

GBC Orca 80-99 Laminator

Instruction Manual



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ORCA 80-99 OPERATION & MAINTENANCE MANUAL

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SAFETY

READ THIS SECTION BEFORE OPERATING THE ORCA 80-99 LAMINATOR!

FOR YOUR SAFETY:

Your safety as well as the safety of others is important to GBC Pro-Tech. In this instruction and on the product are important safety messages. Read these messages carefully.

1. Read all these instructions.
2. Save these instructions for later use.
3. Follow all warning and instructions marked on the product.
4. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not use this product near water.
6. This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or a qualified and certified electrician.
7. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
8. Never push objects of any kind into this product through any slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
9. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to service personnel.

10. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- A. When the power cord is damaged or frayed.
- B. If liquid has spilled into the product.
- C. If the product has been exposed to rain or water.

WARNING:

Never place fingers or arms between the rollers when they are turning or when the rollers are in the closed position.

D. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

E. If the product exhibits a distinct change in performance, indicating a need for service.

Safety Information

WARNING:

It is vital that everyone working around the laminator rolls avoid wearing loose-fitting clothing, ties or dangling jewelry which could be caught in the nip.

The GBC Pro-Tech laminator has been designed with operator safety as a primary consideration. However, operators must become thoroughly familiar with the controls, and proper operation and safety features of the machine *before* starting to use the unit.

GBC Pro-Tech laminators are powerful machines which are designed to accomplish specific tasks such as mounting, laminating and encapsulating. The forces required to accomplish laminating can vary from negligible to very large. The air-cylinder system used to provide downward pressure on the top roll is capable of producing forces greater than 1000 pounds (454 kg). This force can be applied to any object that may be present in the opening (called the nip) between the two rollers.

As a safety measure, the laminator is equipped with a photoelectric eye system which stops the machine when objects or hands are located in the nip area. Once the blocking object is removed and the light beam is reestablished, the laminator rolls resume turning.

Operators should use care in lowering the top laminating roll and know how to react quickly in an emergency. The laminator roll **UP-DOWN** switch is located on the front instrument panel labeled “**Laminator Roll Controls**” on the left-hand side of the machine. As the name implies, this switch controls the up and down motion of the top laminator roll. Before turning this switch to the **DOWN** position, assure that nothing is in the nip area.

Most GBC Pro-Tech machines are designed to heat the lamination rollers. Temperatures can be set to over 200 degrees F (100 degrees C). Thus there is a danger of a severe burn if the rollers are touched during set-up or operation. The machines have steel end cabinets that are bolted closed. They serve to isolate the electrical- and drive-system components.

WARNING:

Please note: All persons working on or near the Orca 80-99 Laminator must be advised of the following:

If any clothing, tools, or anything other than film or paper is inadvertently drawn into the nip, the action of the rolls may be halted immediately (and the top roll lifted) by pushing or striking any of the red E-Stop switches located at the top of the

machine, or by stepping on or kicking the E-Stop cable located at the bottom of the machine.

Quick action in this regard can aid in preventing or minimizing injury or machine damage.

Because of the electrical shock hazard and the chance that a person might get either fingers or clothing into the drive mechanism, the cabinets should only be opened by a *qualified service person*, after the machine is shut off and the power disconnected.

WARRANTY

Limited Warranty

CAUTION:

Unauthorized customer alterations will void this warranty.

GBC Pro-Tech warrants the equipment sold is free from defects in material and workmanship for a period of **one (1) year from the date of delivery to the customer.** This warranty is the only warranty made by Pro-Tech and can not be modified or amended.

GBC Pro-Tech's sole and exclusive liability and the customer's sole and exclusive remedy under this warranty shall be, at GBC Pro-Tech's option, to repair or replace any such defective part or product. These remedies are only available if GBC Pro-Tech's examination of the product discloses to GBC Pro-Tech's satisfaction that such defects actually exist and were not caused by misuse, neglect, attempt to repair, unauthorized alteration or modification, incorrect line voltage, contaminated air supply, or by fire, accident or flood or other hazard.

This warranty specifically does not cover damage to the laminating rollers caused by knives, razor blades, other sharp objects, failure caused by adhesives or improper use of the machine. Warranty repair or replacement does not extend the warranty beyond the initial one year period from the date of delivery.

THE WARRANTY MADE HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. GBC PRO-TECH WILL NOT BE LIABLE FOR PROPERTY DAMAGE OR PERSONAL INJURY (UNLESS PRIMARILY CAUSED BY ITS NEGLIGENCE), LOSS OF PROFIT OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE EQUIPMENT.

Exclusions to the Warranty

This warranty specifically does not cover:

1. Damage to the laminating rollers caused by knives, razor blades, other sharp objects, or failure caused by adhesives.
2. Damage to the machine caused by lifting, tilting, and/or any attempt to position the machine other than rolling on the installed casters.
3. Improper use of the machine.

ORCA 80-99

SPECIFICATIONS

Description:

Floor-standing laminator with multiple unwind positions for high productivity heat-activated laminating, encapsulating, heat transfer and mounting. The laminator can also be used with pressure-sensitive films for cold mounting and laminating applications.

Includes:

Outfeed edge slitters for in line trimming of finished product.

Dimensions:

L - 120", D - 50", H - 66" (L- 3M, D- 1.27M, H- 1.68M)

Weight (uncrated):

2800 pounds (1270 kg)

Laminating Rolls:

86.5" length (220 cm) roll face with thermally conductive silicone covered with high release silicone surface, upper and lower rolls internally heated. Temperature controlled by state of the art infrared sensors with closed loop digital control systems, independently adjustable for both top and bottom rolls.

Laminating Opening:

1_”(4.75 cm) maximum opening controlled with dual air cylinders.

Laminating Material:

Uses heat-activated 0-74” and pressure-sensitive materials 0 - 80" (0- cm) wide with films on 3" (7.6 cm.) ID core.

Laminating Speeds:

0 to 30 fpm (0 to 9 Mpm) with variable speed, reversible action, START and STOP controlled via the front instrument-panel switch or with a foot switch.

Unwind - Rewind:

Three unwind positions; three rewind positions

Safety Features:

(1) Photo-eye motor stop, 4 emergency stop buttons and two kick cables to stop the machine and raise rolls.

Warranty:

One year parts warranty (except silicone roll coverings and table tops).

Electric:

220 VAC, 50 or 60 Hz, single phase, 60-65 Amps. Three phase 32 Amps (Europe only).

Compressed Air:

2 CFM @ 100 PSI.

INSTALLATION

Uncrating the Machine

CAUTION:

When taking the top off, care should be taken so that the top does not fall into the crate, possibly damaging the laminator. It might be necessary to use two or three people for this task.

During the uncrating process make sure that the screws do not end up on the floor. They can cause problems later when trying to roll the machine into position.

To uncrate the Orca 80-99 Laminator you will need a phillips head screwdriver. It helps to have a cordless drill with the screwdriver bit, because there are quite a few screws to remove throughout this procedure. In order to minimize the possibility of damage to your new Orca 80-99 Laminator, please follow this procedure exactly.

1. The top of the crate is the first piece to be removed (see diagram on page 4-3).
2. Next, remove one side of the crate (see diagram). At this point it is necessary to have someone support the remaining side of the crate while the remaining end is being removed. Maintain support of the side until all mounting screws are removed and the side is off the crate.
3. Remove the end of the crate (see diagram).

CAUTION:

Do not use a knife or other sharp instrument to remove any protective covering. This could cause irreparable damage to the machine.

4. Remove the shrink wrap from the machine and its contents.
5. Once the shrink wrap is off, remove any accessories from the crate. While doing this, take care not to scuff the machine.

6. When all the accessories have been removed from the crate you will notice that there are two ramps that are bolted down to the crate bottom: these will need to be removed, using the phillips head screwdriver.

The ramps must then be secured to the edge of the crate bottom using the screws left over from crate disassembly (see diagram).

PLEASE NOTE: The Orca 80-99 Laminator is a large and heavy piece of mechanical equipment. Casual movement of equipment of this type can be hazardous to the average person; and poses the potential of serious damage to the machine.

It will be necessary to employ qualified and trained personnel (licensed, certified RIGGERS) if any movement of the machine other than rolling on a flat, level surface is contemplated.

The Orca 80-99 Laminator is not designed to be tipped up or sideways in anyway. Such action may disturb the exact alignment of the rolling parts of the machine and require extensive re-alignment. GBC Pro-Tech's warranty does not cover malfunction of the equipment due to mis-handling and/or tipping.

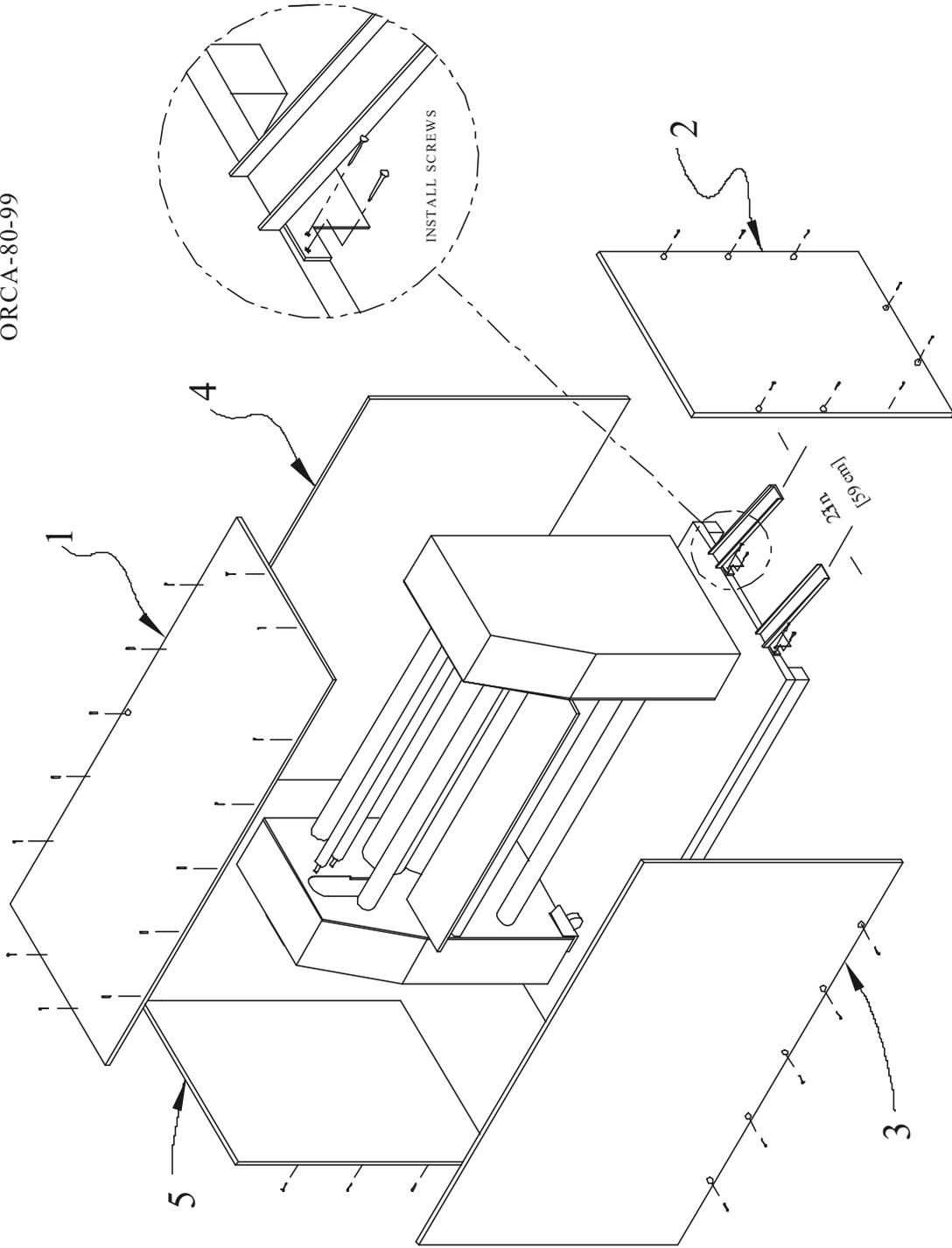
GBC Pro-Tech bears no responsibility for parties who fail to follow these directions. Any injury or damage to the machine due to improper moving is the sole responsibility of the mover.

Before the machine can be rolled off the crate, the foot bolts must be freed from the four shipping hold-down plates. Loosen the lock-nut on each of the foot bolts.

Unscrew the foot bolts from the hold-down plates. Raise **but do not remove** the bolts and lock nuts from the foot bracket. (At this time, you may wish to remove the hold-down plates from the crate to provide unrestricted removal of the machine from the crate).

UNCRATING DIAGRAM

ORCA-80-99



7. Once the ramps are secured and the hold down plates are removed, the machine can be rolled off the crate bottom. This will require four people handling the machine on its four corners and carefully rolling the machine off the crate bottom (see diagram). The machine can now be rolled into its final operating position.

Choose a spot with sufficient space around the unit so that there can be front and back work tables and adequate space for efficient material flow. Thus, a typical room area requirement for the ORCA 80-99 is 20 X 24 feet (6.0 x 7.3 Meters) to allow use of work tables in front and to the rear of the machine. See the suggested layout in Fig. 1-1 (page 4-4).

Once the Orca 80-99 Laminator has been placed in its final position, optimum performance is obtained by installing the supplied leveling pads and leveling the machine. Install one leveling pad on each foot-bolt, tightening securely.

Lower the leveling pad to the floor by turning down the foot bolts. Turn all the bolts sufficiently to lift all four of the casters off the floor.

CAUTION:

Some generation of static electricity is unavoidable during the laminating process due to the nature of the materials used. In order to avoid any hazard of ignition, fire or explosion due to static spark, it is imperative that the operating environment is free of dust, flammable liquids, and vapors.

Then, face the machine and place a carpenter's level left-to-right on one of the idlers. Adjust the bolts on the front two foot brackets so that the machine is level left-to-right. Then, move the level to the rear of the machine and adjust the rear two leveling pads.

Next, place the level front-to-rear on one of the air cylinder brackets and adjust the bolts equally on the two foot brackets on that side. Move the level to the other air cylinder bracket and repeat the procedure for the other side.

After both sides have been leveled front-to-back, go back and check the side-to-side level condition of the front

and rear of the machine to insure that it has not changed.

If it has, repeat the procedure until the machine's front, rear, and both sides are all level. Tighten the lock nuts securely to the foot brackets.

8. At this point a qualified electrician connects power to the machine. Make sure **before** supply power is provided that the machine circuit breaker is in the off position. This is also the point where the appropriate supply of clean, dry compressed air is connected to the machine (see power and air requirements).

Electrical Requirements

The ORCA 80-99 is designed to accept 220 to 240-volt AC, 50/60-Hz, 60 Amps, single phase 3 wire (USA). The peak power required by the unit is 55 Amperes. Or, in Europe only 3-N phase 230/400 VAC, 50 Hz, 25 Amps per phase.

Before attempting to electrically connect or operate your new Orca 80-99 Laminator, a qualified, licensed electrician should be consulted to ensure that an adequate power supply, having the appropriate capacity, overcurrent protection, safety lockouts, etc., is available; and to ensure that the power supply of the Orca 80-99 is in accordance with all established national and regional electrical codes and standards.

CAUTION:

The air supply to the Orca must be clean and dry or the machine will be damaged.

GBC Pro-Tech, will not be responsible for damage to the equipment caused by improper connection, incorrect power supply or other incorrect electrical installation.

Before initial power is applied to the machine assure that all toggle switches on the front and rear control panels and the main power circuit breaker (inside/bottom of the left-side cabinet) are set to **OFF**. The AC connection is located on the bottom/front of the left-side cabinet.

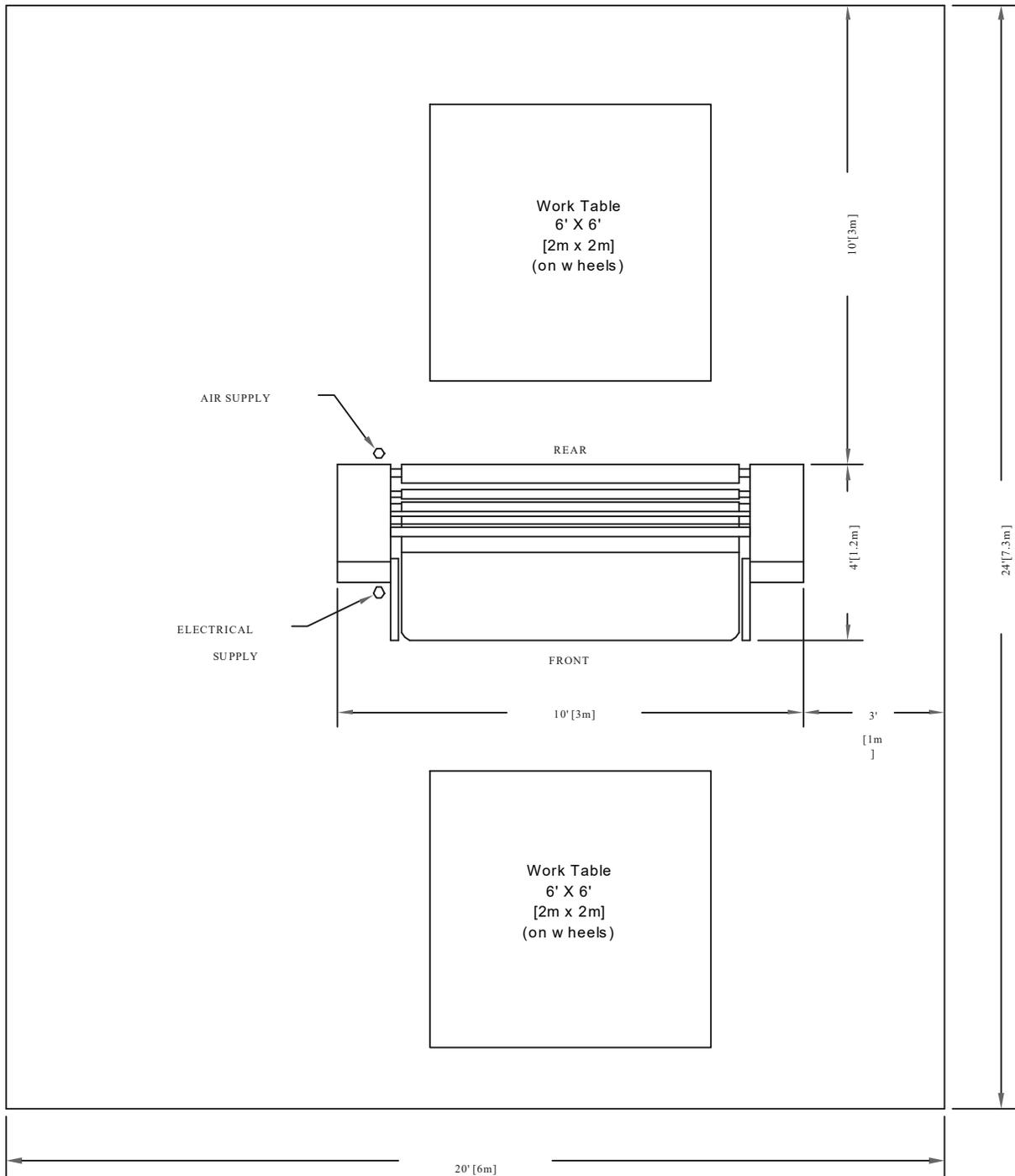


Fig. 1-1
SUGGESTED WORKSPACE
LAYOUT
ORCA 80-99

Air Requirements

CAUTION:

Do not use a knife or other sharp object to remove the paper coverings. This would cause irreparable damage to the rolls and necessitate their replacement.

The Orca 80-99 laminator requires filtered air at 2 cubic feet per minute (CFM), (50 liters/minute) at a pressure of at least 100 pounds (700 kPa) per square inch (PSI). The air supply must be clean (free of dirt) and dry. Moisture will cause corrosion and particles can block pneumatic controls. Either can cause the laminator to malfunction.

It is the customer’s responsibility to provide appropriate filters and water traps for the air line before the air is routed to the laminator.

GBC Pro-Tech suggests that the best approach to the air requirement is to provide a dedicated small compressor for the laminator. A standard light-duty 1/2 to 3/4 horsepower (1 kW) electric air compressor with 1.5 to 2.5 CFM output with a 2.5 - gallon (20 Liter) storage tank is appropriate.

Air is fed to the machine via a 1/4-inch quick-disconnect male connector. This connector is located below the cabinet on the left side of the machine. (Once the air supply and electrical power are connected to the machine, proceed to the section on Operation in this manual).

9. Next, remove the paper coverings from the roll. After the roll coverings have been removed, you will need to open the accessory pack. The accessory pack contains:

<u>Qty</u>	<u>Description</u>
1	Set, Allen wrenches
1	Slitting knife
1	Manual
1	Bottle of Isopropyl Alcohol
1	100 % white cotton terry rags
1	Set, spare fuses

2	Additional slitter knives
1	T-handle wrench, 5/16"
1	T-handle wrench, 1/4"
1	Masking Tape
1	Tape Measure
1	Rubber Cement Pick-Up
1	Shim Set
4	Leveling Pads
2	Outfeed Slitters
2	O-Rings, Brake
1	Oil, Air Tool

These items are needed to put the machine into operation.

RECYCLING INSTRUCTIONS:

The crate components can be reused for shipping the machine again, or may be disassembled and the wood and screws recycled. The shrink wrap however, is not recyclable so therefore must be discarded.

In order to begin operation of the machine, the Up/Down rates for the main and pull rolls and the nips must be set (see the Operation section of this manual). Once set, the machine is ready for operation.

OPERATION

Safety

Safety is always the primary concern. If you have not read the safety information at the front of this manual, do so now. Do not attempt operation of the machine until you fully understand this safety information.

General Precautions

1. Keep razor blades, knives, and all other sharp objects away from the chrome and silicone rollers. They are easily damaged and very expensive to replace.

CAUTION:

Insert shims to keep the laminating and pull rolls apart when the machine is not in use. Do not rely on the air supply. Prolonged contact can damage the rolls.

2. Harsh chemicals such as Toluene or MEK will destroy the silicone covering on the laminating rolls. The rolls should be cleaned daily following the procedure outlined in the Maintenance section of this manual.

CAUTION:

If silicone adhesives contact the top or bottom roll, remove it IMMEDIATELY using isopropyl alcohol. It will harden within an hour.

3. Do not allow liquid silicone adhesives to contact the top or bottom silicone roll. These materials will bond to the roll in much less than one hour. If some adhesive does get on the roll, wipe it off IMMEDIATELY using isopropyl alcohol.

4. The laminating rolls will develop flat spots if left in contact with each other when not in use. Always insert the shims when shutting off the laminator. Do not rely on the air supply to keep the top roller in the raised position, as the air supply can fail at any time.

5. Use a 100-percent cotton terry cloth to remove heat-activated laminating residue, while the rolls are hot. Follow this procedure every time heat-activated laminates are used.

WARNING:

1. Never place fingers or arms between the rollers, both main and pull, or in roller slots no matter what the operational status the machine is in.

2. It is vital that everyone working around the laminator rolls avoid wearing loose-fitting clothing, ties or dangling jewelry, which could be caught in the nip.

WARNING:

Extra caution must be used when operating the laminator with the provided foot switch. The foot switch acts as an “over-ride” to the photoelectric eye; i.e., it allows the rolls to continue operation even if the photoelectric eye detects an obstruction near the nip.

This function is necessary a) to allow initial hand-feeding of process materials to the rolls and b) to prevent damage to the process at the end of a sheet due to “curl-up” of the sheet end.

Operators are cautioned to use the foot switch for as short a time as practicable, and to exercise caution when doing so.

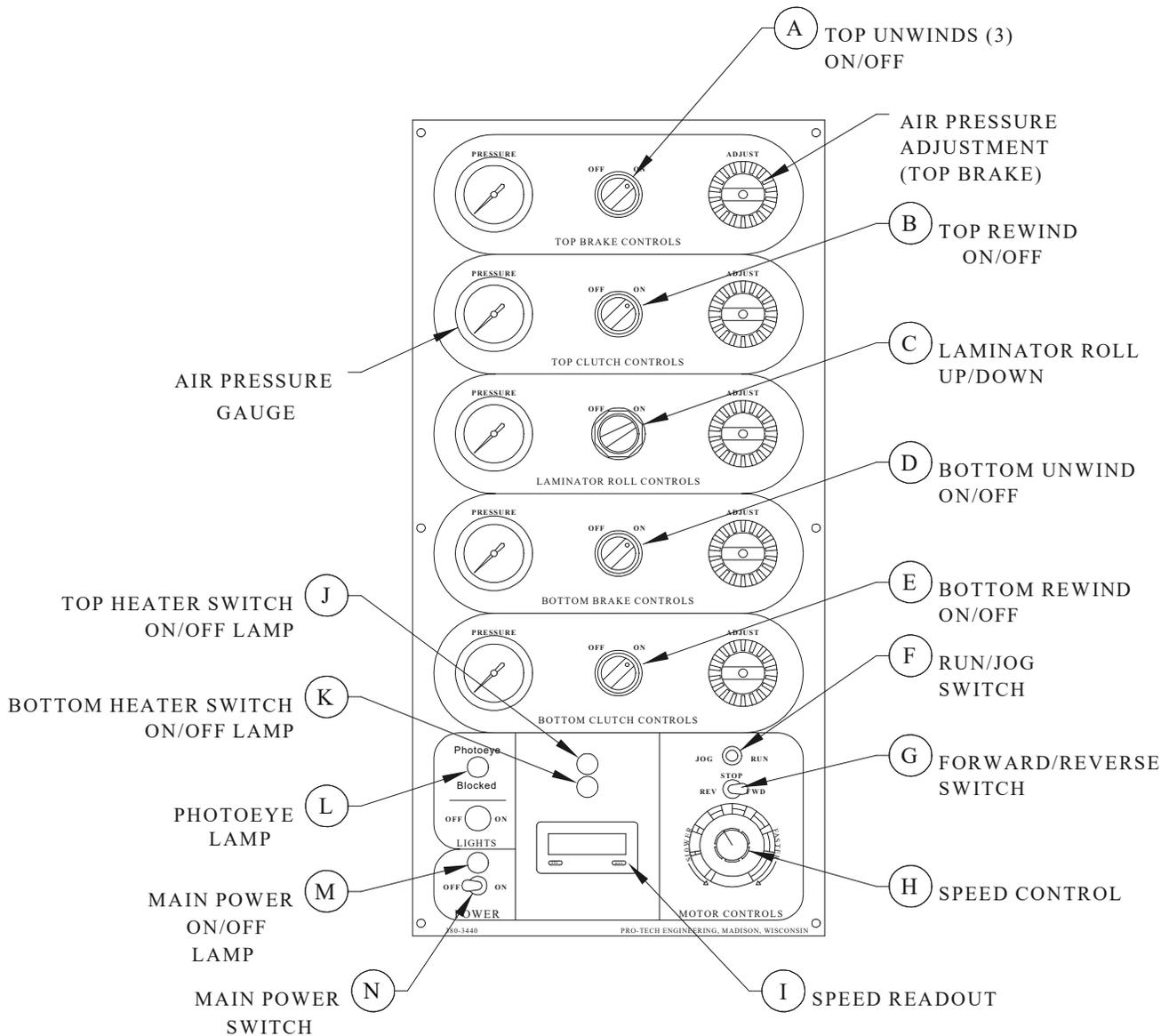


Fig. 2-1
FRONT CONTROL PANEL

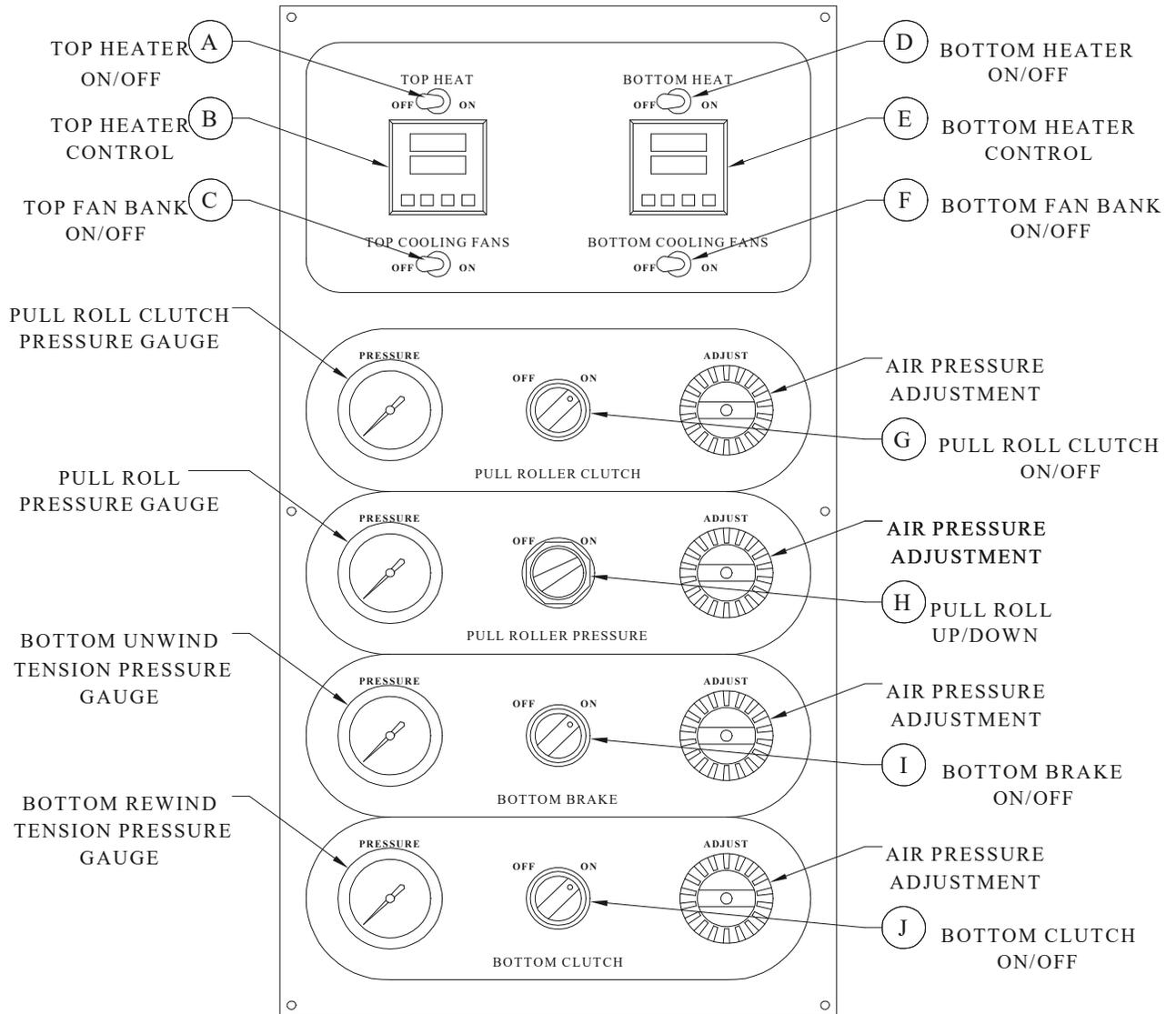


Fig. 2-2

REAR CONTROL PANEL

Operator Controls

The operator controls for the Orca laminator are operator position. See Figures 2-1 and 2-2. The names and functions of these controls are as follows:

FRONT CONTROL PANEL

Please note that in each of the control sections there is a Pressure Gauge, an On/Off switch and an Air Pressure Regulator. The Pressure Gauge shows the operational pressure. The On/Off switch turns the control function on or off. The Air Pressure Regulator adjusts the air pressure for the control function.

- A. TOP BRAKE CONTROLS** - Regulation of the upper unwind shaft brakes.
- B. TOP CLUTCH CONTROLS** - Front upper rewind shaft clutch regulation.
- C. LAMINATOR ROLL CONTROLS** - Regulation of the main laminating rolls.
- D. BOTTOM BRAKE CONTROLS** - Regulation of the front lower unwind brake.
- E. BOTTOM CLUTCH CONTROLS** - Regulation of the shaft's lower front rewind clutch.
- F. RUN/JOG SWITCH** - Changes control of the machine drive from a foot switch operation to continuous run. It also allows the operator to "Jog" the rolls for a short period of time.
- G. REV-FWD** - This switch controls the direction of the drive system, forward or reverse.
- H. SPEED CONTROL** - Adjusts the speed of the machine from zero to maximum as the control is turned clockwise.
- I. SPEED READOUT** - Digital readout of the machine speed and total throughput in either metric or standard units.

J. ON/OFF LAMP (Top Heater) - Denotes whether the top heater controller is on or off.

K. ON/OFF LAMP (Bottom Heater) - Denotes whether the bottom heater controller is on or off.

L. PHOTO EYE LAMP - Denotes whether or not the PHOTO EYE is blocked.

M. MAIN POWER LAMP - Denotes whether or not the main power is on the machine.

N. MAIN POWER SWITCH - Turns the main power on and off.

REAR CONTROL PANEL

- A. ON/OFF (Top Heater Controller)** - Controls whether or not the top heater controller is on or off.
- B. TOP HEATER CONTROLLER** - Controls the upper main roll's operational temperature and provides a readout of the actual temperature.
- C. ON/OFF (Top Fan Bank)** - Controls whether or not the top fan bank is on or off.
- D. ON/OFF (Bottom Heater Controller)** - Controls whether or not the bottom heater controller is on or off.
- E. BOTTOM HEATER CONTROLLER** - Controls the lower main roll's operational temperature and provides a readout of the actual temperature.
- F. ON/OFF (Bottom Fan Bank)** - Controls whether or not the bottom fan bank is on or off.
- G. PULL ROLLER CLUTCH CONTROLS** - Regulation for the bottom pull roller clutch.

CAUTION:

Use the minimum laminator roll pressure consistent with good results. Excess pressure can damage the laminating rollers.

H. PULL ROLLER PRESSURE CONTROLS - Regulation for the upper pull roll pressure and up/down.

I. BOTTOM BRAKE CONTROL - Regulation for the bottom rear unwind brake.

J. BOTTOM CLUTCH CONTROL - Regulation for the bottom rear rewind shaft's clutch.

Setup

Set up of the Orca laminator is quick and straightforward when instructions are followed directly.

When you first receive the Orca Laminator the nips must be set before operation. The procedures for setting the main and pull roll nips are on pages 8-1 and 8-2.

Laminator Roll Pressure:

1. You should use only the minimum amount of roll pressure needed to accomplish the task. While higher nip pressure can make the adhesive bond faster, excess pressure can damage the rollers. Wrinkles, bubbles and such have causes that generally cannot be cured with more pressure.
2. A typical roll pressure for soft substrates such as Foamcore or Orca-Board is between 20 to 30 pounds per square inch (PSI) or 32 to 205 kPa.
3. The range of typical values for hard substrates is 25 to 50 PSI, 170 to 345 kPa.

Loading the Film

Film is loaded on the appropriate unwinds. Instructions later in this section will cover loading and aligning film. For applications such as encapsulation, film will be fed from both top and bottom unwinds.

The process of loading and aligning film is the same for both the top and the bottom. There are two important

points to remember when loading film:

CAUTION:

Assure that film is always mounted so that the adhesive side will face outward from the laminating roller.

1. The adhesive side of the film must be oriented away (on the outside) of the laminating roller. Otherwise it will immediately bond to the roller, creating a major clean-up project. Films have a shiny side and a dull side. The dull side is the one with the adhesive. Thus, the dull side should **ALWAYS** face outward from the laminating roll.
2. The film must be centered on the unwind for best performance. This is vital when two films are fed together. If the two films are not aligned, feed problems, wrinkles, excess glue on rolls and other assorted troubles will result.

CAUTION:

Unless the two films fed to the nip are carefully aligned, poor results will be seen.

Positioning Film

The following procedure is applicable to both the top and the bottom feed unwinds:

1. Remove the ball detent retaining pins and carefully remove the unwind/rewind shaft from its saddles. Pay particular attention to the drive side saddles. The drive side of the shafts must be oriented so as to not pry on the brake or clutch protrusion. To do so would irreparably damage both brakes and clutches.
2. Slide the film onto the unwind shaft.
3. Install the shaft back into its saddles again paying careful attention to the drive side end of the shaft. Return ball detent pins to secure the shaft in its saddles.

4. Center the film by sliding it back and forth on the shaft until centered. As soon as the film is unwound from the shaft, the core support will lock the roll into position.

5. Recheck the centering of the film roll with a tape measure.

WARNING:

Normal operation of the Orca 80 laminator involves the application of large amounts of heat to the process materials. The surfaces of the rolls are at a high enough temperature to cause burns if they are touched.

Operators are cautioned not to touch, lean or fall against the rolls of an operating laminator. Do not become unbalanced when working near an operating laminator.

Heating

The following instructions should be employed when heating one or both of the laminating rolls. The procedure is the same for top and bottom:

1. Set the heater switch to **ON**.
2. Adjust the temperature controller for the desired operating temperature using the controller push bottoms.

For the Syrlec type controller use the up and down arrows to adjust the set point. Hold down the desired arrow until the correct set point is achieved.

For the CAL3200 it is necessary to press the * button at the same time as the up or down arrow to adjust the set point temperature.

3. When heating the rolls, keep the top roll down and turning at a moderate speed to prevent uneven heating.
4. It will take approximately 25 minutes for the

laminating roller(s) to reach operating temperature. When the pre-set operating temperature has been reached, the machine is ready to use.

Cooling (with optional cooling fans)

The following procedure is the fastest way to cool down the machine. Natural cooling can also be employed:

1. Set the heater switches to **OFF**.
2. Position the two rear fan banks so that they are tilted to direct air flow at the rolls.
3. Set the Laminator Roll Control to the **DOWN** position.
4. Set the Forward/Reverse switch to the **FORWARD** position.
5. Set the speed control to 5 fpm (150 cpm).
6. Let the machine run until the laminating rolls return to room temperature.

Paper Tips

1. Always cut the leading edge of a print straight so they can be fed perpendicular to the laminating rolls.

Process Control Charts

Chart 2-1 and 2-1B show a blank set of process control charts for the ORCA 80. These charts are where you record the way you thread film through the machine's rolls and idlers (called webbing) and the setting of controls and switches for each product and process.

GBC Pro-Tech laminators respond in a very accurate and repeatable manner. The charts provide a way to set up each time, every time, for repeatable performance by assuring all controls are set to optimum.

The process charts are also an excellent tool for training new operators. They provide a “road map” for correct machine setup and operation.

The process control charts should be kept in this manual or in a book close to the Orca. Use the machine to encapsulate the popular charts so they can withstand coffee spills and will be available for ready reference.

In the rest of this section you will find completed process control charts for the basic operations of the machine. These are based on Orca-Film and Orca-Board and typical prints. If you have a special application use the blank charts to make your own records.

Information:

When trying new products and processes, remember that GBC Pro-Tech’s customer service technicians are only a phone call away.

Mounting Only

1. Setup:

A. See process chart 2-2 and 2-2B.

B. Set Shims:

C. Upper Laminator Roll Pressure: 40 to 80 PSI, 275 - 550 kPa.

D. Speed: 3.

E. Upper Laminator Roll Heat: 245 degrees F, 118 degrees C.

Mounting Only (continued)

2. Procedure:

A. Lay the print on the board. Using a tack iron, tack the leading edge of the print down onto the board so it is held in place.

B. Put a piece of contact/release paper over the print. Otherwise, adhesive will be applied to the laminating roller which can cause damage and the ink from electrostatic prints will be deposited on the roll.

C. Feed the print/Orca board package through the nip.

Mounting/Laminating

The following procedure is for one-step mounting and heat-activated laminating using mounting board with one adhesive side such as Orca-Board.

1. Setup:

A. The setup is shown in process chart 2-3 and 2-3B.

B. Mount the film and web as shown in chart 2-3B.

C. Shims: Set the two front shim dials to 1/32 less than board height.

D. Laminator Roll Pressure: 40 PSI, 275 kPa.

E. Speed: 3 fpm (90 cpm).

F. Upper Laminator Roll Heat: 245 degrees F, 118 degrees C.

G. Cooling: Off.

H. Film Roll Brake Pressure 20 PSI, 135 kPa.

2. Procedure:

A. Feed the Orca board dull (adhesive) side up with the print positioned as desired. A tack iron may be used to hold the leading edge of the print in place.

Encapsulation

1. Setup:

A. Refer to process chart 2-4 and 2-4B for webbing instructions.

- B. Shims: none.
- C. Laminating Roller Pressure: 60 PSI, 410 kPa.
- D. Pull Roller Clutch Pressure: On, 80 PSI, 550 kPa.
- E. Pull Roller: Down, 60 PSI, 410 kPa.
- F. Speed: 4 to 6 fpm
- G. Top Roll Temperature: 220-230 degrees F (90 - 110 degrees C).
- H. Bottom Roll Temperature: 220-230 degrees F (90 - 110 degrees C).
- I. Cooling: Optional.
- J. Use of the rear rewind for the finished material is optional. It is a good procedure for long runs. If a rewind is used in this application the clutch pressure should be 15 PSI.

2. Procedure:

A. Feed the work into the nip with the leading edge tight and entering the nip evenly from side to side. For thin paper from electrostatic printers in roll form, it is best to fold over the leading edge approximately 6 inches to create a square leading edge.

Two-Pass Mount and Laminate (Hot and Cold)

Cold/Mount Laminate

- A. See charts 2-5, 2-5B, 2-6 and 2-6B for settings.
- B. Assure that the mounting film from the bottom side has the sticky adhesive side riding up around the outside of the bottom laminating roller.

Procedure, Pass 1:

A. Run the print through to apply adhesive and laminate.

B. Trim to slightly larger than the desired finished size.

WARNING:

Take care when repositioning rewind/unwind shafts or other heavy parts or materials, used in the various web-up patterns. They are heavy and can cause injury to fingers and/or toes if not handled properly.

Procedure, Pass 2:

A. Prepare to put the print through a second time to mount the print to the substrate. — anything from wood, to Masonite, to Gator foam. Start by setting the shims to the appropriate spacing for the material used.

B. Trim the board to the size of the print.

C. Align the work to the board and assure an exact fit. Place weights on the center of the print to assure that it does not move relative to the board during the next steps.

D. Raise one end of the print and peel back approximately two inches of the liner to expose the adhesive that was applied to the print in pass 1. Fold it under. Lay the print back down evenly and extremely flat. From the center outward, tack the exposed adhesive to the substrate.

E. Position the piece so that the end with the liner peeled back is facing the nip. Insert the first one inch of the board into the nip.

F. Very carefully wrap the print back and over the top laminating roll. Be sure there are no wrinkles in the nip area. Carefully peel off the liner as the board progresses through the laminator.

G. Trim the piece to the finished size.

Hot/Mount Laminate

A. Refer to charts 2-7, 2-7B, 2-8 and 2-8B.

B. Encapsulate image. (see chart 2-7)

C. Raise Main Roll (Hot).

D. Reverse Motor.

E. 2nd Pass: Set Nip Height and tack leading edge.
Run through as liner is being pulled off.

Cold Overlamination (Using a Sled)

1. Setup:

A. Refer to charts 2-9 and 2-9B

B. Set main roll shims to 3/16"

2. Procedure:

A. Use a starter board to get the film started and feeding without wrinkles.

B. Lay image on the sled and place it up against the leader board.

C. Feed image through the nip following the leader board into the nip. Maintain paper tension on the image until it is through the nip.

D. Cut around the image with a sharp knife to remove it from the leader board.

PROCESS CONTROL CHART 2-1

Process:

Materials (top/bottom):

Front Control Panel Adjustments	Rear Control Panel Adjustments
Top Brake	Top Heat
Top Clutch	Bottom Heat
Laminator Roller	Top Cooling Fans
Bottom Brake (front)	Bottom Cooling Fans
Bottom Clutch (front)	Pull Roller Clutch
Forward/Reverse	Pull Roller Pressure
Speed	Bottom Brake (rear)
Laminator Roller Shims	Bottom Clutch (rear)
	Pull Roller Shims

Helpful Hints/Notes:

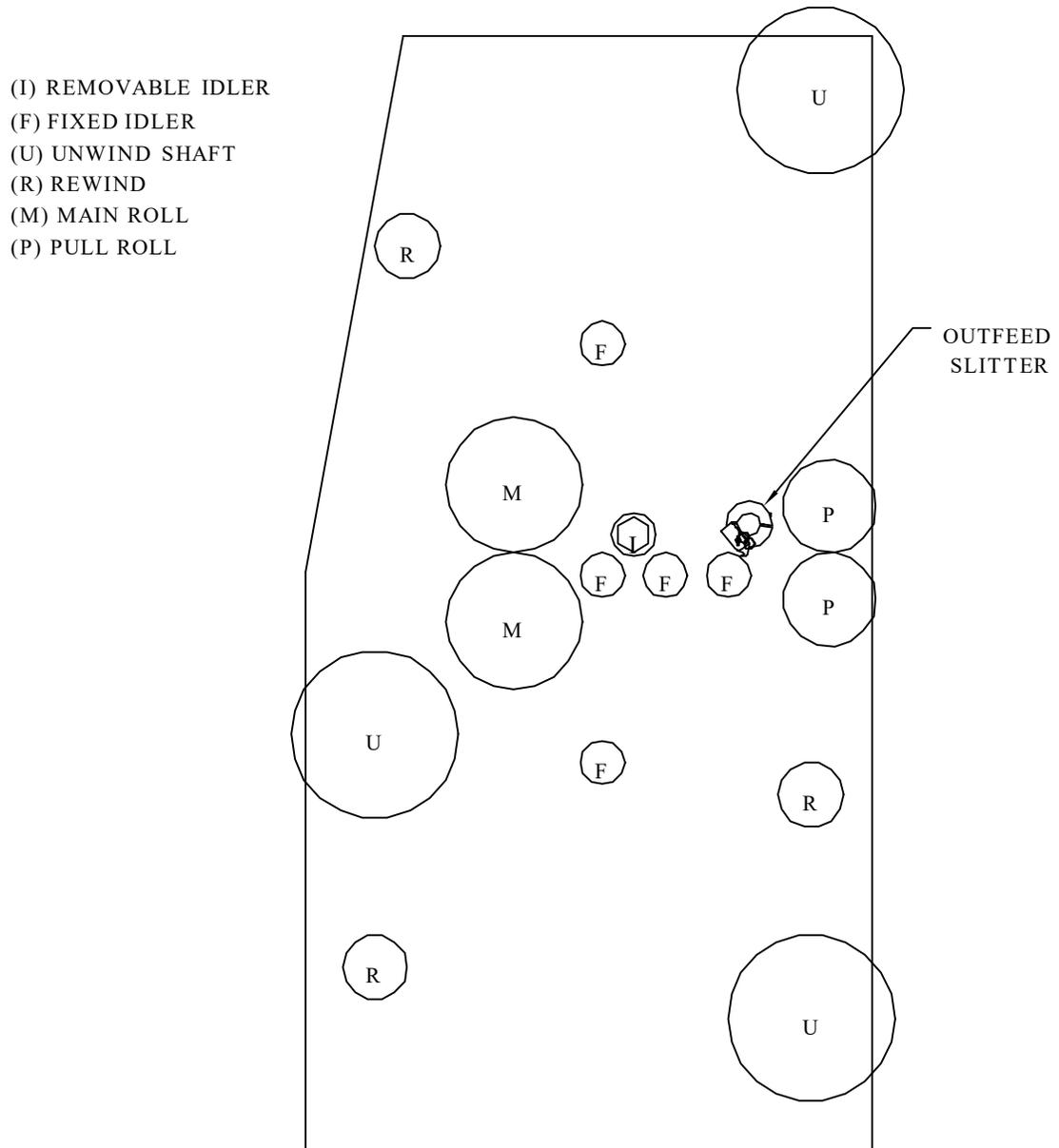


Chart 2-1B

IDENTIFICATION DIAGRAM

PROCESS CONTROL CHART 2-2

Process: Hot Mount, One Pass

Materials (top/bottom): 3/16" thick Hot tissue coated board

Front Control Panel Adjustments		Rear Control Panel Adjustments	
Top Brake	OFF / NA	Top Heat	ON / 245° F (118° C)
Top Clutch	OFF / NA	Bottom Heat	OFF / NA
Laminator Roller	ON / 40 p.s.i.	Top Cooling Fans	OFF
Bottom Brake (front)	OFF / NA	Bottom Cooling Fans	OFF
Bottom Clutch (front)	OFF / NA	Pull Roller Clutch	OFF / NA
Forward/Reverse	FORWARD	Pull Roller Pressure	OFF / NA
Speed	2 - 3 f.p.m.	Bottom Brake (rear)	OFF / NA
Laminator Roller Shims	3/16"	Bottom Clutch (rear)	OFF / NA
		Pull Roller Shims	NA

Helpful Hints/Notes:

Lay the image to be mounted on the board and push the board into the nip while the rolls are not turning. Then, quickly, depress the foot switch to turn the rolls. Make sure to maintain good paper tension while mounting the image.

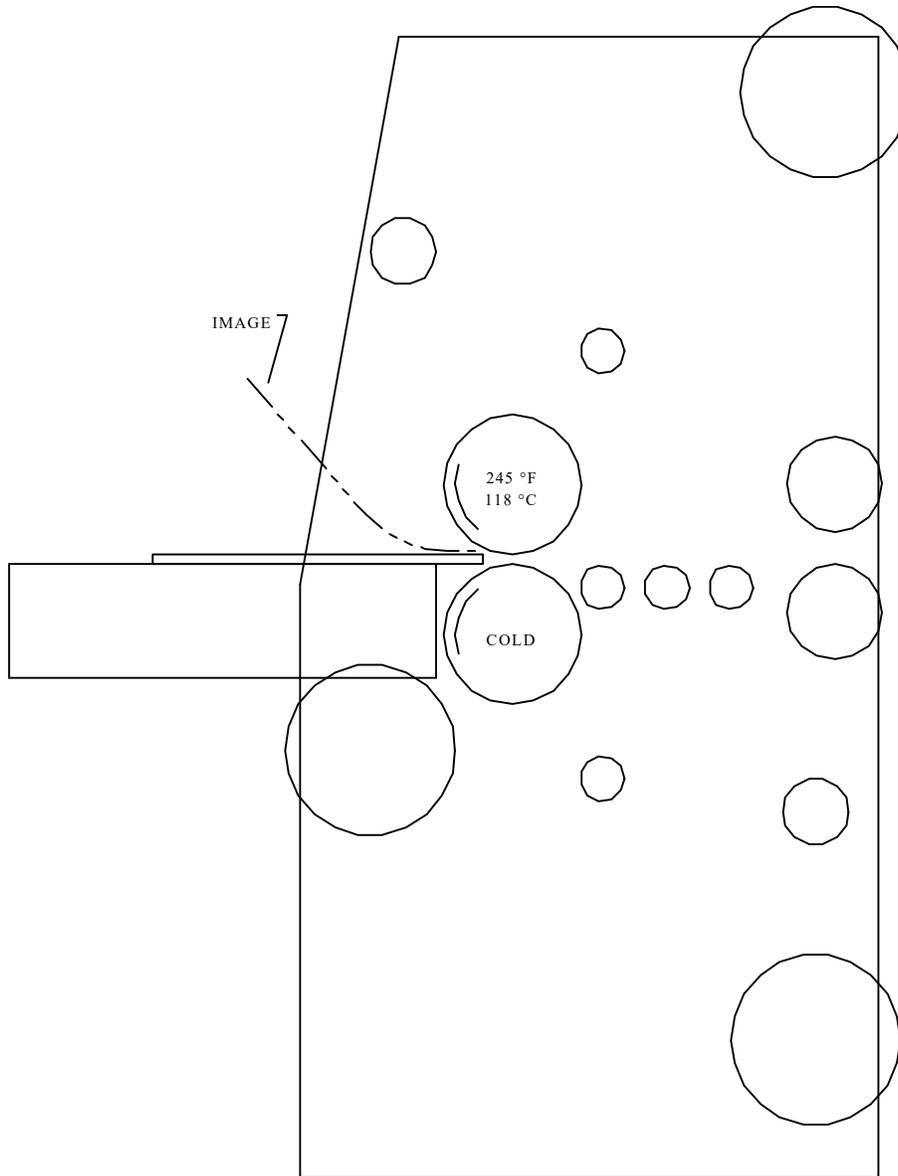


CHART 2-2B
ONE PASS HOT MOUNT

PROCESS CONTROL CHART 2-3

Process: Hot Mount and Laminate, One Pass

Materials (top/bottom): / 3/16" thick Hot tissue board

Front Control Panel Adjustments		Rear Control Panel Adjustments	
Top Brake	ON / 20 p.s.i.	Top Heat	ON / 245° F (118° C)
Top Clutch	OFF / NA	Bottom Heat	OFF / NA
Laminator Roller	ON / 40 p.s.i.	Top Cooling Fans	OFF
Bottom Brake (front)	OFF / NA	Bottom Cooling Fans	OFF
Bottom Clutch (front)	OFF / NA	Pull Roller Clutch	OFF / NA
Forward/Reverse	FORWARD	Pull Roller Pressure	OFF / NA
Speed	2 - 3 f.p.m.	Bottom Brake (rear)	OFF / NA
Laminator Roller Shims	3/16"	Bottom Clutch (rear)	OFF / NA
		Pull Roller Shims	NA

Helpful Hints/Notes:

Start the overlamine with a leader board the same thickness as the board being mounted to. While maintaining paper tension, lay the image to be mounted on the board and follow the leader board into the nip.

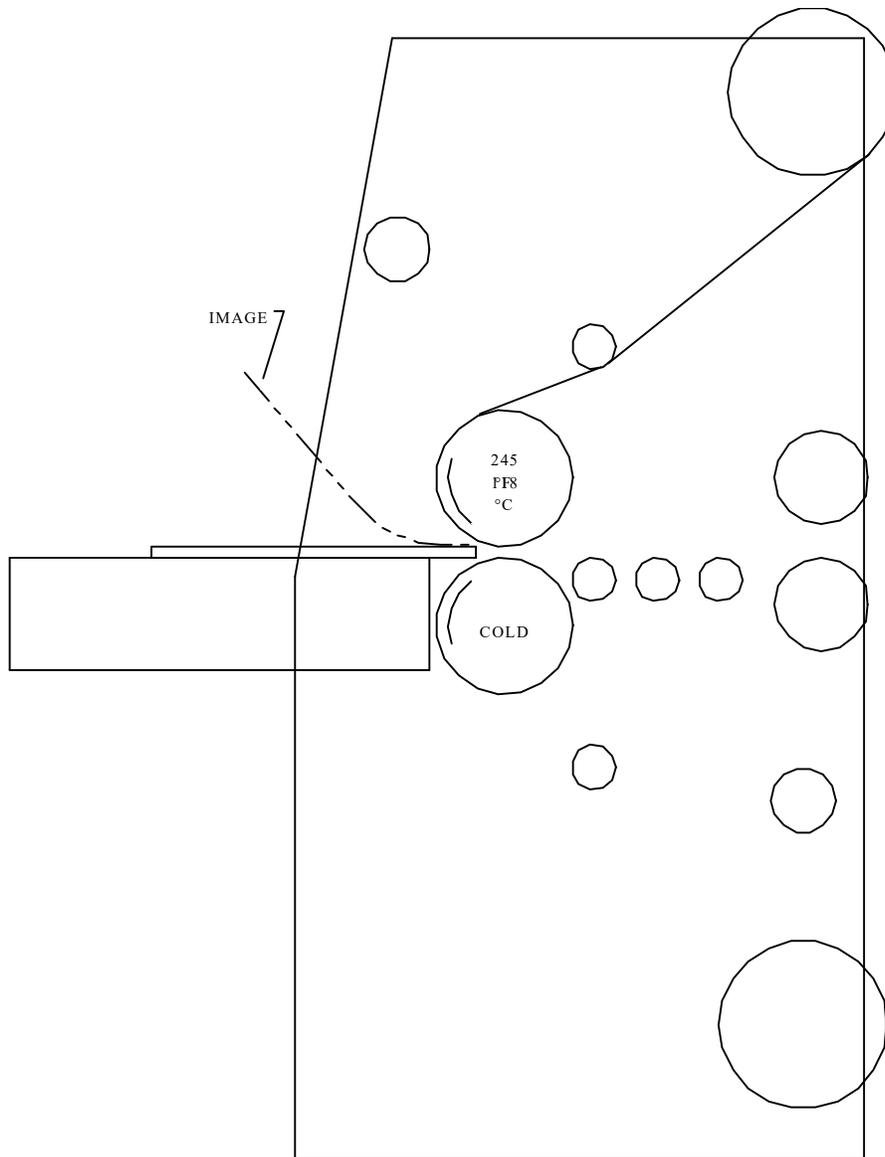


CHART 2-3B
ONE PASS HOT MOUNT AND LAMINATE

PROCESS CONTROL CHART 2-4

Process: Encapsulation

Materials (top/bottom): 3 mil Gloss / 3mil Gloss

Front Control Panel Adjustments		Rear Control Panel Adjustments	
Top Brake	ON / 20 p.s.i.	Top Heat	ON / 230° F (110°C)
Top Clutch	ON / 20 p.s.i.	Bottom Heat	ON / 230° F (110°C)
Laminator Roller	ON / 60 p.s.i.	Top Cooling Fans	ON
Bottom Brake (front)	ON / 20 p.s.i.	Bottom Cooling Fans	ON
Bottom Clutch (front)	OFF / NA	Pull Roller Clutch	ON / 80 p.s.i.
Forward/Reverse	FORWARD	Pull Roller Pressure	ON / 60 p.s.i.
Speed	4 - 6 f.p.m.	Bottom Brake (rear)	OFF / NA
Laminator Roller Shims	0	Bottom Clutch (rear)	OFF / NA
		Pull Roller Shims	0

Helpful Hints/Notes:

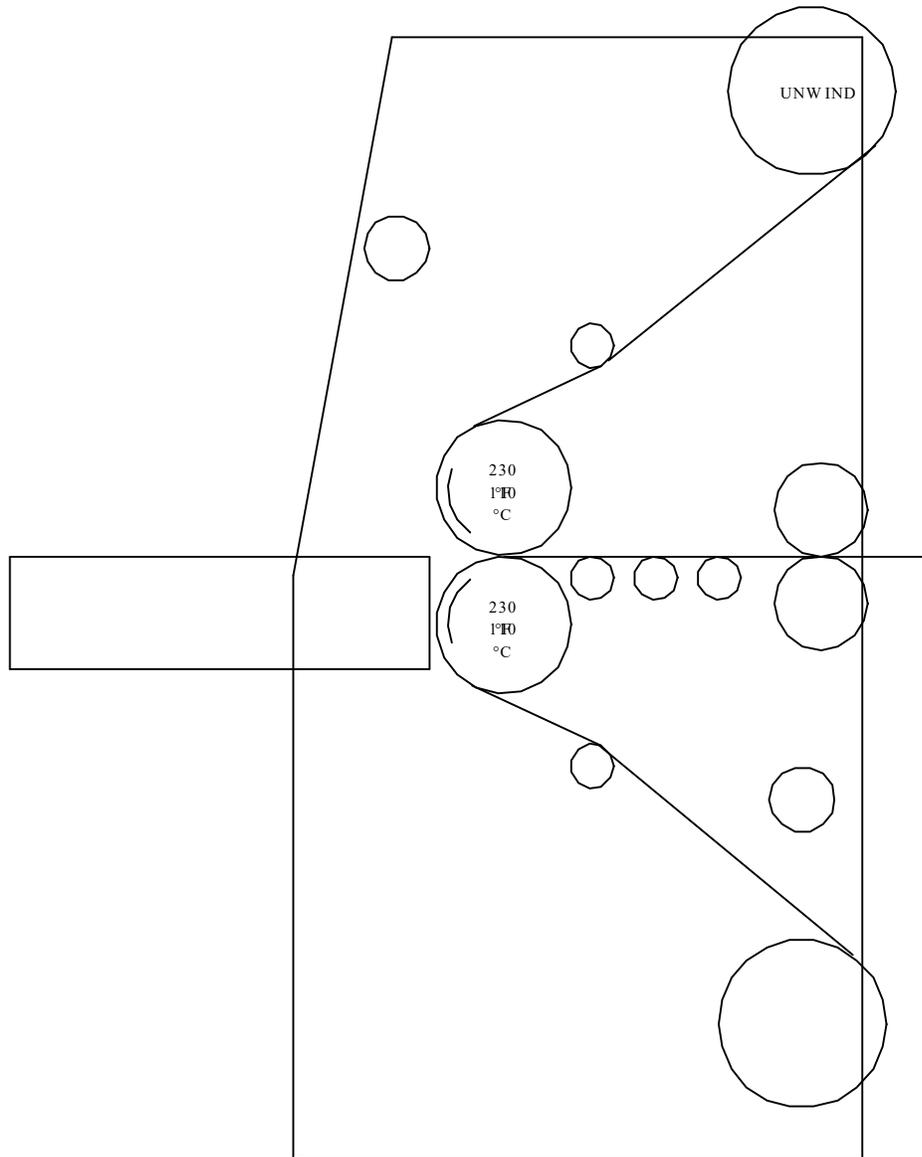


Chart 2-4B
ENCAPSULATION

PROCESS CONTROL CHART 2-5

Process: Hot Overlamine with Pressure Sensitive Mount Adhesive

Materials (top/bottom): 3 mil Gloss / Mount Adhesive

Front Control Panel Adjustments		Rear Control Panel Adjustments	
Top Brake	ON / 20 p.s.i.	Top Heat	ON / 230° F (110°C)
Top Clutch	OFF / NA	Bottom Heat	OFF / NA
Laminator Roller	ON / 60 p.s.i.	Top Cooling Fans	OFF
Bottom Brake (front)	ON / 20 p.s.i.	Bottom Cooling Fans	OFF
Bottom Clutch (front)	OFF / NA	Pull Roller Clutch	ON / 80 p.s.i.
Forward/Reverse	FORWARD	Pull Roller Pressure	ON / 60 p.s.i.
Speed	4 - 6 f.p.m.	Bottom Brake (rear)	OFF / NA
Laminator Roller Shims	0	Bottom Clutch (rear)	OFF / NA
		Pull Roller Shims	0

Helpful Hints/Notes:

The encapsulated image will have waves running 90 degrees to the feed of the film. This is due to the moisture in the mount adhesive's release liner. Once mounted the waves disappear.

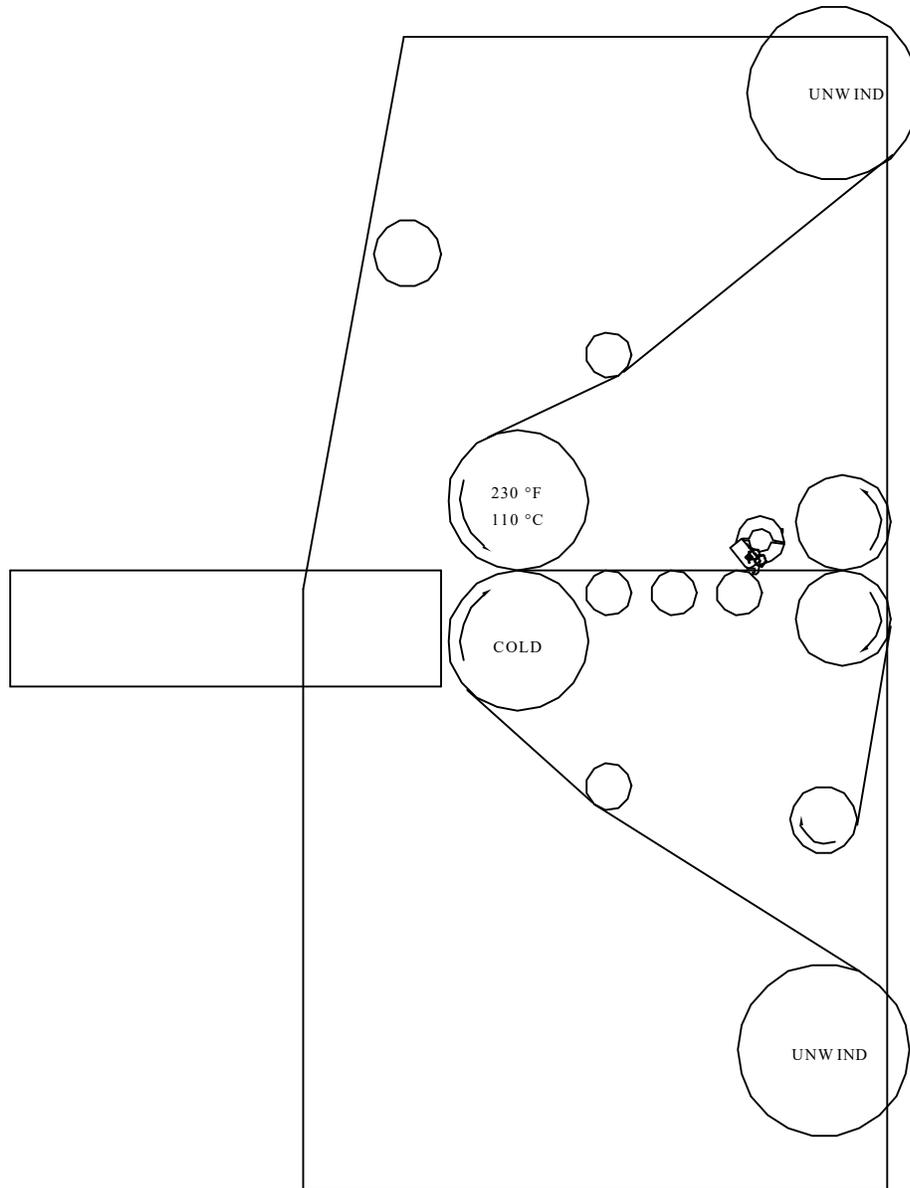


Chart 2-
5B

TWO PASS HOT OVERLAMINATE
WITH PRESSURE SENSITIVE MOUNT ADHESIVE
FIRST PASS

PROCESS CONTROL CHART 2-6

Process: Hot overlaminate with Pressure Sensitive Mount Adhesive (Second Pass)

Materials (top/bottom): / 3/16" Foamcore

Front Control Panel Adjustments		Rear Control Panel Adjustments	
Top Brake	OFF / NA	Top Heat	OFF / NA
Top Clutch	OFF / NA	Bottom Heat	OFF / NA
Laminator Roller	OFF / NA	Top Cooling Fans	OFF
Bottom Brake (front)	OFF / NA	Bottom Cooling Fans	OFF
Bottom Clutch (front)	OFF / NA	Pull Roller Clutch	ON / 40 p.s.i.
Forward/Reverse	REVERSE	Pull Roller Pressure	ON / 30 p.s.i.
Speed	2 - 3 f.p.m.	Bottom Brake (rear)	OFF / NA
Laminator Roller Shims	N/A	Bottom Clutch (rear)	OFF / NA
		Pull Roller Shims	3/16"

Helpful Hints/Notes:

When mounting keep an even wrap around the upper pull roll to eliminate any wrinkles due to uneven feed of the image. During the mounting process, it is also helpful to have a table the same height as the pull roller nip to help feed the board and image into the pull rollers.

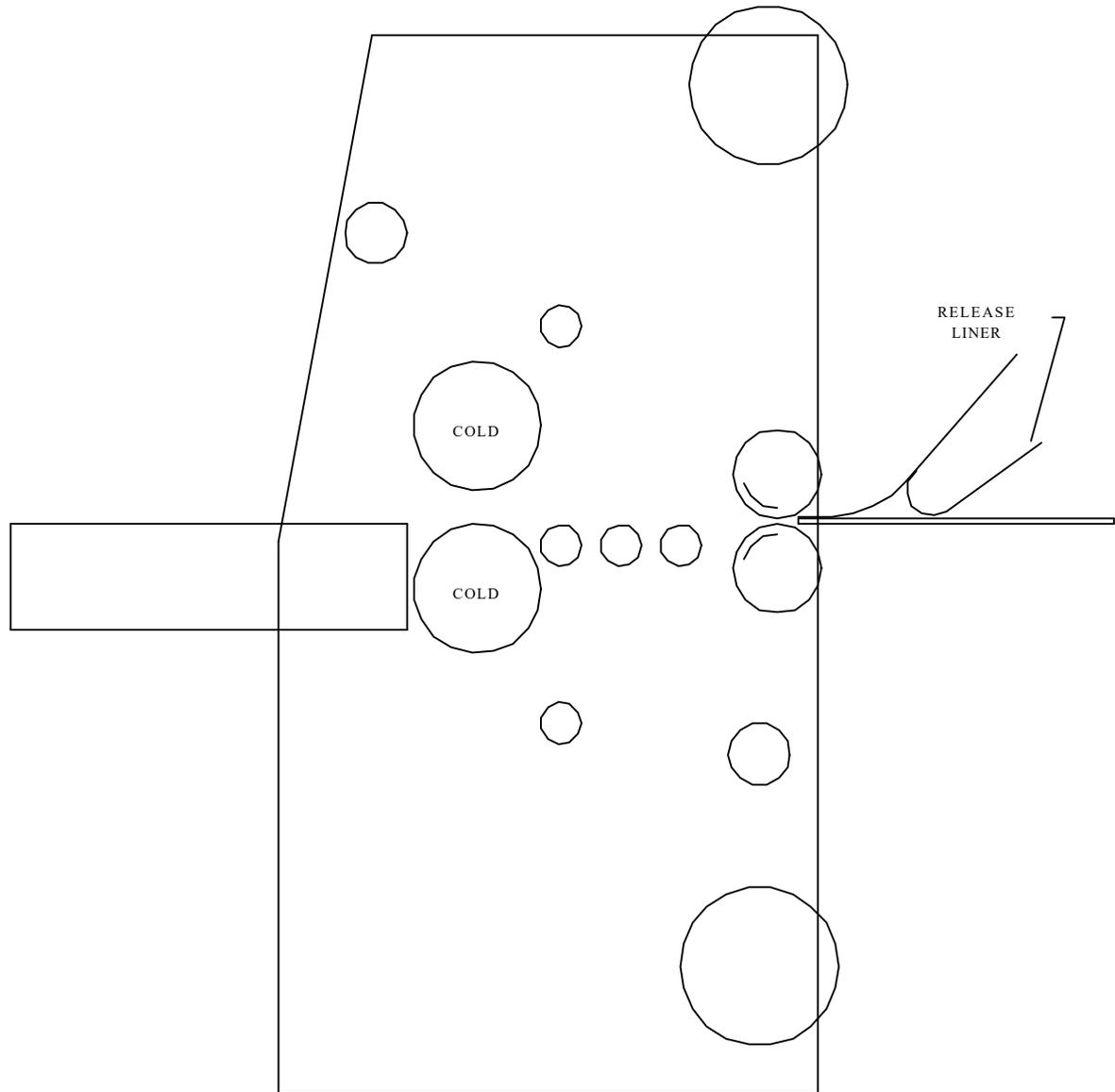


Chart 2-6B

TWO PASS HOT OVERLAMINATE
WITH PRESSURE SENSITIVE MOUNT ADHESIVE
SECOND PASS

PROCESS CONTROL CHART 2-7

Process: Cold overlaminate with pressure sensitive mount adhesive

Materials (top/bottom): PSA Laminate/ PSA Mount Adhesive

Front Control Panel Adjustments		Rear Control Panel Adjustments	
Top Brake	ON / 40 p.s.i.	Top Heat	ON / 115° F (46°C)
Top Clutch	ON / 20 p.s.i.	Bottom Heat	OFF / NA
Laminator Roller	ON / 40 p.s.i.	Top Cooling Fans	OFF
Bottom Brake (front)	ON / 20 p.s.i.	Bottom Cooling Fans	OFF
Bottom Clutch (front)	OFF / NA	Pull Roller Clutch	ON / 60 p.s.i.
Forward/Reverse	FORWARD	Pull Roller Pressure	ON / 60 p.s.i.
Speed	4 - 6 f.p.m.	Bottom Brake (rear)	OFF / NA
Laminator Roller Shims	0	Bottom Clutch (rear)	OFF / NA
		Pull Roller Shims	0

Helpful Hints/Notes:

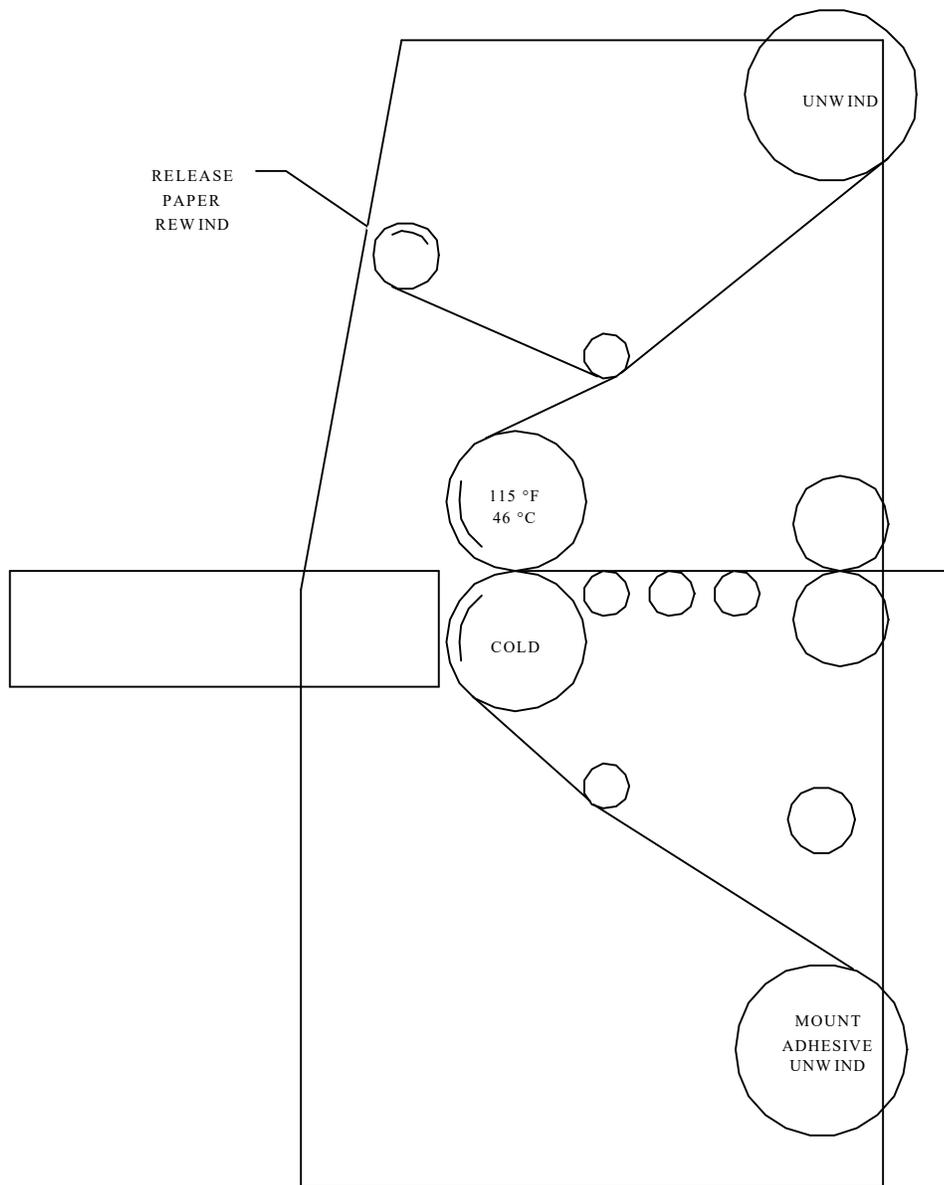


Chart 2-7B

TWO PASS COLD OVERLAMINATE
WITH PRESSURE SENSITIVE MOUNT ADHESIVE
FIRST PASS

PROCESS CONTROL CHART 2-8

Process: Cold overlaminate with pressure sensitive mount adhesive (second pass)

Materials (top/bottom): / 3/16" Foamcore

Front Control Panel Adjustments		Rear Control Panel Adjustments	
Top Brake	OFF / NA	Top Heat	OFF / NA
Top Clutch	OFF / NA	Bottom Heat	OFF / NA
Laminator Roller	ON / 30 p.s.i.	Top Cooling Fans	OFF
Bottom Brake (front)	OFF / NA	Bottom Cooling Fans	OFF
Bottom Clutch (front)	OFF / NA	Pull Roller Clutch	OFF / NA
Forward/Reverse	FORWARD	Pull Roller Pressure	OFF / NA
Speed	2 - 3 f.p.m.	Bottom Brake (rear)	OFF / NA
Laminator Roller Shims	3/16"	Bottom Clutch (rear)	OFF / NA
		Pull Roller Shims	N/A

Helpful Hints/Notes:

When mounting keep an even wrap around the upper main roll to eliminate any wrinkles due to uneven image feed.

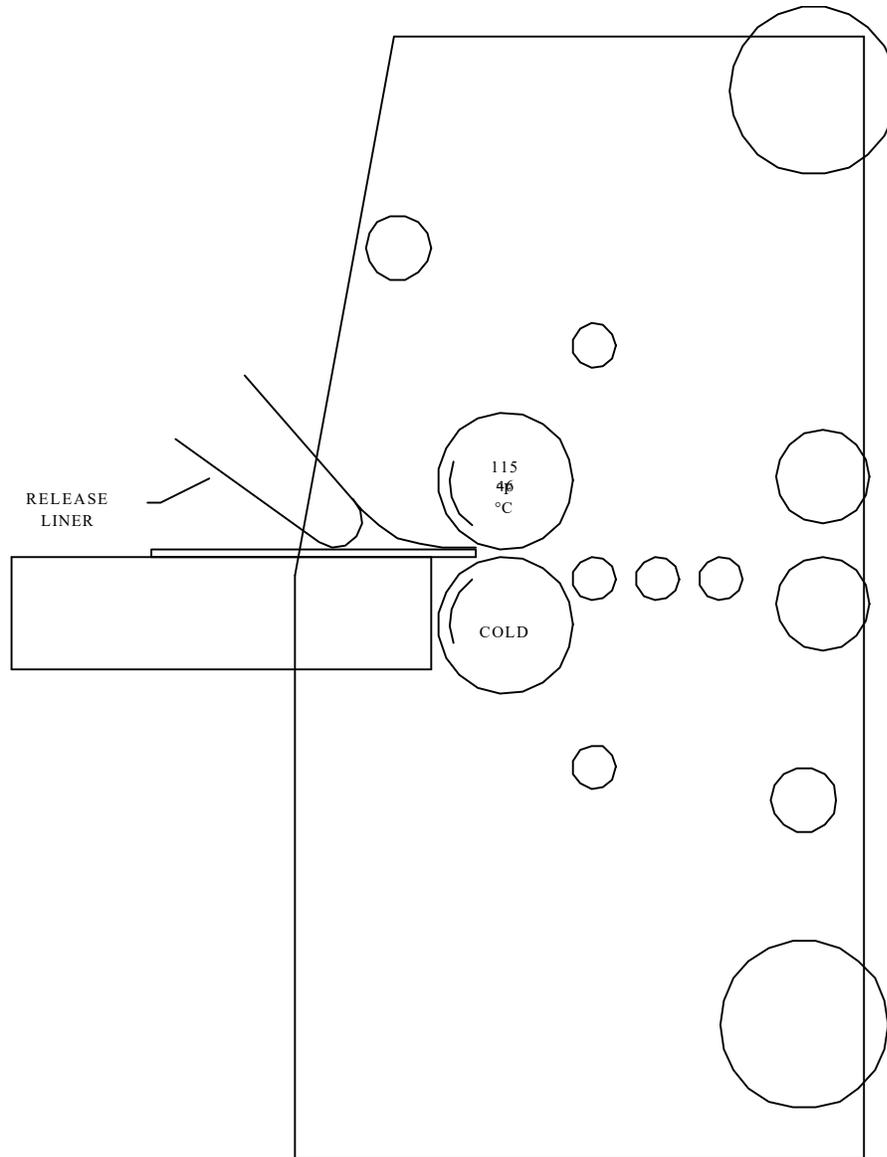


Chart 2-8B

TWO PASS COLD OVERLAMINATE
WITH PRESSURE SENSITIVE MOUNT ADHESIVE
SECOND PASS

PROCESS CONTROL CHART 2-9

Process: Cold Overlam only (using a sled)

Materials (top/bottom): Pro-Gloss / 3/16" board (to be used for the sled)

Front Control Panel Adjustments		Rear Control Panel Adjustments	
Top Brake	ON / 40 p.s.i.	Top Heat	ON / 115° F (46°C)
Top Clutch	ON / 20 p.s.i.	Bottom Heat	OFF / NA
Laminator Roller	ON / 40 p.s.i.	Top Cooling Fans	OFF
Bottom Brake (front)	OFF / NA	Bottom Cooling Fans	OFF
Bottom Clutch (front)	OFF / NA	Pull Roller Clutch	OFF / NA
Forward/Reverse	FORWARD	Pull Roller Pressure	OFF / NA
Speed	4 - 6 f.p.m.	Bottom Brake (rear)	OFF / NA
Laminator Roller Shims	3/16"	Bottom Clutch (rear)	OFF / NA
		Pull Roller Shims	NA

Helpful Hints/Notes:

Use a starter board of the same thickness as the sled being used to start the laminate into the nip. Lay the image on the sled and follow the leader board into the nip while maintaining paper tension on the image being overlaminated.

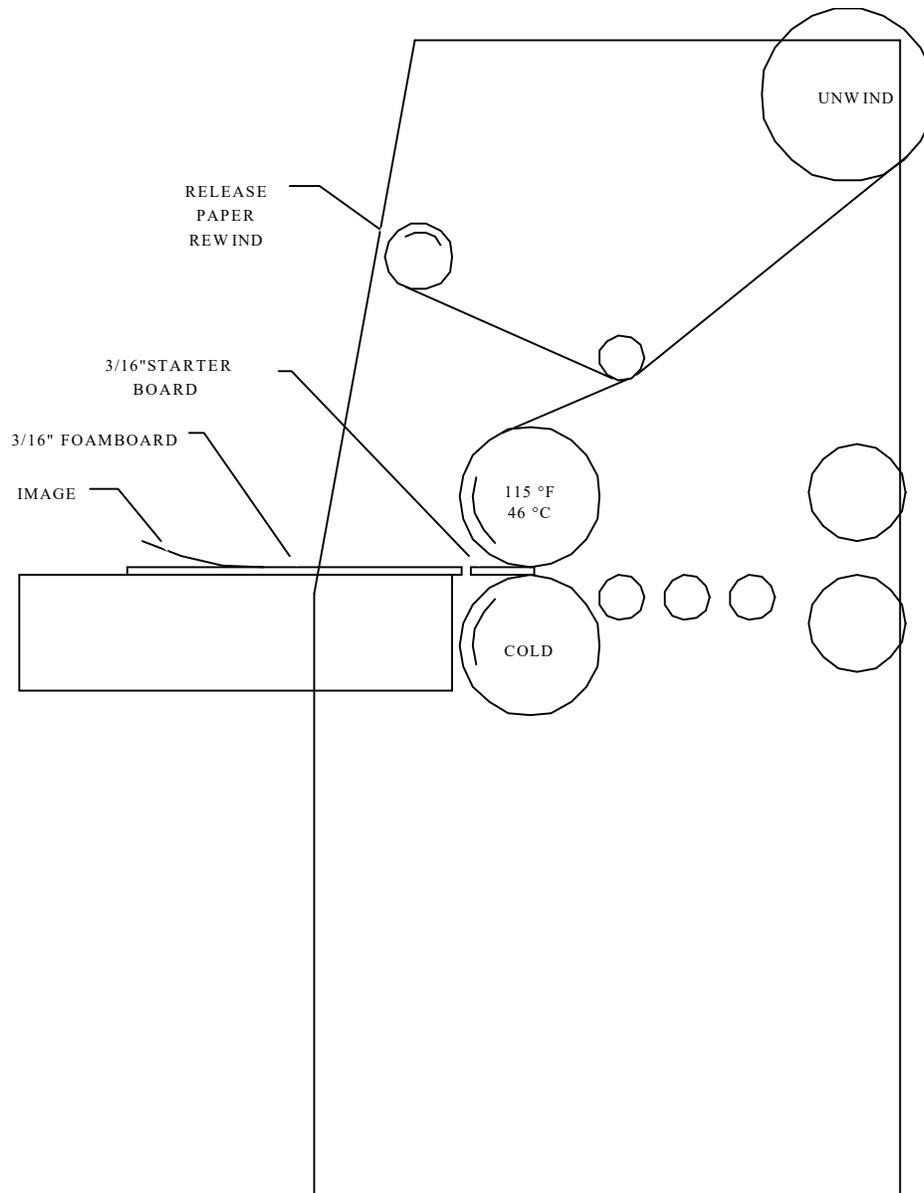


Chart 2-9B

COLD OVERLAMINATE

MAINTENANCE

Introduction

WARNING:

Some maintenance procedures require opening the cabinets while the power and air are still connected to the machine.

Because of the potential for electrical shock from wiring and crushing of fingers or arms in rotating apparatus, only properly trained personnel should perform these tasks.

CAUTION:

Never attempt maintenance on an operating machine unless the instructions specifically call for it.

GBC Pro-Tech laminators require minimal maintenance. However, regular maintenance is essential to keep any piece of precision machinery at peak performance. The following procedures are segmented into daily, monthly, biannual, and as-required procedures.

Daily

1. Clean the Laminating Rolls:

The silicone laminating rolls can be cleaned of dust and dirt by passing an adhesive-coated board through the nip. (Of course, the nip should be set for the thickness of the board used). A mild dishwashing detergent can also be used to clean the rolls. However a better procedure is to use isopropyl alcohol and a 100-percent cotton terry rag.

Samples of these two items were supplied in the accessory kit shipped with the machine.

Monthly

Setting the Nip:

The gap between the two laminator rolls and the secondary drive rollers is called the nip or roll nip. It should be checked once a month. They should be adjusted according to the following procedures.

Main Roll Nip Setting Procedure:

1. Make sure that the machine has both power and air. It is also necessary to make sure that the up/down rates of the upper main roll are even prior to setting the nip; if not follow the rate adjusting procedure on page 4-2. Please note that the main rolls have to be cold (room temperature) when performing this procedure.
2. Remove the shims and set the main roll pressure to 40 psi. Note that this must be done with the upper main roll in its fully up position.
3. Loosen main roll air cylinder caps and spin them to their fully up position.
4. Lower the upper main roll and spin down the main roll air cylinder caps until they are finger tight and secure.
5. Raise the upper main roll. The main roll nip is now set.

Pull Roll Nip Setting Procedure:

1. Make sure that the machine has both power and air and that both cabinets are open. It is also necessary to make sure that the up/down rates of the upper pull roll are even prior to setting the nip; if not follow the rate adjusting procedure on the adjacent column.
2. Remove the shims and set the pull roll pressure to 40 psi. The upper pull roll should be in the fully up position when making these adjustments.

3. Loosen both pull roll air cylinder caps and spin them to their fully up position.

4. Lower the upper pull roll and spin down the pull roll air cylinder caps until they are finger tight and secure them. The pull roll nip is now set.

Cylinder Up/Down Rate Adjustment:

If the upper laminating roll or upper pull roll moves up or down unevenly, the cylinder flow controls need to be adjusted.

Turn them *clockwise* to slow the up/down rate and *counter-clockwise* to increase the up/down rate. To correct for uneven motion, when the roll is going up, adjust the flow controls at the top of the air cylinders. To adjust for uneven lowering, set the air pressure on the laminating roll regulator at 100 pounds per square inch (PSI), 690 kPa, and make the necessary adjustments to the flow controls on the bottom of the air cylinders.

Six Months

1. Lubrication:

Disconnect the power and air supply to the machine. Then, remove the end panels.

Lubricate the bearings on the ends of each laminating roll (two per roll) with a high temperature grade of bearing grease, such as Lubriplate 930-2 or equivalent from a standard grease gun. Also lubricate the flange bearing on the bottom secondary drive roll (pull roller). Lubricate by hand the slots that both the upper main and pull rolls slide up and down in.

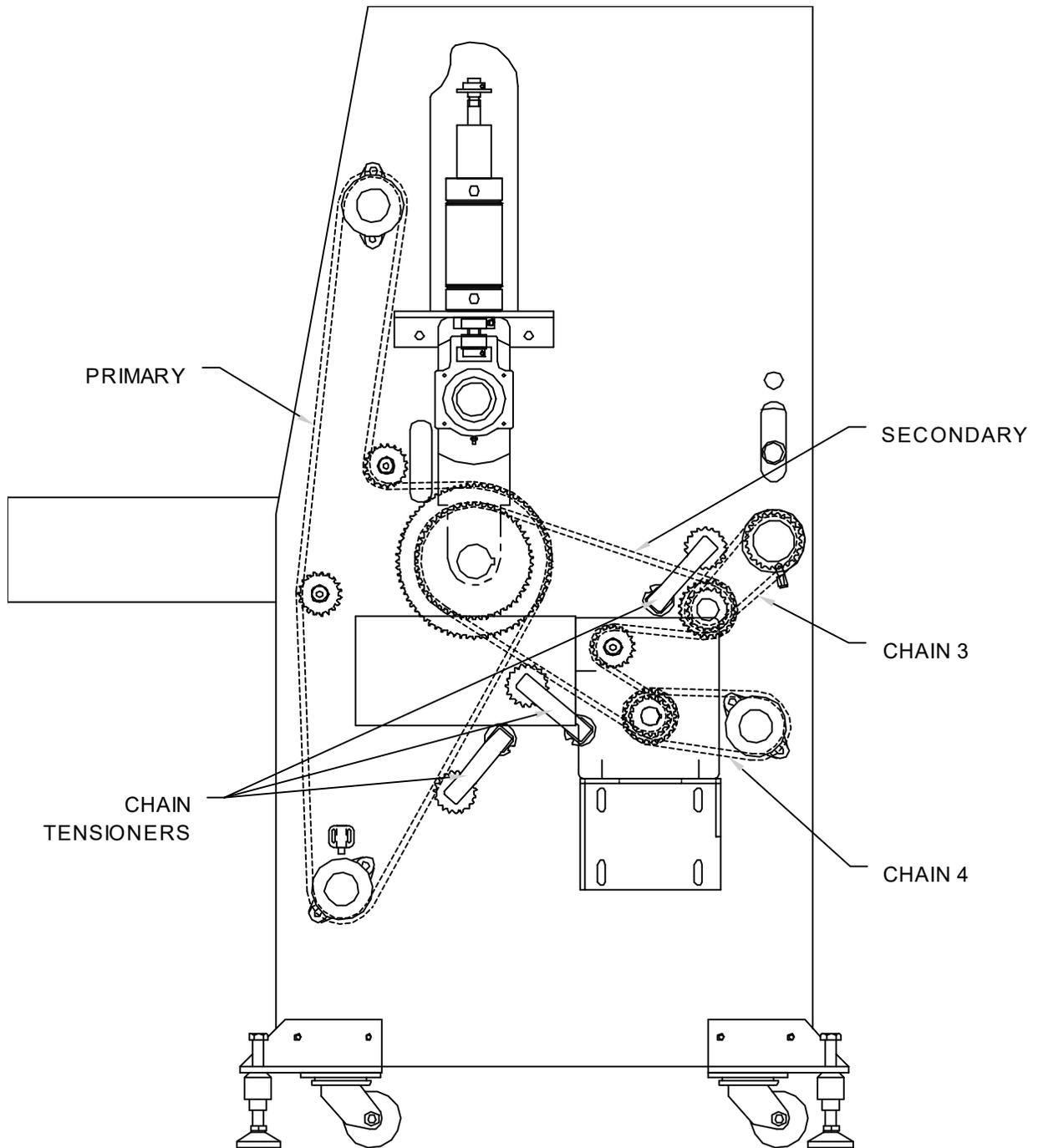
Complete the lubrication by wiping the entire length of the chain with an oily rag. It is also important to note that over-lubrication of bearings is a leading cause of bearing failure. Close the side panels, and reconnect the electrical power and air supply.

As Needed

Chain Tensioning:

1. Make sure that the machine has air only, no power, and that the right (drive side) cabinet is open (see the diagram on page 8-3).

2. Using a large adjustable wrench turn the appropriate chain tensioner until the desired chain tension is achieved. Make sure that the chain tension of each of the three chains is fairly close. If not it might cause stuttering in the feed of the laminator.



CHAIN TENSION
DIAGRAM