



SAFETY SYMBOLS:

The operating instructions use definitions or symbols to draw attention to information that is especially important. Hazardous points on all machines are marked with signs and notices that are described below.

Special care and attention must be dedicated to zones marked with these signs and notices. The user must draw the attention of machine or system operators to these signs and must explain their meaning.

SYMBOL	DESCRIPTION
	<p>ELECTRICAL SHOCK / ELECTROCUTION. INDICATES THAT CRITICAL VOLTAGES (>30 VAC OR 60 VDC) ARE PRESENT. USE PROPER PPE PRECAUTIONS.</p>
	<p>EYE PROTECTION MUST BE WORN</p>
	<p>SAFETY GLOVES MUST BE WORN</p>
	<p>HIGH TEMPERATURE HEATED SURFACE DO NOT TOUCH</p>
	<p>ENTANGLEMENT HAZARD</p>



SAFETY WARNINGS AND INFORMATION:

- Machine is to be set up by trained personnel only
- Eye protection and safety gloves must be worn when operating the machine. End user must provide eye protection and safety gloves in accordance with the personal protective equipment directive 89/686/EEC
- Materials weighing more than 18 kg (39.6 Lbs.) must be lifted by two people
- Use Lockout/ Tagout procedures when conducting maintenance
- Always follow vendors' instructions for safe handling of lubricants



DAILY SETUP:

Follow the following procedures in this section before each use of the machine to set temperature and speed for each Insulated Glass unit (IG unit) or, if a large number of identical IG units are to be pressed, for each series. Erdman recommends consulting the spacer manufacturer to determine the proper finished thickness of IG units manufactured with their product.

1. Set the dial indicator to the manufacturer's total finished thickness.
2. Set the speed knob between 5 and 6.
3. Press the START button
4. Place the assembled IG unit on the Feed In conveyor roller, making sure that the IG unit trips the limit switches for as many heat zones as the width of the IG unit crosses.

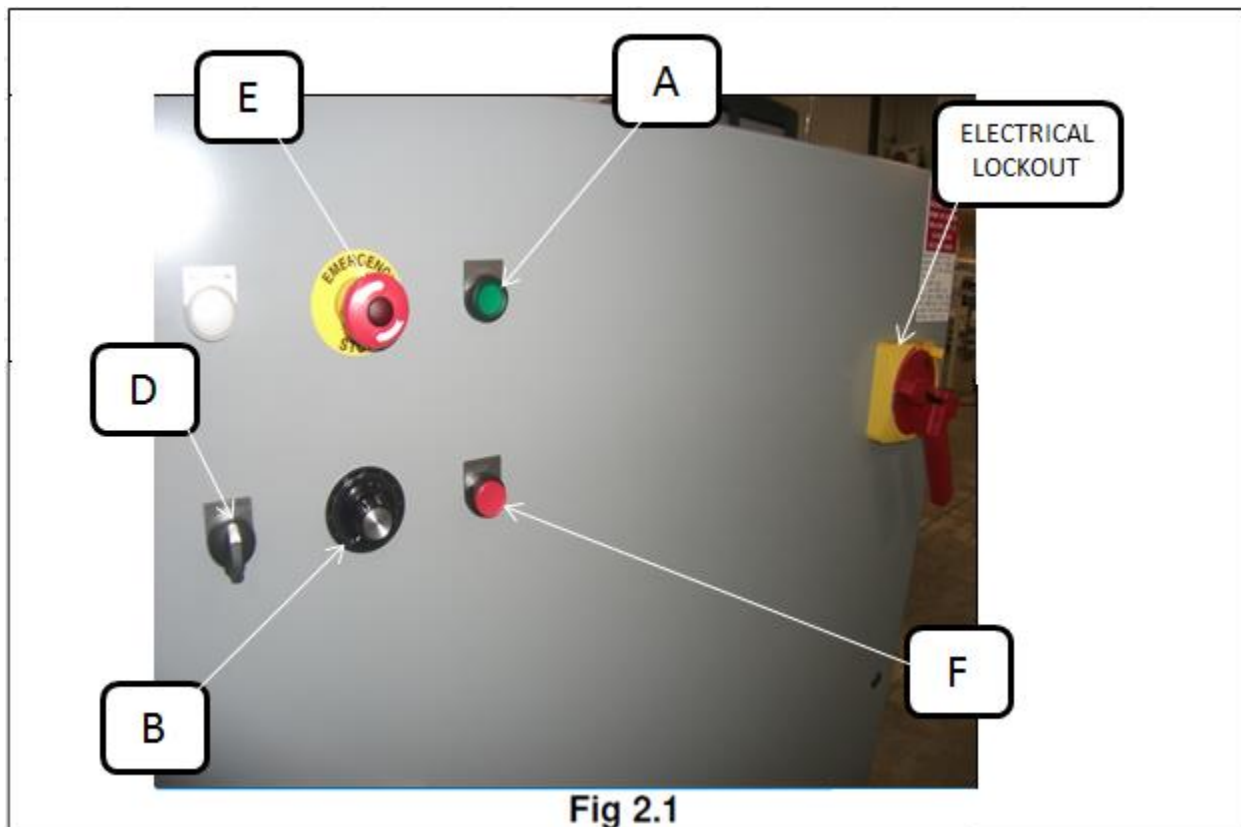
The open end of the spacer should be at the trailing edge of the IG unit so that it passes through the press last. Run the IG unit through the press diagonally so that the amount of sealant being pressed will cause the amount of resistance to the press to remain constant. The exit temperature is controlled by adjusting the speed at which the conveyor moves the IG unit through the heater section. Setting the conveyor at a higher speed will pass the IG unit through the machine in less time, and the sealant will, therefore have a slightly lower temperature as the IG unit exits the machine. Conversely, lower speeds will produce higher exit temperatures. It is recommended to call your sealant manufacturer's representative to determine the proper exit temperature for your application. Then set the speed of the heat section conveyor so that exiting IG units fall within that range. Carefully lift the finished, pressed IG unit from the conveyor as it exits the compression roller section of the machine. Final finishing of the completed IGU is to be determined by the instructions of the spacer supplier.



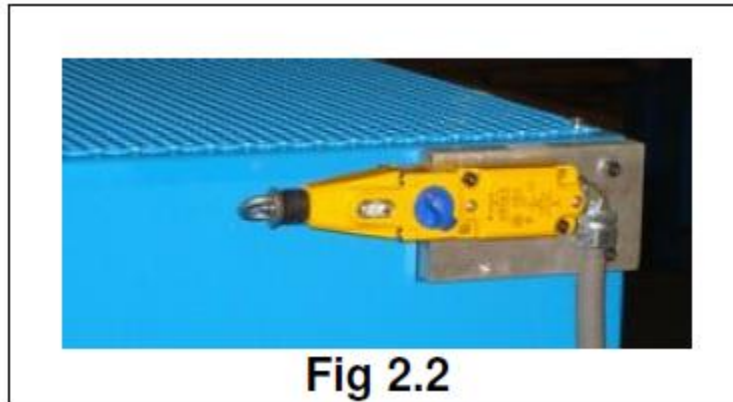
STEP BY STEP OPERATIONS:

The first seven steps in the operating procedure concern preparing the machine: turning it on and making safety checks.

1. Turn on main power by rotating the electrical lockout to the ON position (Fig 2.1)
2. Locate the START button (Fig 2.1.A) on the main electrical enclosure, and press this button. The light on the control panel will go on.
3. Operate the conveyor control switch (Fig 2.1.B) on the control panel. The conveyor will begin to operate.
4. If the IG unit is being sealed with hot application sealant, move the Heater control switch (Fig 2.1.D) to the ON position. The white light marked HEATERS ON on the main electrical enclosure will go on.
5. Test the operation of the heating section by manually activating all the heater control sensors across the width of the conveyor. Inside the heating section, all the heat zones will be activated.



6. With the conveyor and heat sections running, check the EMERGENCY STOP button (Fig 2.1.E) on the main electrical enclosure by pushing it. The conveyor, blowers, and heater will stop functioning. After pushing the EMERGENCY STOP button, it is necessary to reset the EMERGENCY STOP and push the START button to restart the machine.



7. With the conveyor and heat sections running, check the EMERGENCY STOP CABLE by pulling it from any location around the machine. The conveyor, blowers, and heater will stop functioning. After pulling the EMERGENCY STOP CABLE, it is necessary to reset the EMERGENCY STOP (Fig 2.2) and push the START button to restart the machine.
8. It is recommended to run the press prior to start of production to bring the heat section up to normal operating temperature.

The Heated Roller Press is now ready for operation.

9. Calculate finished thickness of the IG unit(s) to be pressed by adding together the thickness of the two panes of glass and the proper finished thickness of the sealant system being used.
10. Adjust the compression rollers to that height by setting the DIAL / DIGITAL INDICATOR to the desired finished thickness.
11. Place the IG "sandwich" (glass / sealant / glass) diagonally on the INFEED conveyor. If the conveyor is not already operating, push the green START button on the main electrical enclosure. The IG unit will move forward on the conveyor, activating limit switches across its width. The IG unit will transfer from the roller conveyor into the heating section. If the IG unit is being sealed with hot application sealant, the heating section will be turned on and the limit switches will turn on the appropriate number of heat zones to cover the IG unit's width. Infrared lamps warm the sealant to the proper temperature but leave the glass cooler. The heating section should be inactive if the IG unit is being sealed with PIB cold sealant. When the IG unit exits the heating section, it will enter the roller section. Rollers will compress the unit to the size established on the Dial Indicator. The unit then exits the machine and is ready to be "dressed" and crated or put into a sash. When the delay time passes, the heating section will go off and the press will be ready for The next IG unit. If the next IG unit to be pressed will have a finished thickness different from that of the preceding unit, remember to use the dial indicator to re-adjust the compression rollers to the next correct, finished size.



TIPS FOR MORE ACCURATE SIZING OF IG UNITS:

- **Check the Exit Temperature of Hot Application Sealant:** When the first IG unit comes off the machine. The sealant manufacturer's representative can tell you the best exit temperature range for your sealant application. If the exit temperature of the first unit is too low, decrease the conveyor speed by turning the SPEED CONTROL knob counter-clockwise slightly. This will allow the unit to pass through the heating section more slowly and thus to get a little warmer. If the temperature is too high, increase the conveyor speed control by turning the SPEED CONTROL knob clockwise slightly. Check the exit temperature of the sealant on the next several units, and adjust the conveyor speed appropriately. As the machine will get hotter with use, it may be necessary to use a slow conveyor speed at the start of the shift and gradually increase the speed as the shift goes on. **(Proper sealant /air temperature at the time of “final corner seal” is critical to long term durability. Follow the instructions of the sealant supplier carefully.)**
- **Run IG Units through the Press on an Angle:** This ensures that the side of an IG unit--and, therefore, a whole length of sealant--does not meet the compression roller all at once. This will ensure that the amount of sealant being compressed at a given time--and, therefore, the amount of resistance against the compression rollers--will remain constant.
- **Place the IG Unit on the Conveyor So That the Open End of the Unit Enters the Machine Last**
- **Special Note:** Tinted glass will absorb infrared energy in the heating section; reflective coatings on glass will reflect infrared energy away. When running IG units with tinted glass or reflective coatings, some conveyor speed adjustment may be necessary to maintain proper sealant temperature. When using tinted glass or glass with reflective coatings, assemble the IG units with LOW EMISSIVITY (LOW E) on top.

TO ADJUST THE COMPRESSION ROLLERS:

Remove the guard covering the compression rollers. Determine which corner of the upper roller pallet (carrier) you want to move (adjust).

1. Loosen the idler sprocket bolt and remove the idler sprocket.
2. Enough chain length is present to rotate the adjustment rod one tooth at a time. Clockwise rotation of the adjustment rod increases the distance between the compression rollers. Counter clockwise vice versa.
3. Mark the chain and the sprocket before making any adjustments. This is a visual indicator for checking the chain to sprocket relationship after adjustment.
4. Moving the sprocket one tooth on the chain is approximately .007”.
5. Side to side dimensions should be close to the same. “In” to “Out” measurements (taper) of the press is determined by the product mix and specified by spacer supplier.
6. After adjusting, reinstall the idler sprocket, tighten the chain and recheck the adjustments you just made. If further adjustments are required, start at Item



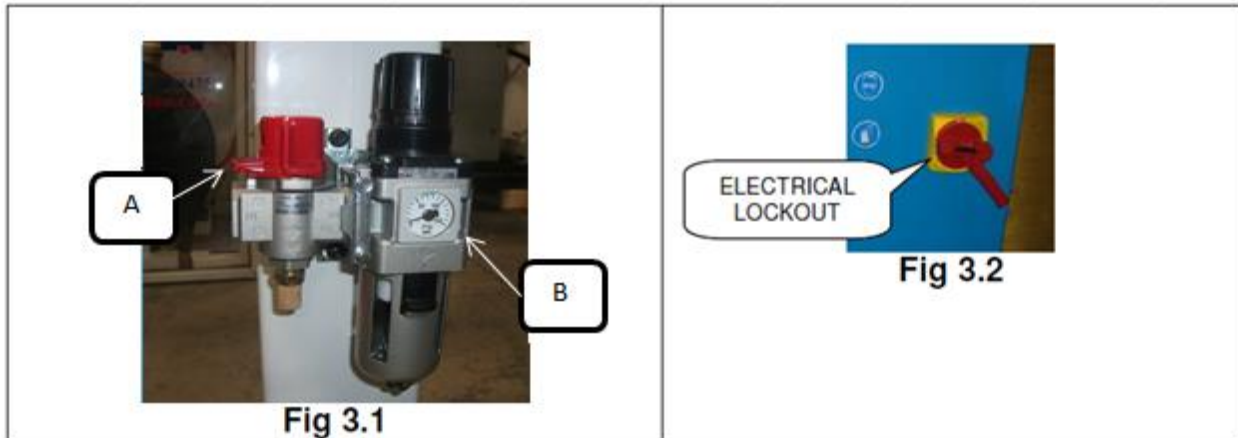
#1. When the delay time passes, the heating section will go off and the press will be ready for the next IG unit. If the next IG unit to be pressed will have a finished thickness different from that of the preceding unit, remember to use the dial indicator to re-adjust the compression rollers to the next correct, finished size.



MAINTENANCE:



Warning: Prior to performing maintenance on the machine, shut off air supply and install safety lock, Fig. 3.1 Item A. In addition, turn off Electrical Disconnect and install safety lock. Fig. 3.2



LABEL	DESCRIPTION
A	Pneumatic Lockout. Unscrew actuator to exhaust air supply and apply safety lock prior to working on machine.
B	Air supply filter and regulator, adjustable. Set at 241 kPa (35 PSI).

SCHEDULED MAINTENANCE:

IMPORTANT:

Never perform any maintenance work on the heated roller press without first turning off the electrical power at the main electrical enclosure and allowing the machine to cool down. All personnel using the press or performing maintenance procedures should be familiar with the machine and all its EMERGENCY STOP switches. The surface temperature of the infrared quartz bulbs during operation is in excess of 1500 degrees Fahrenheit. The heater panel frames can reach temperatures as high as 200 degrees Fahrenheit. To avoid serious burns, always wait until the machine is cool before performing any maintenance of the bulbs or heating panels. Scheduled maintenance is discussed according to the frequency with which the maintenance procedure should be performed.



DAILY MAINTENANCE:

1. Inspect heaters for inoperable lamps. Replace as required.
3. Check F.R.L. for lubricant in the lubricator bowl.
4. Clean any sealant from compression rollers.
5. Clean blower inlet screens or inspect blower inlet filters, replace if necessary.
Use shop vacuum to clean.

MONTHLY MAINTENANCE:

Inspect the machine once a month for any damage or abnormal wear of components.

EVERY SIX MONTHS:

After 6 months or 5000 hours or 250,000 units drain gear lubricant and replace with American Gear Manufacturer's Association (AGMA) compound #8 lubricant or the equivalent, AGMA synthetic compound #8 lubricant can also be used. Every six months, lubricate the drive chains using a mixture of oil and grease or any suitable chain lube product.

AS NEEDED MAINTENANCE:

Heat Lamps:

With normal use, heat lamps might require replacement. To examine the heating section to see which lamp or lamps require replacement, use a 5/16" wrench to remove the bolts that hold the heater section cover closed, and lift the cover.

A welder's lens should be used so that the customer can look into the heating section and see which lamp or lamps are not functioning. Do not look into the heating section without proper eye protection.

Roller Presses wired to operate on 380 - 415 volts, 460 volts, or 575 volts have heat lamps wired in a series. Check the serial tag to learn the voltage specifications to which your machine is made. If your machine is wired in series, one burned-out heat lamp may interrupt current to two or three lamps and make both or all three non-functional. Check filament continuity with an ohmmeter to find out which lamp is burned out. To use the ohmmeter, at least one end of each lamp must be disconnected from its connection terminal.

Once you have determined which lamps need replacement, follow the procedure below.

NOTE:

- **The surface temperature of the infrared quartz bulbs during operation is in excess of 1500 degrees Fahrenheit. The heater panel frames can reach temperatures as high as 200 degrees Fahrenheit. To avoid serious burns, always wait until the machine is cool before performing any maintenance of the bulbs or heating panels**
- **Over time, dust and dirt could settle in the lower heating panel. Dust and dirt could cover heat lamps and make the machine less efficient. While replacing**



or checking heat lamps, use a vacuum to clean dust and dirt from the heater panel. If the heat lamps require cleaning and a vacuum is not sufficient, wipe them with a dry soft cloth while they are cool.

1. Turn off and lock out the power supply to the heated roller press.
2. To access the heater panels, lift and tip the upper panel so that it rests on its side.
3. When replacing lamps in the upper heating panel, place a large piece of cardboard over the rollers. This covers the lower heating panel and protecting those lamps from falling tools or debris, which could break the lamps.
4. Remove the covers that retain the lamp at both ends.
5. Remove the nut and washer from both ends of the lamp.
Be careful not to move the stud that supports the lamp. Be careful not to drop any tools, nuts or washers. Small parts can fall into cooling holes in the heater panels; any falling tools or parts could shatter a lamp.
6. Remove the burned-out lamp by lifting it off the stud.
7. Use the old lamp as a guide, and cut the leads on the new lamp to the same length.
8. Crimp the new ring terminal onto the lamp. This must be a tight and secure connection, or arching could result.
9. Clean the new lamp with a water/alcohol mixture to remove any oil or dust. Once the lamp is clean, try not to touch the glass as fingerprints or other dirt will shorten the operating life of the lamp.
10. Install the new lamp by placing it on the stud at both ends. After installing a new heat lamp, move the leads into a position so that they do not contact the heater panel. Such contact could cause a short circuit and burn out the new lamp.
11. Replace the washer, nut, and retaining covers on both ends of the lamp. If the lamp being replaced was in the upper section, remove protective cardboard from the rollers over the lower section.
12. **IMPORTANT:** Vacuum the lower heater section to remove any dust, dirt or glass.
13. Lower and close the upper heating section.
14. Reinstall all guards that were removed. This completes the heat lamp replacement procedure.

Compression Rollers:

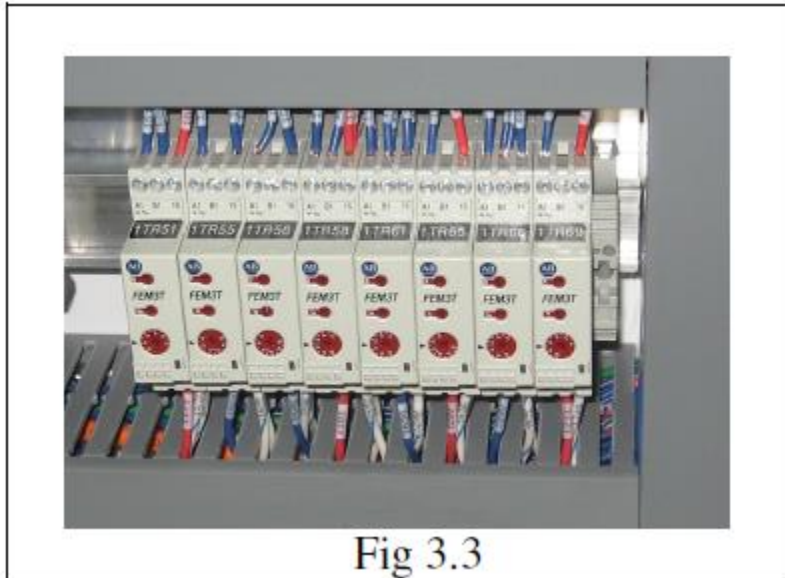
Clean the compression rollers whenever debris is visible on them. Debris could include particles of glass, sealant, or even dust.

Heating Section Timer:

If the conveyor is being run at a very low speed, it may be necessary to adjust the heat section timer so that the heater section itself remains on until after the IG unit has passed completely through it. (WARNING: Line voltage will be present in the machine's electrical circuit when timer adjustments are made. Only personnel who are



knowledgeable about electrical circuitry should adjust the timer, and they should do so with extreme caution.)



Roller Adjustment:

Compression rollers in the press are preset, and they should require no initial adjustment. After a period of use, however adjustment may become necessary. If the rollers are not parallel, the machine will produce finished IG units with inconsistent finished thicknesses. If the taper between the upper and lower pallets from front to back is not correct, compression will be inaccurate.

Parallel Adjustment:

Periodically check to be sure the rollers are parallel by measuring the space between the top and bottom roller on both ends of each pair. Use a ruler or caliper to measure the space. The space between rollers should be equal on both sides of the pallet. If the rollers are parallel, no adjustment is necessary. If the rollers are not parallel, follow the procedure below to set them right. As the bottom rack of rollers is fixed and not adjustable, all adjustments must be made with the top rack.

1. Check the lower pallet for level.
2. Use a ruler or caliper to measure the space between the rollers on both sides of the first and last pair to determine which corner of the top rack of rollers needs adjustment.
3. Find the two setscrews in the tapered sprocket over the corner requiring adjustment and loosen one at least two full turns. Remove the other screw completely.
4. Thread the removed screw into the third hole and tighten it until it loosens the sprocket from the shaft. Then remove that screw and replace it loosely in its original hole.
5. Turn the ACME threaded rod in the appropriate direction until the top rollers are parallel to the bottom rollers. Turning the rod counterclockwise lowers the pallet;



turning it clockwise raises the pallet.

6. When adjustment is complete, tighten the setscrews in their original holes on the tapered sprocket. This concludes parallel adjustment of the roller section.

Front-to-Back Adjustment:

The first compression roller in the top pallet should be set per the confirmation. Measure the distances between the two pairs of rollers with a ruler or a caliper. If adjustment is necessary, proceed as follows:

1. Check for level.
2. Find the two setscrews in the tapered sprocket on one side of the pallet and loosen one at least two full turns. Remove the other screw completely.
3. Insert the loose screw into the third hole and tighten it until the sprocket comes loose from the shaft. When the sprocket is loose, remove the screw and replace it loosely in its original hole.
4. Turn the ACME threaded rod in the appropriate direction to make the adjustment. Turning the rod counterclockwise lowers the pallet; turning it clockwise raises the pallet.
5. Repeat steps (1 - 3) on the other side of the pallet so that the rollers are parallel and set to the proper height. This concludes front-to-back adjustment of the roller pallet.

Re-calibrating the Dial Indicator:

The machine's dial indicator is pre-set so that it will not need adjustment until the customer adjusts the rollers. If use of the machine necessitates adjustment of the rollers, however, it will also be necessary to readjust the dial indicator. After completing roller adjustment, follow the procedure below to adjust the dial indicator.

1. Locate a metal bar or piece of wood with a precisely measured, known thickness. Place it between the final pair of rollers.
2. Lower the rollers so that the last roller barely touches the metal bar or piece of wood.
3. Adjust the dial indicator to read 0.035" - 0.040" (1 mm) more than the known thickness of the metal bar or piece of wood.
4. Make final adjustments according to precise measurement of a finished IG unit, making sure it matches the dial indicator setting. This completes re-calibration of the dial indicator.

Replacing the Photo-Sensitive Safety Switch:

The photosensitive safety switch, located between the heating section and the roller section, operates when its light beam is broken. The beam is broken when any object of inappropriate size (anything other than an IG unit of the size set on the dial indicator) tries to enter the roller section machine. When the beam is broken, the machine will shut off. It is necessary to raise the rollers and press the START button to re-activate the machine. If the photosensitive safety switch is found to be inoperable, follow the replacement procedure below.



1. Remove the lexan cover over the entry to the roller section of the machine.
2. Locate the photosensitive switch between the heating section and the compression roller section of the machine.
3. Remove the old switch by unscrewing the retaining nut and wire nut connections with your fingers. Save all nuts, including the yellow wire nuts. Leave the mounting bracket in place on the machine's frame.
4. Install the new switch with the same retaining nuts and wire connecting nuts. Be certain to reconnect the wires to the appropriate terminals. Refer to the appropriate electrical schematic for guidance.
5. Align the new switch with the reflector on the opposite side of the machine so that the red indicator light on the switch goes off. When the indicator light goes off, the switch is aligned and its light beam is being reflected back.
6. When the switch is aligned as well as the operator can align it, whether the red indicator light is on or off, adjust the sensitivity of the device. This is done by adjusting the TRIM POT, a small screw next to the red indicator light. Adjust the TRIM POT with a jeweler's screwdriver. Turning the screw counterclockwise decreases the switch's sensitivity, while turning it clockwise increases sensitivity. If the light is on, turn the TRIM POT clockwise until it goes off. If the red light is already off, turn the TRIM POT counterclockwise until the light comes on, then clockwise until it goes off.
7. Check the alignment by placing a 1/8" shim on each side of the machine between the two sets of compression rollers and lowering the upper pallet of compression rollers until they barely touch the shim. Next, place a second 1/8" shim on top of the first one. Adjust the photo eye up or down so that the light beam clears the first shim but is broken by the second.
8. This completes replacement of the photosensitive safety switch.



TROUBLESHOOTING:

Below is a list of potential problems and their probable causes. The list is arranged chronologically, in the order the problem would be detected through normal operation of the machine. When such a problem is detected, check through the list of probable causes in the order found below until the cause is identified. Many of the solutions are implied in the cause. For example, if the problem is that the in-coming power is not on, the solution is to turn on the power. Solutions that are not implied are discussed as they come up. While the machine is still under warranty, contact Erdman Automation before performing any repair, service, or modification other than scheduled maintenance. The machine's warranty is void if the customer performs any repairs, replacements, or adjustments other than scheduled maintenance without prior approval. All the problems listed below can be solved by adjustment or by replacing faulty components. Adjustment and replacement instructions for some of these potential problems can be found in this manual. If instructions for solving the problem are not found in this manual, call Erdman Automation for service. If an adjustment or replacement procedure is not discussed in this manual, do not attempt it yourself.

1) Roller Press will not start; the Power light is OFF.

- a) The in-coming power may not be on.
- b) The main disconnect switch may not be on.
- c) The main fuses may be blown.
- d) The control circuit fuse may be blown.
- e) Transformer fuses may be blown.
- i) The photosensitive safety switch may be inoperable.
- ii) It may not be lined up with the reflector.
- iii) The reflector or lens may be dirty.
- iv) The device's sensitivity may be set too low.
- v) The relay may be faulty.
- f) The emergency cable stop may not have been reset.
- g) The machine's transformer may be faulty.

2) Roller Press will not start; the Power light is ON.

- a) The motor controller fuses may be blown.
- b) The Speed dial may be turned down to OFF.
- c) The motor controller may be faulty.
- d) The drive motor may be faulty.
- e) The start button contacts may be burned.

3) The heat lamps will not light, but the conveyor runs.

- a) The heat zone switch may be in the off position, or it may be faulty.
- b) The heater contactor may be faulty.
- c) The controller may be inoperable.
- d) The heater limit switches may be faulty.
- e) All the lamps may be burned out.



- 4) The Blowers will not run, but the heat lamps are on.
 - a) The blower fuses may be blown.
 - b) The thermal overload switch may be tripped. Push the RESET button on the motor starter.
 - c) The motor may be faulty.

- 5) The heat lamps do not turn off after delay time.
 - a) The contactor may be faulty.
 - b) The Limit Switches may be faulty.
 - c) The controller may be faulty.

- 6) Glass in the IG unit breaks as it passes through the machine.
 - a) Conveyor speed may be too high, preventing the sealant from getting warm and pliable enough.
 - b) Heating lamps may be burned out so that heating section does not produce enough heat to warm sealant.
 - c) Rollers may have the wrong taper for the product mix, and so may compress the IG unit too much or too fast.
 - d) The dial indicator may be improperly set or adjusted.

- 7) Inconsistent thickness of finished IG units.
 - a) Some heat lamps may be burned out so that the sealant is heated inconsistently.
 - b) The Compression rollers may need adjustment to make them parallel.
 - c) The IG units may not have been run through the machine diagonally.
 - d) Heat may be inadequate. If all lamps are functioning, slow the conveyor speed so that IG units spend more time in the heating section.

- 8) Thickness of finished IG units is incorrect but consistent.
 - a) The dial indicator may need adjustment.
 - b) The conveyor speed may be too high, not allowing sealant to get warm enough for proper compression.
 - c) Some heat lamps may be burned out, and the heater may be unable to warm the sealant enough for proper compression.

If you have a problem not discussed in this section, contact Erdman Automation.

REMEMBER: The warranty on this machine is void if the customer alters the machinery without contacting Erdman or performs any maintenance or troubleshooting procedures not discussed in this manual.