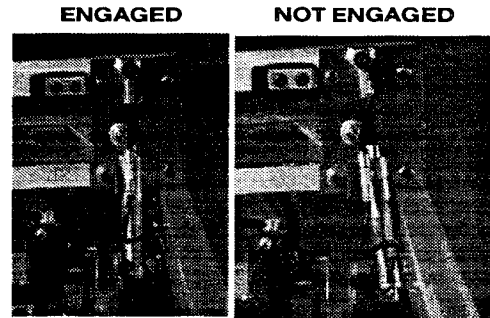
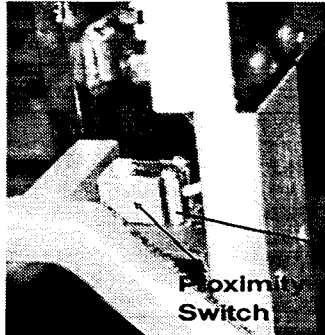
- After adjusting the four corners, bring the under-bed levelers into firm contact with the bed and tighten both the under-bed leveler nuts and the two locking knobs.



CHAPTER 5 – Operating Principles

Safety bar

The press features a safety bar and two safety proximity switches. If the bar moves, an audible alarm will sound and the print head will automatically raise. To resume printing, press the green Re-Set button on the control panel.



Vacuum/Blowback Pressure Adjustment

The vacuum and blowback pressure can be independently adjusted from zero pressure to 100 percent pressure using these knobs. The timing of the vacuum and blowback are adjusted on the digital display microprocessor (See Page 15).



Squeegee Pressure Equalizer

The squeegee pressure equalizer allows the operator to provide consistent pressure adjustments along the entire length of the squeegee. The air switch must be ON and at a minimum setting of 30-40 PSI before operating the press.

Note: the squeegee pressure equalizer should not be used to decrease the distance between the squeegee blade and the vacuum bed. To adjust this distance, use the squeegee height adjustment (See pg. 11)



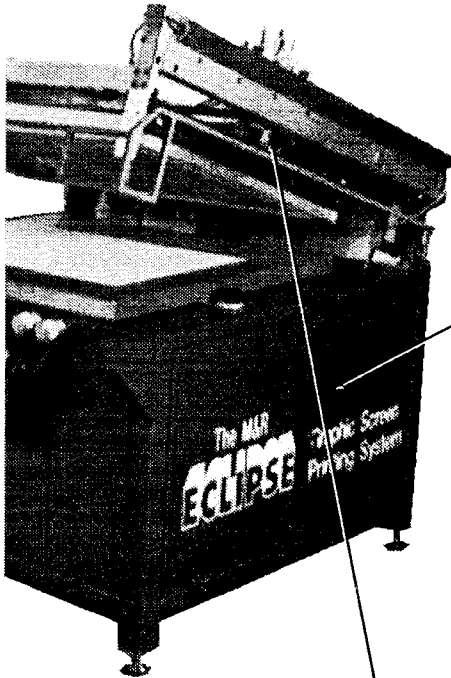
Peel Pressure Adjustment

The Eclipse features a pneumatically operated peel system. The air pressure switch must be turned ON and the pressure should be increased when using heavier frames.



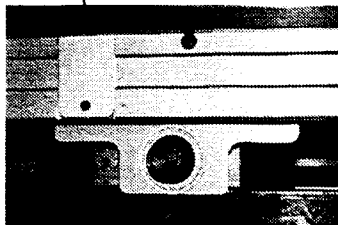
Master frame release

To make screen loading easier, the Eclipse is designed to allow the master frame to remain lowered while the print head is in the raised position. With the print head in the lowered position switch OFF the screen peel air pressure control on the control panel. Then detach the two air cylinders at each corner of the master frame by pulling them free of the lower brackets. Carefully set the detached master frame on the vacuum bed, then lift the head by flipping up the HEAD UP/HEAD DOWN toggle switch and then pressing the HEAD UP/DOWN START button on the control panel.



Master power control

Turning this handle supplies power to the press, control panel and microprocessor. It is recommended that this handle be left in the "ON" position. Use the power switch on the control panel to turn the press on and off.

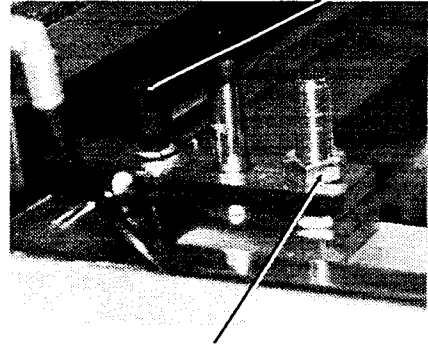


Peel Rate Adjustment

Before adjusting the peel, the print head must be down and level and the print carriage should be in the flooded position (FRONT POSITION STOP). The peel rate is adjusted by pulling out and turning the two knobs located on each side of the print carriage. The peel must be set at the same position on both sides and a calibration guide is provided.

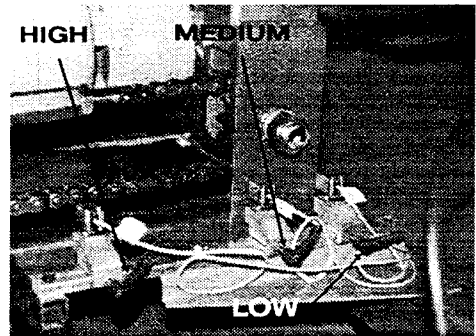
Master frame holder

To adjust the position of the master frame holder, loosen the Kipp-Elisa knobs at each end and slide holder to the appropriate position.



Off-Contact Adjustment

There is an off-contact adjustment located at each corner of the master frame. Turn clockwise to increase the off-contact.



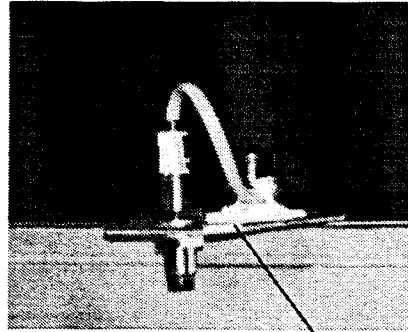
Head Lift Proximity Switches

There are three proximity switches in the rear of the press that control the head lift. Their positions are pre-set at the factory. If the head lift speed is changed, the position of these proximity switches may need to be changed. For more, see Speed Settings on page 16.

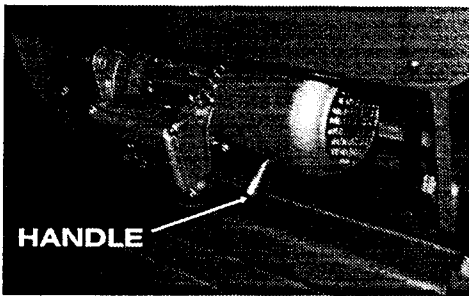


Stroke Length Sensor

The stroke length can be adjusted by sliding the stroke sensor along the top of the print head. Note: The greater the speed of the squeegee and floodbar travel, the greater the momentum as they pass the stroke sensor. Therefore, the stroke length should be shortened when running at higher speeds to avoid overriding the sensor and crashing the print head.



Located in rear of press



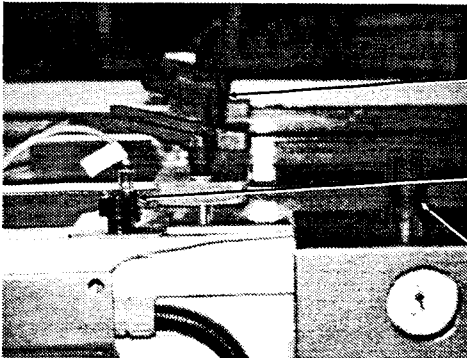
HANDLE

Motor brake

The brake on the print carriage motor can be disengaged to allow the squeegee and floodbar assembly to be moved manually. A handle is provided to release the brake.



Takeoff Controls



The length and position of the gripper arms can be changed by loosening the Kipp-Elisa knobs and sliding the arms to the desired position.

The distance of the gripper travel is controlled by three proximity switches that are adjusted by loosening the knob and sliding along the outer channel. (For more on the gripper travel, see pg. 18)

The gripper pressure is adjusted using the regulator on the takeoff control box.

The takeoff motor can be disengaged using the microprocessor controls on the press control panel. (See pg. 18).

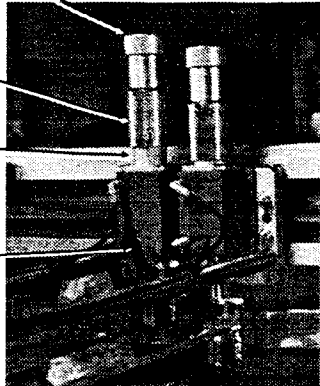


Upper locking knob

Adjustment knob

Height calibration

Kipp-Elisa handles

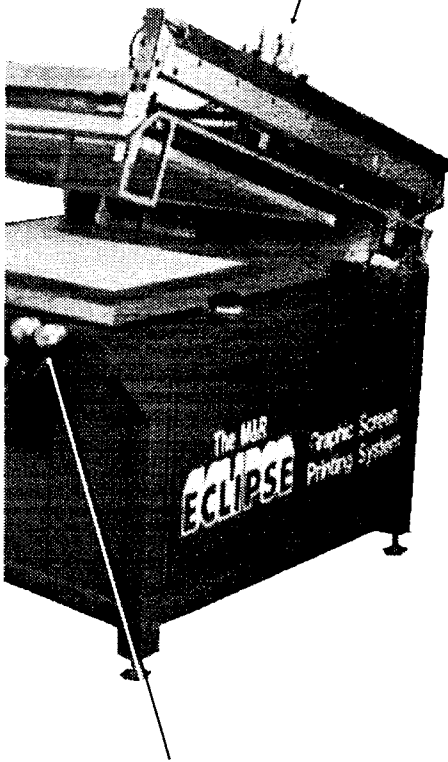


Squeegee & Floodbar Adjustments

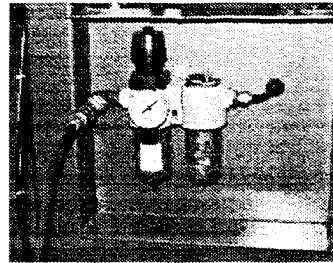
To adjust the squeegee or floodbar height, loosen the upper locking knobs on the chopper assembly and then turn the lower adjustment knobs. Calibrations are provided to insure consistent adjustments on each side of the squeegee and floodbar. After setting the proper height be sure to tighten the upper knobs.

To adjust the angle, loosen the Kipp-Elisa handles and slide the assembly to the desired angle.

Speed adjustments are made on the control panel (See pg. 12).



Located in rear of press



Air line connection/Line Lubricator Assembly

The air requirements for the press are 100 PSI at 3 CFM. The proper rate of lubrication is 1 drop for every 15 cycles of the press.



Micro-Registration Adjustments

The Eclipse features three micro-registration adjustment knobs. The two on the right move the vacuum bed from side to side. The left knob moves the bed from front to back. NOTE: Before using the micro-registration knobs, loosen the locking knobs at the side of the press. Be sure to retighten the locking knobs after the screen is registered.



CHAPTER 6 – Control Panel

Squeegee/Floodbar speed controls

These controls allow independent adjustment of the squeegee and floodbar speeds.

Print Mode

This control selects the mode of operation for the press. In the AUTOMATIC mode, the press will operate continuously with the timing set in the microprocessor. In the OFF position the press will not operate. In the SINGLE position the press will operate for one print cycle.

Print Carriage Position Stop

These controls allow you to leave the screen either flooded or unflooded at the conclusion of the print cycle. With the toggle switch in the FRONT POSITION STOP, the print carriage will stop in the flooded position. With the toggle switch in the REAR POSITION STOP, the print carriage will stop in the unflooded position.

Head Lift controls

These controls allow you to manually activate the movement of the print head. To move the head up or down, press the green Re-Set button. Then flip the HEAD UP/HEAD DOWN toggle switch to the appropriate position and press the UP-DOWN START button.

Vacuum On/Off

This control activates the Eclipse™ vacuum turbine.

Power On/Off

This switch activates the microprocessor controller and control console.

Manual Vacuum/Blowback

With the press in the "dwell cycle", the vacuum and blowback can be manually activated. Begin by pressing the green Re-Set button, then flip the toggle switch either up for vacuum or down for blowback.

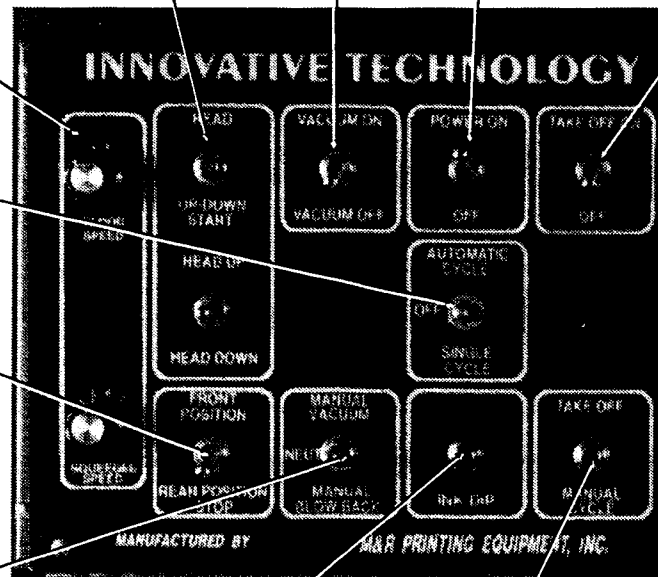
NOTE: To set the vacuum and blowback timing for automatic operation, press F2 on the digital display panel. The vacuum and blowback pressure are adjusted using the knobs located at the front of the press below the control panel.

Ink Dip

This control allows you to manually activate the flood bar to travel beyond the pre-set stroke length and into the screen well area. The floodbar then will pull ink back into the print area. Ink dip can be set to operate automatically using F3 on the digital display panel. (See pg. 17 for more information).

Takeoff Manual Cycle

This button activates the Sentry Takeoff for one cycle. The print head must be fully raised and the Takeoff Power switch must be on.



Takeoff On/Off

This switch activates the Sentry Take-off. To program the takeoff, press F5 on the display panel and adjust the gripper arms and proximity switches located on takeoff. (See pg. 18 for more information).

Emergency Stop

This button will stop all press operations. It is activated when fully pushed in and locked. To de-activate, push the button and unlatch. Then press the green Re-Set button.

Air Lock Controls

These switches activate the front and rear pneumatic frame locks (optional).



Re-Set

Pressing Re-Set returns the press to the "wait cycle", making it ready for the next command. Use this button to re-set the microprocessor any time the press has shutdown due to circuit interruption or Emergency Stop activation. Do not push the Re-Set button until the cause of the shutdown has been determined and corrected.

Squeegee Equalizer Control

This control activates the squeegee pressure equalizer. It should be set at a minimum setting of 30-40 PSI before operating the press.

Peel Rate Control

This control activates the peel action on the press. Inspect the print to insure that proper peel action is achieved. The pressure should be increased when using heavier frames. To set the peel rate use the knob located on the print carriage.

NOTE: The pressure should be turned off when detaching the master frame holder to load a screen (See pg. 9 for more information).



Digital Display Microprocessor

The digital display microprocessor control panel is provided to display all operational parameters of your Eclipse graphic printing system. Control of dwell time, counters and takeoff settings are only a few of the control parameters available to you.

The following information will describe each function.

Upon applying electrical power to the system, the digital display window will automatically display a PLC logic check screen.

At the completion of the logic check command, the window will display the MAIN MENU screen.

In approximately 30 seconds a series of (<)s will appear to the right side of each menu item. You may then select the particular item for setting and operation, either by using the arrow keys to scroll through the Main Menu or by using the "F1-F6" keys.

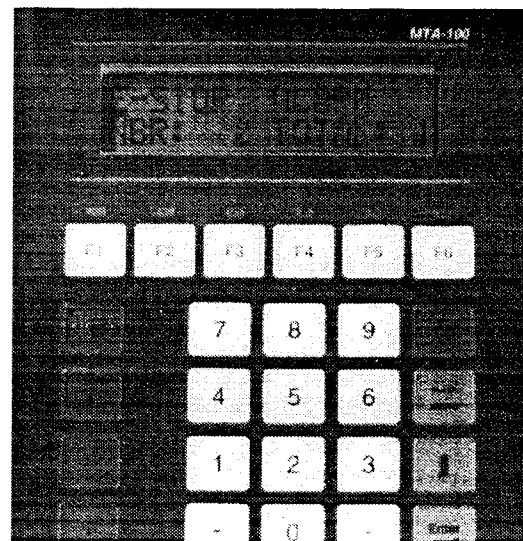
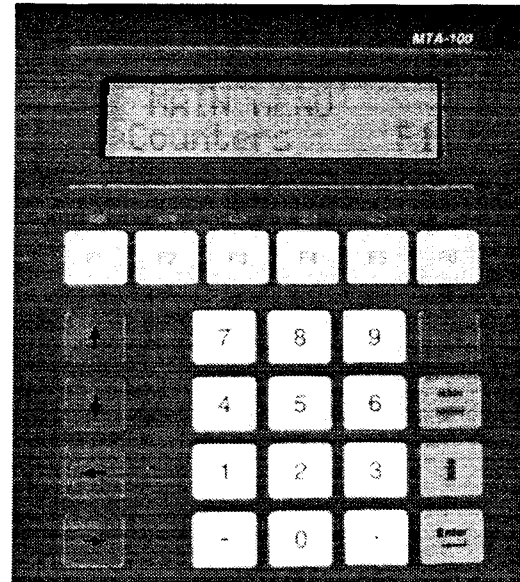
As a safety feature you will note that the display window may indicate a flashing cursor next to the word "ALARM" at the top right of the MAIN MENU display screen. This indicates that an alarm condition exists and must be corrected before operation can begin.

Typically the alarm condition is due to the Emergency Stop Button positioned in the "ON" (in) position as it is usually the last control to be activated when the system is shut down at the end of the previous production period.

To re-set the control for operation, simply push the green "RE-SET" button located immediately under the Emergency Stop Button and the alarm condition will clear, making the control ready for operation.

If however the flashing cursor does not clear upon pushing the green "RE-SET" button, scroll through the Main Menu to the ALARM LIST to view the cause for the alarm condition. (For more information see pg. 19).

Do not under any circumstances attempt to operate this equipment until the cause for the ALARM indication has been determined and corrected.



F1- COUNTERS

The COUNTERS menu item can be accessed by pressing the F1 key on the microprocessor control panel. The menu window will then display the COUNTERS menu.

Upon initiation of the print cycle, the Daily Counter will count once for every print cycle.

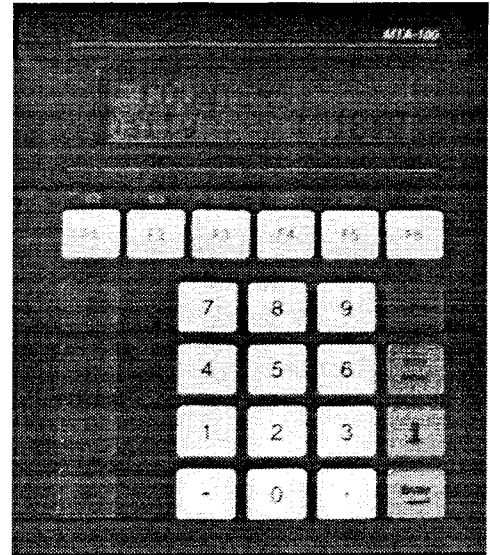
To re-set the value for the Daily Counter to "0", use the arrow keys on the control panel to position the flashing cursor to the left of the numeric value. Press the "0" key on the keypad and then press ENTER. The value will re-set to "0", re-setting the Daily Counter.

The Total Counter will count all print cycles for the production day regardless of how many different print jobs are run. This provides the total print cycles throughout the production day. The Total Counter cannot be re-set.

The date and time can be set as follows:

Using the arrow keys, move the flashing cursor to the particular section of the display (ie. MO-SU). Push the number of the corresponding day of the week (Sunday being No.1) and then press ENTER.

To set the time of day, move the cursor to the hour, minute and second sections and enter the value for the hour, minute, etc. then press ENTER. The clock uses military time with 12 being Noon and 24 being Midnight. Use your watch second hand to determine when to start the clock by pressing ENTER.



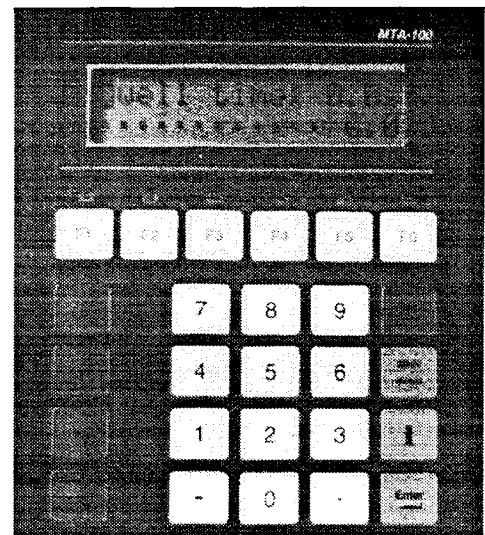
F2 - DWELL TIMER/BLOWBACK TIMER

The Eclipse proceeds through three distinct stages in each print cycle.

As the print head begins raising the press enters a blowback stage. During this period a cushion of air is present on the vacuum bed to ease stock loading and removal.

This blowback period is immediately followed by a dwell period. During this stage, air flow on the vacuum bed is neutral, allowing the operator to make final adjustments to the stock position.

At the conclusion of the dwell period the print head begins lowering and a vacuum is activated to hold the stock to the bed during printing.



The length of the blowback and dwell periods are adjusted as follows:

Press the F2 key and use the arrow keys to scroll to either DWELL TIMER or BLOWBACK TIMER. Use the arrow keys to position the flashing cursor to the right of the numeric value for Pre-Set Value. Using the numeric keypad, press the desired length of time for the Pre-Set value and press the ENTER key.

Note that the minimum setting for the Blowback and Dwell time is .01 seconds each and the maximum setting is 10 seconds each. Therefore, maximum allowable time between printing is 20 seconds.

A visual indicator and numeric value are provided on the display screen in the Dwell /Blowback Timer menu. This permits an at-a-glance countdown of the dwell/blowback time. When the pre-set value reaches "0" the system will automatically start the next cycle.

To provide for greater operator control, the activation of both the blowback and vacuum can be delayed by pressing F2, scrolling down to BLOWBACK or VACUUM DELAY and entering the desired value. The delay range for the Blowback is .01 to 3. The range for the Vacuum Delay is .01 to 2.

For presses that have guide pins, the activation of the guide pins can be delayed using F2. PSTOPUP DELAY delays the pins from coming up when the print head starts to raise. PSTOPDN DELAY delays the pins from going down when the print head begins to go down.

Once the Dwell/Blowback time has been set, press the mode switch on the main control panel down to "SINGLE" and then up to "AUTOMATIC" in the latched position. This will place the system into automatic operation with the DWELL/BLOWBACK TIME as indicated in the display window.

F3 - SPEED SETTINGS/INK DIP

The Eclipse .print head will raise and lower at speeds pre-set at the factory. However, speeds can be changed using the F3 Speed Setting control on the microprocessor.

The print head speeds are defined as follows:

Up/Down speed: This is the speed that the print head raises and lowers. This speed setting ranges from a minimum of 4 to a maximum of 7.

Approach speed: This is the speed that the print head travels shortly before it is fully lowered. By controlling the Approach speed the likelihood of the print head hitting the chassis and bouncing is minimized. The Approach speed setting ranges from a minimum of 0 to a maximum of 3.

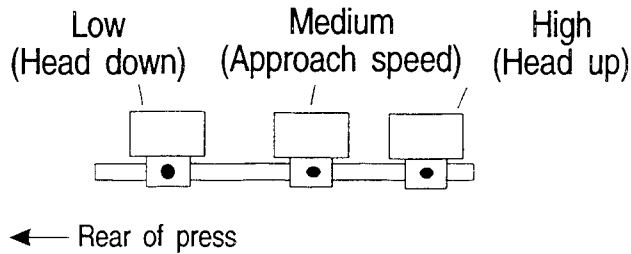
To change either the Up/Down or Approach speed, press F3 and move the cursor to the right of the numeric value for Preset Value. Then press the desired number within the minimum and maximum range on the numeric keypad and press the ENTER key.

A note on changing the speeds of the Patriot press:

When changing the Up/Down, Approach or squeegee/floodbar speeds, the placement of the appropriate proximity switches may have to be changed.

There are three proximity switches – High, Medium and Low – mounted in the rear of the press (See Diagram A). The High and Low switches stop the head movement. The medium switch slows the print head to its approach speed.



**Diagram A**

When the Up/Down speed is increased, the position of the Medium proximity must be moved to prevent the print head from coming down too fast. When the Up/Down speed is decreased, the Medium proximity must be moved toward the back of the press.

When increasing the Up/Down speed, the High and Low switches may have to be moved toward the front of the press.

Also, when the Approach speed is increased, the Medium switch may have to be moved forward.

There are two additional proximity switches (stroke length sensors) located on the print head. When the squeegee and/or floodbar speed is increased on the control panel, these

switches may have to be moved in and the stroke length shortened to insure the print head successfully stops before hitting the press.

Changes in the locations of the proximity switches will likely require several trials before finding the optimal position.

Also, the proximity switches must be moved carefully. Regularly inspect the switches to insure they are tightly clamped and that they have not slipped. The switches should be at a 90 degree angle and no more than about 1/8" away from the flags they are reading.

F3 also is used to program the Ink Dip feature. To program how far into the well area the floodbar will travel to retrieve ink, scroll to Ink Dip Time and set the time ranging from .01 to .2. Note that this speed range will be affected by how fast the floodbar travels during the print cycle. Therefore, the ink dip may require several adjustments before reaching the optimal setting.

F3 also is used to program the Ink Dip to operate automatically. Scroll to Manual/Automat Ink Dip and use the ENTER key to toggle to the proper setting. When the press is in the Automatic mode, enter the number of press cycles desired between each ink dip.

F4 - ALARM SETTINGS

When an alarm condition exists, the press will emit an audible alarm. The alarm settings menu allows the press operator to locate the possible source of the audible alarm and to turn it off.

Using the arrow keys, scroll through the list of possible alarm sources until locating the flash-

ing line. Move the cursor to the flashing line and press the ENTER key to turn off the alarm.

Note that the audible alarm will remain off permanently until it is turned back on in the ALARM SETTING mode.



F5 - TAKEOFF SETTINGS

The Sentry™ takeoff has several parameters that can be programmed with the digital display microprocessor. These are Travel Speed; Approach Speed (speed in which the grippers approach the stock); Close Gripper Delay (length of time before the grippers close on the stock); and Open Gripper Delay (length of time before the grippers open).

To change these speeds, use the arrow key to scroll to the desired parameter. Move the cursor to the right of the selection, press the desired length of time and press the ENTER key.

Travel of the takeoff grippers also is controlled by the placement of three proximity switches – NEAR, MIDDLE and REAR (See Diagram B). The NEAR switch controls how far toward the vacuum bed the gripper travels. The MIDDLE proximity is the "home" position for the takeoff and determines where the grippers stop after each cycle. The REAR proximity controls the farthest distance the grippers travel before dropping the stock on the belt. After reaching the rear proximity, the grippers will return to the "home" position.

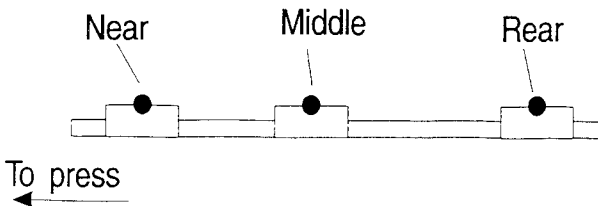


Diagram B

Activation of the LIFT PINS also is accessed by pressing the F5 key. The paper pins selection

will indicate whether the pins are engaged. To engage or disengage the lift pins, move the cursor to the appropriate position and press ENTER.

F5 also can be used to determine when the takeoff is activated in relation to the movement of the print head. TAKEOFF START EARLY activates the takeoff immediately as the print head begins to raise. TAKEOFF START DELAY delays activation of the takeoff as the head begins to raise. After selecting either Early or Delay, press ENTER.

To release the break on the takeoff motor scroll down to TAKEOFF BREAK and select RELEASE. This allows the takeoff carriage to be moved manually. To reactivate the break, select TAKEOFF BREAK NORMAL.

Takeoff Tips:

The Close Clamp Delay should not be set below 0.3 seconds.

If the grippers move away from the print bed before closing on the stock, the timing of the Close Clamp Delay should be increased.

If the grippers fail to drop the paper before the takeoff comes to a stop, the timing of the Open Clamp Delay should be decreased.

If the lift pins are dropping before the grippers reach under the stock, either increase the Takeoff Approach Speed, move the medium proximity switch closer to the press or increase the pin air pressure using the regulator located under the press.



MPR data

The MPR menu item is designed for use with optional M&R Management Production Report software package.

The detailed logging of events builds a data base that can be used for cost analysis, job tracking, production volume reporting, press

utilization and down-time analysis. The MPR report filters, compiles and formats this data for output to any compatible line printer.

Refer to the Management Production Report Users Manual for further information on the use of this option.

INFO -

This menu window contains information regarding M & R's address and telephone numbers. This window also includes the 24 hour

service hotline. Use the arrow keys to scroll down to view the information listed.

F6 - ALARM LIST

The Alarm List window displays all events which have caused an alarm condition. If no alarm condition exists, the window will display "Alarm List Empty." If however, an event has occurred which has caused an alarm condition, the red LED above the F6 button will light. Use the arrow keys to scroll down the alarm list to view causes for alarm conditions.

If more than one problem exists that causes an alarm condition the digital display will indicate how many alarm conditions exist and will show the specific alarm condition identification numbers. As the alarm conditions are corrected, the overall number will be reduced. When all the conditions are corrected, the LED will shut off.

Press the green "Re-Set" push button and the alarm condition will clear. If the alarm condition does not clear, determine the cause and resolve the condition before continuing press operation.

1 E-Stop (Emergency) – Red Emergency Stop button on control panel has been pressed.

2 Safety Left Alarm – The safety bar has been moved on the left.

3 Safety Right Alarm – The safety bar has been moved on the right.

4 Air Pressure Alarm – The air pressure supplied to the press has dropped below 80 PSI.

5 Takeoff Proximity Malfunction – One or more of the three takeoff proximity switches (Near, Middle, Rear) have activated in the improper order. To determine the specific error, press Re-Set, run the takeoff and visually inspect the switches. The switches will light when activated, therefore watch to insure only one switch is lighting at a time and that they are lighting in the proper sequence. For additional assistance in determining the source of a proximity malfunction, see Hardware Test below.



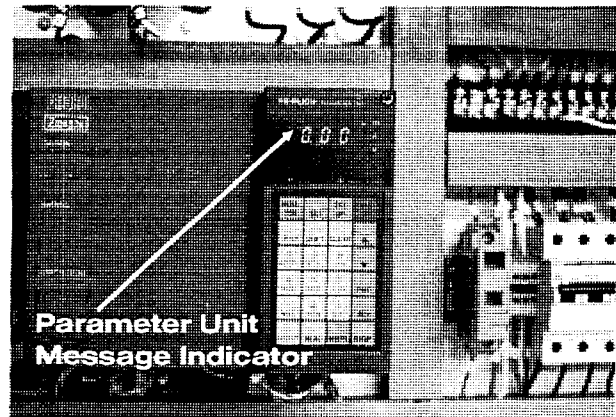
6 FL/SQ and UP/DOWN Drive Alarm - An electrical problem has occurred in one of the two frequency drives. If the reason is obvious, such as the print head has come down too hard, the alarm condition likely will clear by pressing the Re-Set button. If there is no obvious reason, the cause of the problem can be determined by plugging the Parameter Unit Message Indicator into the appropriate drive. Then call the M&R Service Department and read the error message. Do not attempt to re-set the Parameter Unit yourself (See Photos at right).



Frequency Drives

7 Time Out Alarm – A portion of the print cycle has failed to be completed in the pre-programmed time. For example, the print head has failed to fully lower within the pre-set time of 3 seconds.

8 Proximity Malfunction – One or more of the three print head proximity switches (High, Middle and Low) have activated in an improper order. To determine the specific error, press Re-Set, cycle the press and visually inspect the switches. The switches will light when activated, therefore watch to insure only one switch is lighting at a time and that they are lighting in the proper sequence. For additional assistance in determining the source of a proximity malfunction, see Hardware Test below.



Parameter Unit Message Indicator

HARDWARE TEST, SOFTWARE TEST

These Test functions allow the operator to quickly locate and correct possible causes of press and takeoff failure through a process of elimination.

These tests are accessed through MAIN MENU. Use the arrow keys to move the cursor either to the Hardware or Software test.

If all press functions shut down, scroll to the SOFTWARE test and press ENTER. The PLC ERROR message will be followed by a numerical error code. Call the M&R Service Dept. with the number code.

Upon failure of a particular area of the press, use the Hardware Test. Select PANEL, HEAD or TAKEOFF, depending on the apparent nature of the press failure.

For example, if the vacuum fails to activate when the vacuum motor switch on the control panel is activated, select panel test and move the cursor to "Vacuum Motor", and try the corresponding Vacuum On/Off switch on the main control panel. If the digital display reads "ON", the switch is working.



Notes on the Hardware Tests:

- Panel test also includes a test for the foot pedal.
- The Head and Takeoff Tests are divided into two sections: INPUT tests the operation of signals sent from the press to the controller. Therefore any failures detected here are occurring on the press and not the controller. OUTPUT tests the signals sent from the controller to the press. Therefore, failures detected here are occurring in the controller.
- To test the print head proximity switches using the Head Test, scroll down to either high, medium or low. Then take a piece of metal and pass it in front of the appropriate switch on the press. If the switch is working, the digital display will read ON.
- To test the stroke length sensor scroll down to DISABLE/ENABLE PROX TEST and press ENTER so that ENABLE is showing. Then touch the sensor with a piece of metal to determine whether the sensor is working. After conducting this test, press the green Re-Set button.
- MOT 1 on the Output display refers to the print carriage motor. MOT 2 refers to print head motor. If the display on these options reads 1, then the PLC is successfully sending the signal to the motor. Therefore if the motor is not functioning, the problem is mechanical.



CHAPTER 7 – Maintenance

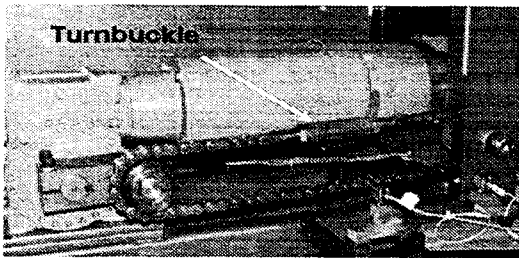
The Eclipse is engineered and designed to provide years of continuous performance with a minimum of maintenance. The primary maintenance procedures involve regularly inspecting and lubricating bearings, chains and other press components.

✓ Daily

- Clean press of any excess ink and debris.

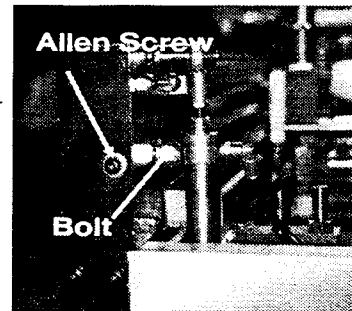
✓ Weekly

- After first week of operation check for excessive slack and tighten head lift and print carriage chains as shown below:

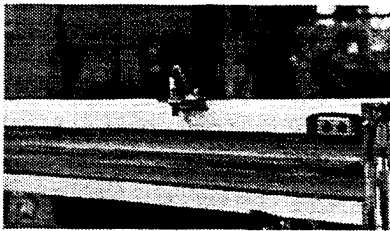


- Tighten head lift chain using turnbuckle located under press.

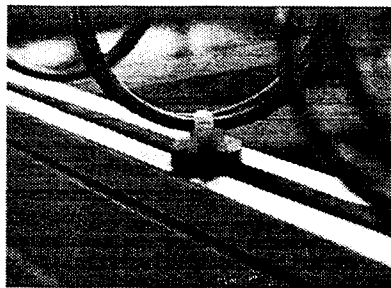
- Tighten print carriage chain by loosening the bolt shown and tightening Allen screw. Then tighten the bolt again.



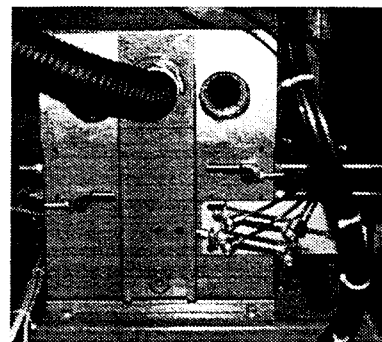
- Clean and grease takeoff extrusion.



- Clean and grease print head extrusion and bearing slide.



- Clean air line channel and spray with silicone.

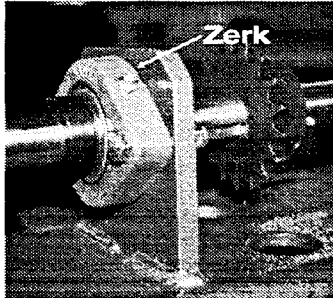


- Clean vacuum face plate and spray with silicone.

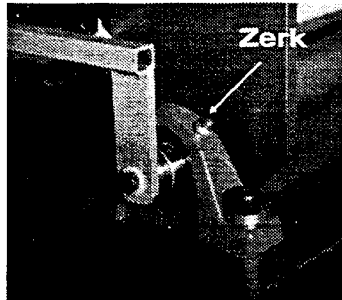


✓ **Monthly**

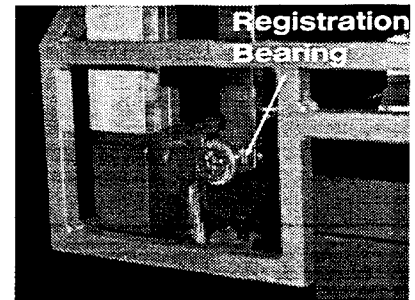
- Check air lubricator for proper rate of 1 drop every 15 cycles. Fill oiler if necessary.
- Check each of the three bearings shown below for dirt accumulation and grease zerk fittings:



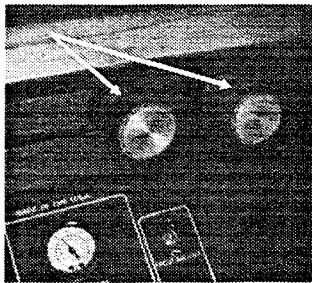
- Center bearing on carriage drive shaft.



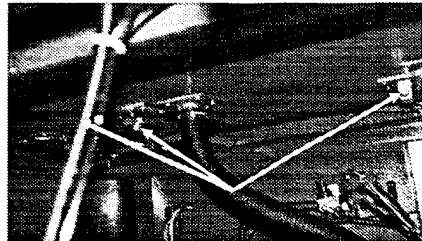
- Head pivot shaft bearings located on either side at rear of press



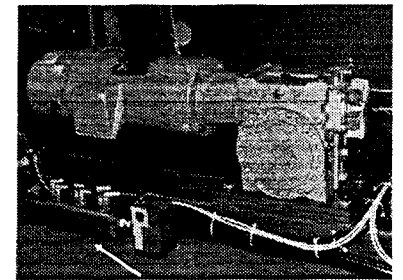
- Grease the outside of the master frame registration bearings with white lithium grease.



- Place 3-5 drops of 10W non-detergent oil in small openings on the micro-registration knobs.



- Grease threaded rods on micro registration adjustments with white lithium grease.

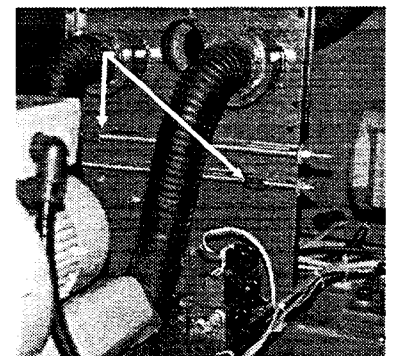


- Drain air manifold located beneath the press.

✓ **Bi-yearly**

- Change gear oil using Mobil synthetic 90W gear lube.

- Grease threaded rods on vacuum/blow-back pressure adjustments with white lithium grease.



CHAPTER 8 – Troubleshooting

One of the advantages of the Eclipse is the on-board diagnostic program included in the microprocessor controls. The Alarm List will indicate the particular event that has caused an alarm condition, and the Hardware and Software tests indicate when a specific switch or component has failed.

For instance, if the print head fails to continue cycling when the press is in the automatic mode, press MAIN MENU on the microprocessor display and scroll to Hardware Test. Scroll down to PANEL TEST, hit ENTER and scroll to AUTOMATIC CYCLE. Flip the AUTOMATIC switch on the control panel. The display should indicate "ON". If not, the switch is bad and should be replaced.

The following is a list of other possible problems and solutions:

PROBLEM: Print head overruns proximity switch and is landing hard on the bed.

SOLUTION: Begin by inspecting the medium proximity switch to insure it is tightly clamped, at a 90 degree angle and no more than 1/8" from the flag it is reading.

The placement of the medium proximity switch should be adjusted either up or down so that the flag stops in a position parallel to the chain whether the head is up or down.

Check the proximity switch using the Hardware Test.

PROBLEM: The print head lowers without printing.

SOLUTION: The press failed to read the low proximity switch. Check the placement of the proximity switch.

Check the proximity switch using the Hardware Test.

PROBLEM: Print head moves up and floods and then continues moving up, rather than coming down.

SOLUTION: Move the medium proximity switch forward slightly.



PROBLEM: Print carriage overruns stroke sensor and hits the back or front of the press.

SOLUTION: Move in stroke sensor or reduce speed of squeegee/floodbar.

PROBLEM: Print head fails to lower fully.

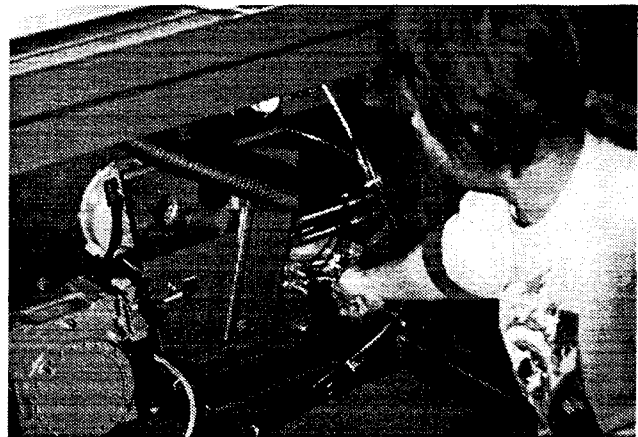
SOLUTION: Check the tension in the master chain. Adjust chain turnbuckle to ensure there is slight slack in the chain. (As shown in maintenance chapter).

PROBLEM: Slack is beginning to appear in the print carriage drive chain.

SOLUTION: Adjust the drive chain by loosening the nut and tightening Allen screw. (As shown in maintenance chapter).

PROBLEM: Vacuum valve under press either sticks during vacuum stage or slams during blow-back stage.

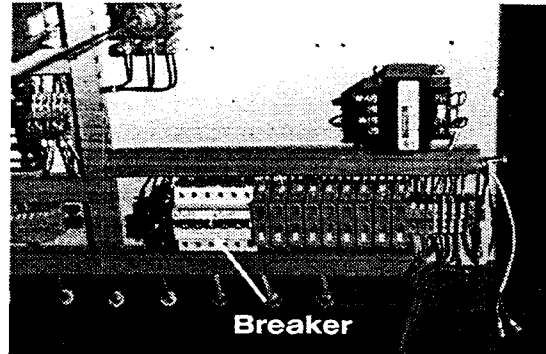
SOLUTION: Adjust four valve settings to proper pressure. Note: This pressure is pre-set at the factory. Any change should be done by a qualified maintenance technician. (See photo below).



PROBLEM: "Chopper" action on squeegee/floodbar assembly isn't working.

SOLUTION: Check switch on squeegee equalizer to make sure it is on.

Check electrical connection to see if breaker is tripped (down).
(See photo below.)

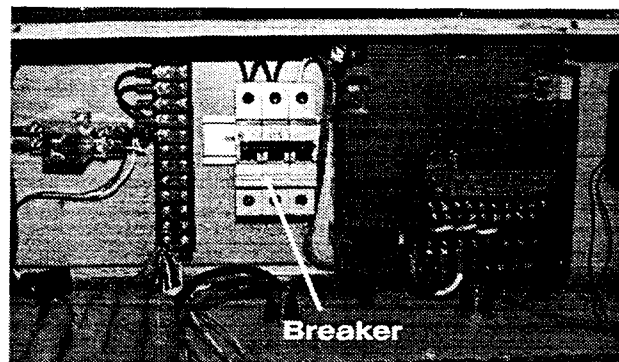


PROBLEM: Vacuum bed is not stable.

SOLUTION: Check under the vacuum bed to insure that the white under-bed leveling adjustments are tight against the bottom of the bed and nuts are tightened.

PROBLEM: Takeoff fails to activate.

SOLUTIONS: Check the breaker located in the takeoff control box. If it is in the down position, flip up and reset. (See photo below).



PROBLEM: Takeoff gripper is hitting the safety bar as the head lifts.

SOLUTION: Adjust the takeoff setting in F5. The takeoff can be programmed to start either earlier or later.

PROBLEM: Gripper is either not strong enough to accommodate the weight of stock or is gripping too tightly for the stock.

SOLUTION: Adjust gripper pressure with regulator located on takeoff control box.

PROBLEM: Grippers are moving away from the bed before adequately grasping the stock.

SOLUTION: Press F5 (Takeoff Settings) on the microprocessor display and increase the timing of Close Gripper Delay.

PROBLEM: Grippers fail to drop paper before takeoff comes to a stop

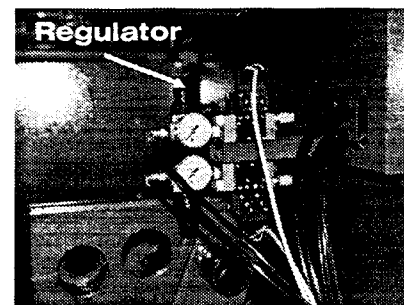
SOLUTION: Press F5 (Takeoff Settings) on the microprocessor display and decrease the timing of the Open Gripper Delay.

PROBLEM: Lift pins are dropping before grippers reach under stock.

SOLUTION: Increase lift pin air pressure using regulator located under press. (See photo at right).

Press F5 (Takeoff Settings) on the microprocessor display and increase takeoff approach speed.

Move the takeoff middle proximity switch closer to the press.



PROBLEM: Lift pins are marking or otherwise damaging stock.

SOLUTION: Decrease lift pin air pressure using regulator located under press. (See photo above).



LIMITED WARRANTY

Equipment manufactured by M&R Printing Equipment, Inc. is warranted against defects in workmanship and materials under normal use for a period of one year from the date of shipment.

Damage which occurs in transit is not covered under this warranty. Any damage which occurs in transit is the responsibility of the carrier.

Expendable parts such as motor brushes, fileters, lamps and fuses are not covered under this warranty, nor do we warrant failure of parts or components resulting from misuse or lack of normal maintenance. Any part determined to be defective in material or workmanship within the warranty period will be repaired or replaced at our option without charge when returned freight prepaid to:

**M&R Printing Equipment, Inc.
1N372 Main Street
Glen Ellyn, Illinois 60137**

The customer must secure written return authorization from our Customer Service Department prior to making any return of defective parts.

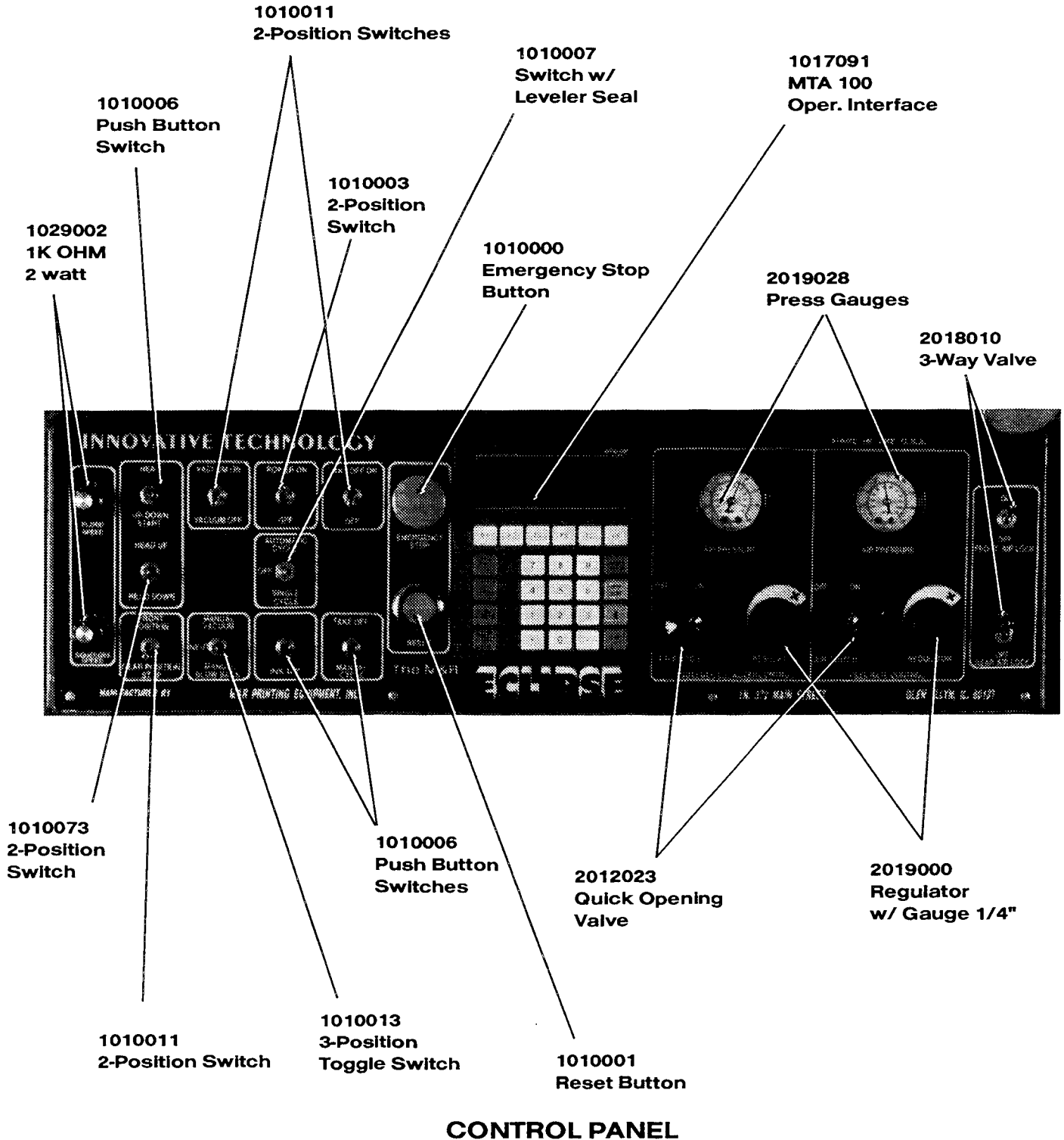
A clean, moisture-free air supply must be installed onto pneumatically operated equipment. Failure to install a clean, moisture-free air supply to this equipment may result in premature failure of pneumatic components such as air cylinders and air valves.

Consequential damages, lost time, inconvenience or contingent liabilities are not covered by this warranty. All labor costs, travel costs and sustenance for service technicians are the customer's responsibility.

We specifically make no warranties other than the above stated.



CHAPTER 9 – Replacement Parts

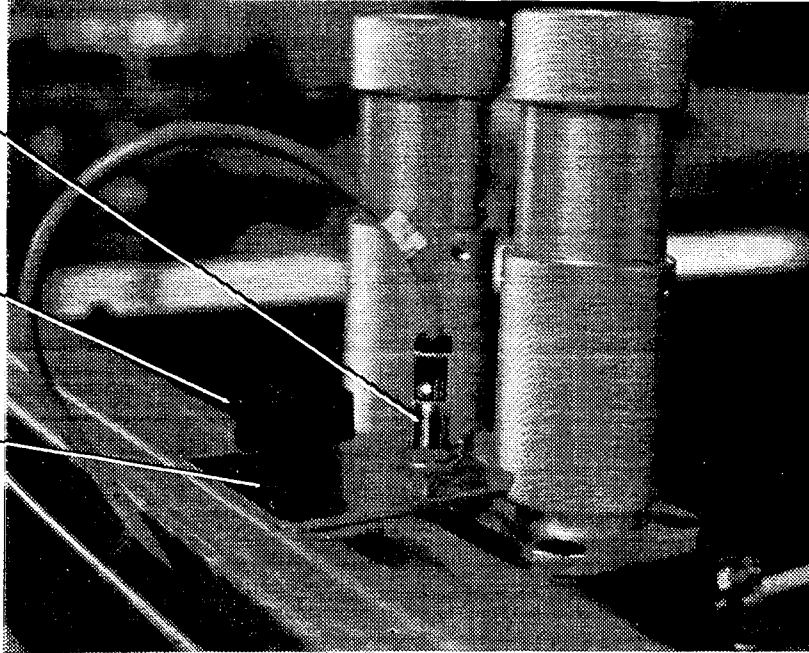


STROKE LENGTH SENSOR

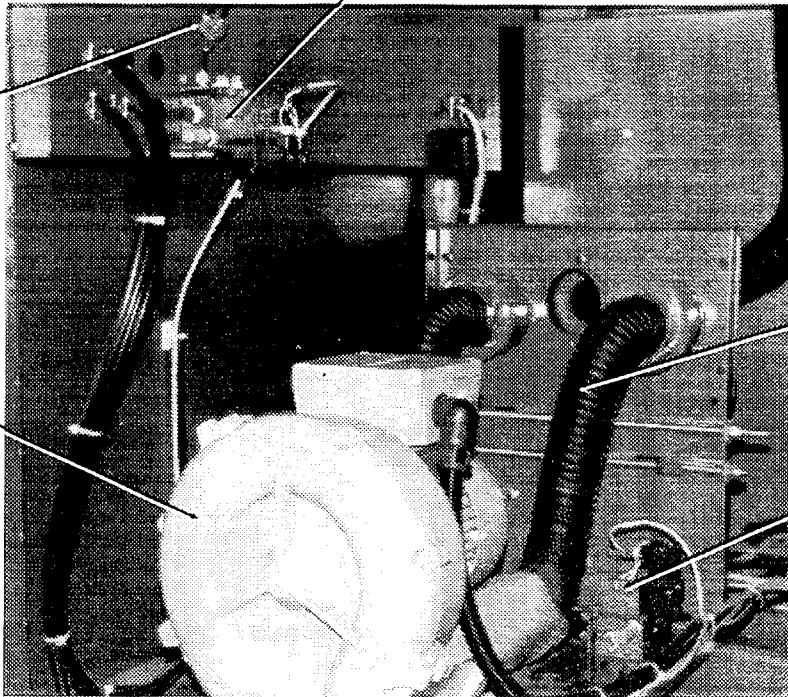
1010082
Proximity Switch
Round

3033020
4-Prong Plastic
Knob 1/4-20

9310303
Proximity Sensor
Holder



2017122
Pat. Med. Str.
Valve Set



3058024
3" Vacuum Hose

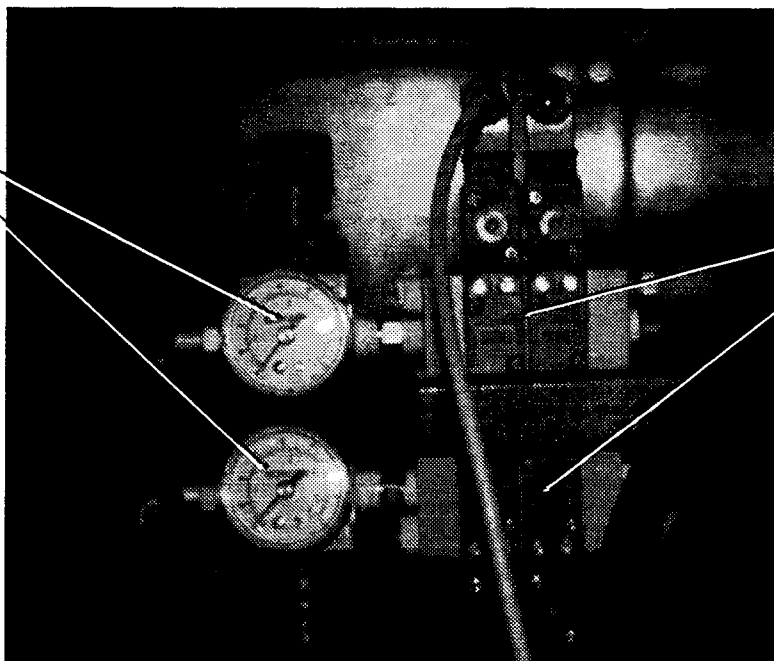
2017122
Pat. Med. Str.
Valve Set

VACUUM ASSEMBLY



AIR PRESSURE REGULATORS

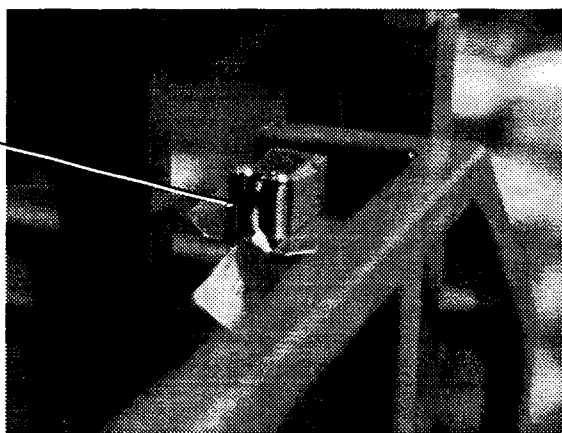
2019000
Regulator - 1/4



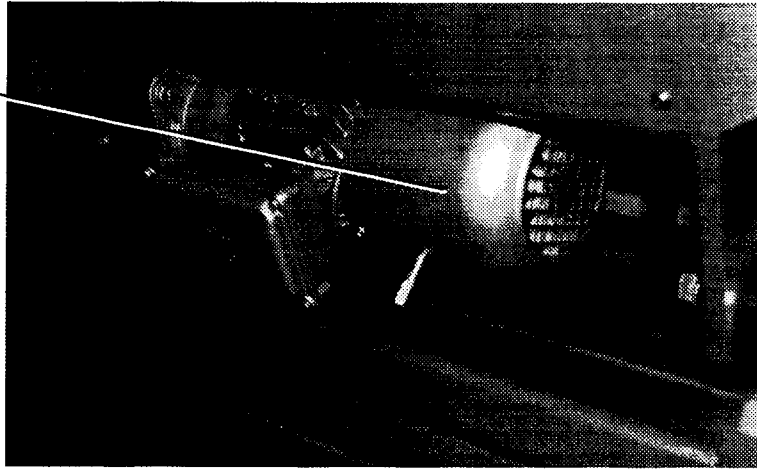
2011002
Valve

SAFETY SENSOR

1010005
Square Proximity
Switch



1008105
1/2 HP
Gear Motor



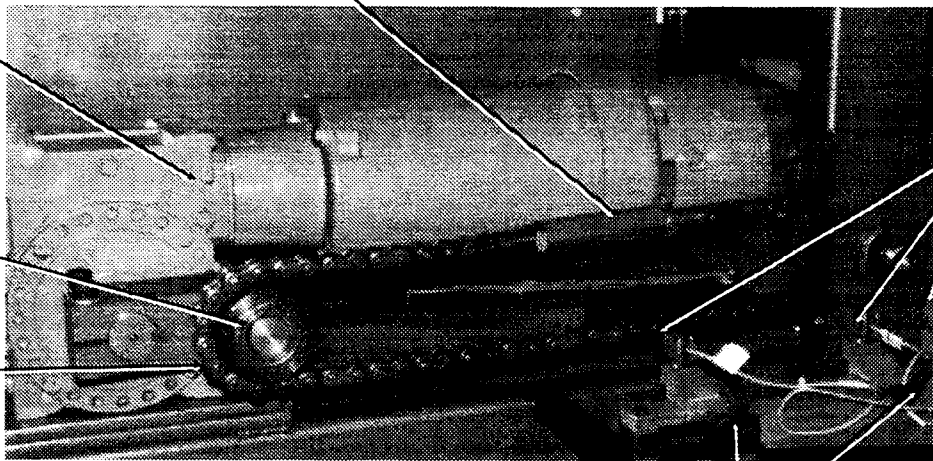
CARRIAGE MOTOR

9316045
Head Lift Chain
Take up Nut

1008108
2 HP Gear Motor

3041074
Sprocket

3041066
3/4" Pitch #60
Chain



1010005
Square Proximity
Switches

HEAD LIFT ASSEMBLY

3032004
Kipp Elisa Handles
Male 1/4-20



2009070
Bimba Air Cylinder

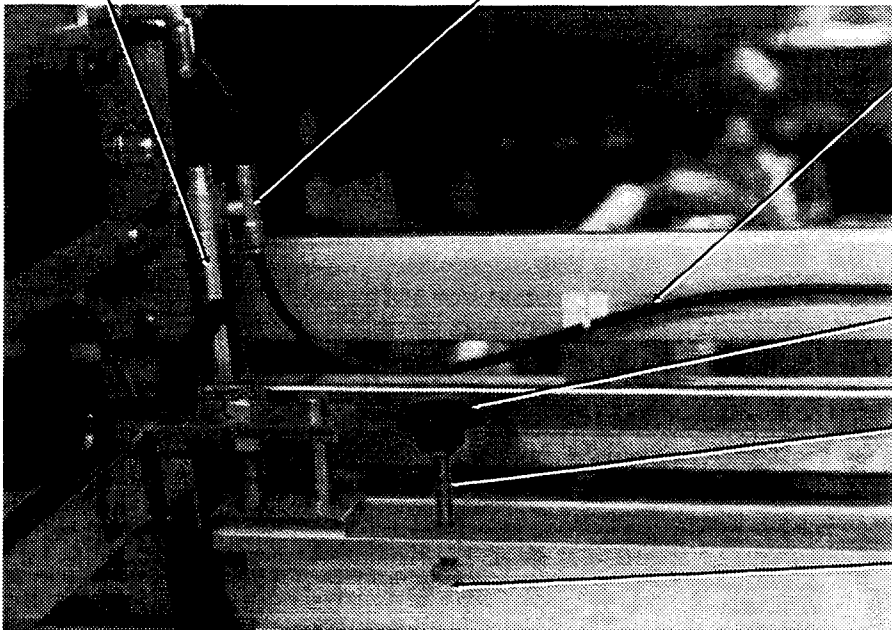
2003065
Male Fitting

2001000
1/4" Nylon Tubing

3033001
Round Knob
3/8-16

9010194
Screen Clamp
Stud

8010005
Cup Washer



MASTER FRAME ASSEMBLY



NOTES:

