System IIe

Light Curtain Muting System

Instruction Manual

Revised 09/01/99

Mechanical Clutch
Single Speed Air Clutch
Two Speed Air Clutch

METAL TECH CONTROLS CORP.

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System IIe

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IMPORTANT SAFETY MESSAGE

Please read this message first!

The ***System IIe*** is a control that acts as an interface between light curtains that are designed to guard personnel working around moving machinery. Whenever the operator's safety is dependent on the machine's ability to stop quickly enough to prevent an injury, it is absolutely imperative that the safe stopping time of the machine shall be known and the light curtains be set the proper distance from the nearest pinch point as is regulated in the United States by the Occupational Safety and Health Administration (OSHA). The ***System IIe*** is totally dependent on the proper operation of the light curtains used to safe guard the operator. Be certain that the light curtains used meet all OSHA requirements before interfacing them to the ***System IIe***. Be certain that the light curtains are mounted the proper distance from the nearest pinch point as prescribed by the light curtain manufacturer. Regardless of the calculated distance, you should **never** mount the light curtains closer than 7.5 inches (191 mm) from the nearest pinch point. This is required by OSHA Table 0-10 in OSHA 1910-217 and Table 1 in ANSI B11-19-1990.

The ***System IIe*** provides the stopping time of the machine in milliseconds when the machine is emergency stopped in any position. The OSHA and ANSI B11 formula for safe stopping time should be used to determine the safe operating distance the light curtains are from the nearest pinch point. You should refer to the light curtain manufacturer's manual for the formula to be used to determine the proper distance.

The ***System IIe*** can and should be used to monitor the brake stopping time. Proper setting of the stop time setpoint in the ***System IIe*** is the sole responsibility of the employer, purchaser and final owner of the equipment.

If the machine is incapable of stopping in enough time to satisfy the OSHA time/distance formula, the machine is unsafe and the ram arrest valve system should be repaired or replaced. This requirement is the sole responsibility of the employer and or machine owner.

The proper application, installation, maintenance and operation of the ***System IIe***, the light curtains used and the machine itself is the responsibility of the purchaser and or employer.

It is the purchaser's and or employer's responsibility to inspect the ***System IIe***, the light curtains, and any other pertinent equipment daily for proper operation. It is also the purchaser's and or employer's responsibility to know that the stop time monitoring setpoints and the mute setpoints are proper and safe for the operator.

The purchaser and or employer is also responsible for the selection and training of the personnel necessary to properly install, operate and maintain the machine and its safeguarding systems. For example, the ***System IIe*** should only be installed, checked out and maintained by a *qualified* person, as "*a person or persons who, by possession of a recognized degree or certificate of professional training, or who, by*

extensive knowledge, training and experience, has successfully demonstrated the ability to solve problems relating to the subject matter and work." (ANSI B30.2-1983)

The user is the person(s) identified and designated by the employer as being appropriately trained and qualified to perform a specific procedure. Often the user is the installer, die setter, electrician, maintenance personnel, supervisor, foreman, etc. who is involved with the setup, daily test and checkout of the machine and the safety devices.

The ***System IIe*** should never be accessed by anyone other than properly trained personnel so designated by the purchaser and or employer. If the machine operator is not properly trained to setup up the machine or the ***System IIe*** then a setup person so designated should perform the setup.

The machine operator must receive specific proper training on exactly which machinery is protected by the light curtains, the machine's operating controls, warning signs and safety instructions. The machine operator must thoroughly understand and follow the company's safety rules and always use the safeguards and proper hand tools provided by the employer. The machine operator must notify management if the machine, tooling or safety devices are not operating properly. Never use the machine if it or the safety equipment is not in proper working order.

The ***System IIe*** is provided with a keyed selector switch. The purpose is to prevent untrained and unauthorized personnel from entering or modifying programs or from changing setpoints programmed for brake stop time monitoring, stroke length and top and bottom position setpoints. It is the purchaser's and or employer's responsibility to ensure that only trained and authorized personnel have access to these functions.

The following are additional requirements the purchaser and or employer must meet before using the *System IIe*.

The machine on which the ***System IIe*** and light curtains are to be installed **MUST** be capable of stopping motion anywhere in the stroke or cycle in a safe time as prescribed by the OSHA formula for safe stopping times.

Do not use the ***System IIe*** or light curtains on any device with inconsistent stopping time or inadequate control devices or mechanisms.

When the ***System IIe*** and light curtains are used to protect a machine operator from a hazard, the purchaser and or employer has the responsibility to ensure that all applicable federal, state and local Occupational Safety and Health Act (OSHA) requirements and any such rules, codes and regulations which may apply are satisfied.

All Safety related machine control circuit elements, including pneumatic, electric or hydraulic controls must be control reliable.

Any power press which uses the ***System IIe*** and light curtains must meet the requirements and inspection procedures of OSHA regulation 1910.217, ANSI standards B11.1-1988 and B11-19-1990 plus any other applicable state and local regulations.

All brakes and other stopping mechanisms and controls must be inspected regularly to ensure proper working order. If the stop mechanisms and associated controls are not working properly, the machine may not stop safely even though the ***System IIe*** and the light curtains are functioning properly and should be taken out of service until repairs are made. **DO NOT OPERATE A MACHINE IN AN UNSAFE CONDITION.**

A daily test must be performed by properly trained and designated personnel of the light curtains as prescribed by the manufacturer and the ***System IIe*** and its associated equipment must be tested for proper functioning.

The enforcement of these regulations is beyond Metal-Tech Controls Corp.'s control. The purchaser and employer have the sole responsibility to follow the preceding requirements and any other procedures, conditions and requirements specific to the machine.

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PRINCIPAL OF OPERATION

The ***System IIe*** is a light curtain interface that provides multiple mute points. When the ram is descending the light curtains are "ON" and if interrupted would emergency stop the ram's decent. When the ram reaches the "MUTE" position the light curtains are ignored and parts and hands can enter through the light curtain barrier without preventing the ram's continued descent.

The ***System IIe*** has provisions for up to 15 "MUTE" positions that can be set for each of the 400 "TOOL" setups. A "TOOL" setup consists of a "TOOL" number, which identifies that particular "TOOL", as many as 15 "MUTE" points, and a choice of forced ram stop positions.

Please make reference to the diagrams on the following pages depicting a simple "TOOL" setup wherein a box is being formed with a 3/4 inch return and 5 inch high sides. This is a two cycle (stroke), setup and the "STOPS" have been left at the default setting, "MUTE" stop.

You may want to review "HOW TO PROGRAM THE ***System IIe***" to better understand the sequence of events.

A typical box shape starts out with a blank resembling the Red Cross symbol. In this particular case we require two "MUTE" points to allow us to form each side of the box.

Let's assume that the finished box will be 24 inches square and 5 inches high.

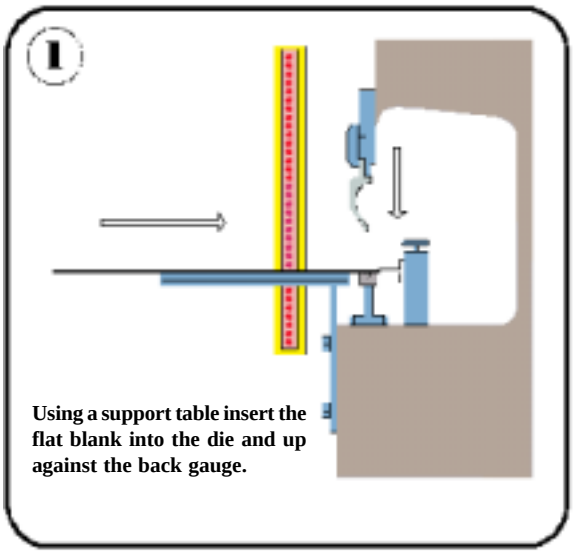
Let's also assume that for convenience and ease on the operator that a support table has been attached to the front of the bed.

The first "MUTE" point will be .250 because the part is flat before the first .750 bend. The second "MUTE" point will be .750.

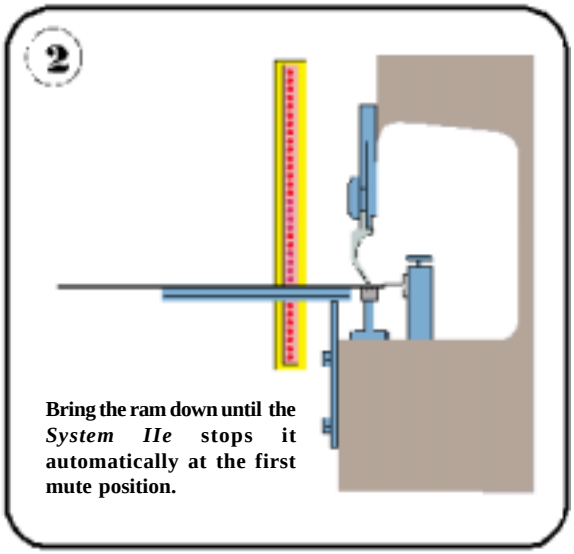
On the first bend bring the ram down until it reaches the first "MUTE" point (.250). When the ram comes to a stop we insert the blank through the die and up against the back gauge fingers. Once the blank is in proper position bring the die through the forming depth and then back up to the top of the stroke. Slide the blank out past the light curtains and bring the ram down to the 2nd "MUTE" point. Insert the part through the .750 space in the die and up against the back gauge. Bring the die through the forming depth and back to the top of the stroke. You have just formed the five inch side bend.

Slide the blank back out of the machine until it is outside the light curtains. Bring the ram down to the 1st "MUTE" point while rotating the part to the next side to be formed.

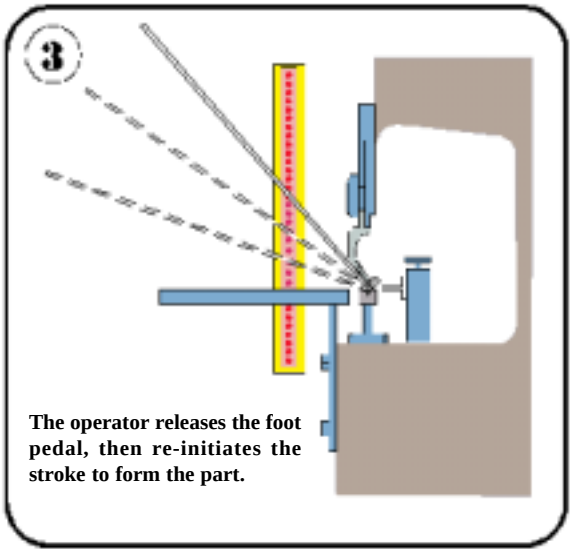
Again the ram stopped at .250. Insert the blank through the opening and up against the back gauge. (You will note that the 5 inch high sides have no effect on the ram movement) again form the 3/4 inch bend. As the ram returns to the top position, remove the part, bring the ram to the 2nd "MUTE" position, insert the blank and form the second 5 inch bend. Do this to the remaining sides.



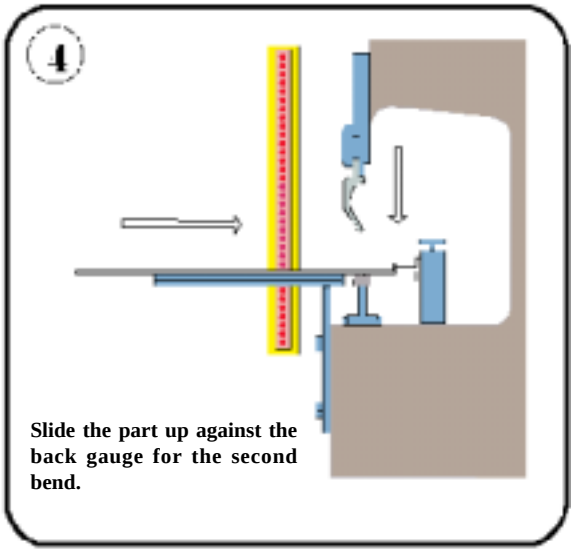
Using a support table insert the flat blank into the die and up against the back gauge.



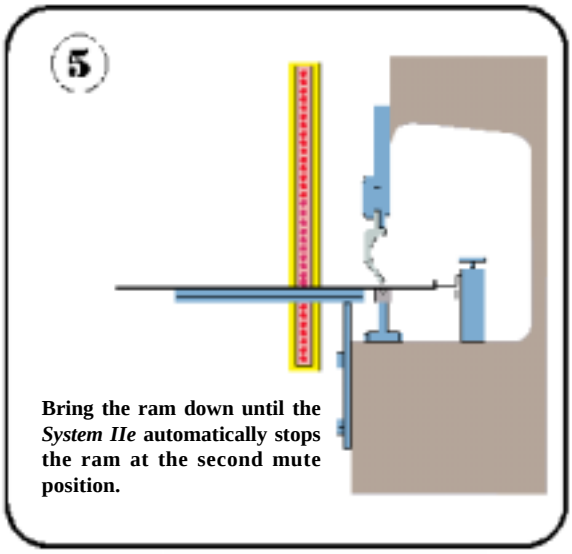
Bring the ram down until the *System IIe* stops it automatically at the first mute position.



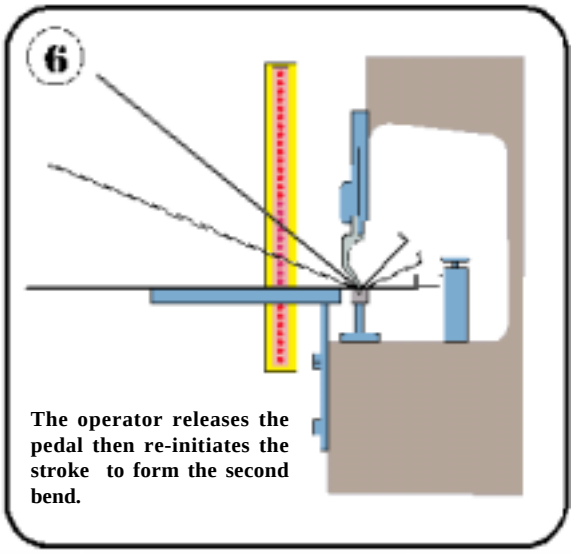
The operator releases the foot pedal, then re-initiates the stroke to form the part.



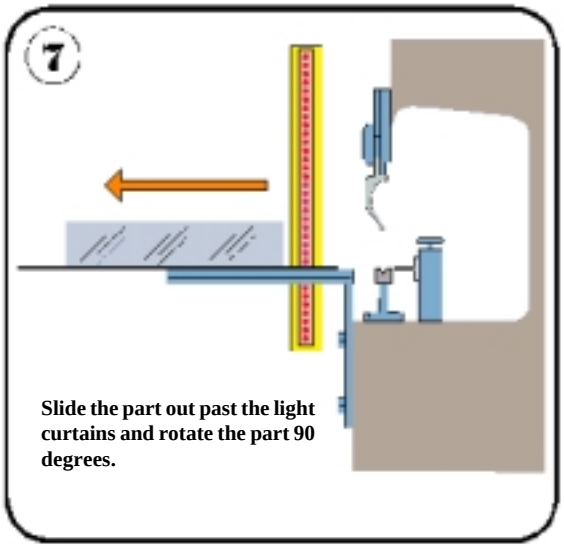
Slide the part up against the back gauge for the second bend.

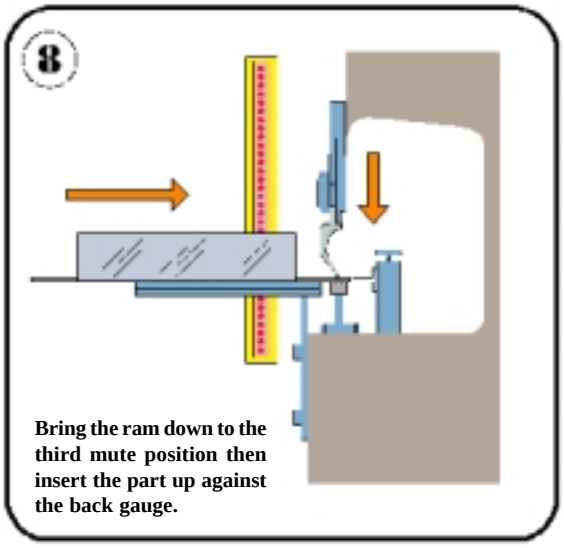


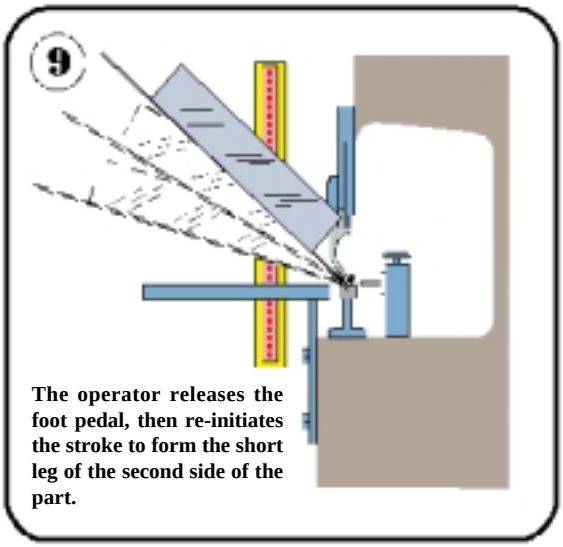
Bring the ram down until the *System IIe* automatically stops the ram at the second mute position.

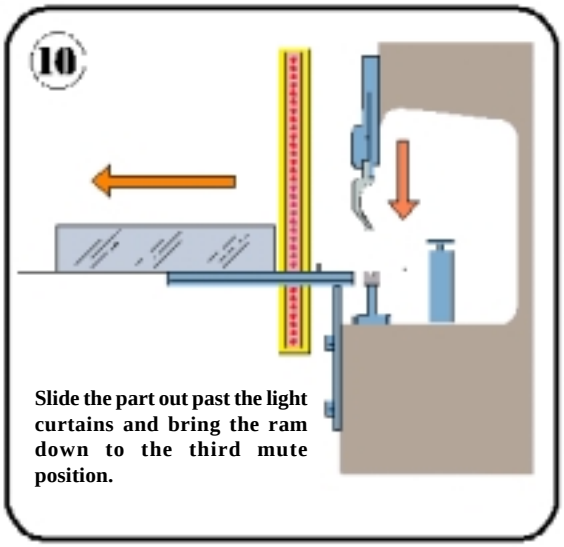


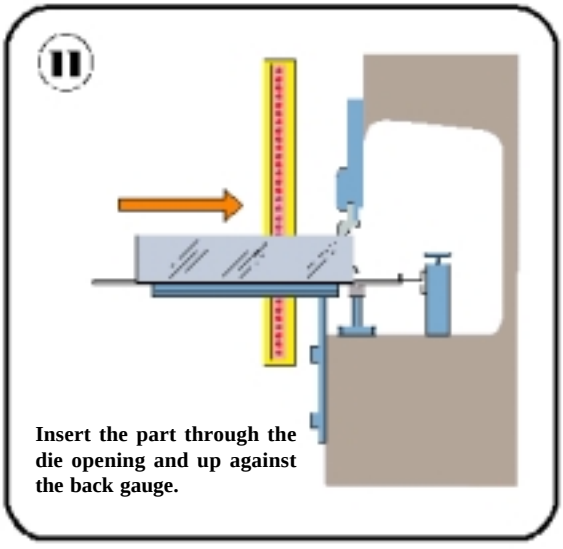
The operator releases the pedal then re-initiates the stroke to form the second bend.

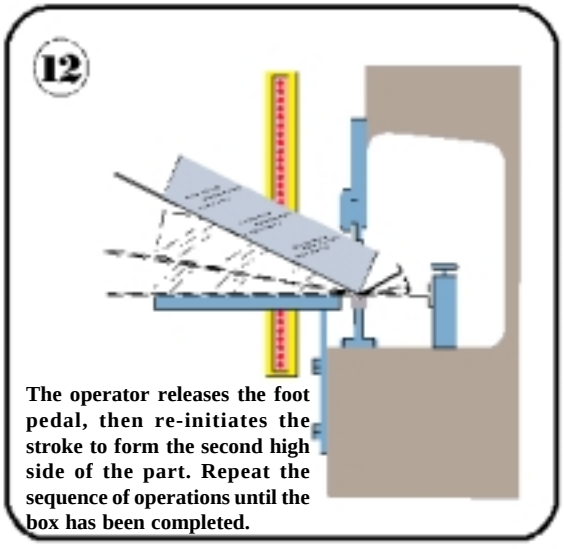

7
Slide the part out past the light curtains and rotate the part 90 degrees.


8
Bring the ram down to the third mute position then insert the part up against the back gauge.


9
The operator releases the foot pedal, then re-initiates the stroke to form the short leg of the second side of the part.


10
Slide the part out past the light curtains and bring the ram down to the third mute position.


11
Insert the part through the die opening and up against the back gauge.


12
The operator releases the foot pedal, then re-initiates the stroke to form the second high side of the part. Repeat the sequence of operations until the box has been completed.

INSTALLATION INSTRUCTIONS

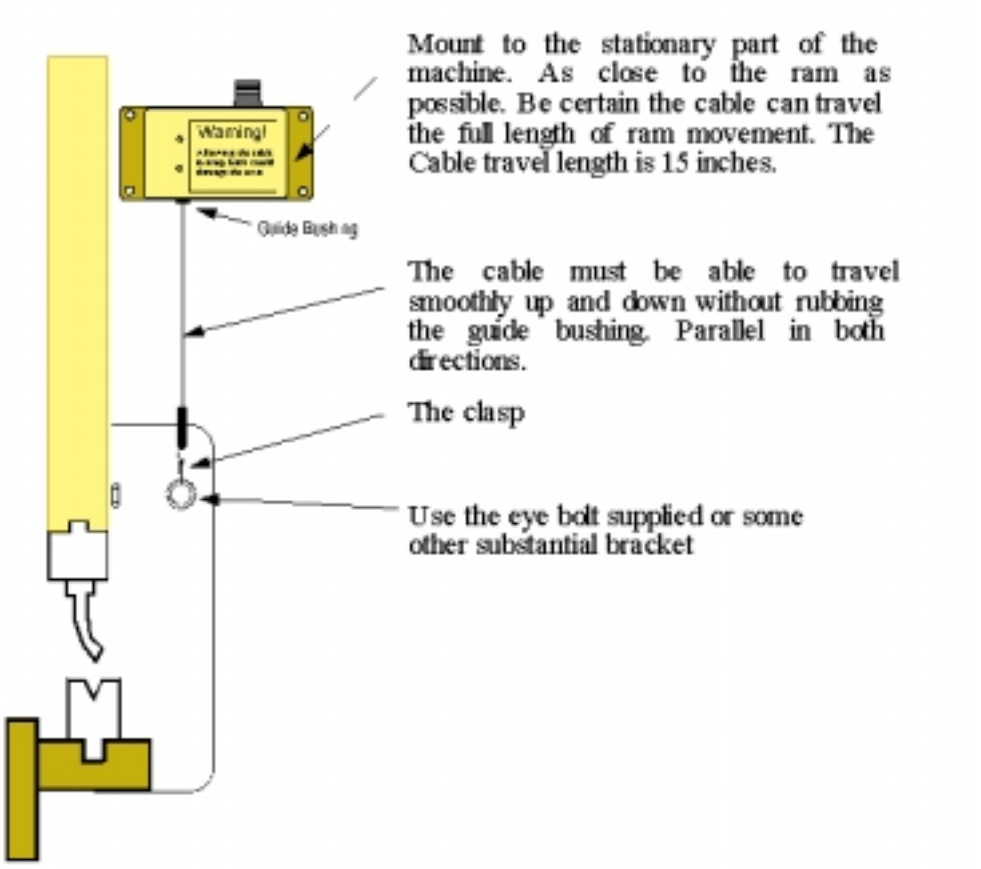
Transducer Mounting:

It is very important that the transducer travel the exact same distance as the ram. This means that the stationary end of the transducer must be securely mounted to a non-moving part of the press and the moving end of the transducer to the ram.

Mount the transducer so the cable is as vertical as possible, not more than 5 degrees in any direction. A 1/4 inch eye bolt is supplied for the cable end. If you use somthing other than the supplied eye bolt be sure it does not flex because this could change the position readout.

Transducer Wiring:

The transducer cable is a three conductor shielded cable with a drain wire (bare ground wire). The Transducer connector is pre-assembled. Be sure the drain wire is connected to the terminal marked "Neg" located on the blue terminal strip in the control panel. Route the cable away from all high voltage cables. See the wiring diagram for the other wire connections.



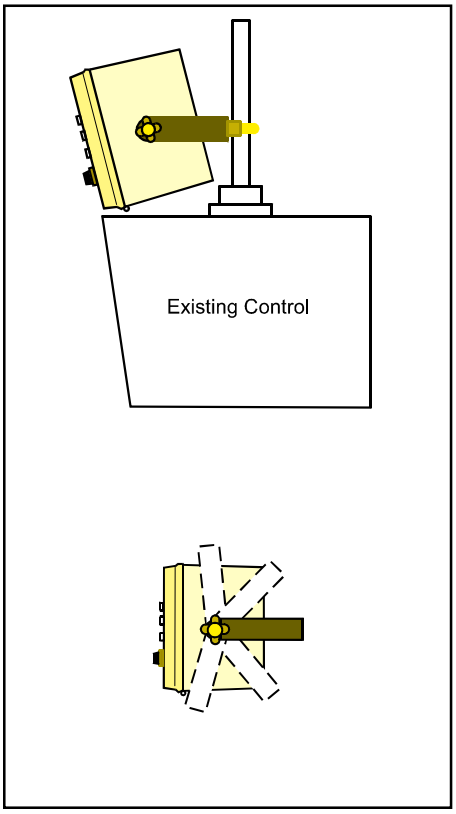
Mounting the *System IIe* Control Panel:

Before punching conduit connector holes in the panel decide exactly how you are going to mount it. Select a position on the machine so that there is sufficient clearance to swivel and tilt the control enclosure as this is essential for viewing the display.

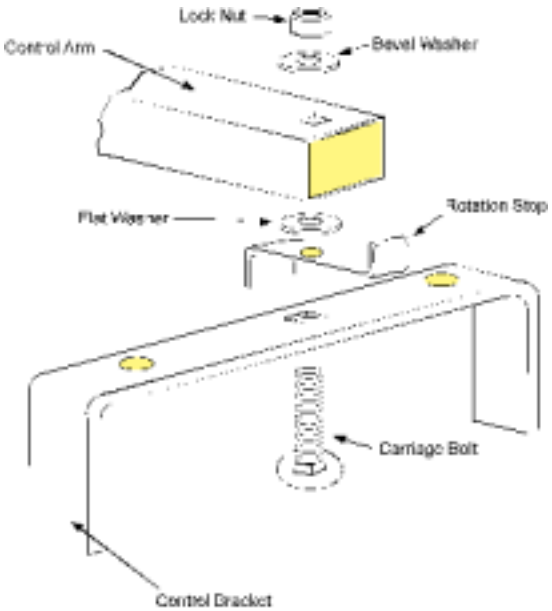
The panel should be mounted at eye level and the panel controls should be convenient to the machine operator. The “U” shaped bracket can rotate 220 degrees which allows you to mount the panel in almost any position.

If the machine has a pendant mounted control already, a muffler clamp or “U” bolt (obtained from any auto supply store) can be used to mount the ***System IIe*** to the pendant just above the existing control.

If the optional articulated control mounting arm was purchased, tighten the adjusting bolts on the control arm to sufficiently secure the panel in position while still allowing the operator to easily move the panel to any desired position.



Articulated Mounting Bracket

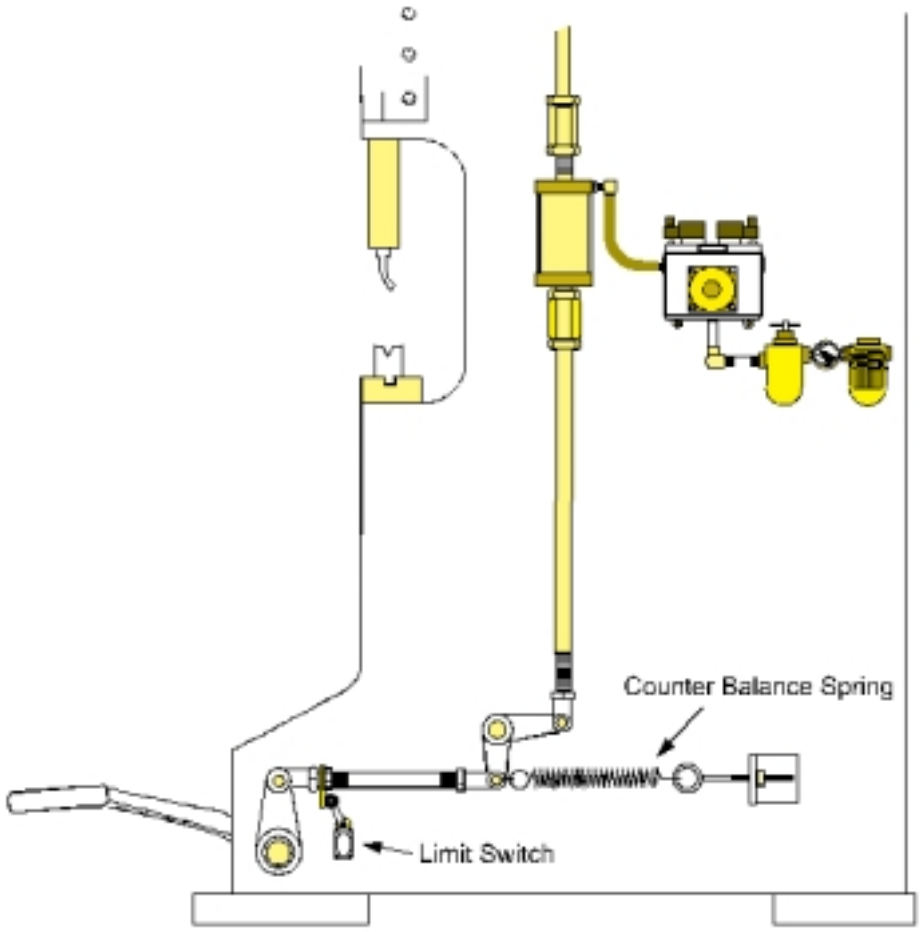


You Can Also Mount The *System IIe* On Top of the Bracket

Treadle Operated Machines:

An air cylinder and an air control valve will be added to the linkage to stop the machine. Actuation of the ram will function the same as before. This mechanism will also be used to stop the machine at the desired "MUTE" positions.

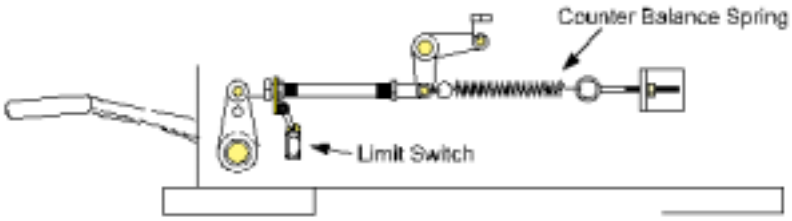
With treadle operated machines it is necessary to install a limit switch as shown. The function of this limit switch is twofold. First, it tells the control when the treadle linkage is in the uppermost position (released). Second, when the treadle is pressed and the switch is released, it tells the control that the machine has been activated and that ram motion is expected. See "Motion Error" for more details.

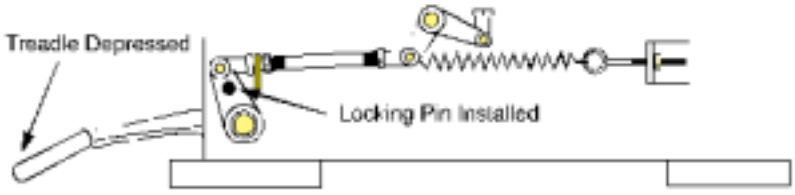


If the machine is stopped for either an emergency or for a "MUTE" position, the limit switch prevents the dual valve from coming back on until the operator has released the treadle and allowed it to return to the fully up position, opening the limit switch circuit. Once the switch is activated, the air pressure is re-applied to the cylinder, closing it. Now the machine is ready to go again. If the dual valve was to come on before the treadle reaches the fully up position, the cylinder would close, jerking the pedal up and possibly injuring the operator. **Install and adjust this switch with care.**

Treadle/Foot Switch Activation Option:

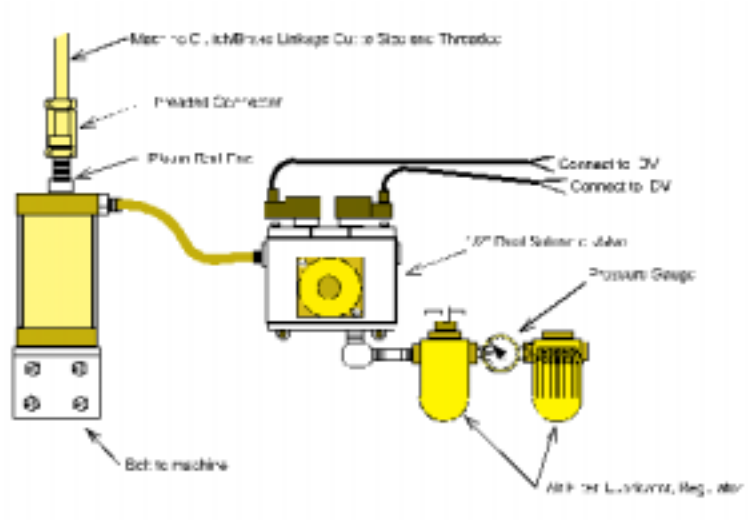
When using the electric foot switch to activate a Treadle/Foot Switch controlled press brake it is necessary to 'lock' the linkage in the fully down position. This extends the air cylinder to the open position. When the foot switch is pressed, air is forced into the air cylinder closing it and drawing down the clutch linkage and activating the press.





No attempt has been made here to depict other methods of locking down the linkage. There are so many variations of linkages that it would not be practical. Therefore you must rely on your own ingenuity to design the proper mechanism. The more securely the mechanism is locked, the better the operation will be. The locking mechanism should also be easy to engage and disengage.

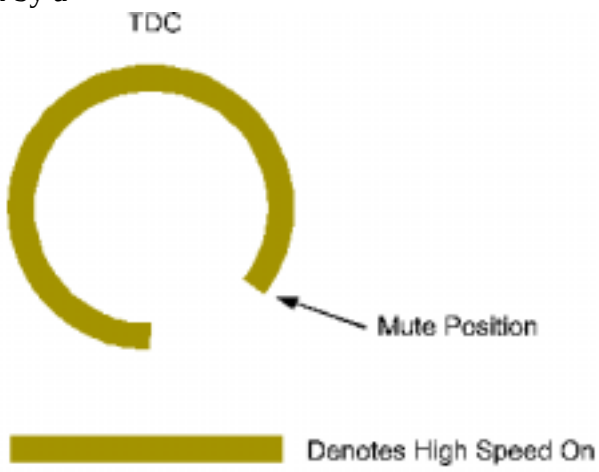
Foot Switch Operated Mechanical Machines:



Single Speed Air Clutch Machines: **See wiring diagram:**

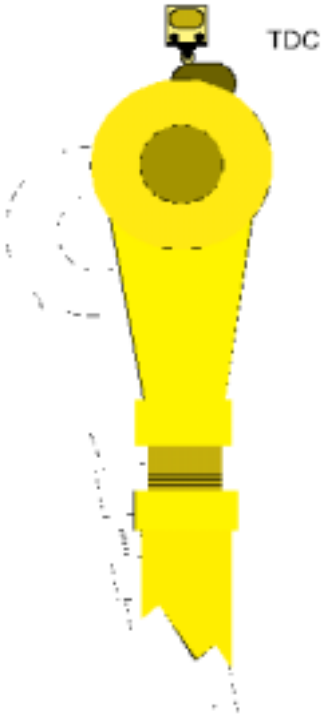
Two Speed Air Clutch Machines:

On two speed machines it will be necessary to wire the HIGH SPEED RELAY to the existing control. It is impossible to go into exact detail because there are so many different machine controls. Usually the two speed function is controlled by a limit switch or an adjustable rotary limit switc sometimes both. In either case this switch woul need to be bypassed and or replaced by the HIGH SPEED RELAY. We say 'or' replaced because in some cases eliminating the switch may prevent some other function of the press from occurring. Basically there are two air valves; a master valve and the high speed valve. If, in any situation the master valve is switched off, the press will come to a stop becaus the master valve is supplying air to the high speed valve Usually, if you determine what is driving the high spee valve you need only substitute it with the ***System II*** HIGH SPEED RELAY. The high speed relay is 'ON' as shown, N/O contacts held closed. Actually, the high speed relay is turned 'OFF' 1/2 inch plus the DRIFT factor before the ram reaches the "MUTE" position.



MRS (Machine Reset Signal) (switch supplied with S400MC packages only)

The Machine Reset Signal is an input to the ***System IIe*** that signals the top of the machine's stroke (TDC). The signal has three purposes; the first is a redundancy check circuit for the transducer It verifies that the transducer's top position is the same as the MRS switch. The second is to force the light curtains out of the MUTE mode when the ram reaches TDC. If the ***System IIe*** fails to receive this signal it will stop the machine and display the error message " MRS Failure". The third is to signal the machine to stop at the top if this option was selected from the tool program menu.



The switch should be installed as shown. Note the cam driving the switch. The leading edge is adjusted so that the switch is activated early enough to stop the machine at TDC and so the trailing edge will deactivate the switch as soon as the machine passes TDC. If the switch does not change state within 15 to 25 degrees of TDC (drop off the trailing edge) you may get MRS error messages when the ram reaches the 'MUTE' position. The MRS function checks to see if the switch changed state as a safety precaution.

MTS (Machine Test Signal)

The ***System IIe*** requires the light curtain relays to open and close when power is first turned on and once during each stroke of the machine. The purpose of this test is to be certain the light curtain relays are working properly. Should the relay contacts weld closed the machine would not stop if the light curtains are interrupted during the downward portion of the stroke. The ***System IIe*** checks its own relays every time the machine comes to a stop.

Some light curtain manufacturers do not have this input function. If they don't, we would advise against buying this type light curtain. However, if you have a set of light curtains without this function, the control will accept a light curtain interrupt caused by the operator or the part breaking the beam during the up stroke of the machine. Most operations cause this to happen anyway. On initial power up you will have to satisfy the start-up test by manually breaking the beam. This function can be turned off, however, it is very strongly recommended that it is left on for safety.

Foot Switch:

For mechanical machines converted to electric foot actuation and air clutch machines (single and two speed). The ***System IIe*** requires an input from the press brake foot switch. This input must be 5 to 48 vdc. If there are no spare contacts on the foot switch you will have to add one, or you could place a single pole 110 vac relay on the din rail in the space provided. See the Panel Layout Drawing. Wire the foot switch output to drive the relay and wire from the blue terminal number 21 through the relay's contacts to terminal FS.

Wiring and Electrical Requirements:

It is advisable to use a junction box or pull box to route the wires to the ***System IIe*** so that you have only two cables entering the ***System IIe*** panel. This is a much neater wiring method and will not hinder the adjusting ability of the enclosure for viewing purposes.

Important Note: All inputs are 5 to 48 vdc. Should an AC voltage be applied to any blue terminal you will destroy the computer control board and void the warranty!

If it is necessary to input with 120 volt ac (such as for the foot switch) you may use a single pole relay. Room has been provided on the din rail in the control panel.
Do Not use 110 vac on the light curtain input!

Grounding:

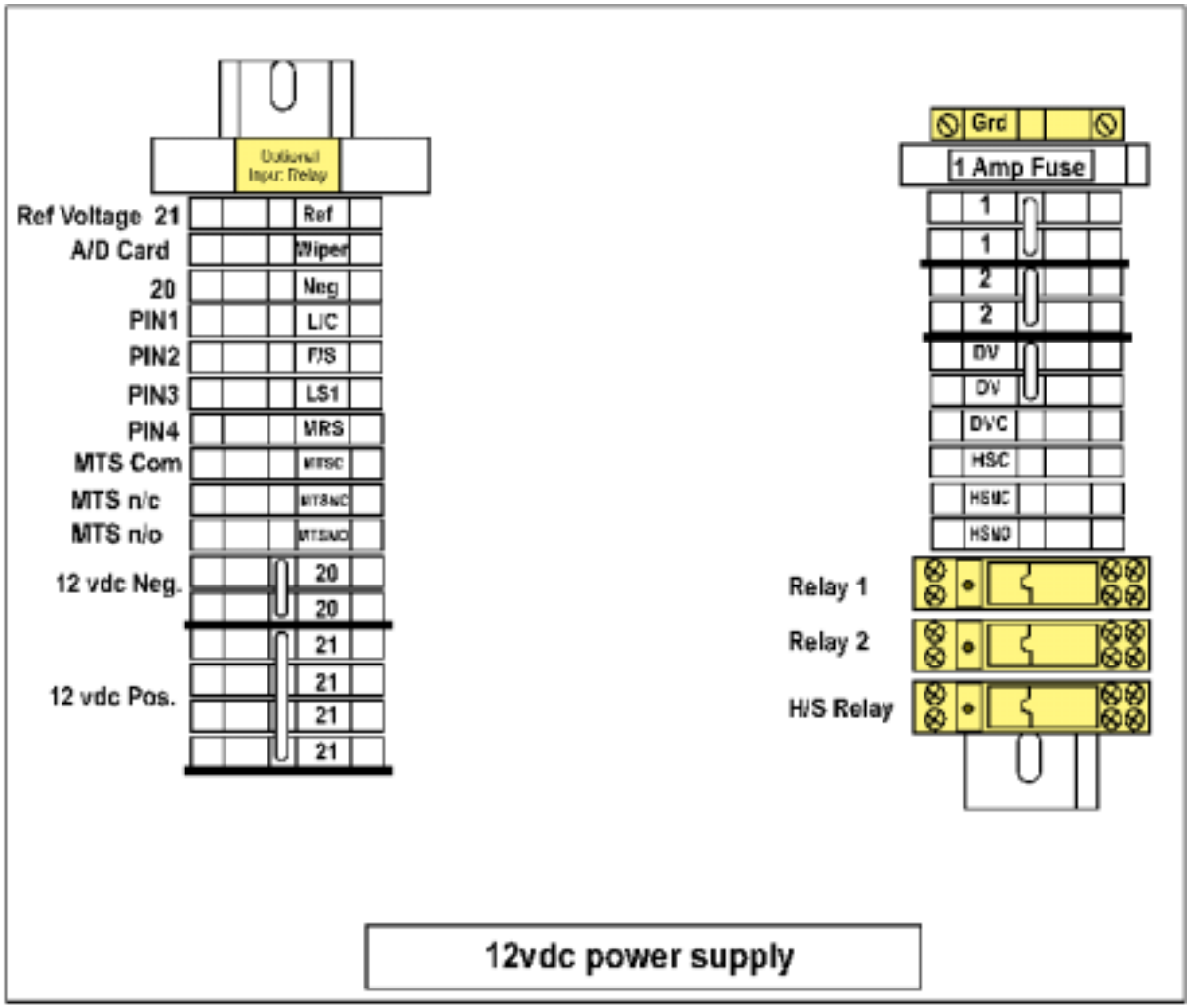
BE SURE THE SYSTEM IS GROUNDED! If a step-down transformer is in the system be sure the common is grounded to earth. An improper or faulty earth ground is the greatest cause of microprocessor faults.

Install a Surge/Arc Suppression line conditioner in the 110 vac supply!
Use Surge/Arc Suppressors on all driven relays or valves! Do NOT put surge suppressors across the contacts of the ***System IIe's*** relays 1 and 2.

Check it Out!

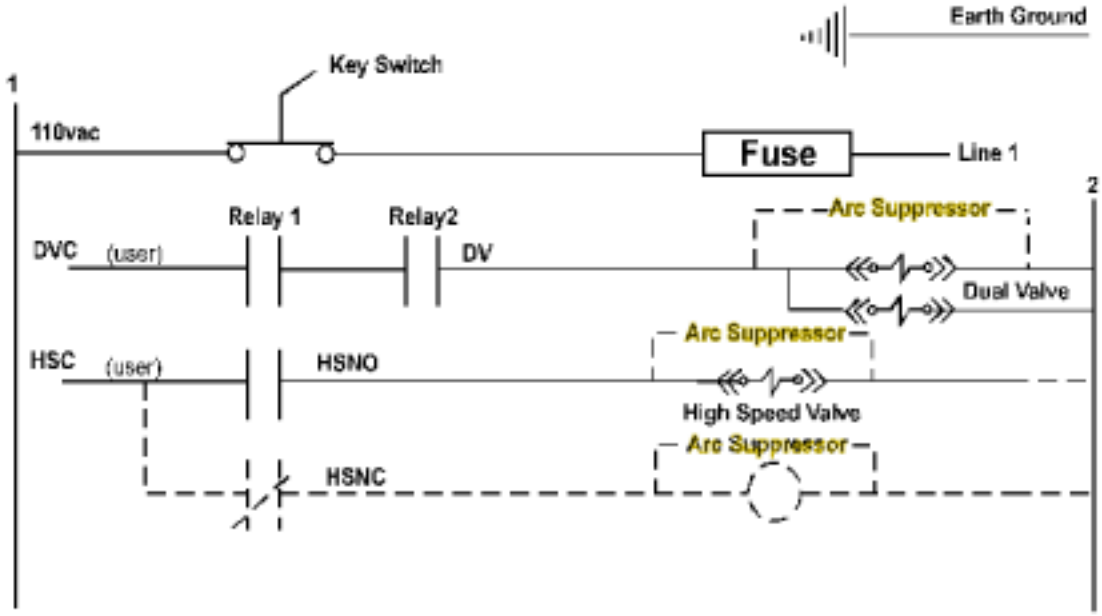
After everything is installed, check it out! It's easier than disassembling everything and sending it back to us. If you are in doubt about any part of the installation, call us!

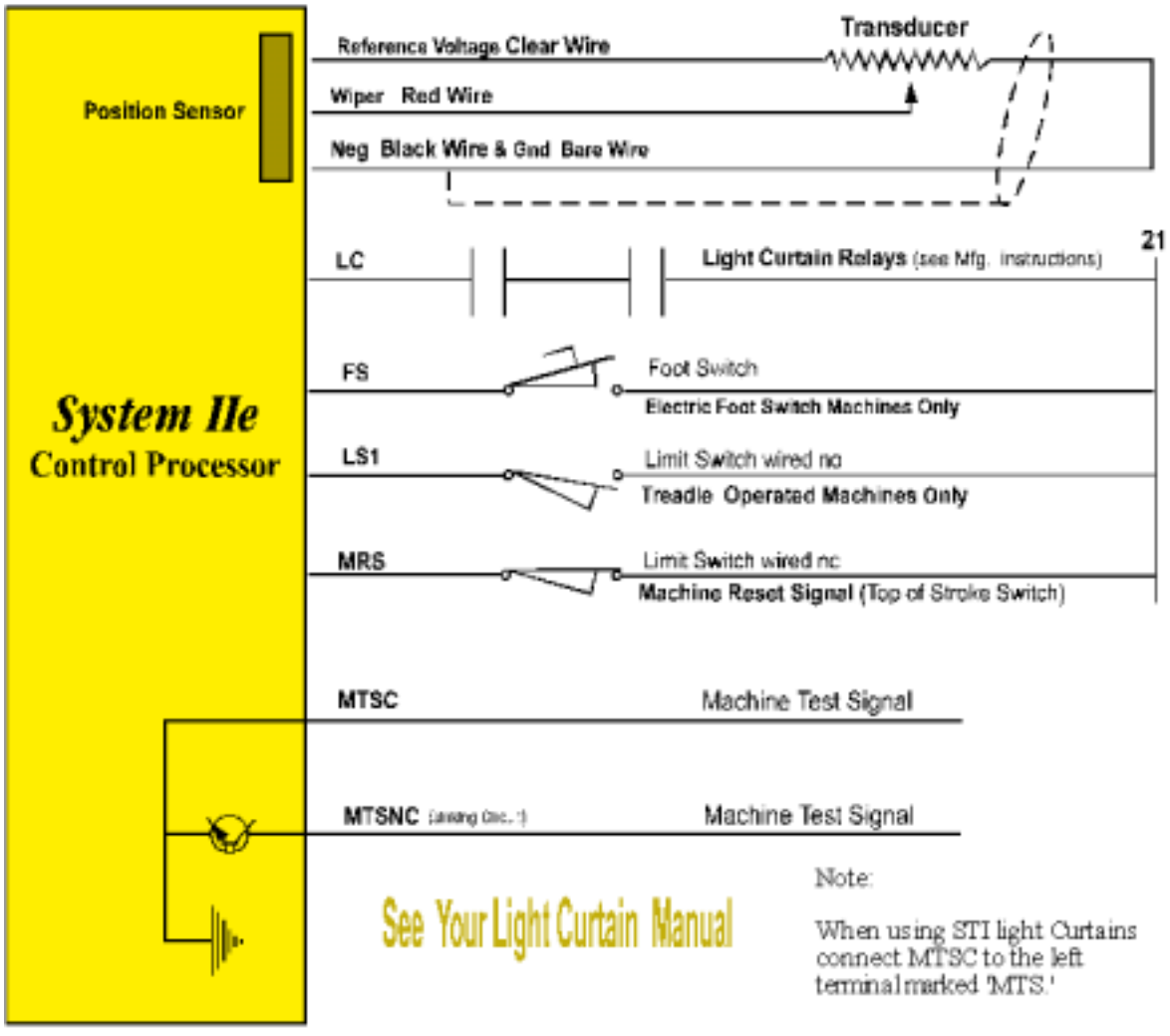
Warning! Do not run the press until the START-UP PROCEDURE has been completed. The control will not function properly until this is done.



Wiring Panel Layout

System IIe Wiring Diagram



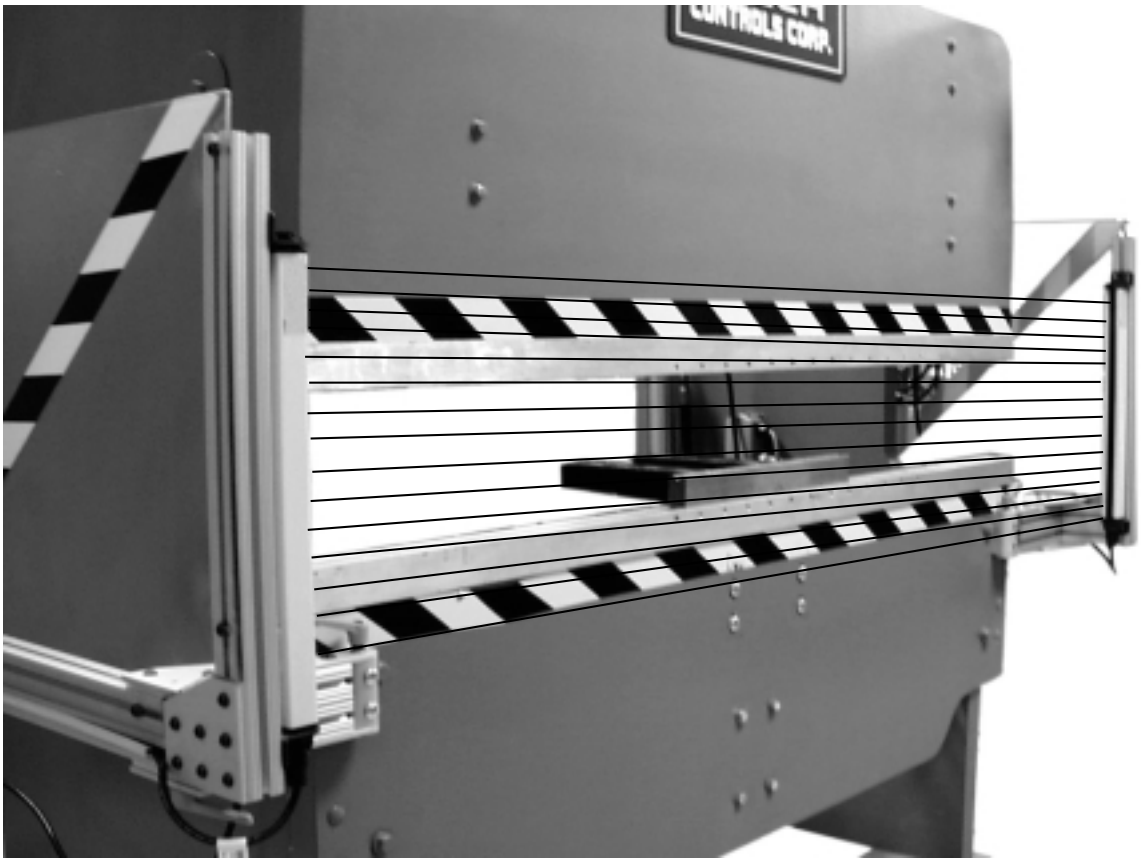


Light Curtains & Light Curtain Brackets:

It is very important that the brackets be mounted precisely as shown. The ability to move the light curtains in and out from the machine die area is critical in the use of the whole system.

The slide adjustment allows for quick setups. Being able to move the brackets out to their maximum extension allows parts to be placed between the light curtain beams and the die facilitating the making of parts 18" and less with only one "MUTE" point.

Having the ability to adjust them in and out on a job by job basis permits the setup person flexibility in how the part is to be formed.



The swing out feature is for loading and unloading dies from the end of the press. Simply loosen the allen locking screw and rotate the brackets to the front of the machine. This clears the end of the press for accessibility.

It also forces the light curtains out of alignment, preventing the machine from inadvertently being activated while someone is loading or unloading dies during setup. An extra safety feature!

Light Curtain Bracket Detail

NOTE: The machine mounts can also be secured to the outside of the machine bed. However the method shown aligns the the light beams more acurately.

START-UP PROCEDURE

Once all the components are installed and the electrical connections have been checked, you are ready to perform the start-up procedure. This procedure is only required at start-ups, however there may be times when you would want to make minor adjustments.

Keyboard notes: Pressing [MENU] returns you to the previous menu. Pressing [SKIP] moves you to the next step or returns you to the MAIN MENU if there is not a next step. When in some functions, pressing the UP or DOWN arrow keys will step you through the choices. The [Cycle] key will zero some inputs. Pressing the [ENTER] key saves the entry or change you made.

During Setup you will do the following:

1. **Set the ram stop limit setpoint.** This is used to prevent the machine from operating if the stopping time of the machine deteriorates beyond the "setpoint".

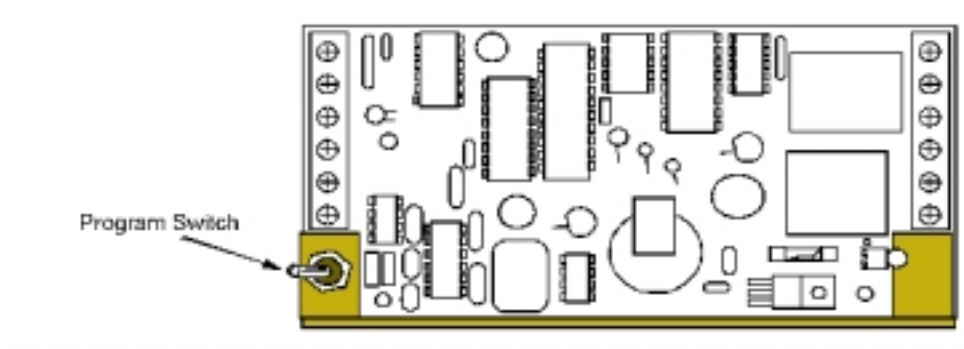
2. **Determine the Motion Detect Setpoint.** Used to detect whether or not the machine is in motion when the press is activated.

3. **Set the Machine Test Signal (MTS) ON or OFF.**

4. **Set the Foot Switch function.**

5. **Program a simple "Tool" setup** to determine the stopping time of the machine.

6. **Set the Drift factor.** (See section entitled "DRIFT FACTOR")



From inside the enclosure, turn the setup toggle switch to ON and then press [7] on the keypad

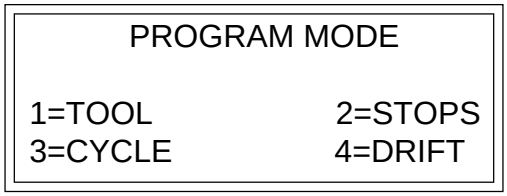
Turn the key to 'PROGRAM'
Toggle the setup switch (located on top controller board, press [7].

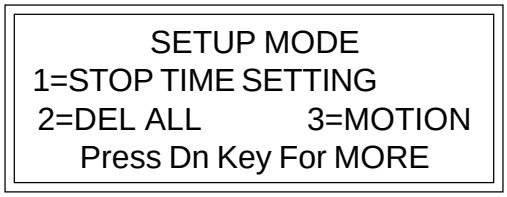
Note: 7 is a hidden function used for initial setup only. Use the UP and DOWN arrow keys to access all functions.

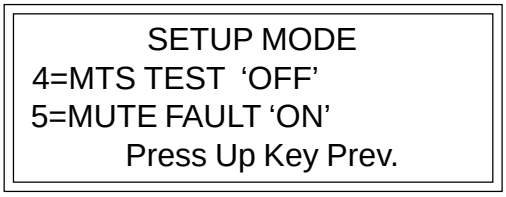
MTS (Machine Test Signal):

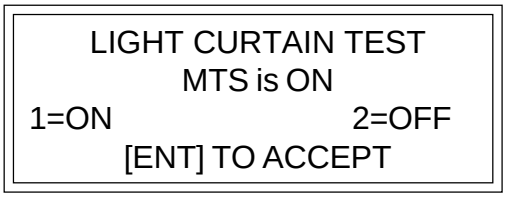
This is a very important safety feature! The only time you would turn this function off is when the light curtains you are using do not have this function. This is NOT recommended and could prove extremely hazardous to personnel.

The Machine Test Signal checks for the light curtain's relays to turn off and then on again when the control is first turned on and at the bottom of each stroke. If an interrupt does not occur by the operator or the part being formed, the ***System IIe*** will send a signal to the light curtain controller to turn its relays off and then on again. Should they fail to do this you will get an "MTS Failed on Up Stroke" error message.





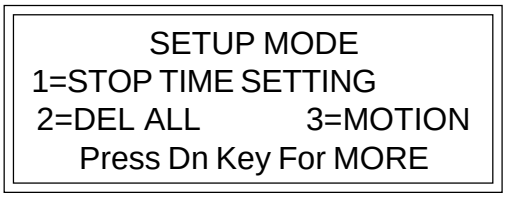


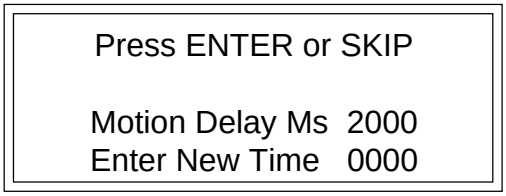


Motion Detection

This function checks for the ram movement anytime the machine is actuated. If the ***System IIe*** fails to detect the ram movement within the programmed time it will stop the machine and display "LOST MOTION" message.

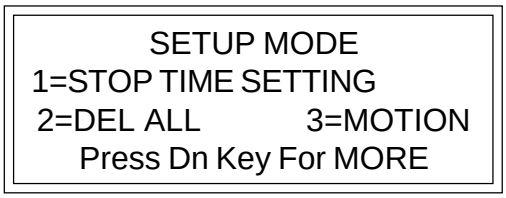
Set the time to the lowest possible setting which does not cause nuisance faults. The setting is in milliseconds, 1000 equals one second. 500 Ms is the ideal setting. Press [3] to enter this function and enter the desired time.





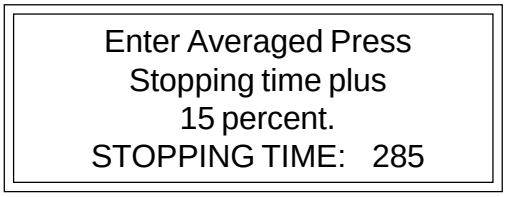
Stop Time:

The ***System IIe*** checks the stopping time of the machine every time the ram comes to a stop and displays the stopping time in milliseconds on the screen. The stop time is compared to a maximum stop time setting. If the stopping time exceeds this setpoint a "STOP-TIME FAULT" will be displayed and the machine will be disabled.



The set point must be programmed into the ***System IIe***.

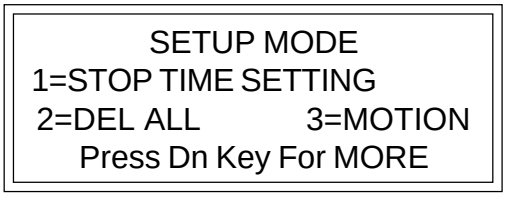
To determine the average stopping time you will have to program a "TOOL" setup. Refer to the section "HOW TO PROGRAM THE ***SYSTEM IIe***" then return to this function.



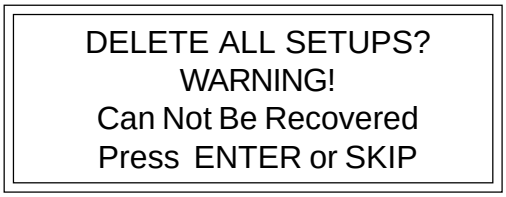
Now that you have a "TOOL", determine the average stopping time of the machine by stopping the machine 15 times at the "MUTE" position. Take the highest and lowest numbers and discard them. Add the remaining 13 numbers and divide by 13 to obtain the average. Multiply the result by 1.15 and enter this number for the stop time set point. Press [ENTER] to save the setting.

Deleting Tool Setups:

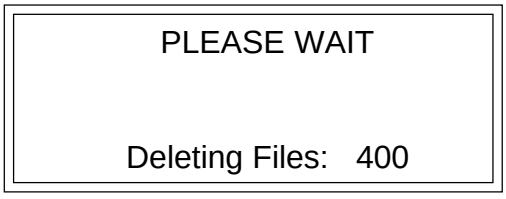
If there comes a time when it is necessary to delete all the "TOOL" setups currently stored you can do so by pressing [2] for "DELETE".



If you do delete these "TOOL" setups they cannot be recovered again.



If you press [SKIP] you will leave this function and return to the SETUP MENU. Pressing [ENTER] begins to immediately delete the files and cannot be stopped.

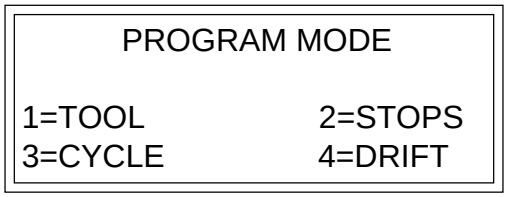


PROGRAMMING THE *SYSTEM IIE*

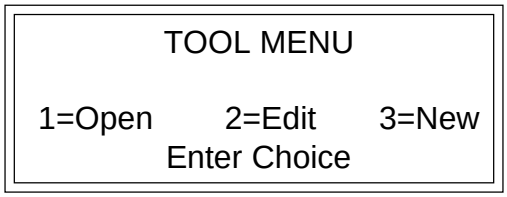
Before proceeding, set the machine up, install the dies and adjust the ram for proper penetration.

NEW TOOL SETUP:

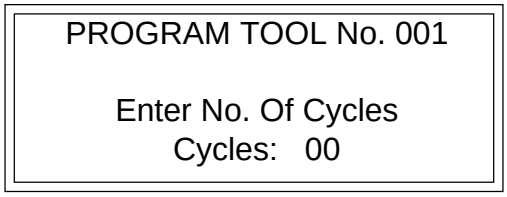
With the key turned to PROGRAM select [1] for TOOL.



Select [3] for a new program.

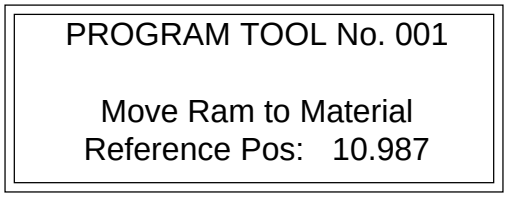


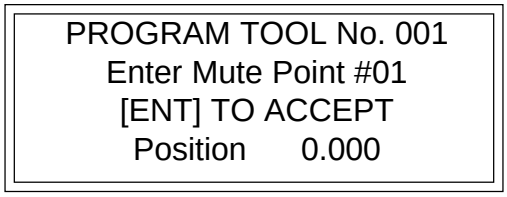
Having previously determined the number of cycles required to form the part, enter the number of cycles.



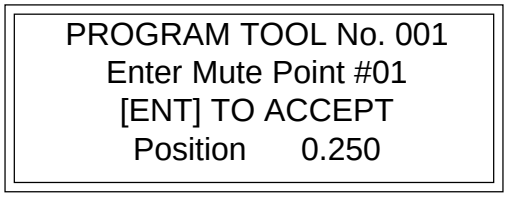
Place a part or some scrap material the same thickness as the part on top of the lower die.

Following the instructions on the display, move the ram down until the upper die is just touching the part. Press [ENTER]. The controller now has a zero reference point to work from. All the following "MUTE" points that are entered are set from this zero reference.

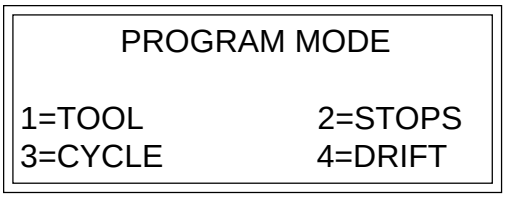




After pressing the [ENTER] key the screen will display the MUTE point screen. Notice that it asks you to enter Mute Point #01. Enter it in decimal form (the controller will automatically enter the decimal point) in this case 1/4 inch (.250). Press [ENTER] and the controller saves the entry and goes to the next cycle - #02, etc. Finish entering the mute points for each cycle.



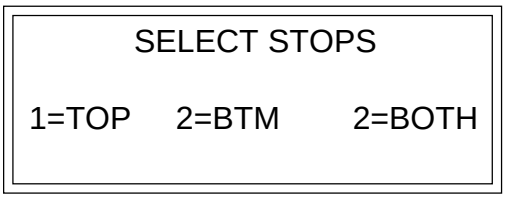
Once all the mute points have been entered the display will revert back to the "PROGRAM MENU" screen.



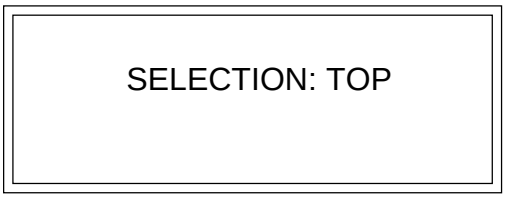
Stops:

The ***System IIe*** defaults to "MUTE" position stop. This means the ram will come to a stop at each "MUTE" position allowing the operator to insert the material. At this point the operator must release the foot pedal and press it again to continue the stroke.

There may be occasions where it is beneficial to not have the ram stop at the "MUTE" position (such as a punching or coining operations) you can select TOP stop as follows.



Press [2] for STOPS, press [1] for TOP. Now the machine will not stop at the "MUTE" position, however the light curtains will still "MUTE" at the programmed positions.

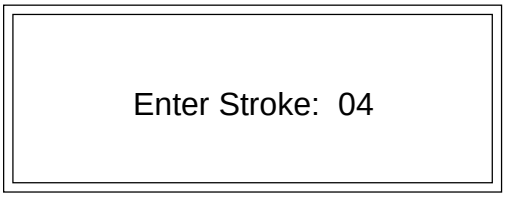


You can also select TOP and MUTE stops. When this is selected the ram will stop at the top of the stroke and at each MUTE point.

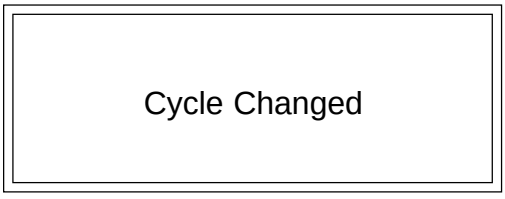
Once chosen, the stop selection becomes part of the "TOOL" setup.

Cycle Change:

To change the CYCLE so you can repeat a bend or go back to a bend or synchronize the ***System IIe*** cycle with the back gauge cycle do the following:



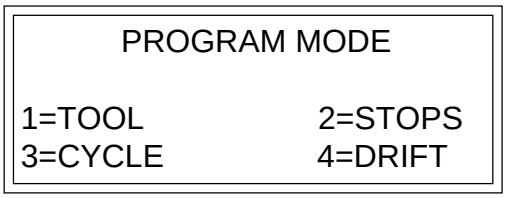
With the key in "ON" press [CYCLE]



Type in the desired cycle and press [ENTER]

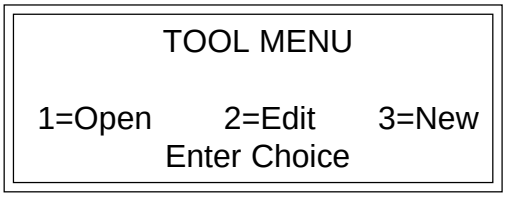
EDITING AN EXISTING TOOL SETUP

From the “PROGRAM MODE” menu select [1] for TOOL.

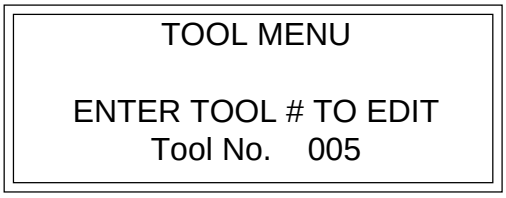


Note: Anytime when in EDIT MODE you can press [SKIP] to bypass a screen or the [UP] and [DOWN] arrow keys to move through the selections.

Select [2] for EDIT.

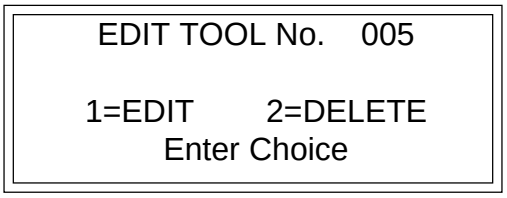


Enter the tool number that you want to edit.

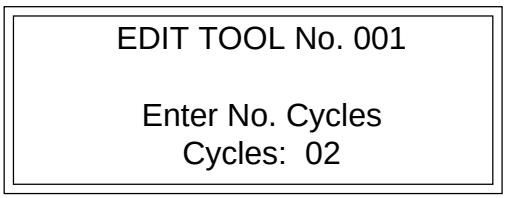


Select [1] for edit.

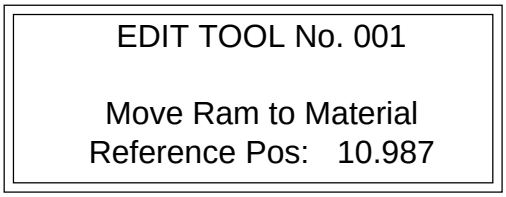
Note: A few additional screens will display depending on your entries.



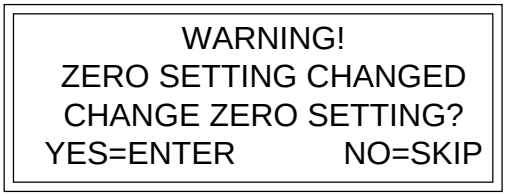
If you change the number of Cycles and that is all you wish to change, use the arrow keys to move up to the Cycle that is blank and enter the “MUTE” point as before. If you are done editing press [ENTER] then [MENU]. Editing is complete.



If you need to change the zero position press [SKIP] from the Cycles Menu and then move the ram to the new Zero position and press [ENTER]

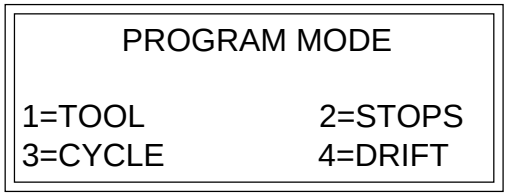


If the new Zero position is different from the original you will see this display. If you are sure of the change press [ENTER] if not, press [SKIP] to bypass this function. Pressing [ENTER] saves the new setting and all the “MUTE” positions will automatically adjust to the proper position based on the new Zero position.

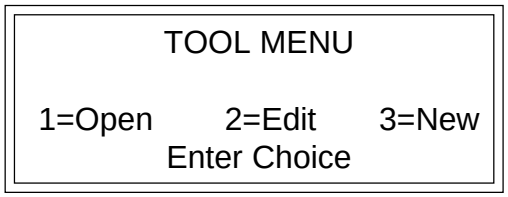


DELETING AN EXISTING TOOL

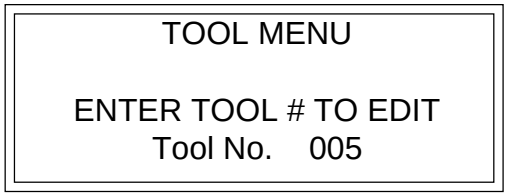
From the “PROGRAM MENU” press [1] for TOOL.



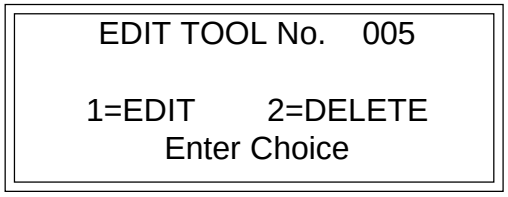
Press [2] EDIT.



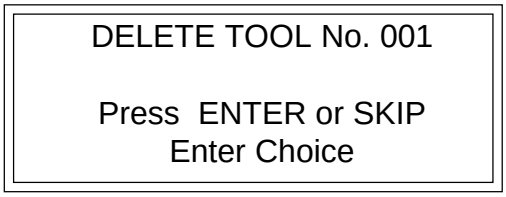
Enter the TOOL number.



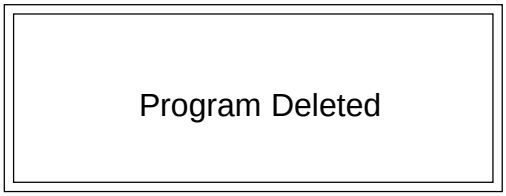
Press [2] for DELETE



Press [ENTER] to continue with the deleting process or [SKIP] if you changed your mind.

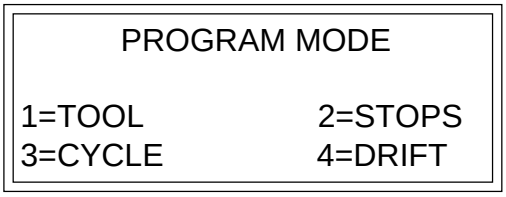


You are given an addition opportunity to change your mind. If you are certain press [ENTER] and the tool will be deleted.

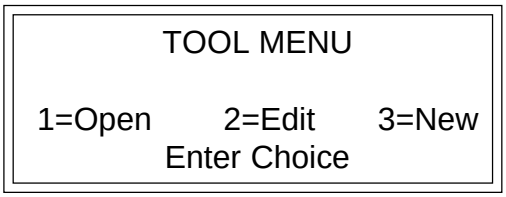


OPENING AN EXISTING TOOL SETUP

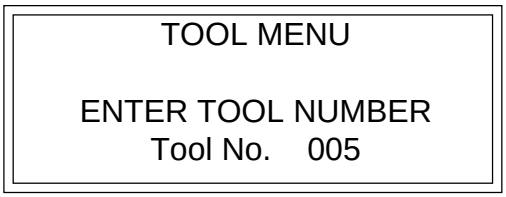
From the “PROGRAM MENU” press [1] for TOOL.



Press [1] OPEN.



Enter the TOOL number and press [ENTER].



WARNING!

Whenever you open a TOOL Setup take the machine through a complete dry run to be certain that none of the settings have been changed and that the proper dies are in the press. Serious injury could occur if you fail to make this safety check.

DRIFT FACTOR

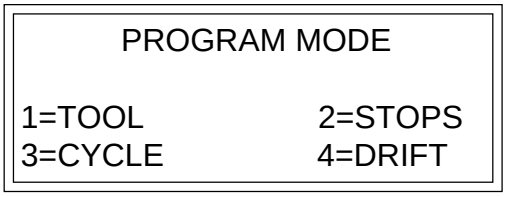
Defining Drift:

When a stop command is issued to the press there is a delay from the time the command is issued to the time the ram actually comes to a complete stop. During this time the ram travels past the intended stop.

If programmed, the ***System IIe*** will automatically compensate for this drift based on a factor entered through the Drift Function.

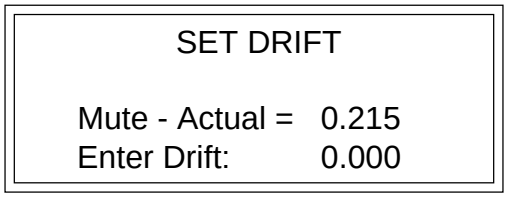
Setting the Drift:

From the 'PROGRAM MENU" select [4] for DRIFT.

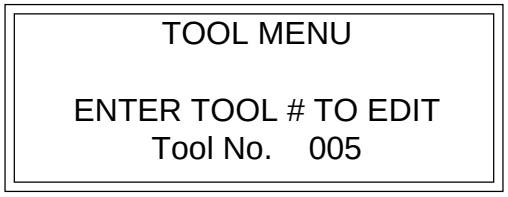


The next screen shows the distance from the programmed "MUTE" position to where the machine actually stopped.

MUTE - ACTUAL = distance the ram travelled past the MUTE position.



Entering the exact number shown will often cause the ram to stop above the "MUTE" position because of momentum. It is best to enter a DRIFT number about 30 percent less than the number displayed. Test it and make minor adjustments as needed.



Once the DRIFT is programmed it is seldom necessary to enter it again especially on air clutch machines because they usually stop quickly. If you find that the DRIFT is too much or too little, change it as appropriate.

QUICK MENU

The QUICK MENU can only be displayed when the machine is not activated.

With the key in the "ON" position press the [MENU] key.

```
QUICK MENU
1=SAFE DISTANCE
2=SET COUNTER
3 =LAST ERROR MESSAGE
```

Safe Distance:

The ***System IIe*** will automatically calculate the minimum safe distance the light curtains may be from the nearest pinch point. Press [1] and the safe distance is displayed based on the stop time parameter that was programmed in during SETUP.

```
LITE CURT. DISTANCE
Based on stop time
entered at testing
7.8 Inches + Pene.
```

In this case the minimum safe distance is 7.8 or 8 inches plus penetration.

Penetration is the distance the smallest part of the body can penetrate the light curtain without causing a fault.

Batch Counter:

Keypad Notes: [Cycle] zeros the count allowing it to start over. The [ARROW] keys increment or decrement the count once per press.

The counter is used to count parts "made", which means, if the part takes five cycles to finish, the counter will only count up after the five cycles are completed.

The counter only counts if the number is larger than zero in the batch. To disable the counter enter 0000 batch.

```
COUNTER MENU
Inc <--    --> Dec
ZERO=Cycle   1=BATCH
Counter   0000
```

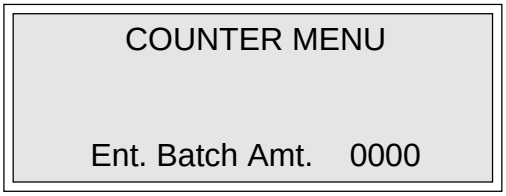
Select [2] for the batch counter.

NOTE: When setting the BATCH be sure the ram is in the up position. The counter increments at the bottom of the stroke.

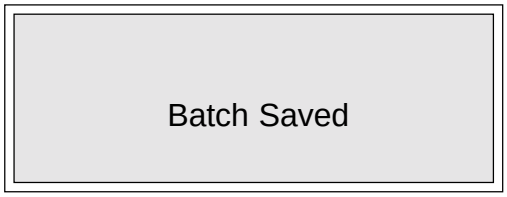
Once the batch count is reached the machine will be stopped and the RED indicator lamp will flash. Press [ENTER] to zero the batch and restart the machine.

To enter a new batch setting press [1].

Enter the desired batch count and press [ENTER] to save it.

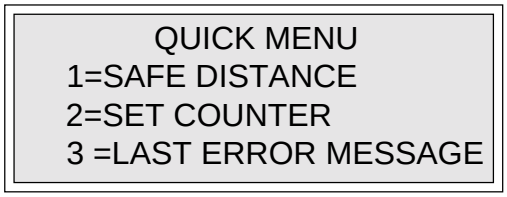


The new batch setting is saved.



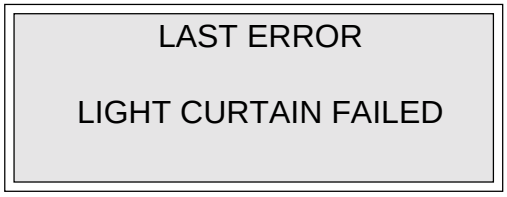
Last Error Message:

The Last Error message function is to provide a means of reviewing the last error that occurred. Computers operate so fast that if an intermittent error occurs the control will stop the machine but because the error cleared, the control will reset to the run mode.



If you should experience having the machine stop for no apparent reason, use the LAST ERROR function to determine what caused it.

Press [MAIN MENU] then [3] - the last error that occurred will be displayed.



This is valuable when trouble shooting.

WARRANTY

Metal-Tech Controls Corp. - herein after referred to as MTCC warrants its products to be free from defects of material and workmanship and will, without charge, replace or repair any equipment found defective upon inspection at its factory, provided the equipment has been returned, transportation prepaid, within one year from date of shipment.

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No representation or warranty, express or implied, made by any sales representative, distributor, or other agent or representative of MTCC which is not specifically set forth herein shall be binding upon MTCC. MTCC shall not be liable for any incidental or consequential damages or loss arising from reduced or lost production, or expenses directly or indirect arising from the sale, handling, improper application or use of goods or from any other cause relating thereto and MTCC's liability hereunder, in any case is expressly limited to the repair or replacement (at MTCC's option) of goods supplied by MTCC.

Warranty is specifically at the factory. Any on site service will be provided at the sole expense of the purchaser at MTCC's standard field service rates.

All associated equipment must be protected by properly rated electronic/electrical protection devices. MTCC shall not be liable for any damage due to improper engineering or installation by the purchaser or third parties. Proper installation, operation and maintenance of the product becomes the responsibility of the user upon receipt of the product.

Returns and allowances must be authorized by MTCC in advance. No returns will be accepted after 30 days from shipment. There will be a 30 percent restocking charge on all returns. All returns must be in new resalable condition and in the original packaging. MTCC will assign a RETURNED GOODS AUTHORIZATION (RGA) number which must appear on all related papers and outside of the shipping carton.

WARNING! Any attempt to repair or troubleshoot MTCC's products except as limited to the user replaceable components will void the warranty and may render the product unsafe for use. MTCC's products contain complex electronics which may only be tested and repaired by an authorized MTCC trained technician.