Customer Service: (630) 443-8542
Sales & Marketing: (800) 569-7697

## SYSTEM OVERVIEW

The function of the Mute-out control is to allow a Light Curtain (guarding the pinch point) to be muted out from just before the bottom of the stroke (¼" from the bottom) to the top of the stroke (TDC). This allows the operator to reach in through the beams of the Light Curtain and place a piece part in the machine, and take out the piece all without interrupting the machine operation.
The Select-O-Stop optional feature allows you to stop the machine ¼" from the bottom. This allows you to place and position the piece part before finishing the stroke.

The #130 Mute-Out is a microprocessor based control system using 3 limit switches. The limit switches allow a Light Guard to be muted out on the machine's upstroke. All the limit switches are cross-checked each cycle. There are 2 separate inputs from the Light Guard device as well as 2 separate Captive-Contact outputs to provide redundancy. Watchdog timers on the microprocessor and the Output Relays provide an extra level of safety by shutting down the Output Relays if the microprocessor stops responding. All inputs have LED's for positive identification of signals.

## SPECIFICATIONS

Input Power: 3 voltage ranges
24VDC (optional)
120VAC (standard)
240VAC (optional)
All AC voltages work at 50 or 60 Hz
@ 5 watts max

Fuses: Power Supply Board

| | | | |
|---|---|---|---|
| F1 | 1A | 24vdc output | 20-018 |
| F2 | 1A | Input power | 20-001 Slow blow |

Indicators: Power Supply Board

| | |
|---|---|
| D2 | 24vdc for inputs |
| D51 | 5vdc |
| D53 | 12vdc for relays |
| D11 | K1 Output Relay active |
| D12 | K2 Output Relay active |
| D17 | K7 Light Guard Power |

Input Board

| | |
|---|---|
| D65 | 5vdc for microprocessor |
| 0-8 | Inputs 0-8 |

Limit Switches:

| | |
|---|---|
| LS1 | Turns off Mute-Out at Top of Stroke |
| LS2 | Cross checks LS1 and LS3 |
| LS3 | Optional Select-O-Stop |
| LS4 | Mute-Out activation point |

Dimensions: Board size: 6.5"w x 5" l x4" h
Mounting Holes: 6" w x 4.5" l

## SYSTEM INSTALLATION

NOTE: This system works with: Punch Press, Hydraulic Press Brake, and Air Clutch Press Brake machines only. Amada machines require a special mute-out system Package #AMA130PB.

**Limit Switches**
Standard #130 controls come with Actuator Arm limit switches and one calibrated actuator arm. Optionally you can use a Rotary Cam box in place of the Actuator Arm switches.

| | | |
|---|---|---|
| LS1 | Used to turn off the Mute-Out at the top of the stroke. | ("open" 330-340) |
| LS2 | Used to cross check LS1 and LS3. | ("closed" 310-020) |
| LS3 | Used to stop press at ¼" point (Select-O-Stop) | ("closed" 150-210) |
| LS4 | Used to activate Mute-Out | ("closed" 165-195) |

The above angle numbers are suggested starting points. You will have to vary LS3 and LS4 from job to job. You can use the Calibrated Actuator Arm to do this.

**Select-O-Stop (optional)**
This feature automatically stops the ram at a predetermined point in the downstroke (LS3), usually ¼" above the bottom of the stroke, to make adjustments to the work piece before you finish the stroke. You want to adjust LS4 so that when the press comes to a stop (at the ¼" point) the Guard will be Muted.
A keyswitch and extra Limit Switch is provided with this option.
With this feature enabled, the press will stop when it reaches LS3. You must take your foot off the pedal before you can finish the stroke.

Inputs
All inputs are 24vdc only. #1 requires a 110AC to 24dc opto module (provided). If your press is a 24vdc system, you may not need this opto module.

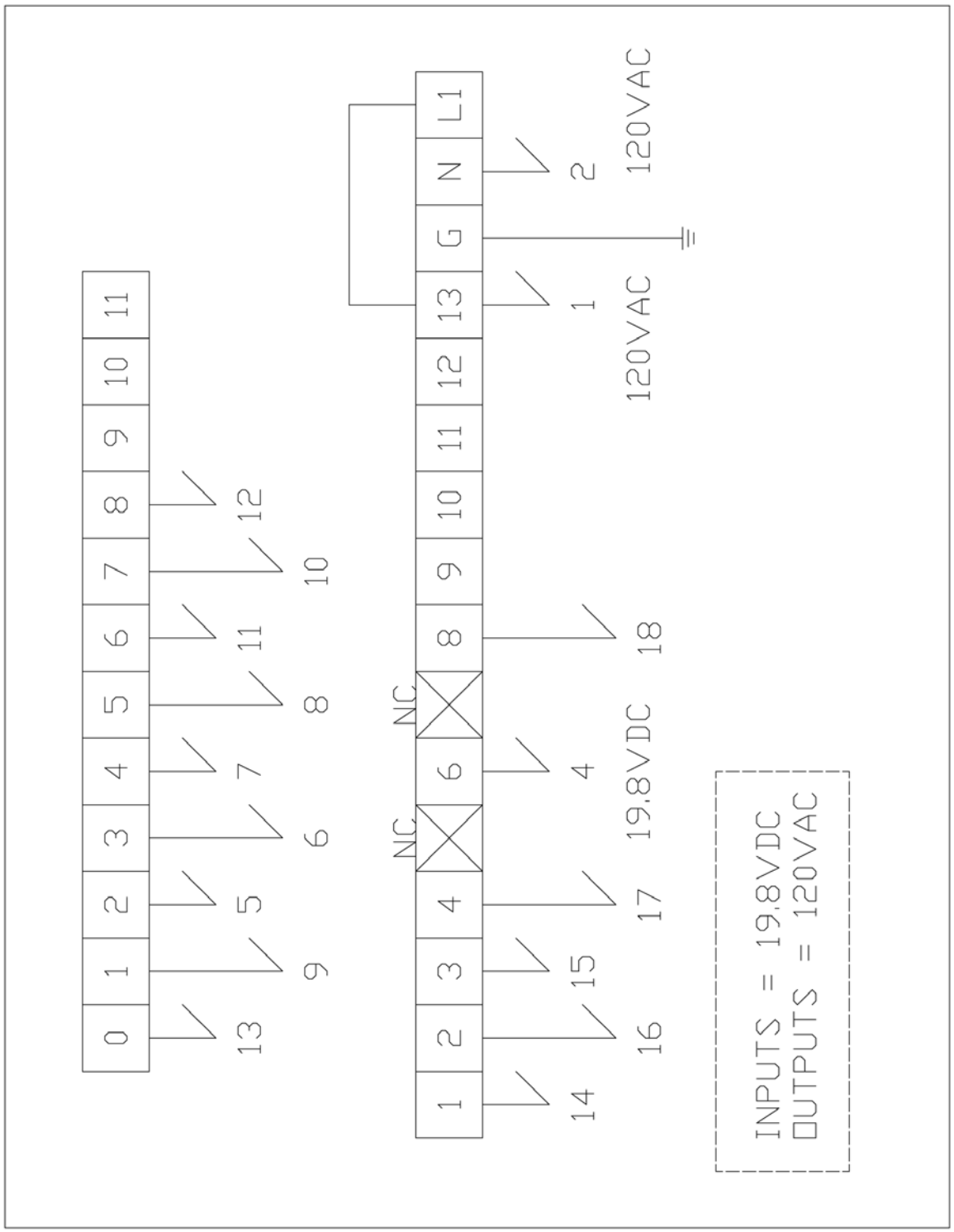
| | | | |
|---|---|---|---|
| #0 | Select-O-Stop | on=active | (optional) |
| #1 | Foot or Hand | on=active | (external opto feeds input) |
| #2 | LS1 | on=closed | |
| #3 | LS2 | on=closed | |
| #4 | LS3 | on=closed | (optional, tie to #5 if not used) |
| #5 | LS4 | on=closed | |
| #6 | Guard contact1 | on=Green | |
| #7 | Guard bypass | on=Guarded | (Bypass is for Setup only) |
| #8 | Guard contact2 | on=Green | |

**NOTE: You must tie the inputs #4 and #5 together if you do not have the Select-O-Stop option installed.**

**NOTE: Guard bypass should be used for Setup only.**

## TROUBLESHOOTING

| Problem | Check (Yes or No) | If you determine (No) |
|---|---|---|
| Mute-Out relays do not turn on when FOOT/HAND switch is closed, but all power LEDs are lit (D2, D51, D53, D65) | Is input #1 LED lit? | The computer is not getting the signal if the input is not lit. |
| " | Is LS1 and LS2 both off? | Fault. This is not allowed. Fix the Limits and cycle power. |
| " | Is input #4 tied to LS3 or to input #5? | Fault, input #4 must have a signal from either LS3 (if you have Select-O-Stop) or LS4. You must fix this and cycle power |
| " | Did Limit Switches cycle in the same sequence as described on page 2? | Fault. Fix the sequence and cycle power. |
| Mute-Out relays do not turn on when FOOT/HAND switch is closed, guard is on. | Is Guard active (input #7 lit)? | If No: Call<br>If Yes: Check are input #6 and #8 lit? If No: check guard output. |
| Not stopping at Select-O-Stop position | Is input #0 lit? | The computer is not getting the signal if the input is not lit. |
| " | Is LS3 closed on the down stroke (at the point at which the press should stop)? | Fix LS3, see page 2. |


0
1
2
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10
12
1
2
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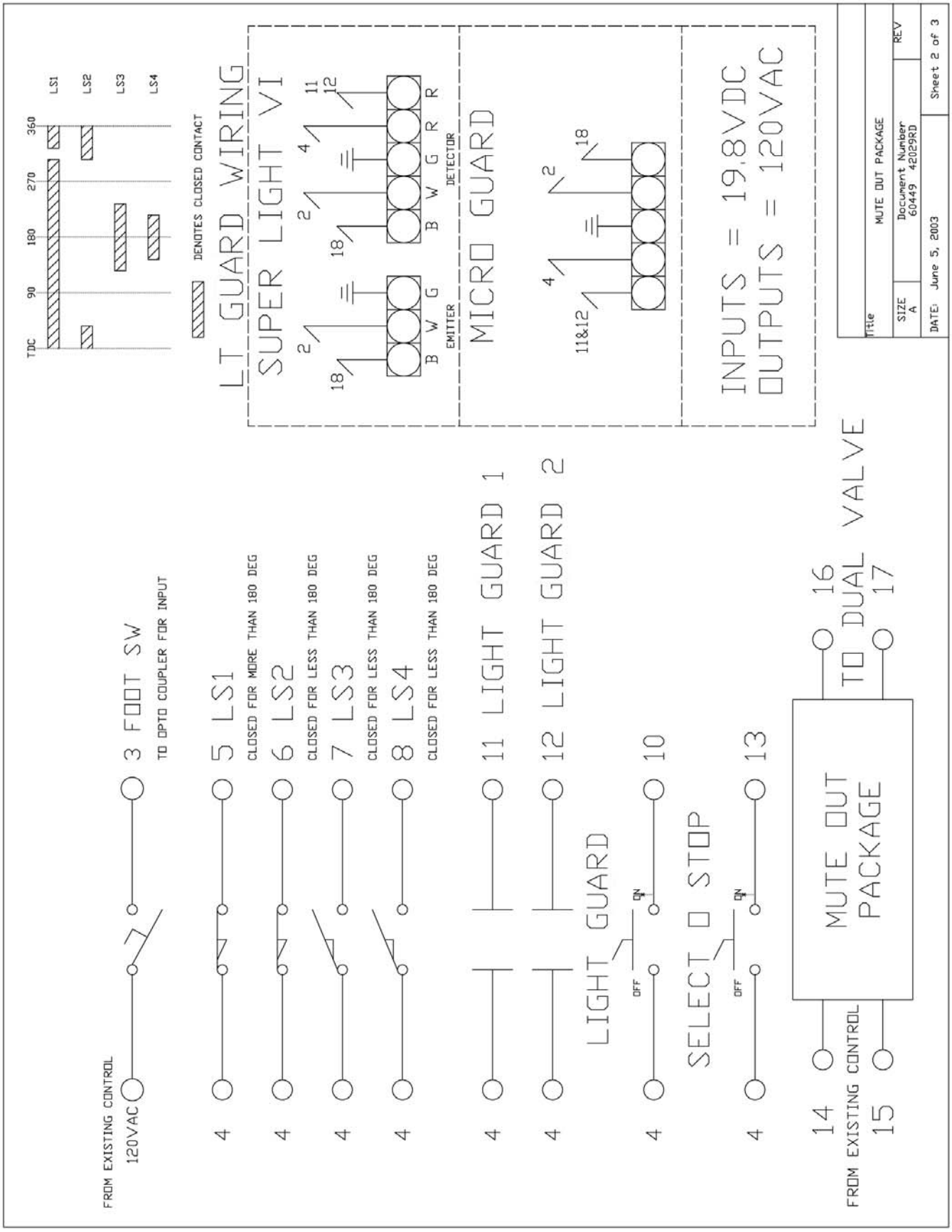
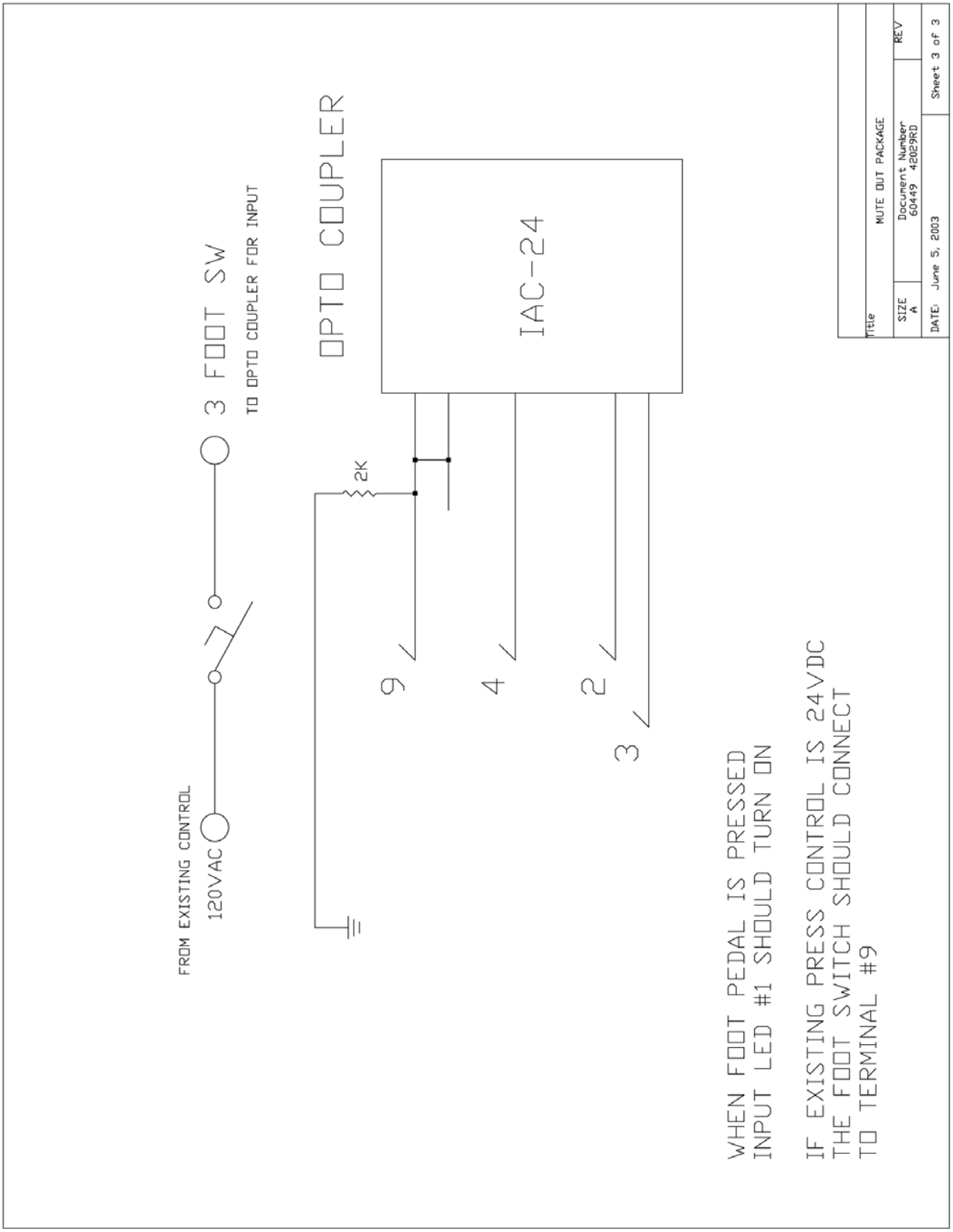
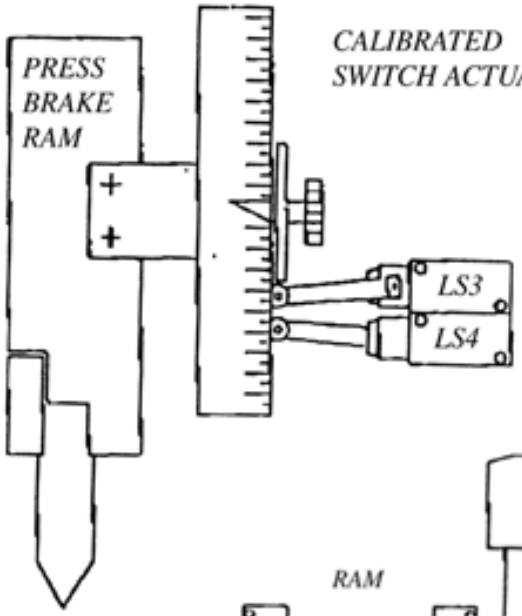
7
8
9
10
11
12
13
G
N
L1
NC
NC
1
2
120VAC
120VAC
13
14
15
16
17
19.8VDC
4
18
INPUTS = 19.8VDC
OUTPUTS = 120VAC


LT GUARD WIRING
SUPER LIGHT VI
MICRO GUARD
INPUTS = 19.8VDC
OUTPUTS = 120VAC
DENOTES CLOSED CONTACT
TDC 90 180 270 360
LS1 LS2 LS3 LS4
EMITTER
DETECTOR
B W G
B W G R R
FROM EXISTING CONTROL
120VAC
3 FOOT SW
TO OPTO COUPLER FOR INPUT
5 LS1
CLOSED FOR MORE THAN 180 DEG
6 LS2
CLOSED FOR LESS THAN 180 DEG
7 LS3
CLOSED FOR LESS THAN 180 DEG
8 LS4
CLOSED FOR LESS THAN 180 DEG
11 LIGHT GUARD 1
12 LIGHT GUARD 2
LIGHT GUARD
SELECT D STOP
OFF
ON
MUTE OUT PACKAGE
TO DUAL VALVE
FROM EXISTING CONTROL
Title
MUTE OUT PACKAGE
SIZE A
Document Number 60449 42029RD
REV
DATE: June 5, 2003
Sheet 2 of 3


FROM EXISTING CONTROL
120VAC
3 FOOT SW
TO OPTO COUPLER FOR INPUT
OPTO COUPLER
2K
IAC-24
9
4
2
3
WHEN FOOT PEDAL IS PRESSED
INPUT LED #1 SHOULD TURN ON
IF EXISTING PRESS CONTROL IS 24VDC
THE FOOT SWITCH SHOULD CONNECT
TO TERMINAL #9
Title
MUTE OUT PACKAGE
SIZE
A
Document Number
60449 4202RD
REV
DATE: June 5, 2003
Sheet 3 of 3




LS1 AND LS2 LIMIT SWITCHES MUST BE ACTUATED NEAR THE TOP OF THE STROKE. IF THERE IS AN EXPOSED CRANKSHAFT THAT MAKES ONE REVOLUTION FOR EVERY STROKE OF THE PRESS, CAMS SIMILAR TO THE ONES SHOWN IN ILLUSTRATION "A" SHOULD BE USED. THE DWELL OF THE CAMS WILL VARY DEPENDING ON THE STOPPING TIME OF THE PRESS. IF ADDITIONAL SWITCHES ARE REQUIRED, REFER TO TIMING CHART ON ELECTRICAL DRAWING.

IF AN EXPOSED CRANKSHAFT IS NOT AVAILABLE AS IS OFTEN THE CASE ON CHICAGO PRESS BRAKES, AN ACTUATOR ARM SIMILAR TO THE ONE SHOWN IN ILLUSTRATION "B" MUST BE USED. NORMALLY THE CORRECT SEQUENCE CAN BE OBTAINED BY ADJUSTING THE ANGLE OF THE ARMS SO LS2 IS ACTUATED ON THE UPSTROKE BEFORE LS1. LS1 IS ACTUALLY THE SWITCH THAT SIGNALS THE PRESS TO STOP.

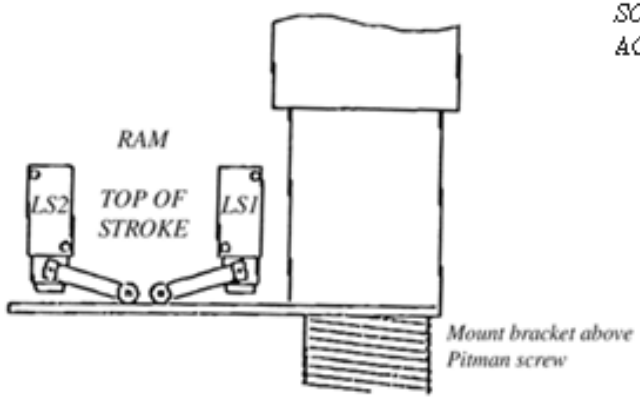
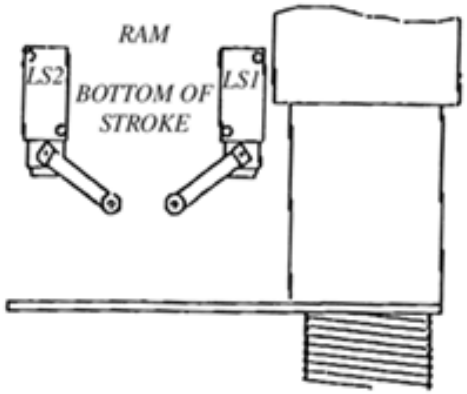



ILLUSTRATION B




Top Dead Center

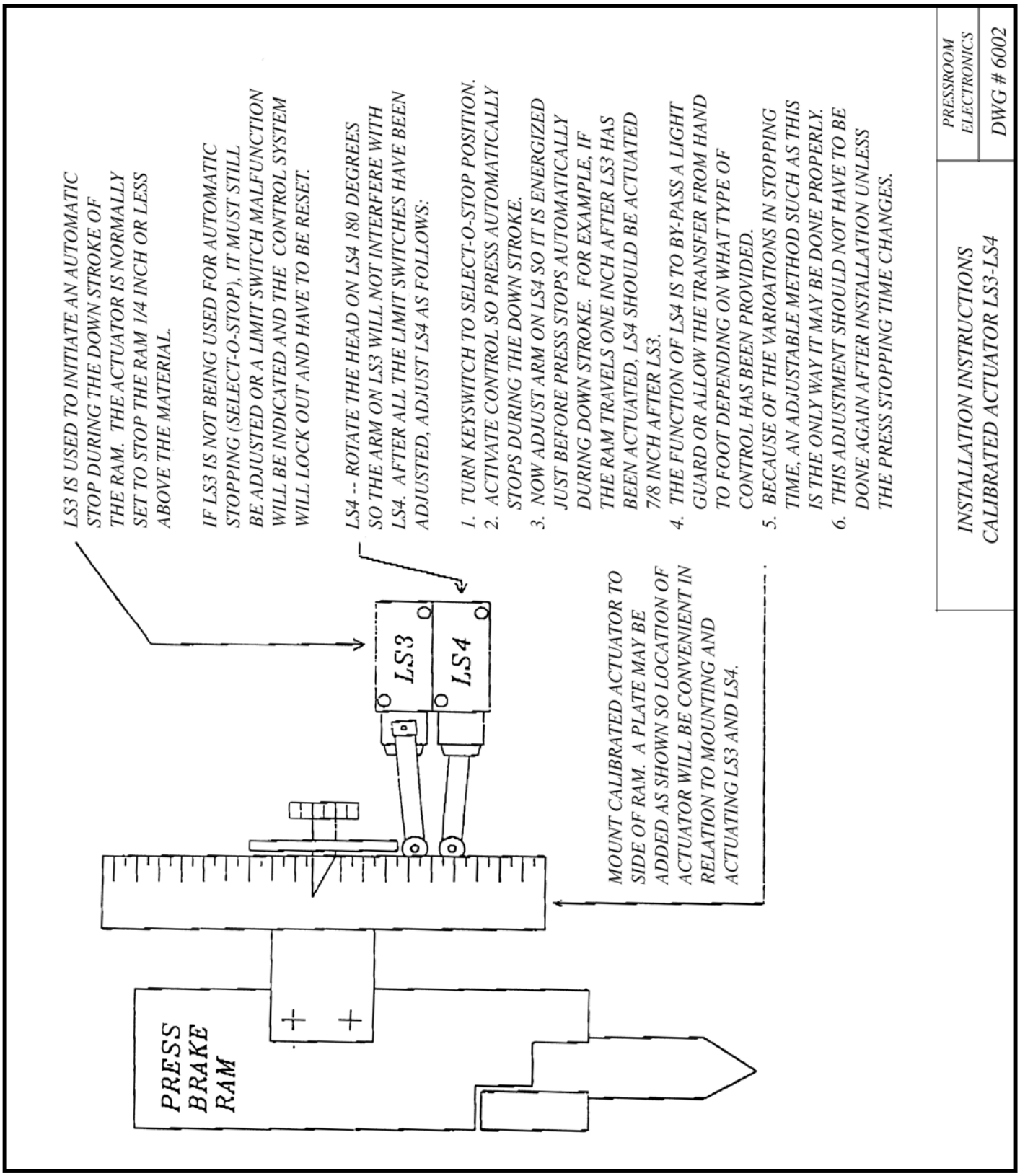
ILLUSTRATION A

Top Dead Center

IF ADDITIONAL SWITCHES ARE REQUIRED SUCH AS LS4 AND LS5, MAKE CAMS IN A SIMILAR MANNER AND ACTUATE ACCORDING TO TIMING CHART ON ELECTRICAL DRAWING.

IF ROTARY SWITCH IS USED, ADJUST CAMS ACCORDING TO TIMING CHART ON ELECTRICAL DRAWING.

| | |
|---|---|
| INSTALLATION INSTRUCTIONS<br>CALIBRATED ACTUATOR LS1-LS2 | PRESSROOM ELECTRONICS<br>DWG# 60003 |


LS3 IS USED TO INITIATE AN AUTOMATIC STOP DURING THE DOWN STROKE OF THE RAM. THE ACTUATOR IS NORMALLY SET TO STOP THE RAM 1/4 INCH OR LESS ABOVE THE MATERIAL.
IF LS3 IS NOT BEING USED FOR AUTOMATIC STOPPING (SELECT-O-STOP), IT MUST STILL BE ADJUSTED OR A LIMIT SWITCH MALFUNCTION WILL BE INDICATED AND THE CONTROL SYSTEM WILL LOCK OUT AND HAVE TO BE RESET.
LS4 -- ROTATE THE HEAD ON LS4 180 DEGREES SO THE ARM ON LS3 WILL NOT INTERFERE WITH LS4. AFTER ALL THE LIMIT SWITCHES HAVE BEEN ADJUSTED, ADJUST LS4 AS FOLLOWS:
1. TURN KEYSWITCH TO SELECT-O-STOP POSITION.
2. ACTIVATE CONTROL SO PRESS AUTOMATICALLY STOPS DURING THE DOWN STROKE.
3. NOW ADJUST ARM ON LS4 SO IT IS ENERGIZED JUST BEFORE PRESS STOPS AUTOMATICALLY DURING DOWN STROKE. FOR EXAMPLE, IF THE RAM TRAVELS ONE INCH AFTER LS3 HAS BEEN ACTUATED, LS4 SHOULD BE ACTUATED 7/8 INCH AFTER LS3.
4. THE FUNCTION OF LS4 IS TO BY-PASS A LIGHT GUARD OR ALLOW THE TRANSFER FROM HAND TO FOOT DEPENDING ON WHAT TYPE OF CONTROL HAS BEEN PROVIDED.
5. BECAUSE OF THE VARIOATIONS IN STOPPING TIME, AN ADJUSTABLE METHOD SUCH AS THIS IS THE ONLY WAY IT MAY BE DONE PROPERLY.
6. THIS ADJUSTMENT SHOULD NOT HAVE TO BE DONE AGAIN AFTER INSTALLATION UNLESS THE PRESS STOPPING TIME CHANGES.
LS3
LS4
MOUNT CALIBRATED ACTUATOR TO SIDE OF RAM. A PLATE MAY BE ADDED AS SHOWN SO LOCATION OF ACTUATOR WILL BE CONVENIENT IN RELATION TO MOUNTING AND ACTUATING LS3 AND LS4.
PRESS BRAKE RAM
INSTALLATION INSTRUCTIONS
CALIBRATED ACTUATOR LS3-LS4
PRESSROOM ELECTRONICS
DWG # 6002