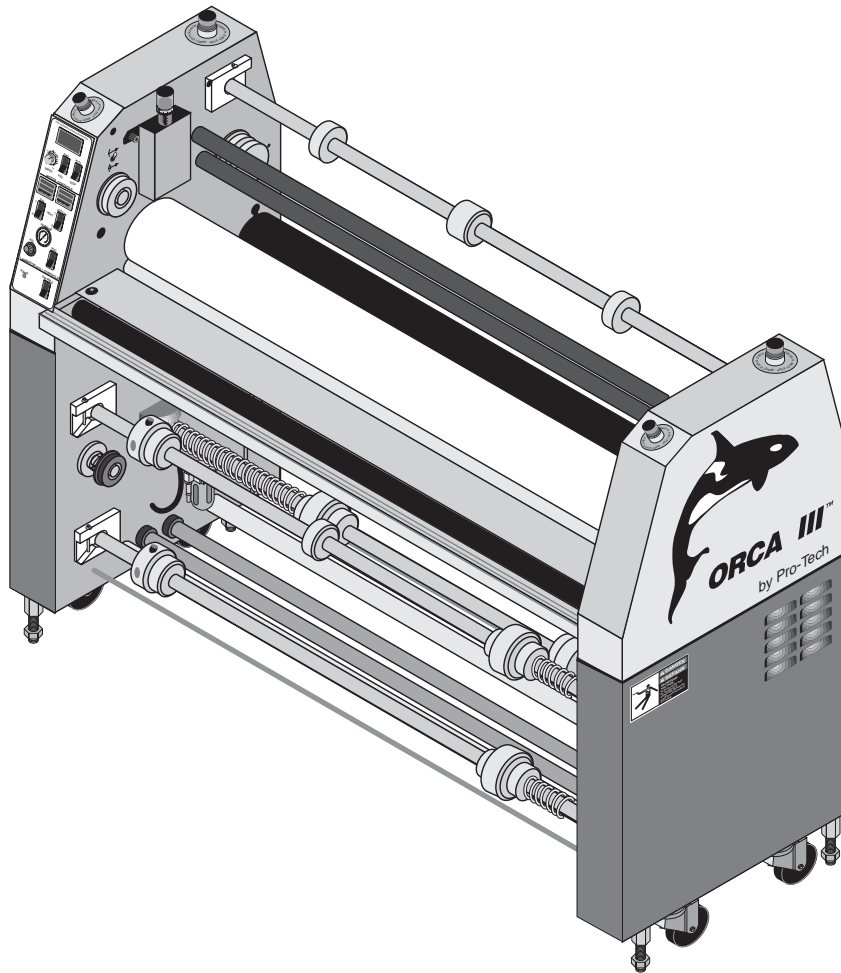

ORCA-III Operation Manual

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Table of Contents

Section 1 : Safety	1-1
Caution/Warning Label Locations	1-5
Section 2 : Installation	2-1
Preinstallation Checklist	2-1
Unpacking.....	2-4
Setup	2-5
Leveling.....	2-6
Startup	2-6
Section 3 : Operation	3-1
Safety	3-1
Operator Controls.....	3-3
Operator Controls.....	3-3
Front Control Panel	3-3
Rear Control Panel.....	3-4
Setup.....	3-4
Laminator Roll Pressure.....	3-4
Loading the Film.....	3-5
Positioning the Film	3-5
Heating	3-6
Cooling	3-6
Paper Tips	3-6
Process Control Charts	3-7
Mounting Only	3-7
Setup.....	3-7
Procedure.....	3-7
Mounting/Laminating	3-7
Setup.....	3-7
Procedure.....	3-7
Encapsulation.....	3-8
Setup.....	3-8

Procedure.....	3-8
Encapsulation (With Envelope Feed).....	3-8
Two-Pass Mount and Laminate (Hot and Cold).....	3-8
Setup.....	3-8
Procedure, Pass 1.....	3-8
Procedure, Pass 2.....	3-8
Cold/Mount Laminate	3-9
With Hot Main Rolls:	3-9
With Cold Main Rolls:.....	3-9
Roll to Roll Transfer and Laminate (One Pass).....	3-9
With Hot Main Rolls:	3-9
Vinyl Transfer	3-9
Roll to Roll Transfer.....	3-9
With Hot Main Rolls:	3-9
Roll to Roll Cold Overlamination (Second Pass Main Rolls Hot)	3-10
With Hot Main Rolls:	3-10
PROCESS CONTROL CHART 3-1	3-11
PROCESS CONTROL DIAGRAM 3-1B.....	3-12
PROCESS CONTROL CHART 3-2	3-13
PROCESS CONTROL DIAGRAM 3-2B.....	3-14
PROCESS CONTROL CHART 3-3	3-15
PROCESS CONTROL DIAGRAM 3-3B.....	3-16
PROCESS CONTROL CHART 3-4	3-17
PROCESS CONTROL DIAGRAM 3-4B.....	3-18
PROCESS CONTROL CHART 3-5	3-19
PROCESS CONTROL DIAGRAM 3-5B.....	3-20
PROCESS CONTROL CHART 3-6	3-21
PROCESS CONTROL DIAGRAM 3-6B.....	3-22
PROCESS CONTROL CHART 3-7	3-23
PROCESS CONTROL DIAGRAM 3-7B.....	3-24
PROCESS CONTROL CHART 3-8	3-25
PROCESS CONTROL DIAGRAM 3-8B.....	3-26
PROCESS CONTROL CHART 3-9	3-27
PROCESS CONTROL DIAGRAM 3-9B.....	3-28

PROCESS CONTROL CHART 3-10	3-29
PROCESS CONTROL DIAGRAM 3-10B.....	3-30
PROCESS CONTROL CHART 3-11	3-31
PROCESS CONTROL DIAGRAM 3-11B.....	3-32
PROCESS CONTROL CHART 3-12	3-33
PROCESS CONTROL DIAGRAM 3-12B.....	3-34
PROCESS CONTROL CHART 3-13	3-35
PROCESS CONTROL DIAGRAM 3-13B.....	3-36
Laminate Temperature Guide and Helpful Hint Sheet for GBC Pro-Tech Products.....	3-37
All Pressure Sensitive Materials.....	3-37
Lamination.....	3-37
Mounting	3-37
Vinyl Transfer	3-37
Section 4 : Maintenance and Troubleshooting	4-1
Cleaning	4-1
Adjusting the Main Roll Nip	4-3
Adjusting the Pull Roll Nip	4-4
Chain Tensioning and Take-Up.....	4-5
Adjusting the Air Cylinder Rate.....	4-6
Lubrication.....	4-8
Contacting Technical Support	4-8
Schematic Diagram	4-9
Pneumatic Diagram	4-2
Output Troubleshooting Guide	4-9
Section 5 : Warranty	5-1
Limited Warranty	5-1
Exclusions to the Warranty	5-1
Section 6 : Technical Information	6-1
Specifications	6-1
Illustrated Parts List.....	6-2
Section 7 : Index.....	7-1

Section 1 : Safety

DO NOT ATTEMPT TO OPERATE YOUR ORCA-III LAMINATOR UNTIL YOU HAVE READ THIS SECTION CAREFULLY!

Your safety, as well as the safety of others, is important to GBC Pro-Tech. This section contains important safety information.

The following symbols are used throughout this manual to indicate warnings and cautions.



DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or alerts against unsafe practices, or alerts against actions which could damage the product.

The ORCA-III Laminator has been designed with safety as a primary consideration. However, you must become thoroughly familiar with the controls, proper operation, proper service procedures, and safety features of the laminator before using or servicing the unit.

GBC Pro-Tech laminators are powerful machines that are designed to mount, laminate and encapsulate. The forces required to accomplish these tasks 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 is applied to any object presented in the opening (called the nip) between the two rolls.

Use care in lowering the top main laminating roll and know how to react quickly in an emergency. The laminator roll **UP-DOWN** switch is located on the instrument panels. This switch controls the up and down motion of the top laminator roll. Before pressing this switch to the **DOWN** position, ensure that nothing is in the nip area. If any problem or danger should occur, depressing any of the emergency buttons stops the rolls from closing and raises them completely.

⇒ **Note**

To quickly stop the machine in the event of an emergency, press any of the emergency stop buttons or apply force to either kick cable. This action stops the machine completely and raises the rolls.

In addition, the laminating rolls of the ORCA-III can reach temperatures of over 200 °F (100 °C). At these temperatures there is a danger of a severe burn if the rolls are touched during set-up, operation or servicing.

An important feature of the laminator is the photoelectric eye system that stops the machine when objects move into the nip area.

In “run” mode (forward or reverse arrow is lit constantly) forward or reverse button must be pushed for progress to resume.

In “footswitch” mode (forward or reverse arrow is flashing) rolls stop if photoelectric eye is blocked but resume automatically when obstruction is removed from the photoelectric eye path.

 **WARNING**

Do not ever attempt to override the photoelectric eye system. You could be crushed or severely burned.

The ORCA-III Laminator has a steel cabinet that is bolted closed to isolate the electrical and drive system components for the safety of the operator. Only a qualified service technician should open these cabinets.

The laminator is equipped with two emergency stop kick cables located on the bottom front and rear of the laminator and four emergency stop buttons located on the top of either side of the laminator. Any of these, if engaged, stops the laminator. To continue operation all four emergency stop buttons must be in the up position.

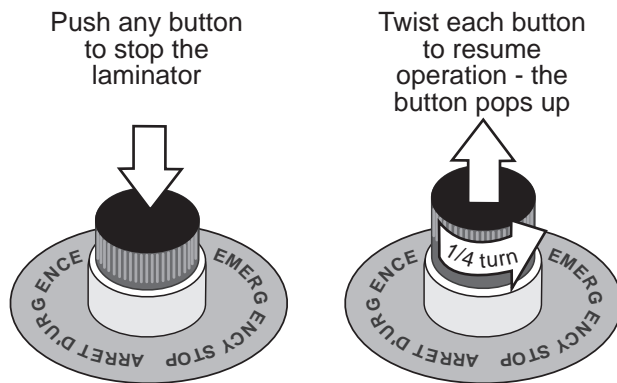


Figure 1-1: Using the Emergency Stop Buttons

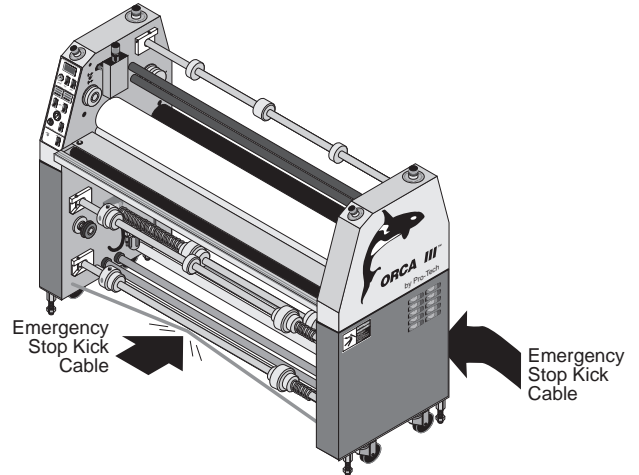


Figure 1-2: Using the Emergency Stop Kick Cables

Despite the safety features built into the ORCA-III Laminator, extreme caution must be used when operating or servicing the unit. **READ THE FOLLOWING WARNINGS AND CAUTIONS BEFORE ATTEMPTING TO OPERATE OR SERVICE THE ORCA-III LAMINATOR.**

 **WARNING**

Never place fingers or arms between the rolls when they are turning or when the rolls are in the closed position. You can be crushed or burned.

 **WARNING**

Do not wear ties, loose fitting clothing or dangling jewelry while operating or servicing the laminator. These items can get caught in the nip and choke you or you can be crushed or burned.

 **WARNING**

Always use care in lowering the top laminating roll. You can be crushed or burned.

**WARNING**

Do not operate the laminator near water. You can be severely shocked, electrocuted or cause a fire.

**CAUTION**

Raise the upper main roll when the laminator is not in operation. Prolonged contact can damage the rolls.

**DANGER**

Remove power from the laminator before servicing. You can be severely shocked, electrocuted or cause a fire.

**CAUTION**

Excess pressure can damage the laminating rolls. Always select the minimum roll pressure necessary to complete the task.

**WARNING**

Do not use liquid or aerosol cleaners on the laminator. Do not spill liquid of any kind on the laminator. You can be severely shocked, electrocuted or cause a fire. Use only a damp cloth for cleaning.

**CAUTION**

If silicone adhesive contacts the upper or lower roll, remove it **IMMEDIATELY** using 80% (or stronger) isopropyl alcohol. It can harden within an hour and ruin the roll.

**WARNING**

Exercise care when cleaning the rolls with 80% (or stronger) isopropyl alcohol:

- Use only in a well ventilated area.
 - Wear rubber gloves.
 - Use only on cool rolls.

Cleaning heated rolls can ignite the fumes.

**WARNING**

The operating environment must be free of dust, flammable liquids and vapors. You can be injured by inhaling chemical vapors. Vapor build up or stored flammable liquids can cause a fire. Excessive dust can damage the laminator.

**CAUTION**

Use only 80% (or stronger) isopropyl alcohol or a rubber cement eraser to clean the laminating rolls. Harsh chemicals like toluene, acetone or MEK destroy the silicone covering of the rolls.

**CAUTION**

Do not use a knife or other sharp instrument during installation or while servicing the laminator. You can cause irreparable damage to the rolls.

**WARNING**

Do not attempt to move the laminator across anything other than a flat, level surface without trained and qualified riggers. You can be crushed or seriously injured.

The ORCA-III Laminator is a large and heavy piece of equipment. It is necessary to employ LICENSED RIGGERS ONLY to move the machine. The laminator is not designed to be tipped up or sideways in any way. Such action disturbs the exact alignment of the rolling parts of the machine and requires extensive realignment. GBC Pro-Tech's warranty does not cover malfunction of the equipment due to mishandling and/or tipping.

GBC Pro-Tech bears no responsibility for personal injury or damage due to moving the laminator improperly.

**WARNING**

Do not allow anything to rest on the power cord. Do not locate the cord where people can walk on it. You or others can be severely shocked, electrocuted or cause a fire.

**WARNING**

Never insert objects of any kind through any of the slots on the laminator. You can touch dangerous voltage points or short out parts. You can be severely shocked, electrocuted or cause a fire.

ALWAYS USE GOOD SAFETY PRACTICES WHEN OPERATING OR SERVICING THE LAMINATOR AND KNOW HOW TO REACT QUICKLY IN AN EMERGENCY.

**WARNING**

Only a qualified electrician should connect power to the laminator. You can be severely shocked, electrocuted or cause a fire if power is improperly applied.

**WARNING**

Do not operate the laminator if the power cord is damaged or frayed. You can be severely shocked, electrocuted or cause a fire. Contact a qualified electrician to replace the cord.

Caution/Warning Label Locations

Posted at various locations on your ORCA-III Laminator are important safety labels. **PAY CAREFUL ATTENTION TO THESE LABELS AT ALL TIMES!** Figure 1-3 shows the location of each of these labels.

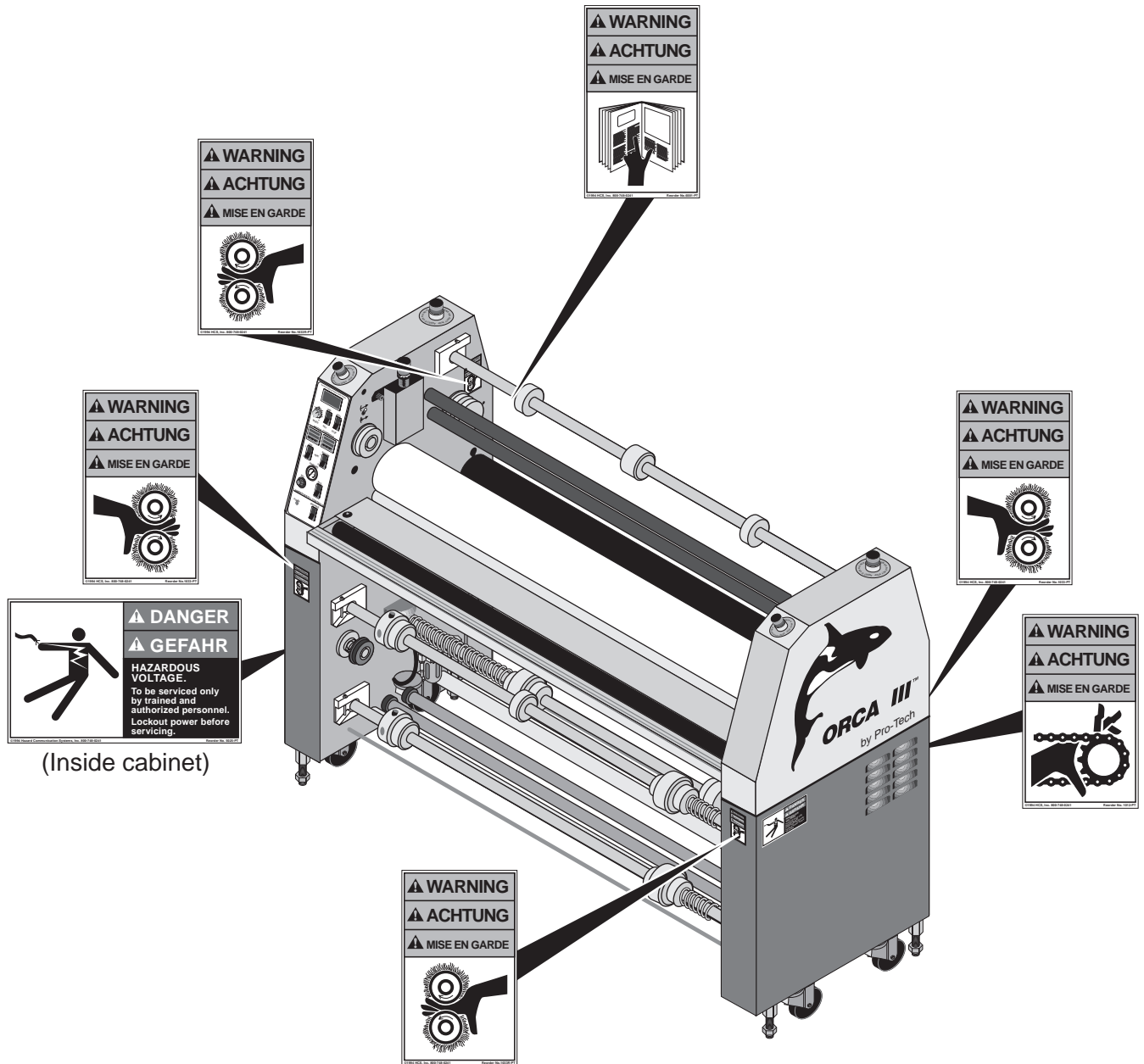


Figure 1-3: Locations of Safety Labels

Section 2 : Installation

GBC Pro-Tech is committed to a program of ongoing product improvement. As a result, we are providing these instructions so that you can insure that your new ORCA-III Laminator is properly and securely unpacked, moved and installed.

Before an ORCA-III Laminator can be installed there are a few requirements that must be met. Make certain that each of the requirements listed in the following preinstallation checklist are met before beginning installation.



CAUTION

Failure to follow the preinstallation checklist can result in damage to the laminator.

Preinstallation Checklist

- Are doorways and hallways wide enough for the laminator to be moved to the installation site?
- Is there ample room for the laminator?
A work area must be established that allows for operation in both the front and the rear of the machine and provides space for efficient material flow. Figure 2-1 shows a typical machine area layout.
- Is the environment appropriate for the laminator?
The laminator requires a clean, dust and vapor free environment to operate properly. It must not be located where there is air blowing directly on the machine.



WARNING

The operating environment must be free of dust, flammable liquids and vapors. You can be injured by inhaling chemical vapors. Vapor build up or stored flammable liquids can cause a fire. Excessive dust can damage the laminator.



CAUTION

Do not locate the laminator where air is blowing directly on the machine. The air flow can cool the rolls unevenly and result in poor quality output.

- Have you contacted a certified electrician to both wire the laminator and ensure that an adequate power supply, having the appropriate capacity, overcurrent protection, and safety lockouts is available?
The laminator requires 220 to 240 VAC, 50/60 Hz, 55 A. Or, in Europe only, 3-N phase, 32 A per phase.

USA - For single phase 3 wire, tie L1, L2, and L3 together.

Europe - For 3-N phase, L1, L2, and L3 are each separate phases.



WARNING

Do not operate the laminator if the power cord is damaged or frayed. You can be severely shocked, electrocuted or cause a fire. Contact a qualified electrician to replace the cord.



WARNING

Do not allow anything to rest on the power cord. Do not locate the cord where people can walk on it. You or others can be severely shocked, electrocuted or cause a fire.

- Is there an appropriate filtered air supply available?

The laminator requires filtered air at 2 cubic feet per minute (cfm), 50 liters/minute at a pressure of 100 pounds per square inch (psi) (700 kPa). The air supply must be clean (free of dirt) and dry. Moisture causes corrosion and particles block pneumatic controls. Either problem can cause the laminator to malfunction.

It is the customer's responsibility to provide appropriate filters and water traps for the air hose before the air is routed to the laminator. 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 $\frac{1}{2}$ to $\frac{3}{4}$ horse power (1 kW) electric air compressor with 1.5 to 2.5 cfm output with a 5 gallon (20 liter) storage tank is appropriate.

**CAUTION**

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

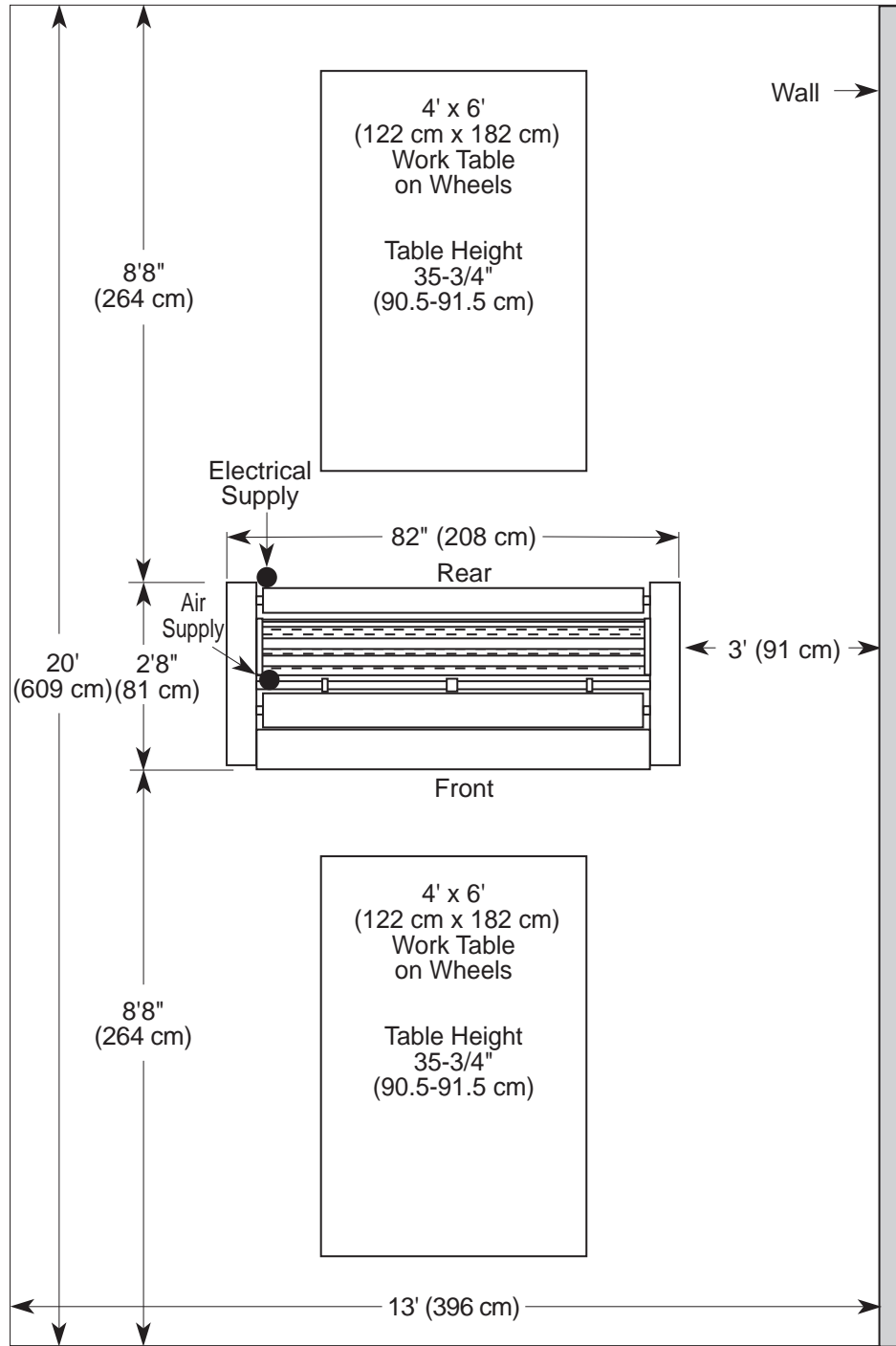


Figure 2-1: Laminator Space Requirements

Unpacking

⇒ NOTE

ALL SHIPMENTS ARE EX- WORKS. At our dock title passes to the buyer. Please review your insurance coverage prior to shipment, as you are responsible for all subsequent freight charges and risks. Before signing the Bill of Lading you should be sure to inspect the crate and/or pallet for signs of damage or missing items; if applicable, make a note of this on the Bill of Lading.



WARNING

The unpacking process requires at least two people. You can be severely injured or crushed.

Tools required:

- Phillips head screwdriver
- 7/8" open end wrench or adjustable wrench

To uncrate the laminator:

1. Remove the top of the crate and then the sides in the order shown in Figure 2-2.



CAUTION

Do not allow the top to fall into the crate. It can damage the laminator.

Do not put packing screws on the floor. They can cause problems when trying to roll the machine into position.

A second person must support the side labeled 5 in Figure 3-4. It can fall and damage the laminator.

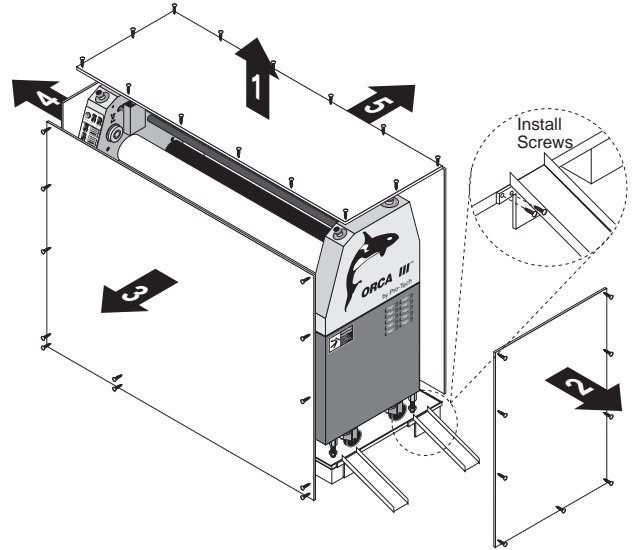


Figure 2-2: Removing the Crate

2. Carefully unwrap the shrink wrap from around the laminator.



CAUTION

Do not use a knife or other sharp instrument during installation or while servicing the laminator. You can cause irreparable damage to the rolls.

3. Carefully remove any accessories packed with the laminator. The accessory pack should contain:
 - 1 Set, hex wrenches
 - 1 5/16" T-handle wrench
 - 1 Slitting knife
 - 1 Manual
 - 1 Set, spare fuses
 - 1 Air line quick-couple connector, female
 - 100% white cotton terry rags
4. Have the laminator rolled off the skid and placed on the floor by licensed riggers. The ramps included with the laminator can be secured to the edge of the crate bottom using the screws left over from the crate disassembly (see Figure 2-2).

**WARNING**

Do not attempt to move the laminator across anything other than a flat, level surface without trained and qualified riggers. You can be crushed or seriously injured.

The ORCA-III Laminator is a large and heavy piece of equipment. It is necessary to employ LICENSED RIGGERS ONLY to move the machine. The laminator is not designed to be tipped up or sideways in any way. Such action disturbs the exact alignment of the rolling parts of the machine and requires extensive realignment. GBC Pro-Tech's warranty does not cover malfunction of the equipment due to mishandling and/or tipping.

GBC Pro-Tech bears no responsibility for personal injury or damage due to moving the laminator improperly.

- Remove any plastic strapping and packing paper taped to the rolls.

**CAUTION**

Do not use a knife or other sharp instrument during installation or while servicing the laminator. You can cause irreparable damage to the rolls.

- Remove all packing materials to a safe distance from the laminator.

⇒ **A NOTE ABOUT RECYCLING**

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

⇒ **NOTE**

A word about international shipments: As these are heavy pieces of equipment, GBC Pro-Tech takes every precaution to ensure that our laminators are properly crated to the highest standards.

Before machines leave our loading dock, they are pre-treated with a VCI protective film to provide total corrosion protection. This protective film is wrapped around the machine and completely sealed. In addition, moisture absorbing silicone desiccite packs are packed inside the crate and machine cabinets.

Prior to start up of the machine, you must remove the desiccite packs from each cabinet and discard. DO NOT operate the machine with the desiccite packs inside the cabinets

- Level the laminator using the procedure later in this section.

Setup

Once the ORCA-III Laminator has been unpacked and moved into final position check each of the following items.

Tools required:

- $\frac{1}{8}$ " hex wrench
- Adjustable wrench

Setup Procedure

- Inspect the laminator for any obvious shipping damage.
- Open the left and right side cabinet covers with the $\frac{5}{32}$ " hex wrench by removing the four screws holding each cover in place.
- Inspect all the bolts and tighten any that were loosened during shipping.
- Have a certified electrician wire the laminator directly to a power source.
- Set the nip. (See *Maintenance* for the procedure.)
- Verify that the infrared sensors are not blocked.

**WARNING**

NEVER BLOCK THE INFRARED SENSORS! The rolls can overheat and cause a fire or seriously damage the laminator.

7. Adjust the air cylinder rate. (See *Section 4: Maintenance and Troubleshooting* for the procedure.)
8. Replace both cabinet covers.

Leveling

Tools required:

- Adjustable wrench
- Carpenter's level

To level the laminator:

1. Raise each end, remove the castors and install a leveling pad and stud onto each of the foot brackets at the four bottom corners of the laminator. Thread third nut on stud above foot bracket.



WARNING

Do not lift the wheels more than 3/4" (2 cm.) above the floor. The leveling pads can become unstable. You can be crushed.

2. Thread stud into 4 leveling pads lock down with nut. Thread second nut onto stud.
3. Place a carpenter's level front to rear across the two lower tie bars at one end of the machine .
4. Level this end of the machine front to rear, raising or lowering the leveling pads by adjusting the middle nuts on the foot bolts.
5. Move the level to the other end of the machine and level front to rear.
6. Place the level directly on one of the tie bars and level the machine side to side.
7. Recheck the front to rear level condition to insure that it has not changed. If it has, repeat the leveling procedure.
8. When all the measurements indicate that the machine is level, tighten down the top nuts on the foot brackets to lock the pads in their current position.

Startup

The first time the laminator is started and every time it is serviced you should use the following checklist to confirm that the unit is operating properly and that all safety mechanisms are functioning.

Startup Checklist

Start the laminator and go through the following checklist.

- Are the emergency stop buttons working?
Push down on one of the emergency stop buttons. The laminator should stop. Pull up on the button and push the reset button on the lower back of the laminator. The laminator should resume operation. Always check all four buttons.



WARNING

Never operate the laminator unless both of the emergency stop buttons are functioning properly. You can be crushed or burned.

- Is the photoelectric eye system working?
With the laminator running and the rolls in the "up" position, place an object approximately the size of your hand just in front of the nip on both the front and back of the laminator to confirm that the photoelectric eye system is functioning. The rolls should stop. Move the object away from the nip. The laminator should resume operation if the machine is in "footswitch" mode. If the machine is in "run" mode, it should be necessary to push the **FORWARD** or **REVERSE** button to resume roll motion.



WARNING

Never operate the laminator unless the photoelectric eye system is functioning properly. You can be crushed or burned.

- Are the emergency stop kick cables working?
With the laminator running, step on or kick the front emergency stop kick cable. All power should be removed from the machine. The rolls should stop turning and rise. Push the reset button. Restart the heaters, fans, and roll motion. Lower the rolls then repeat the test for the back emergency stop kick cable.

**WARNING**

Never operate the laminator unless both of the emergency stop kick cables are functioning properly. You can be crushed or burned.

- Is the motor functioning?
Test the motor at various speeds ranging from 0-15. At 0 the rolls should stop turning.
Run the motor in both forward and reverse.
- Are the heaters working?
Verify that the top heater controller heats the top roll and the bottom heater controller heats the bottom roll.

Once you have completed the startup checklist you can safely run a test sample.

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Section 3 : Operation

Safety

The ORCA-III Laminator has been designed with safety as a primary consideration. However, you must become thoroughly familiar with the controls, proper operation, proper service procedures, and safety features of the laminator before using or servicing the unit.

GBC Pro-Tech laminators are powerful machines that are designed to mount, laminate and encapsulate. The forces required to accomplish these tasks 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 is applied to any object presented in the opening (called the nip) between the two rolls.

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 instrument panels. This switch controls the up and down motion of the top laminator roll. Before turning this switch to the **DOWN** position, ensure that nothing is in the nip area.

In addition, the laminating rolls of the ORCA-III can reach temperatures of over 200 °F (100 °C). At these temperatures there is a danger of a severe burn if the rolls are touched during set-up, operation or servicing.

The ORCA-III Laminator has a steel cabinet that is bolted closed to isolate the electrical and drive system components for the safety of the operator. Only a qualified service technician should open these cabinets.

The laminator is equipped with four emergency stop buttons located on the top of either side of the laminator. Any of these, if engaged, stops the laminator. To continue operation all four emergency stop buttons must be in the up position.

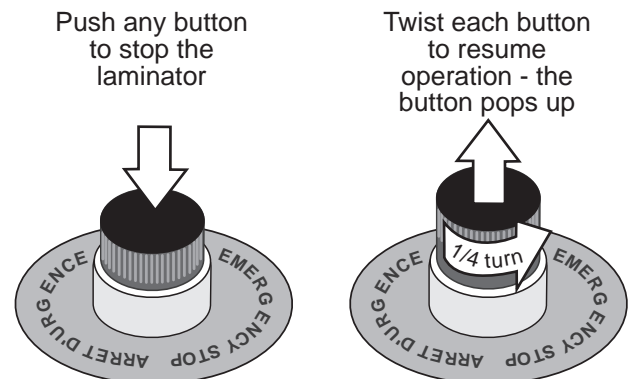


Figure 3-1: Using the Emergency Stop Buttons

The ORCA-III is equipped with a photoelectric eye system that stops the machine when objects move into the nip area.

In “run” mode (forward or reverse arrow is lit constantly) forward or reverse button must be pushed for progress to resume.

In “footswitch” mode (forward or reverse arrow is flashing) rolls stop if photoelectric eye is blocked but resume automatically when obstruction is removed from the photoelectric eye path.



WARNING

Do not ever attempt to override the photoelectric eye system. You could be crushed or severely burned.

In addition to the safety features built into the ORCA-III Laminator, extreme caution must be used when operating or servicing the unit.

In addition, the ORCA-III is equipped with two Emergency Stop Kick Cables located at the lower front and back of the laminator. Either of these, if stepped on or kicked, stops the laminator. To restart, push the reset button and reactivate the heaters, fans, roll motion, and roll position controls.

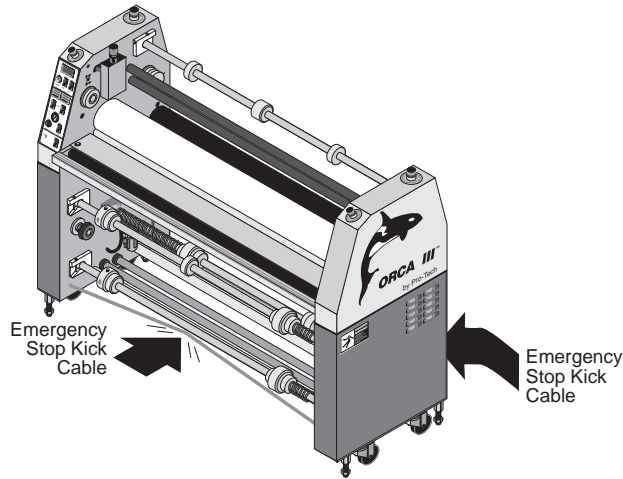


Figure 3-4: Emergency Stop Kick Cables

Operator Controls

The operator controls for the ORCA-III Laminator are located on the front and rear of the unit, to the right of the operator position. The names and functions of these controls are as follows:

Operator Controls

The operator controls for the ORCA-III Laminator are located on the front and rear of the unit, to the right of the operator position. The names and functions of these controls are as follows:

Front Control Panel

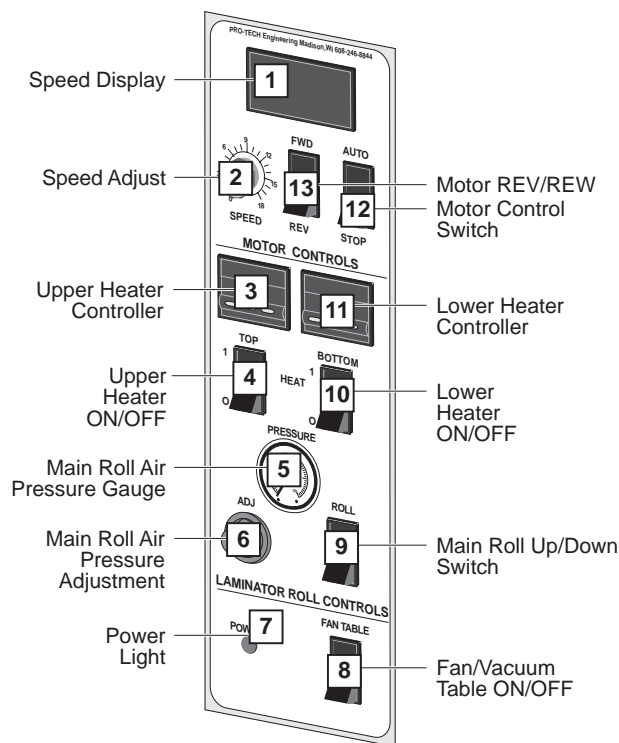


Figure 3-1: Front Control Panel

1. **SPEED DISPLAY** - Provides digital readout of the machine speed and total throughput in either metric or standard units.
2. **SPEED ADJUSTMENT** - Adjusts the speed of the machine from zero to maximum as the control is turned clockwise.
3. **UPPER HEATER CONTROLLER** - Provides a readout of the temperature of the upper laminating roll and the set-point for the desired temperature.

4. **UPPER ROLL HEAT ON/OFF** - Turns the heater controller for the top laminating roll on or off.
5. **MAIN ROLL AIR PRESSURE GAUGE** - Displays the air pressure pushing the main laminating roll down.
6. **MAIN ROLL AIR PRESSURE CONTROL** - Varies the air pressure fed to the cylinders that drive the top laminating roll down.
7. **POWER LIGHT** - Indicates when the main power is being applied to the machine.
8. **FAN/VACUUM TABLE ON/OFF** - Turns the vacuum table on or off.
9. **MAIN ROLL UP/DOWN** - Sets the main roll to the up (load) or down (operate) position.
10. **LOWER HEAT ON/OFF** - Turns the heater controller in the bottom laminating roll on or off.
11. **LOWER HEATER CONTROLLER** - Provides a readout of the temperature of the bottom laminating roll and the set-point for the desired temperature. The upper heater must be on for the lower heater to function.
12. **FOOTSWITCH/CONTINUOUS RUN** - Changes control of the machine drive from the footswitch to continuous run.
13. **MOTION CONTROL FORWARD/STOP REVERSE** - Controls the direction of the drive system - forward, stop, or reverse.

Rear Control Panel

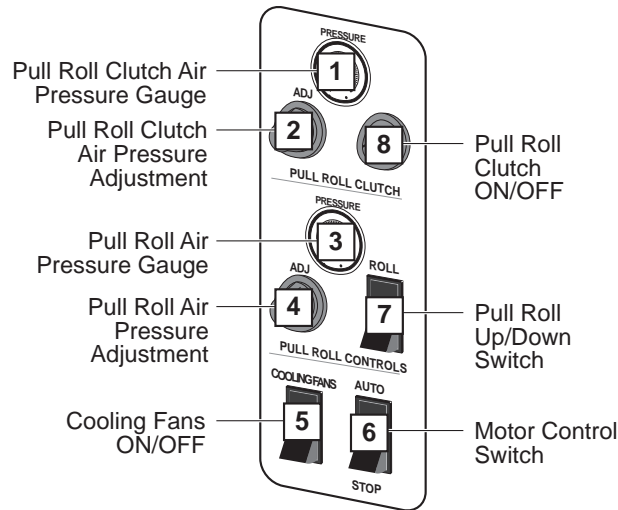


Figure 3-2: Rear Control Panel

1. **PULL ROLL CLUTCH PRESSURE GAUGE** - Measures and displays the air pressure driving the pull roll clutch, which sets web tension.
2. **PULL ROLL CLUTCH AIR PRESSURE ADJUSTMENT** - Adjusts the clutch pressure from zero to maximum as the control is turned clockwise.
3. **PULL ROLL AIR PRESSURE GAUGE** - Measures and displays the air pressure pushing the pull roll down.
4. **PULL ROLL AIR PRESSURE ADJUSTMENT**- Varies the air pressure fed to the cylinders that drive the pull roll down.
5. **COOLING FANS ON/OFF**- Turns the cooling fans on or off.
6. **FOOTSWITCH/CONTINUOUS RUN** - Changes control of the machine drive from the footswitch to continuous run.
7. **PULL ROLL UP/DOWN** - Sets the pull roll to the up (load) or down (operate) position.
8. **PULL ROLL CLUTCH ON/OFF**- Turns the pull roll clutch on or off.

Setup

Setup of the ORCA-III Laminator is quick and straightforward when instructions are followed exactly.



Always use the same shim settings on the left and right side of the laminator.

To adjust the nip please see *Section 4: Maintenance and Troubleshooting*.

Laminator Roll Pressure

Use only the minimum amount of roll pressure needed to accomplish the task. While higher pressure can make the adhesive bond faster, excess pressure can damage the rolls. Wrinkles and bubbles have causes that generally cannot be cured by applying more pressure.



Excess pressure can damage the laminating rolls. Minimum laminator roll pressure is consistent with good results.

A typical roll pressure for soft substrates such as Foamcore or Orca-Board is between 20 to 30 pounds per square inch (PSI) or 140 to 205 kPa.

The range of typical values for hard substrates is 25 to 50 PSI or 170 to 345 kPa.

Loading the Film

Film is loaded on the appropriate unwinds. Loading and aligning the film are discussed later in this section. For applications such as encapsulation, film is fed from both the top and bottom feed unwinds.

The process of loading and aligning film is the same for both the top and the bottom unwinds. There are two important points to remember when loading film:

1. The adhesive side of the film must be oriented away (on the outside) from the laminating roll. Otherwise it will immediately bond to the roll, creating a major clean-up project.

Films have a shiny side and a dull side. The dull side is the one with the adhesive. The dull side should **ALWAYS** face outward from the laminating roll.



CAUTION

Always mount the film so that the adhesive side faces outward from the laminating roll. This prevents hours of roll cleaning.

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 and other assorted troubles will occur.



CAUTION

Carefully align the two films being fed into the nip. If not, you will obtain poor results.

Positioning the Film

The following procedure is applicable to all the feed unwinds.

Tools required:

- $\frac{5}{16}$ " T-handle wrench
- Tape measure

To position the film:

1. Open the top unwind by removing the pin and swinging the arm out.
2. Position the film chuck with the brake on the left side of the arm. Make sure that the brake piston is fully retracted (pushed in).
3. Load the film.
4. Center the film on the unwind arm by measuring the distance from the ends of the film to the sides of the machine using a tape measure.
5. Lock down the chuck on the right side using the $\frac{5}{16}$ " T-handle wrench supplied with your laminator. Mount a rubber O-ring on the left side of the film, followed by a film chuck. Be sure that the collar only touches, but does not tighten, the O-ring.
6. Tighten the screw on the brake chuck.
7. Recheck the centering of the film roll with the tape measure. Readjust if necessary.
8. Return the arm to its locked position and reinsert the locking pin.

Heating

Use the following instructions when heating one or both of the laminating rolls. The procedure is the same for the top and bottom heaters.

1. Set the heater switch to ON.
2. Adjust the temperature controller for the desired operating temperature using the temperature controller push buttons.
3. For the Syrlec type controller, use the up and down arrows to adjust the set point. Hold down the required arrow until the correct set point is achieved.
For the CAL3200, it is necessary to press the star button at the same time as the up or down arrow to adjust the set point temperature.
4. When heating the rolls, keep the top roll down and turning at a moderate speed to prevent uneven heating.
5. It will take approximately 25 minutes for the laminating roll(s) to reach operating temperature. When the preset operating temperature has been reached, the machine is ready to use.
6. The ORCA-III can be used for cold mounting and laminating while maintaining the temperature of the main laminating rolls by using the output rolls as a laminator (by feeding prints from the rear) for a quick change-over between hot and cold laminating.

Cooling

The following is the fastest way to cool down the machine.

1. Set the heater switches to **OFF**.
2. Position the two rear air tubes 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 it can be fed perpendicular to the laminating roll.
2. If you are laminating very thin papers, you should consider utilizing the ORCA III's envelope feed. This patented technique is the best choice for the output from electrostatic printers that have significant water content or for papers with excessive stretch.

Records

Process control charts allow you to record the way you thread film through the machine's rolls and idlers (called webbing) and the control settings for each product and process. Process control charts are an excellent tool for training new operators. They provide a "road map" for correct machine setup and operation.

This section contains a blank process control chart and diagram for the ORCA-III as well as completed charts for the basic operations of the laminator.

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 that all controls are set to optimum.

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

⇒ NOTE

When trying new products and processes, remember that GBC Pro-Tech's customer service representatives are only a phone call away. In North America, please call 1-800-236-8843.

The completed process control charts included in this section are based on Orca-Film, Orca-Board and typical prints.

Orca-Film

Setup

1. See process charts 3-1, 3-2 and diagram 3-2b.
2. Shims: Set to the thickness of the material being used for mounting.
3. Upper Laminator Roll Pressure: 40 PSI (275 kPa).
4. Speed: 3 fpm (90 cpm).
5. Upper Laminator Roll Heat: 230°F (110 °C).

Procedure

1. 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.
2. Put a piece of contact/release paper over the print. Otherwise, adhesive will be applied to the laminating roll, which can cause damage and the ink from electrostatic prints will be deposited on the roll.
3. 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).

Setup

1. See process chart 3-3 and diagram 3-3b.
2. Mount the film and web as shown in diagram 3-3b.
3. Shims: Set the two front shim dials to $\frac{1}{32}$ " less than board thickness.
4. Laminator Roll Pressure: 40 PSI (275 kPa).
5. Speed: 3 fpm (90 cpm).
6. Upper Laminator Roll Heat: 230 °F (110 °C).
7. Cooling: Off
8. Film Tension: Minimum amount needed to have the film lay smooth, about half way up the roll, on the upper main roll. Generally one to two turns on the unwind brake.

Procedure

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

Encapsulation

Setup

1. See process chart 3-4 and diagram 3-4b.
2. Shims: None.
3. Front Laminating Roll Pressure: 80 PSI (550 kPa).
4. Back Pull Roll Clutch Pressure: On, 80 PSI (550 kPa).
5. Pull Roll: Down, Pressure - 80 PSI (550 kPa).
6. Speed: 5-7 fpm (150-210 cpm).
7. Upper Laminator Roll Heat: 220-230 °F (104-110 °C).
8. Lower Laminator Roll Heat: 220-230 °F (104-110 °C).
9. Cooling: Optional
10. Use of the rear wind-up roll for the finished material is optional. It is a good procedure for long runs.

Procedure

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.

Encapsulation (With Envelope Feed)

The use of the envelope feed feature greatly simplifies the input of large hand-fed prints. The procedure is identical to that for regular encapsulation (see above), however, the machine setup is different as shown in process chart 2-5 and diagram 2-5B

Two-Pass Mount and Laminate (Hot and Cold)

There are several approaches to the mount/laminate task. It can be accomplished with either hot or cold laminate film on the top. Also, the second pass for mounting can be done by feeding from either the front or back of the laminator.

Setup

1. See process charts 3-5, 3-6, 3-7, and 3-8 and diagrams 3-5b, 3-6b, 3-7b, and 3-8b for film mounting instructions and machine adjustments.
2. Ensure that the mounting film from the bottom side has the sticky (adhesive) side riding up around the outside of the bottom laminating roll.

Procedure, Pass 1

1. Run the print through to apply adhesive and laminate.
2. Trim to slightly larger than the desired finished size.

Procedure, Pass 2

1. Prepare to put the print through a second time to mount the print to the substrate - anything from wood, to Masinote, to Gator foam. Start by setting the shims to the appropriate spacing for the material used.
2. Trim the board to the size of the print.
3. Align the work to the board and ensure an exact fit. Place weights on the center of the print to make sure that it does not move relative to the board during the next steps.
4. 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 the first pass. Fold it under.
5. Lay the print back down evenly and extremely flat. From the center outward, tack the exposed adhesive to the substrate.
6. 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. 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.
7. Trim the piece to the finished size.

Cold/Mount Laminate

With Hot Main Rolls:

1. See process chart 3-8 and diagram 3-8b for film mounting instructions and machine adjustments.
2. Move the feed table to the rear of the laminator.
3. Raise the main roll (hot).
4. Reverse the motor.
5. Web according to drawing.
6. Set the nip height and tack the leading edge for the second pass. Run through as the liner is being pulled off.

With Cold Main Rolls:

1. See process chart 3-9 and diagram 3-9b for film mounting instructions and machine adjustments.
2. Use the machine as a cold laminator with the main rolls not heated.

Roll to Roll Transfer and Laminate (One Pass)

With Hot Main Rolls:

1. See process chart 3-10 and diagram 3-10b for film mounting instructions and machine adjustments.
2. Web the vinyl over the bottom roll and hold with the pull rolls.
3. It is useful to have a leader on the paper so it can be webbed through and taped to the rewind before starting.
4. Lower the main roll, start the motor, and begin the transfer process. Tape the finished product to the rewind and add the lamination by raising the pull roll. Web the laminate around the upper pull roll. Be sure it is smooth on the roll, then lower the roll.
5. Add infeed and outfeed slitters as needed.



WARNING

The blades on both the infeed and outfeed slitters are razor sharp. You can cut yourself severely.

Vinyl Transfer

1. See process chart 3-11 and diagram 3-11b for film mounting instructions and machine adjustments.
2. Web the vinyl up around the bottom main roll and over to the pull roll. Make sure the material is webbed straight and lower the pull roll to hold the vinyl.
3. Place both table idlers in the slots on the table brackets. Web the paper through as shown in diagram 2-11b.
4. Often, when paper is not on a core, hand tension must be applied to the paper in order to maintain transfer quality until the end of the transferred image.

Roll to Roll Transfer

With Hot Main Rolls:

1. See process chart 3-12 and diagram 3-12b for film mounting instructions and machine adjustments.
2. Web the vinyl up around the bottom main roll and over to the pull roll. Lower the pull roll to hold the vinyl.
3. Web the paper up to the main roll. Lower the main roll to start the transfer process.
4. Tape the vinyl onto the lower rewind and peel off the paper. Wind it on the upper rewind.
5. Lamination can be done in a second pass, if required. See chart 2-13.

**Roll to Roll Cold Overlamination
(Second Pass Main Rolls Hot)****With Hot Main Rolls:**

1. See process chart 3-12 and diagram 3-13b for film mounting instructions and machine adjustments.
2. Install the brake adapter on the rear rewind.
3. Bring the vinyl up over the bottom lamination roll and through the main rolls.
4. Tape the overlamine release liner to the upper rewind.
5. Web the overlamine material around the upper pull roll and lower it to begin overlamination.

PROCESS CONTROL CHART 3-1

Product: _____ Process: _____ Date: _____

Material Top: _____ Material Bottom: _____

Other Material: _____

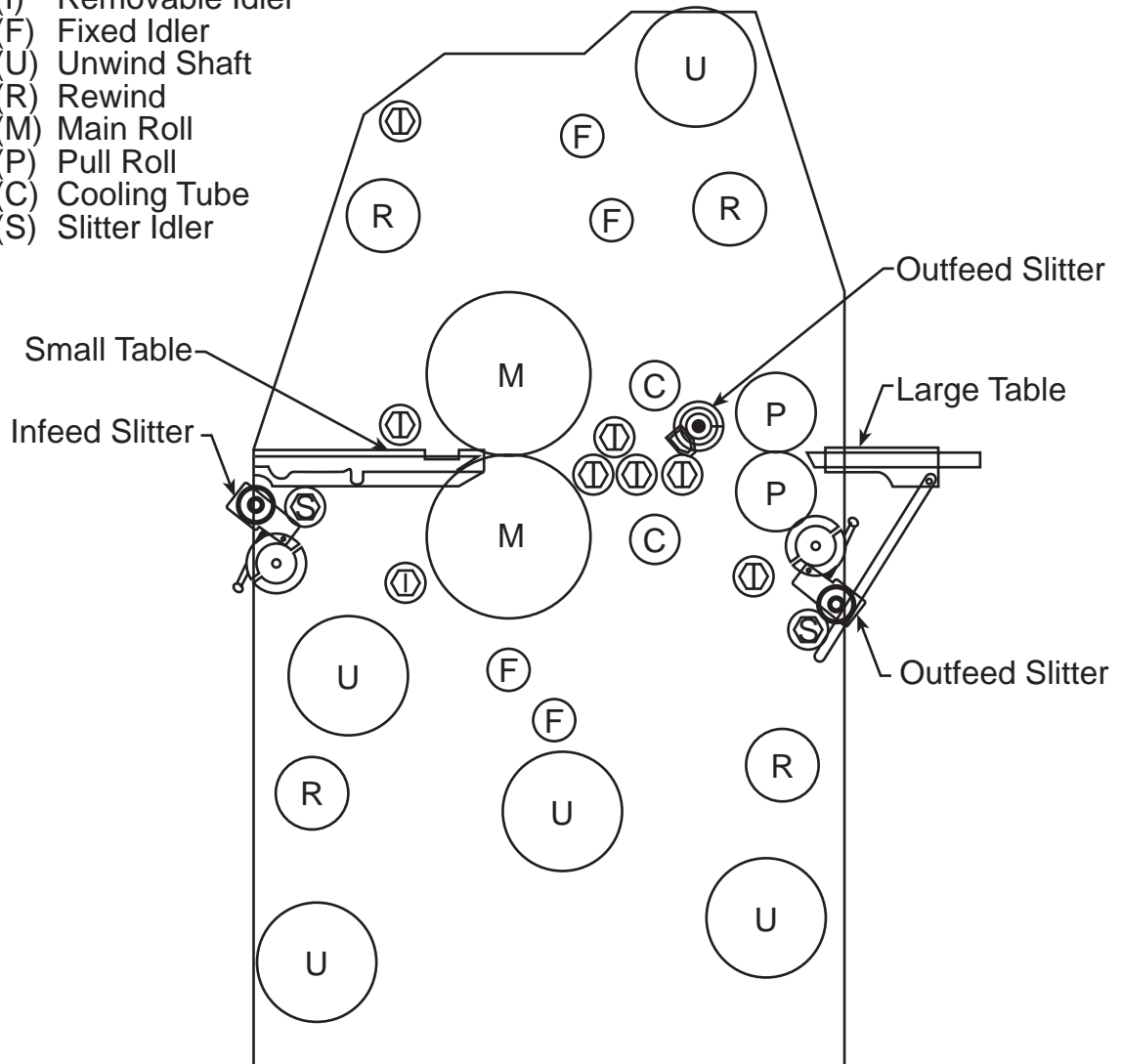
FRONT CONTROL SETTINGS	
Speed (Ft/min):	Reverse/Forward:
Roll Up/Down:	Shim Dial:
Roll Pressure:	Top Temp. Set:
Top Heater On/Off:	Bottom Temp. Set:
Bottom Heater On/Off:	
REAR CONTROL SETTINGS	
Pull Clutch On/Off:	Pull Roll Up/Down:
Pull Clutch Pressure:	Pull Roll Pressure:
Shim Dial:	Cooling:
See Chart 3-1B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-1B

IDENTIFICATION DIAGRAM

- (I) Removable Idler
- (F) Fixed Idler
- (U) Unwind Shaft
- (R) Rewind
- (M) Main Roll
- (P) Pull Roll
- (C) Cooling Tube
- (S) Slitter Idler



PSSOLMERO

Product: _____ Process: 1-Pass Mounting Date: _____

Material Top: _____ Material Bottom: 3/16 inch Orca-Board

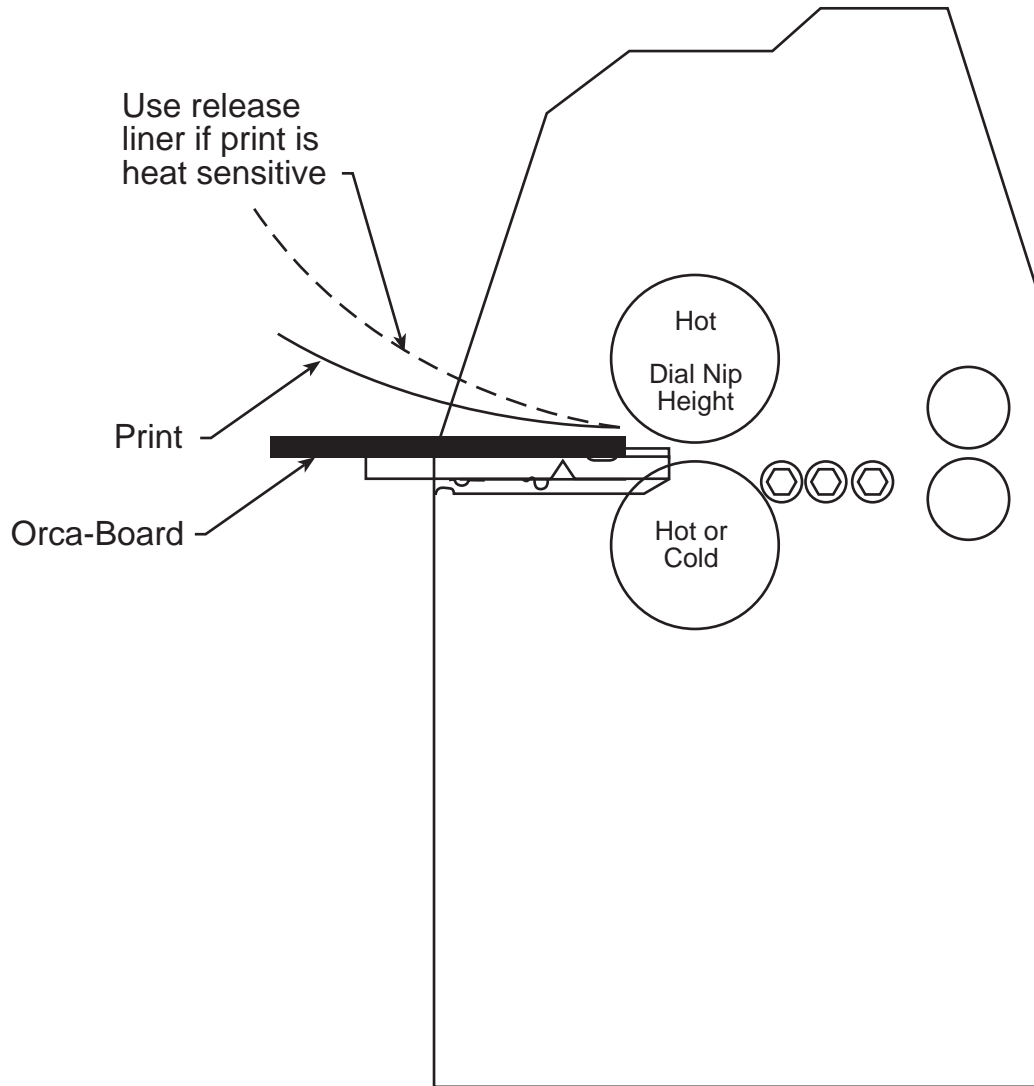
Other Material: _____

FRONT CONTROL SETTINGS	
Speed (Ft/min): 3 (90 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: 3/16 (.48 cm)
Roll Pressure (psi): 40	Top Temp. Set: 230 °F, 110 °C
Top Heater On/Off: On	Bottom Temp. Set: 32 °F, 0 °C
Bottom Heater On/Off: On	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: --	Pull Roll Up/Down: Up
Pull Clutch Pressure (psi): --	Pull Roll Pressure (psi): --
Shim Dial: --	Cooling: No
See Chart 3-2B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-2B

ONE PASS MOUNT (HEAT ACTIVATED ADHESIVE)



FRONT CONTROL SETTINGS

Product: Orca-Board Process: One Pass Mount and Laminate Date: _____

Material Top: 3 Mil Gloss Material Bottom: 3/16 inch Orca-Board

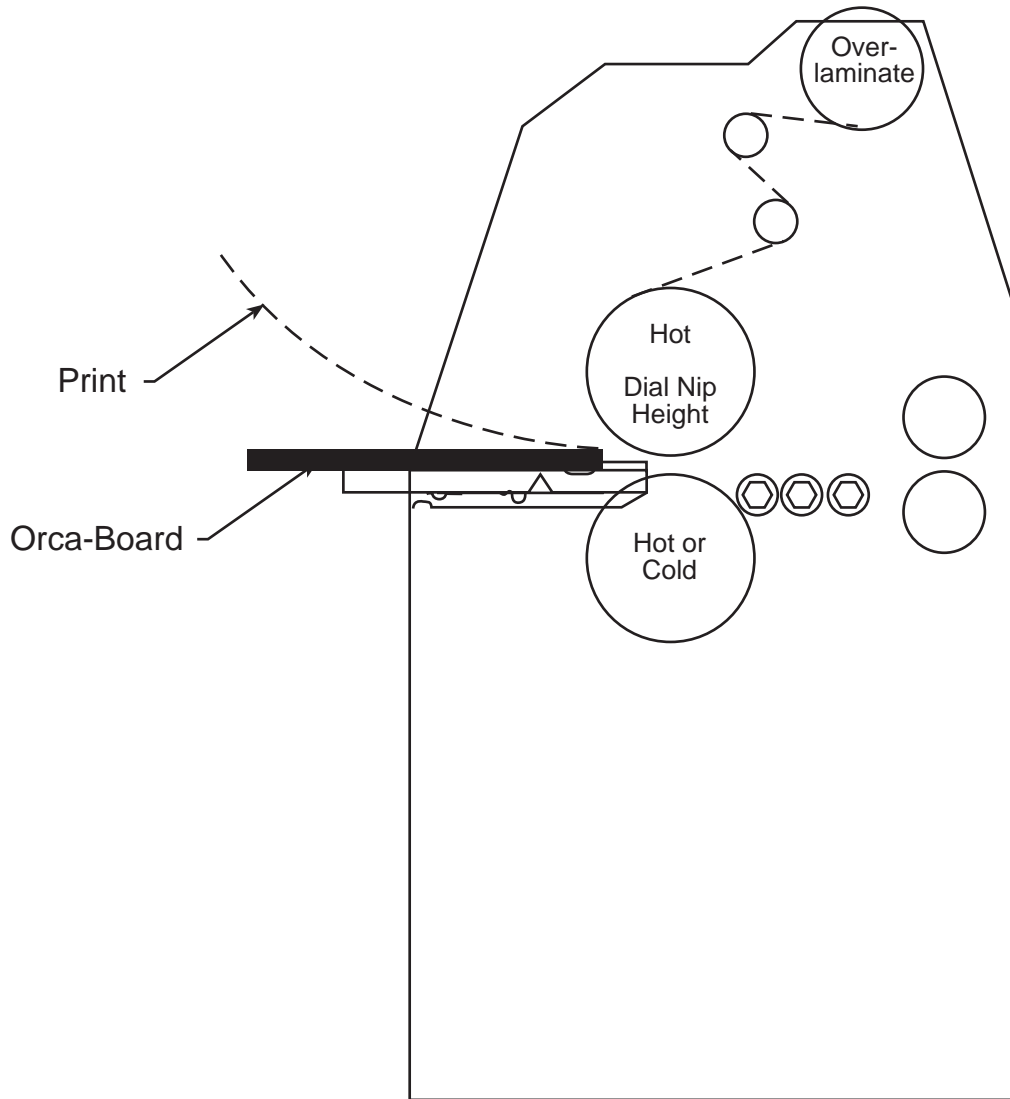
Other Material: _____

FRONT CONTROL SETTINGS	
Speed (Ft/min): 3 (90 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: 3/16 (.48 cm)
Roll Pressure (psi): 40	Top Temp. Set: 230 °F, 110 °C
Top Heater On/Off: On	Bottom Temp. Set: 32 °F, 0 °C
Bottom Heater On/Off: On	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: --	Pull Roll Up/Down: Up
Pull Clutch Pressure (psi): --	Pull Roll Pressure (psi): --
Shim Dial: --	Cooling: No
See Chart 3-3B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-3B

ONE PASS MOUNT AND LAMINATE



PROCESS CONTROL CHART 3-4

Product: _____ Process: Encapsulation Date: _____

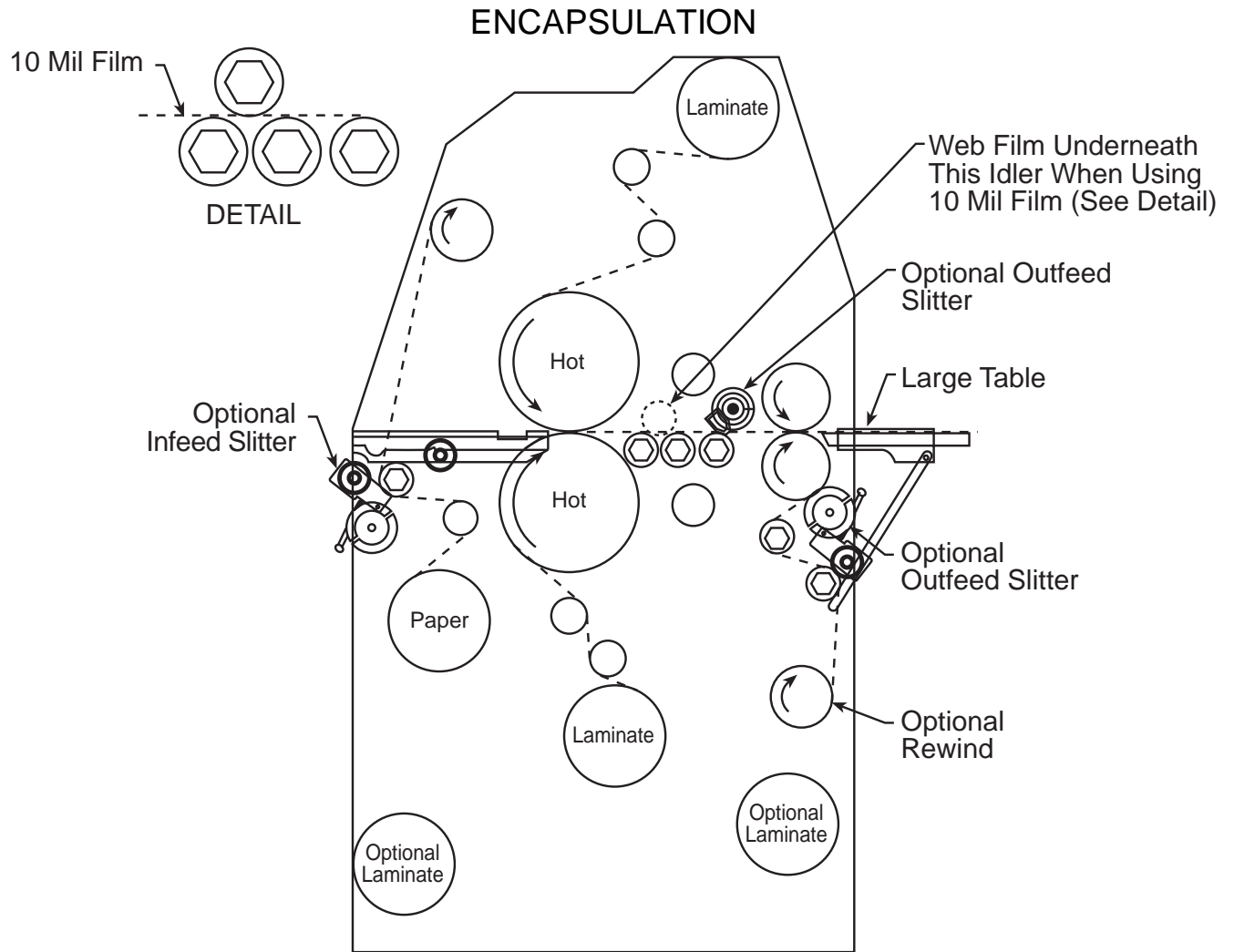
Material Top: 3 Mil Gloss Material Bottom: 3 Mil Gloss

Other Material: _____

FRONT CONTROL SETTINGS	
Speed (Ft/min): 3-5 (90-152 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: 0
Roll Pressure (psi): 80	Top Temp. Set: 220 °F, 104 °C
Top Heater On/Off: On	Bottom Temp. Set: 220 °F, 104 °C
Bottom Heater On/Off: On	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 80	Pull Roll Pressure (psi): 80
Shim Dial: 0	Cooling: On
See Chart 3-4B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-4B



FRONT CONTROL SETTINGS

Product: _____ Process: Encapsulation (Envelope Feed) Date: _____

Material Top: 3 Mil Gloss Material Bottom: 3 Mil Gloss

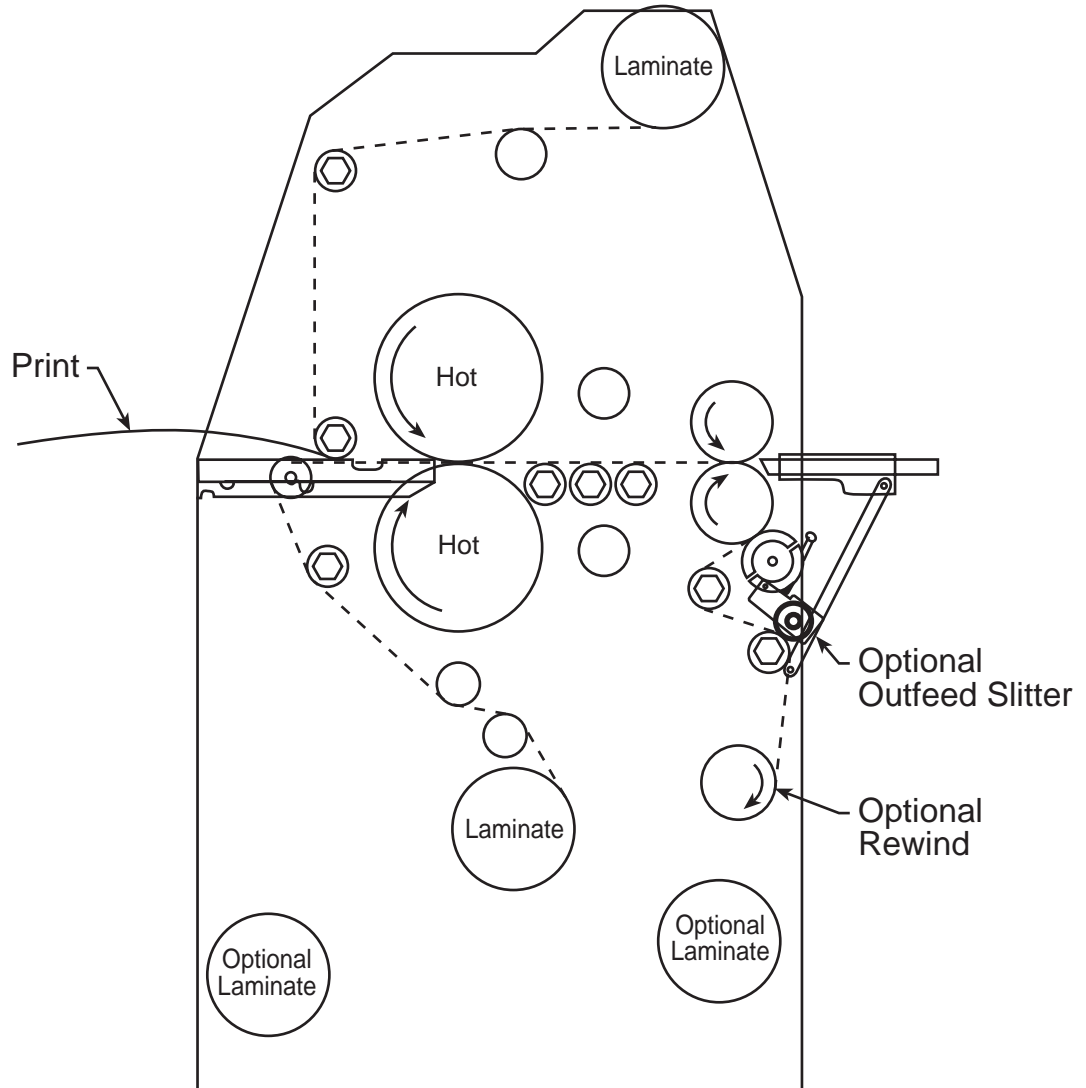
Other Material: _____

FRONT CONTROL SETTINGS	
Speed (Ft/min): 2-3 (90-122 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: 0
Roll Pressure (psi): 80	Top Temp. Set: 230 °F, 104 °C
Top Heater On/Off: On	Bottom Temp. Set: 230 °F, 104 °C
Bottom Heater On/Off: On	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 80	Pull Roll Pressure (psi): 80
Shim Dial: 0	Cooling: --
See Chart 3-5B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-5B

ENCAPSULATION (ENVELOPE FEED)



PSLONERO

Product: _____ Process: Two Pass Mount & Laminate (1st Pass) Date: _____

Material Top: 3 Mil Gloss Material Bottom: Pressure Sensitive Film

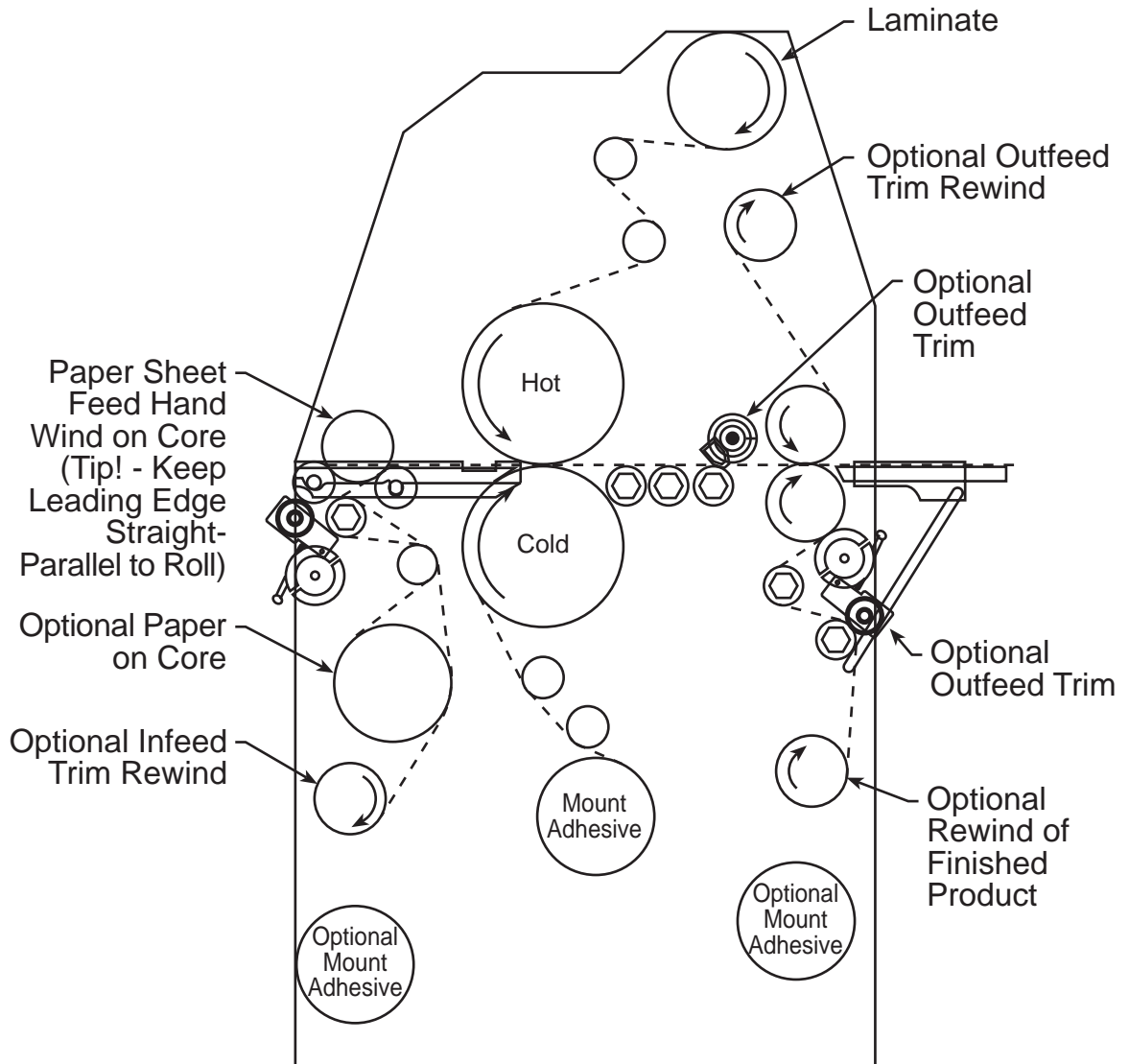
Other Material: _____

FRONT CONTROL SETTINGS	
Speed (Ft/min): 3-7 (90-213 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: 0
Roll Pressure (psi): 80	Top Temp. Set: 220 °F, 104 °C
Top Heater On/Off: On	Bottom Temp. Set: 32 °F, 0 °C
Bottom Heater On/Off: On	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 80	Pull Roll Pressure (psi): 80
Shim Dial: 3/16 (.48 cm)	Cooling: --
See Chart 3-6B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-6B

TWO PASS MOUNT AND LAMINATE (FIRST PASS)



PROCESS CONTROL CHART 3-7

Product: _____ Process: Two Pass Mount & Laminate (2nd Pass) Date: _____

Material Top: _____ Material Bottom: 3/16 Foamcore

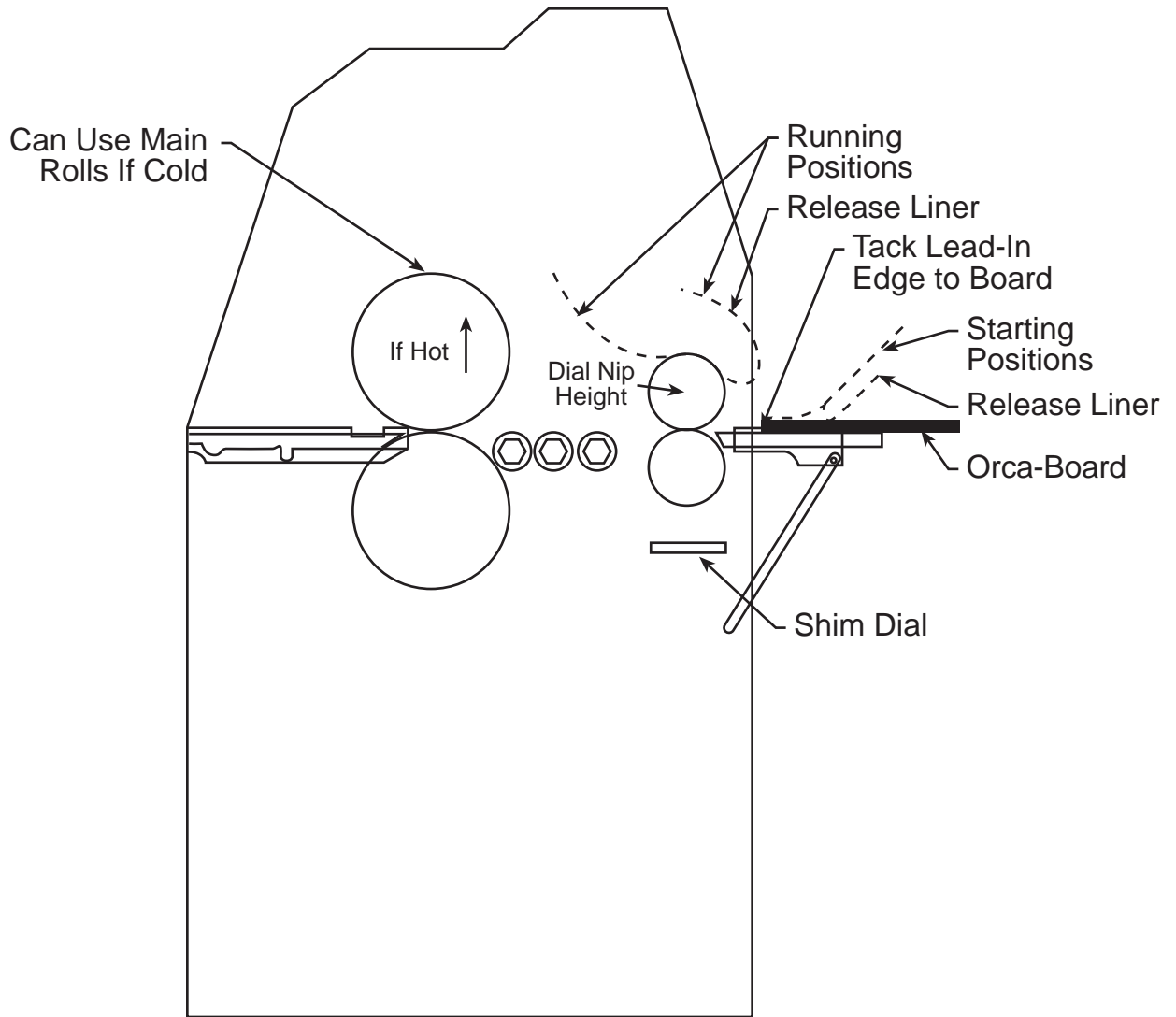
Other Material: _____

FRONT CONTROL SETTINGS	
Speed (Ft/min): 0-7 (0-213 cm/min)	Reverse/Forward: Reverse
Roll Up/Down: Up	Shim Dial: 3/16
Roll Pressure (psi): --	Top Temp. Set: --
Top Heater On/Off: On/Off	Bottom Temp. Set: --
Bottom Heater On/Off: Off	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 80	Pull Roll Pressure (psi): 20-50
Shim Dial: 3/16 (.48 cm)	Cooling: --
See Chart 3-7B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-7B

TWO PASS MOUNT AND LAMINATE (SECOND PASS)



PROCESS CONTROL CHART 3-8

Product: _____ Process: Cold Mount/Laminate Date: _____

Material Top: 1 Mil Gloss Material Bottom: Promount

Other Material: _____

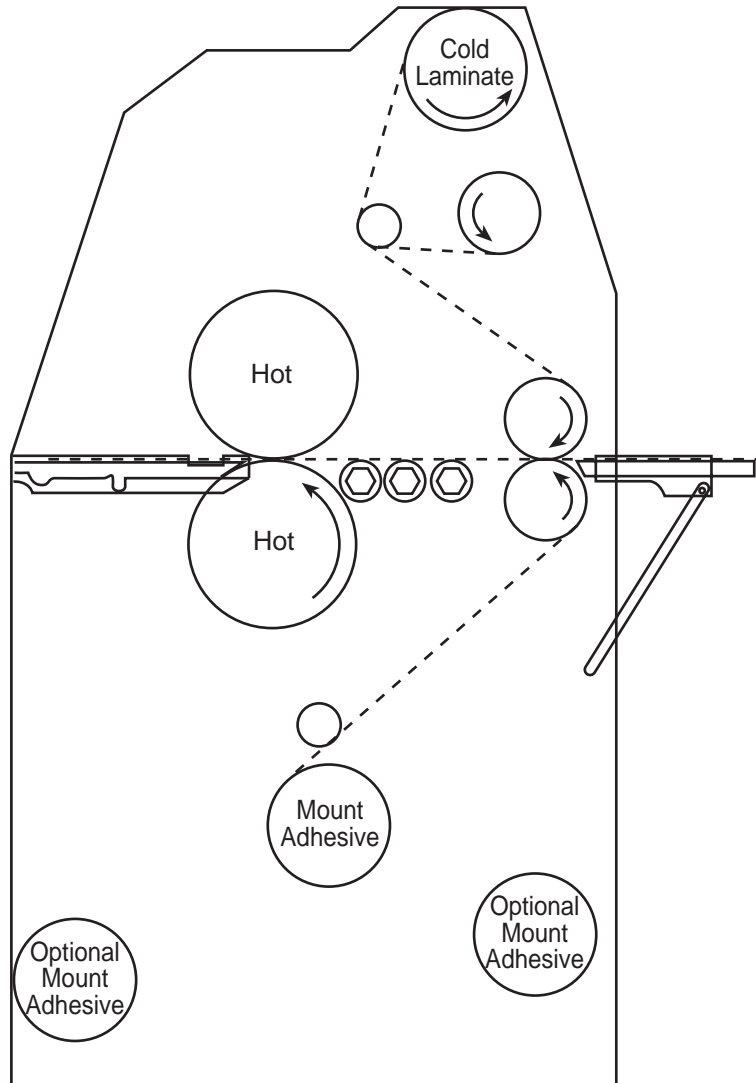
FRONT CONTROL SETTINGS	
Speed (Ft/min): 0-14 (0-430 cm/min)	Reverse/Forward: Reverse
Roll Up/Down: Up	Shim Dial: 0
Roll Pressure (psi): --	Top Temp. Set: --
Top Heater On/Off: --	Bottom Temp. Set: --
Bottom Heater On/Off: --	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 80	Pull Roll Pressure (psi): 80
Shim Dial: 0	Cooling: --
See Chart 3-8B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-8B

COLD MOUNT/LAMINATE

(WHEN MAIN ROLLS ARE HOT, ELIMATES COSTLY HEAT-UP AND COOL-DOWN TIME)



PROCESS CONTROL CHART 3-9

Product: _____ Process: Cold Lamination Date: _____

Material Top: 1 Mil Pressure Sensitive Laminate Material Bottom: Promount

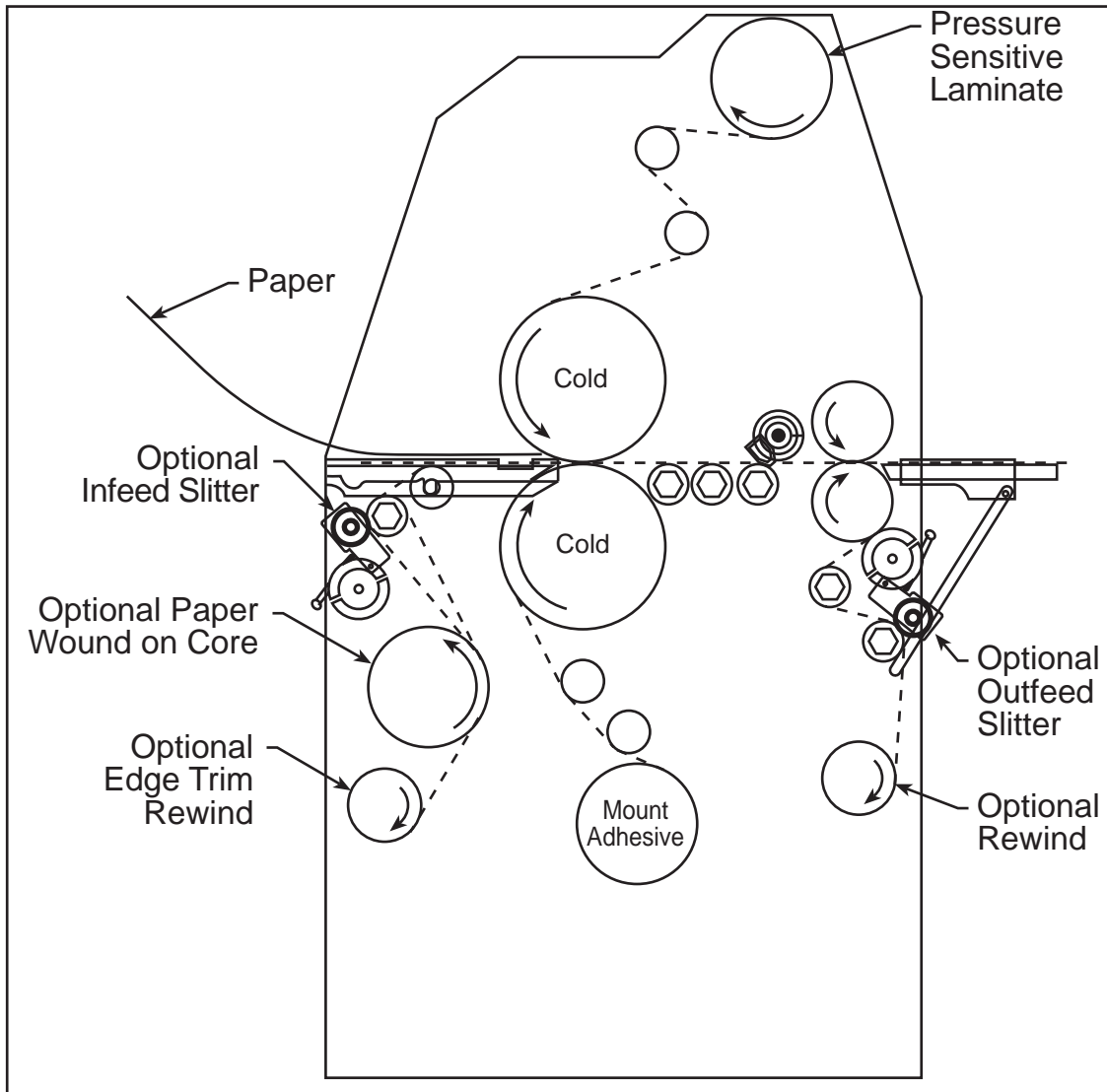
Other Material: _____

FRONT CONTROL SETTINGS	
Speed (Ft/min): 0-14 (0-430 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: 0
Roll Pressure (psi): 80	Top Temp. Set: --
Top Heater On/Off: Off	Bottom Temp. Set: --
Bottom Heater On/Off: Off	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 80	Pull Roll Pressure (psi): 80
Shim Dial: 0	Cooling: --
See Chart 3-9B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-9B

COLD LAMINATION



PSLONERO

Product: _____ Process: Roll Transfer & Laminate "One Pass" Date: _____

Material Top: 3M Vinyl Overlamine Material Bottom: 3M Vinyl Transfer Material

Other Material: Transfer Paper

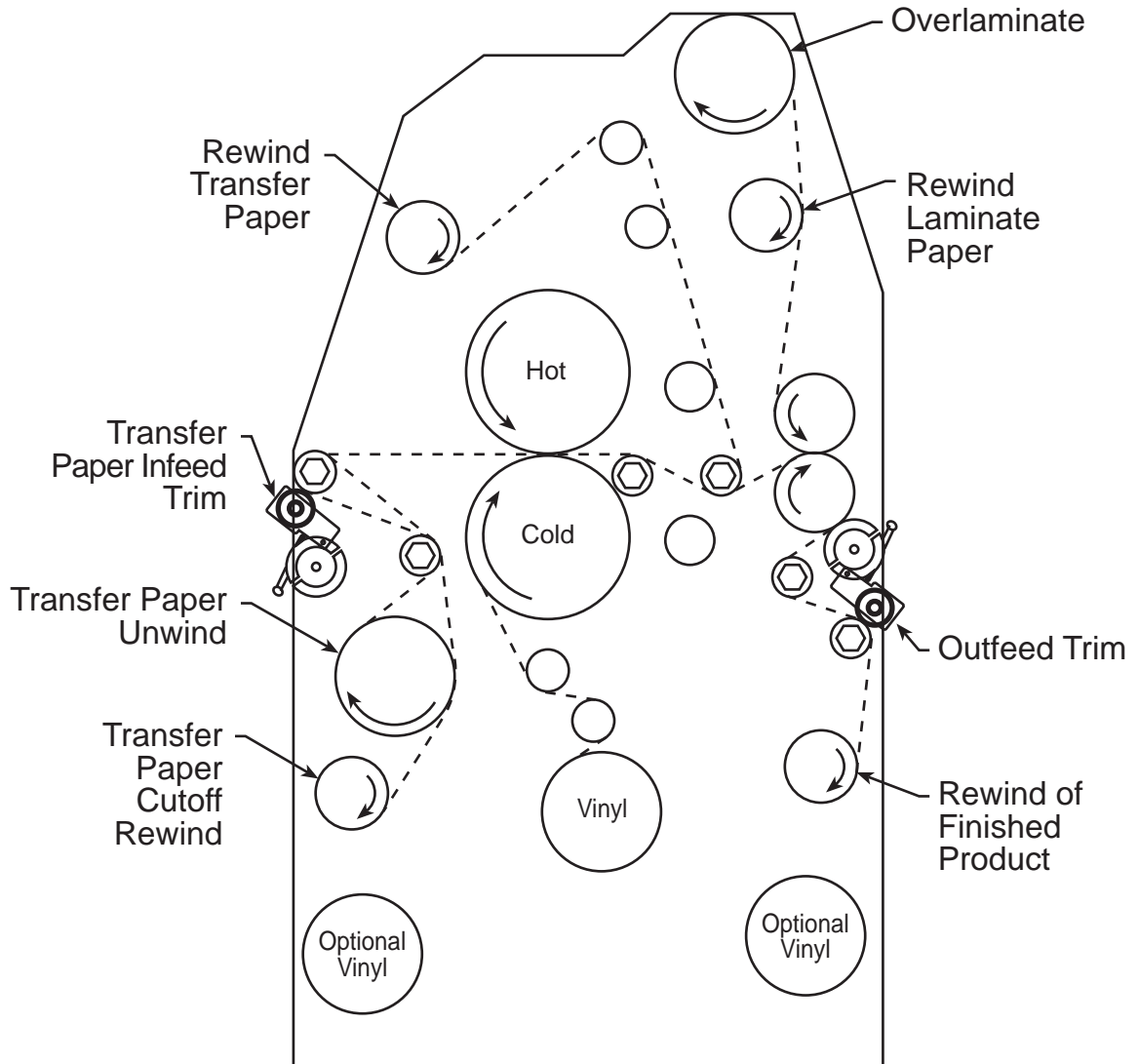
FRONT CONTROL SETTINGS	
Speed (Ft/min): 1.5-2.5 (46-76 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: All the way up
Roll Pressure (psi): 90	Top Temp. Set: 290 °F, 140 °C
Top Heater On/Off: On	Bottom Temp. Set: 32 °F, 0 °C
Bottom Heater On/Off: On	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 50	Pull Roll Pressure (psi): 80
Shim Dial: 0	Cooling: On
See Chart 3-10B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-10B

ROLL TRANSFER AND LAMINATE "ONE PASS"

(SLITTING INFEED AND OUTFEED)



PSLONERO

Product: _____ Process: Transfer Paper Wound on Itself Date: _____

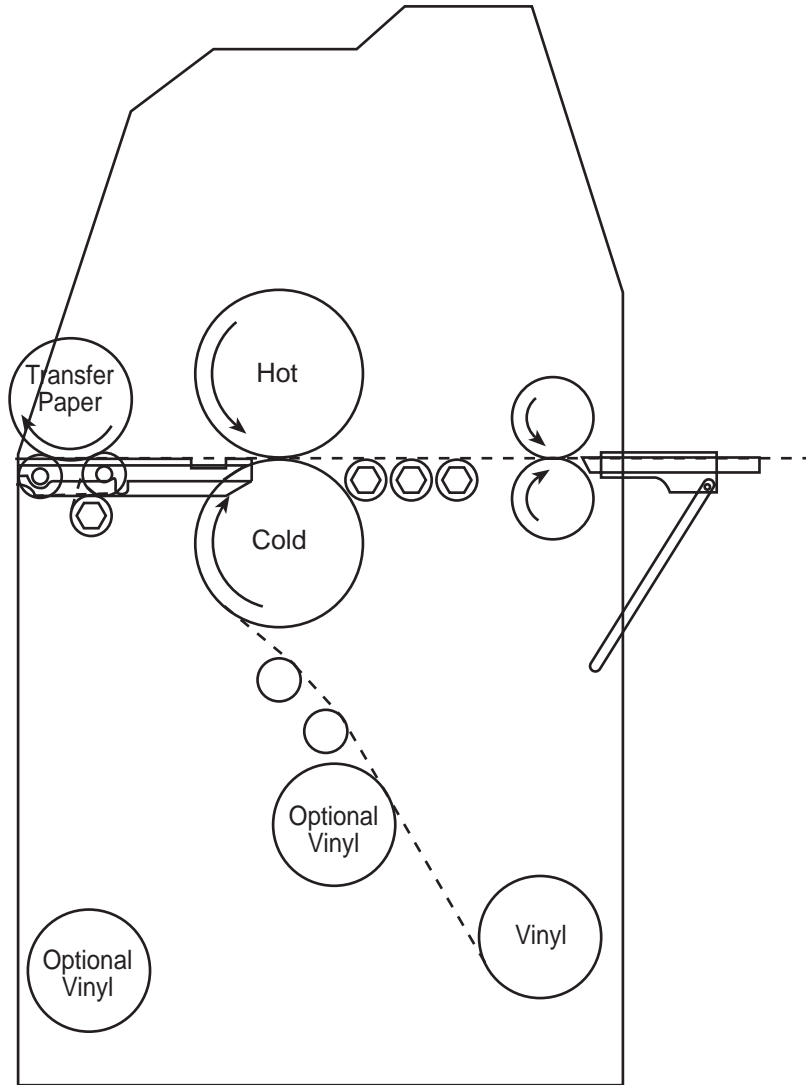
Material Top: _____ Material Bottom: 3M Vinyl

Other Material: Transfer Paper

FRONT CONTROL SETTINGS	
Speed (Ft/min): 1.5-2.5(76 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: All the way up
Roll Pressure (psi): 90	Top Temp. Set: 290 °F, 140 °C
Top Heater On/Off: On	Bottom Temp. Set: 32 °F, 0 °C
Bottom Heater On/Off: On	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 50	Pull Roll Pressure (psi): 80
Shim Dial: 0	Cooling: On
See Chart 3-11B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-11B



PSLOMERO

Product: _____ Process: Roll to Roll Transfer Date: _____

Material Top: _____ Material Bottom: 3M Vinyl

Other Material: Transfer Paper

FRONT CONTROL SETTINGS	
Speed (Ft/min): 1.5-2.5(76 cm/min)	Reverse/Forward: Forward
Roll Up/Down: Down	Shim Dial: All the way up
Roll Pressure (psi): 90	Top Temp. Set: 290 °F, 140 °C
Top Heater On/Off: On	Bottom Temp. Set: 32 °F, 0 °C
Bottom Heater On/Off: On	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 50	Pull Roll Pressure (psi): 80
Shim Dial: 0	Cooling: On
See Chart 3-12B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL CHART 3-13

Product: _____ Process: Roll to Roll Cold Overlamination Date: _____

Material Top: Pressure Sensitive Overlamine Material Bottom: Transfer Material

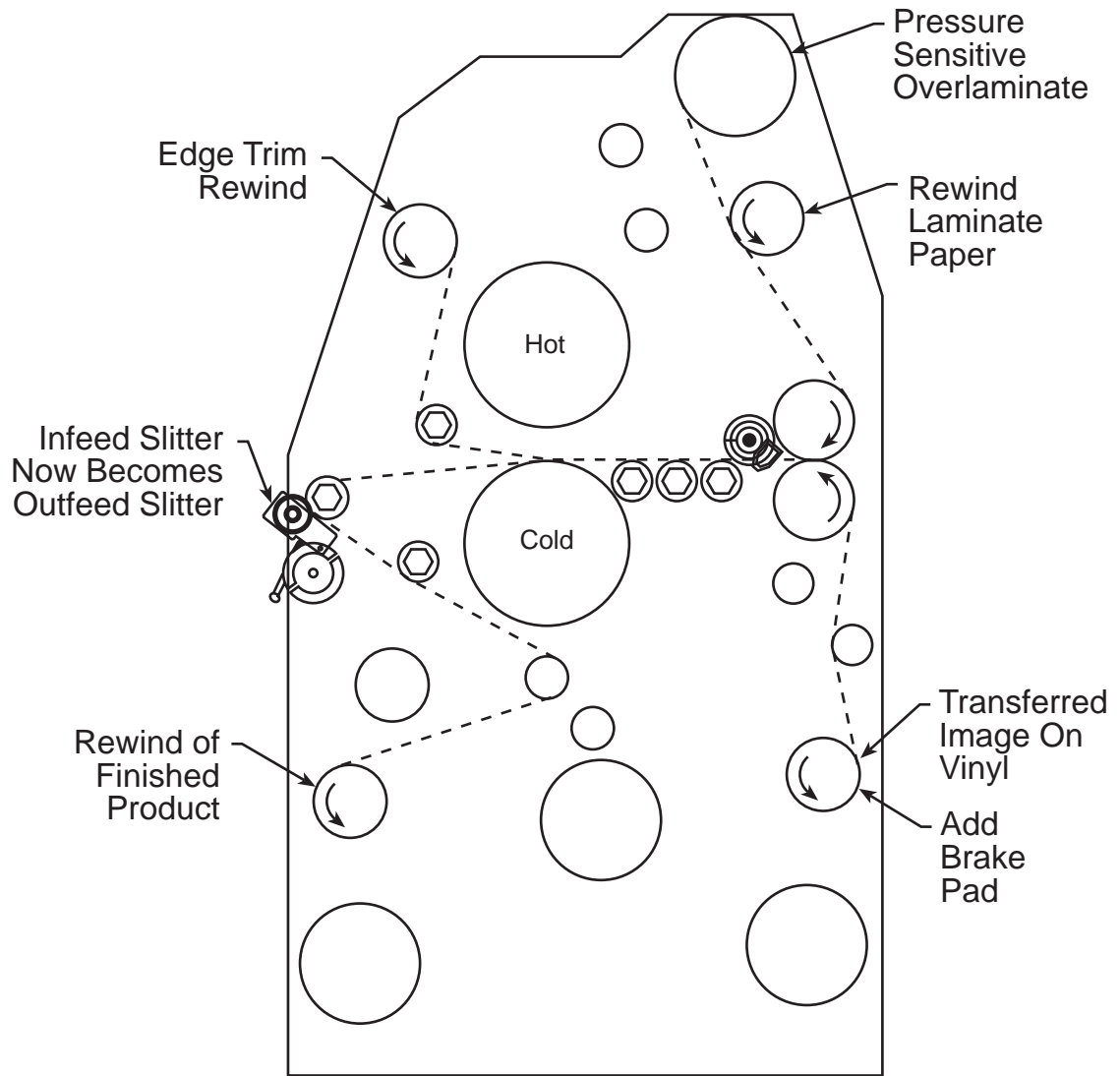
Other Material: _____

FRONT CONTROL SETTINGS	
Speed (Ft/min): 0-14 (0-430 cm/min)	Reverse/Forward: Reverse
Roll Up/Down: Up	Shim Dial: --
Roll Pressure (psi): --	Top Temp. Set: --
Top Heater On/Off: --	Bottom Temp. Set: --
Bottom Heater On/Off: Off	
REAR CONTROL SETTINGS	
Pull Clutch On/Off: On	Pull Roll Up/Down: Down
Pull Clutch Pressure (psi): 80	Pull Roll Pressure (psi): 80
Shim Dial: 0	Cooling: No
See Chart 3-13B for Webbing Outline	

Special Instructions: _____

PROCESS CONTROL DIAGRAM 3-13B

ROLL TO ROLL COLD OVERLAMINATION



Laminate Temperature Guide and Helpful Hint Sheet for GBC Pro-Tech Products

HOT LAMINATES			
	FILM	TEMP	SPEED Bond Paper, E-Stat, etc./Ink Jet
3 MIL	Gloss Lustre Matte	215-220 °F (102-104 °C)	3-7 fpm/9-12 fpm
5 MIL	Gloss UV Gloss	220-225 °F (104-107 °C)	3-5 fpm/6-9 fpm
6 MIL	Gloss	225-235 °F (107-113 °C)	3-5 fpm/6-9 fpm
10 MIL	Gloss UV Gloss	235-245 °F (113-118 °C)	3-5 fpm/6-9 fpm

⇒ Note

There are many variables that affect the temperature and speed (paper, ink, toner, moisture). This sheet is just a guide, but don't hesitate to try new combinations. Finally, remember that speed and temperature can vary with the size of print; smaller prints require more speed, larger prints require less speed.

All Pressure Sensitive Materials

Most often, when pressure sensitive materials are run at 120 °F, they tend to apply cleaner. That is to say, the "silvering" usually seen with these products becomes less evident or may even disappear.

Lamination

Most laminating on the ORCA-III is done with 80 psi on the main laminator roll and 80 psi on both the pull roll clutch and the pull rolls. (This may vary with the thickness of the paper(s) used. The thick papers traditionally need a full 75-80 psi.

The thinner papers, such as tissue papers or light bond papers, can run as low as 55 psi (main laminator roll pressure).

Mounting

Most of the mounting for the ORCA-III laminator is done between 20 and 50 psi. The only "rule" is not to crush your substrate or create an impression in your white silicone rolls with repeated high pressure use in the same place. Again, slight heat (120 °F) seems to help the adhesives flow when using the pressure sensitive materials.

Vinyl Transfer

The top roll heat should be set to 290 °F, with a speed of 1.5-2.5 fpm. The main roll pressure should be at 90 psi. The pull roll clutch should be at 50 psi. The pull roll should be set at 75-80 psi. Always allow the transferred image to cool prior to removing the transfer paper.

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Section 4 : Maintenance and Troubleshooting

GBC Pro-Tech laminators require minimal maintenance. However, regular maintenance is essential to keep any piece of precision machinery at peak performance. A maintenance schedule and a section of procedures are included in this section.

Table 4-1: Maintenance Schedule

Daily	<ul style="list-style-type: none"> • Clean the rolls • Inspect the electrical cord for damage • Inspect the footswitch cord for damage
Monthly	<ul style="list-style-type: none"> • Adjust the nip, if needed • Check the chain tension • Inspect the area around the laminator for possible hazards (dust buildup, combustible items stored too close, etc.) • Adjust the air cylinder rates, if needed
Every Six Months	<ul style="list-style-type: none"> • Lubricate the grease fittings and chain • Check wire termination tightness

Cleaning

Tools required:

- Adhesive coated board
- 80% (or stronger) isopropyl alcohol (or dishwashing detergent)
- Rubber cement eraser (optional)
- Several 100% cotton terry cloths
- Protective rubber gloves

To clean the laminator rolls:



WARNING

Exercise extreme caution while cleaning the laminator. You can be caught in the turning rolls and crushed or burned.

1. While the laminator is at normal operating temperature, put on the rubber gloves and, using a rubber cement eraser, remove any heat activated adhesive from the rolls. Run the main rolls in reverse and the pull rolls in forward to clean. Use the footswitch to rotate the rolls for cleaning.



CAUTION

If running Scotchprint material, clean all the release liner residue off the bottom roll IMMEDIATELY. The residue hardens and ruins the roll.



CAUTION

Do NOT pick or pull heat activated adhesive off the rolls when they are cold. You can cause irreparable damage to the laminating rolls.

To clean beads of adhesive, dust and dirt from the rolls:

1. Allow the laminator to cool slightly to no higher than 110 °F (43 °C).
2. Set the FWD/REV switch to the REV position.
3. Clean the rolls using a moderate amount of 80% (or stronger) isopropyl alcohol on a cotton terry cloth.

**CAUTION**

Use the minimum amount of pressure necessary to clean the rolls. You can destroy the silicone layer on the rolls by pressing too hard or scrubbing too long in one spot.

**WARNING**

Exercise care when cleaning the rolls with 80% (or stronger) isopropyl alcohol:

- Use only in a well ventilated area.
 - Wear rubber gloves.
 - Use only on cool rolls.

Cleaning heated rolls can ignite the fumes.

**CAUTION**

Use only 80% (or stronger) isopropyl alcohol or a rubber cement eraser to clean the laminating rolls. Harsh chemicals like toluene, acetone or MEK destroy the silicone covering of the rolls.

4. With the laminator rolls no hotter than 110 °F remove dust and dirt from the silicone laminating rolls by running an adhesive-coated board through the laminator. Be sure to set the nip for the thickness of the board used.
5. Allow the laminator to cool.

To clean the cabinet and covers:

**WARNING**

Remove power from the laminator and make sure it won't be reapplied while you are performing this procedure. You could be severely shocked, electrocuted, or get your fingers caught in the drive mechanisms.

Using a damp cotton terry cloth (water only), clean the exterior of the laminator.

**WARNING**

Do not use liquid or aerosol cleaners on the laminator. Do not spill liquid of any kind on the laminator. You can be severely shocked, electrocuted or cause a fire. Use only a damp cloth for cleaning.

Adjusting the Main Roll Nip

The gap between the two main rolls is called the nip. The purpose of adjusting the nip is to ensure continuous contact between the laminating rolls as the media is drawn through the machine. This procedure must be done regularly.

Tools required:

- 1/8" hex wrench
- 1/16" hex wrench

To adjust the main roll nip:



The main rolls must be at room temperature to achieve a proper nip setting.

1. Make sure that the machine has both power and air. It is also necessary to ensure that the up/down rates of the upper main roll are even prior to setting the nip. If they are not, follow the rate adjusting procedure later in this section.
2. Rotate the adjusting collar on each end of the laminator until it touches the lock collar.

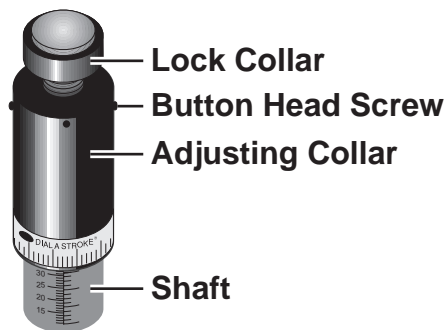


Figure 4-1: Main Roll Nip Setting Assembly

3. Set the main roll pressure to 30 PSI on the front control panel.
4. Screw the adjusting collars down until they seat.
5. Raise the main roll.
6. Without moving the adjusting collars, draw a zero on each collar scale.

7. Using the 1/16" hex wrench, loosen the three button head screws on the adjusting collar on one end of the laminator and line up the horizontal and vertical lines on the adjusting collar and the shaft. Once they are aligned, tighten the button head screws. Do this for the other side of the laminator.

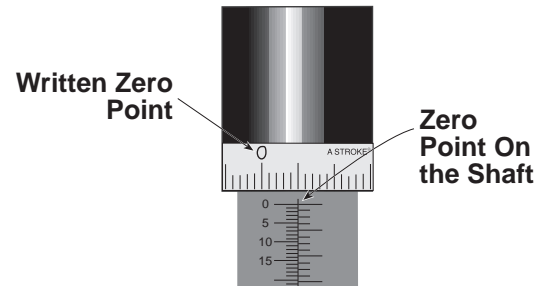


Figure 4-2: Written Zero Point and the Zero Point On the Shaft

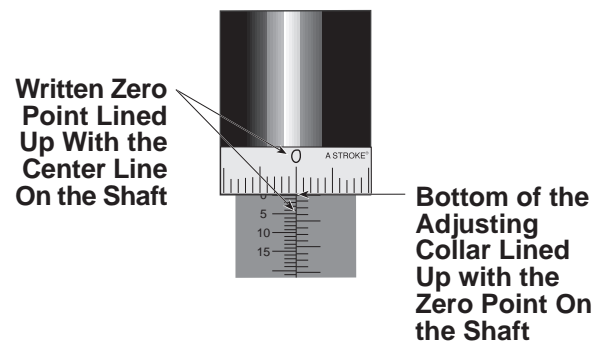


Figure 4-3: Properly Aligned Shaft and Adjusting Collar

8. The nip is now set.

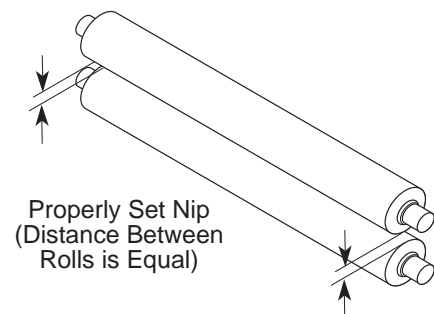


Figure 4-4: Properly Set Nip

Adjusting the Pull Roll Nip



CAUTION

The pull rolls must be at room temperature to achieve a proper nip setting.

The gap between the two pull rolls is called the nip. The purpose of adjusting the nip is to ensure continuous contact between the laminating rolls as the media is drawn through the machine. This procedure must be done regularly.

Tools required:

$\frac{1}{8}$ " hex wrench

To adjust the pull roll nip:



WARNING

Use extreme caution when servicing the laminator with cabinet cover(s) open and power applied. You could be severely shocked, electrocuted, or get your fingers caught in the drive mechanisms.

1. Open both cabinet covers using the $\frac{5}{32}$ " hex wrench by removing the four screws holding each cover in place.
2. Make sure that the machine has both power and air. It is also necessary to ensure that the up/down rates of the upper pull roll are even prior to setting the nip. If they are not, follow the rate adjusting procedure later in this section.
3. Raise the upper pull roll.
4. Set the nip adjuster on each end of the laminator to zero. View the setting on the interior wall of the laminator, not from inside the open cabinets.

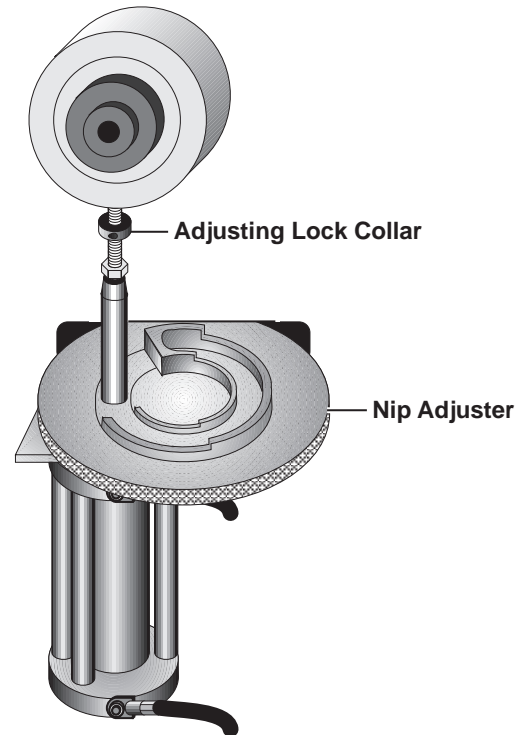


Figure 4-5: Pull Roll Nip Setting Assembly

5. Set the pull roll pressure to 40 PSI on the back control panel.
6. Using the $\frac{7}{64}$ " hex wrench, loosen the lower lock collar on each end of the laminator.
7. Rotate each lock collar to its fully up position.
8. Lower the upper pull roll.
9. Rotate each lock collar down until it seats. This is the zero point.
10. Raise the upper pull roll.
11. Without moving the collars, tighten the set screws.
12. The nip is now set.

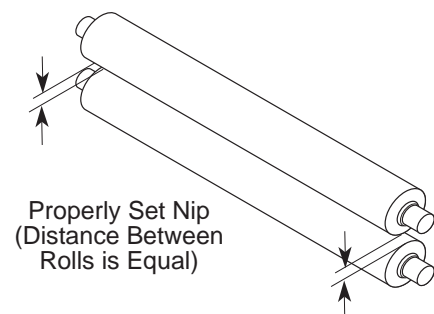


Figure 4-6: Properly Set Nip

Chain Tensioning and Take-Up

Smaller chain adjustments on the ORCA-III laminator are handled by the chain tensioning sprockets and the inner drive chain take-up, however, when installing a new chain or when the chain is more seriously out of adjustment, use the following procedures to adjust the chain tension.

Tools required:

- $\frac{5}{32}$ " hex wrench
- $1\text{-}\frac{1}{8}$ " wrench
- 13 mm wrench

To adjust the inner drive chain tension:



WARNING

Remove power from the laminator (the air should remain connected) and make sure it won't be reapplied while you are performing this procedure. You could be severely shocked, electrocuted, or get your fingers caught in the drive mechanisms.

1. Open the drive side cabinet cover using $\frac{5}{32}$ " hex wrench by removing the four screws holding the cover in place.
2. Loosen the nut that secures the inner chain tension adjuster sprocket using the $1\text{-}\frac{1}{8}$ " wrench.

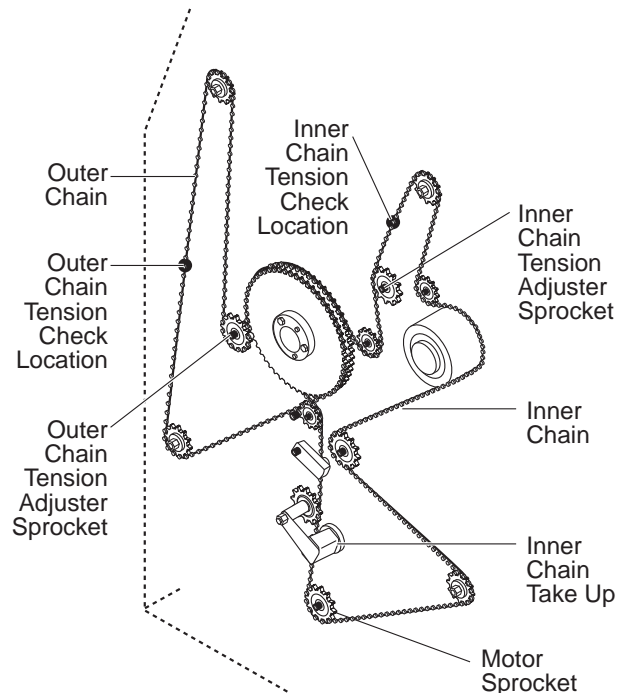


Figure 4-7: Location of the Inner and Outer Chain Adjustments

3. Move the adjuster sprocket until there is approximately $\frac{1}{2}$ " play measured at the inner chain tension check location.
4. Tighten the nut that secures the inner chain tension adjuster sprocket using the $1\text{-}\frac{1}{8}$ " wrench.
5. Replace the cabinet cover and reapply power to the laminator.

To adjust the inner drive chain take-up:**WARNING**

Remove power from the laminator (the air should remain connected) and make sure it won't be reapplied while you are performing this procedure. You could be severely shocked, electrocuted, or get your fingers caught in the drive mechanisms.

1. Open the drive side cabinet cover using the $\frac{5}{32}$ " hex wrench by removing the four screws holding the cover in place.
2. Loosen the nut that secures the inner chain take-up using the 13 mm wrench.
3. Adjust the take up so that no slack is present at any time. Do not over adjust. The device is intended to take up the slack created by high and low spots on the sprockets. It is not intended to provide chain tensioning.
4. Tighten nut that secures the inner chain take-up using the 13 mm wrench.
5. Replace the cabinet cover and reapply power to the laminator.

To adjust the outer drive chain tension:**WARNING**

Remove power from the laminator (the air should remain connected) and make sure it won't be reapplied while you are performing this procedure. You could be severely shocked, electrocuted, or get your fingers caught in the drive mechanisms.

1. Open the drive side cabinet cover using the $\frac{5}{32}$ " hex wrench by removing the four screws holding the cover in place.
2. Tighten the nut that secures the outer chain tension adjuster sprocket using the $1\text{-}\frac{1}{8}$ " wrench.
3. Move the adjuster sprocket until there is approximately $\frac{3}{4}$ " play measured at the outer chain tension check location.

4. Tighten the nut that secures the outer chain tension adjuster sprocket using the $1\text{-}\frac{1}{8}$ " wrench.
5. Replace the cabinet cover and reapply power to the laminator.

Adjusting the Air Cylinder Rate

If the top main roll or top pull roll move up or down unevenly, the air cylinder flow controls need to be adjusted.

To adjust the air cylinder rate for the main rolls:**WARNING**

Use extreme caution when servicing the laminator with cabinet cover(s) open and power applied. You could be severely shocked, electrocuted, or get your fingers caught in the drive mechanisms.

1. Open both cabinet covers using the $\frac{5}{32}$ " hex wrench by removing the four screws holding each cover in place.
2. Turn the control *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 PSI (690 kPa) and make the necessary adjustments to the flow controls on the bottom of the air cylinders.

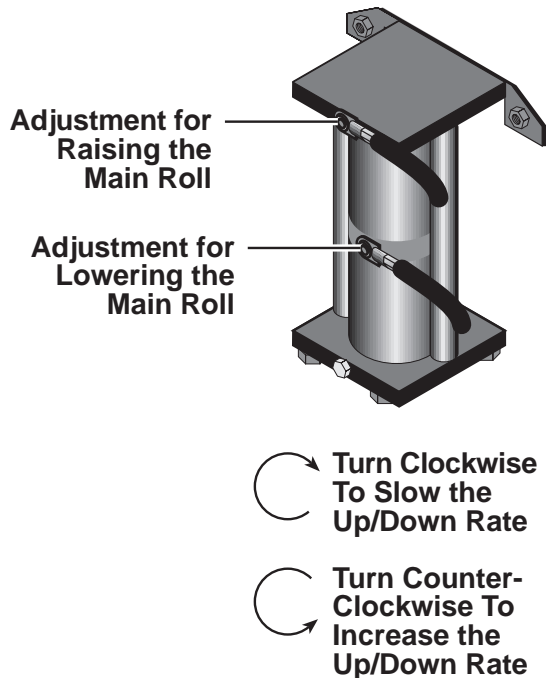


Figure 4-8: Adjusting the Main Roll Air Cylinder Rate

- Ideally, the main roll should move down at a slow rate and up at a faster rate.
- Reapply power and lower and raise the roll. The roll should fall and rise evenly. If not, repeat this procedure. Adjust until the rates are even.

To adjust the air cylinder rate for the pull rolls:



Use extreme caution when servicing the laminator with cabinet cover(s) open and power applied. You could be severely shocked, electrocuted, or get your fingers caught in the drive mechanisms.

- Open both cabinet covers using the $\frac{5}{32}$ " hex wrench by removing the four screws holding each cover in place.
- Turn the control *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 PSI (690 kPa) and make the necessary adjustments to the flow controls on the bottom of the air cylinders.

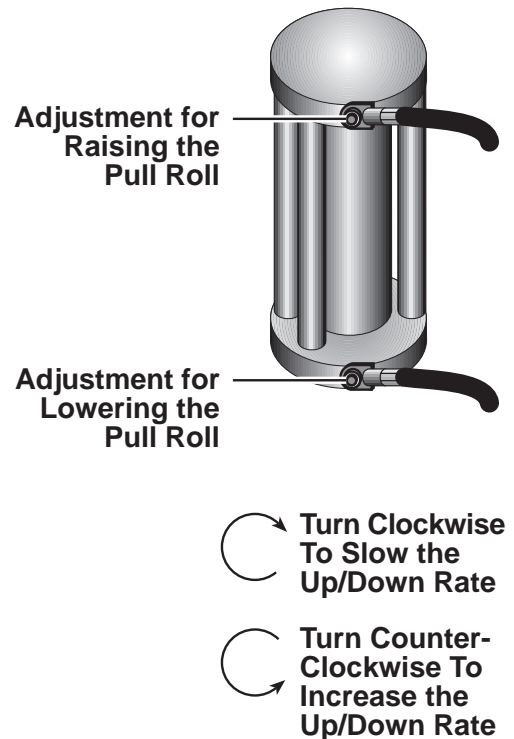


Figure 4-9: Adjusting the Pull Roll Air Cylinder Rate

- Ideally, the pull roll should move down at a slow rate and up at a faster rate.
- Reapply power and lower and raise the roll. The roll should fall and rise evenly. If not, repeat this procedure. Adjust until the rates are even.



Do not adjust or otherwise tamper with any controls, settings, trim pots, locknuts, etc., other than for the procedures described in this section. These devices are carefully pre-set at the factory and the proper procedures require specialized training and equipment.

Lubrication

Tools required:

- $\frac{1}{8}$ " hex wrench
- High temperature grease or lithium grease
- Grease gun

To lubricate the laminator:



WARNING

**Do not lubricate the laminator when it is hot.
You can be burned.**



WARNING

Remove power from the laminator and make sure it won't be reapplied while you are performing this procedure. You could be severely shocked, electrocuted, or get your fingers caught in the drive mechanisms.

1. Open the drive and control side cabinet covers using the $\frac{5}{32}$ " hex wrench by removing the four screws holding each cover in place.
2. Using the grease gun, lubricate each grease fitting with one squirt of high temperature grease. There is a fitting on each of the main roll bearings, pull roll bearings, and on all five idlers on the control side of the machine.
3. Lubricate the chain using a soft cloth and automotive oil.
4. Close the cabinet covers.

Contacting Technical Support

For machine parts and technical service:

North America: 1-800-790-7787.

Europe: +44 (0) 1844 202 440

or fax: +44 (0) 1844 202 441.

Please provide serial number when calling for service.

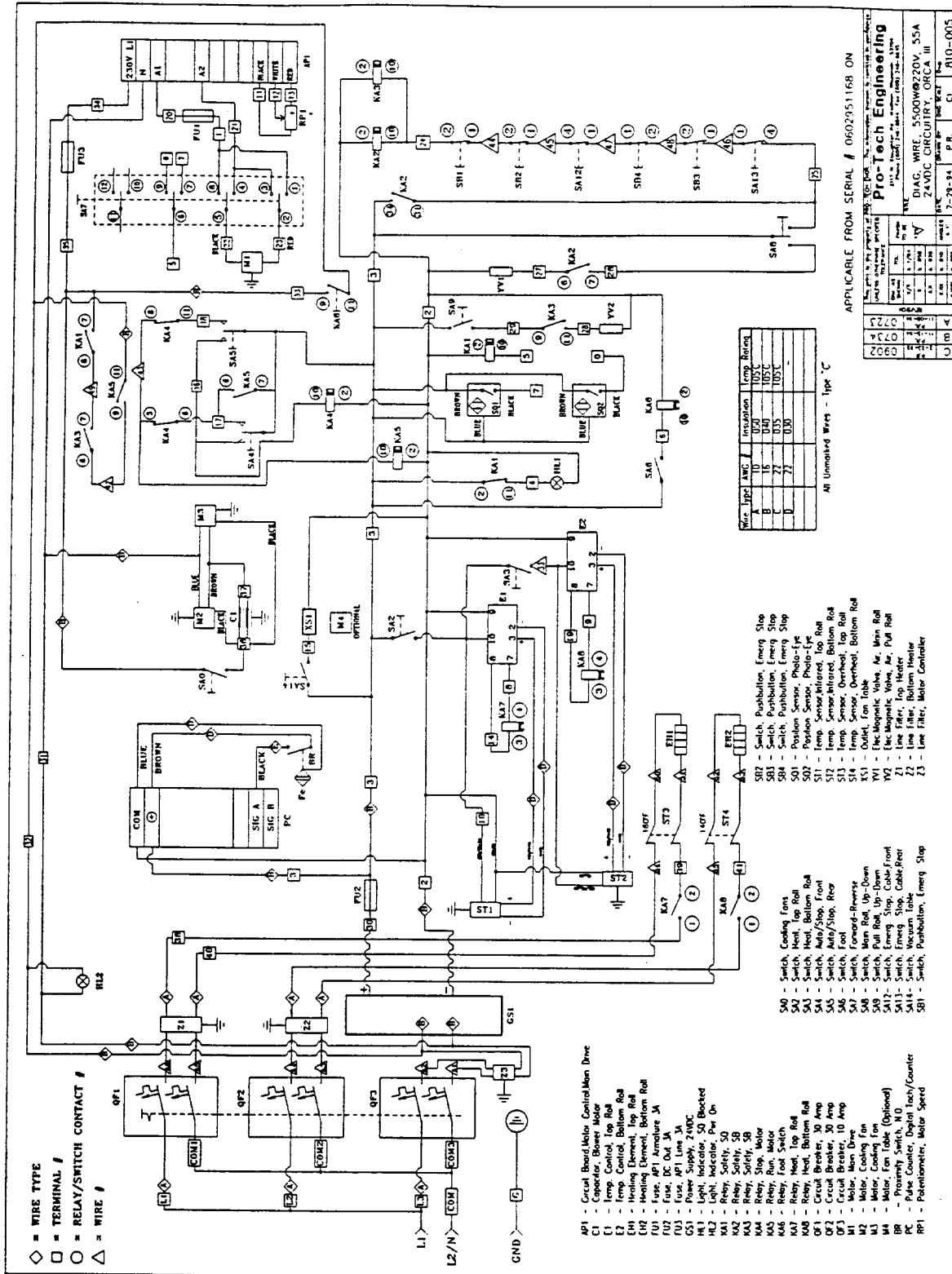
For film and application questions:

North America: 1-800-236-8843.

Europe: +44 (0) 1844 202 440

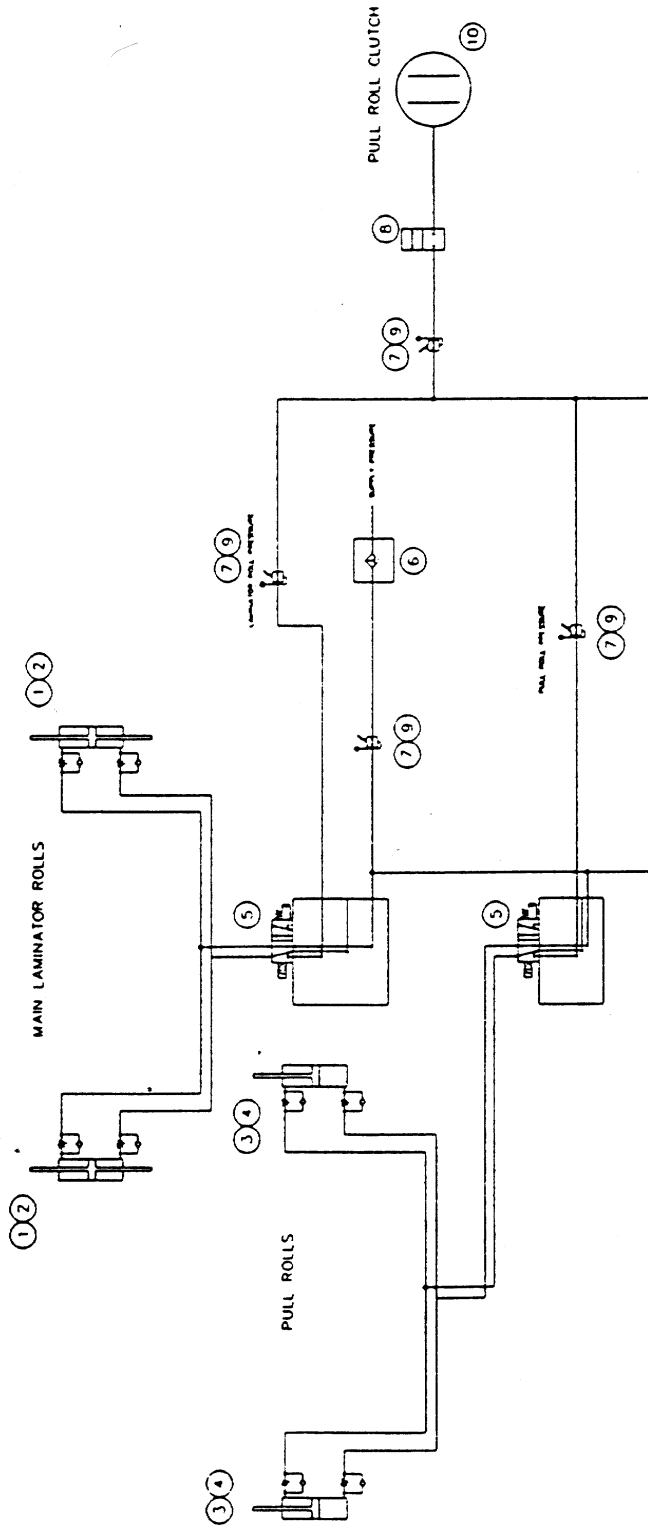
or fax: +44 (0) 1844 202 441.

Schematic Diagram

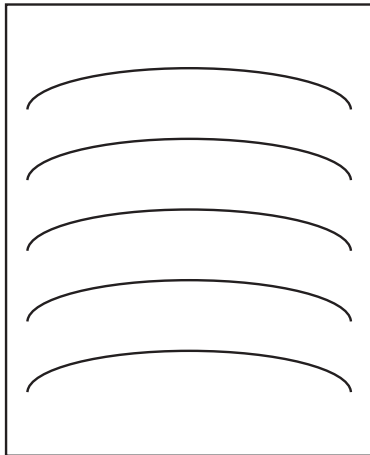


Pneumatic Diagram

REQ'D	DESCRIPTION	PART NO	ITEM
2	CYLINDER, MAIN ROLL, FARCO MP-442 1/2	370-310	1
2	FLOW CONTROL, SAE #AS2200-1/4MPT	330-130	2
2	CYLINDER, PULL ROLL, BUBA # FO-174-UE	320-300	3
4	FLOW CONTROL, SAE # AS2200-N01 (1/8MPT)	330-120	4
2	VALVE, CONTROL, SAE #VA2110-0281-RJ	350-100	5
1	REGULATOR, ARROW # R162-P	340-150	7
1	VALVE, CONTROL, SAE # NV230-N02-34-B	350-150	8
4	GAUGE, NOSHOK #15120 0-100	340-113	9
1	CLUTCH MACH IN #3036-287	375-170	10



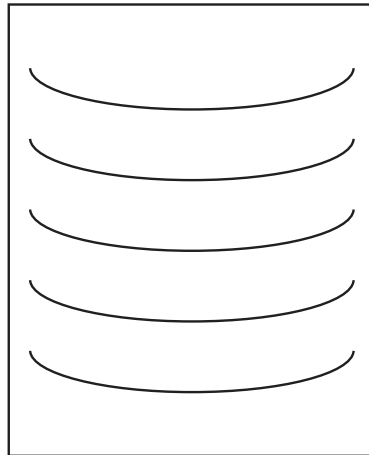
Output Troubleshooting Guide



Problem:
D waves in the image, not in the laminate.

Hints:

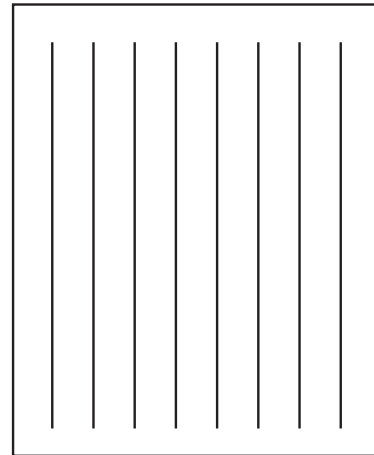
- Check paper tension.
- Check relative moisture content of the paper.



Problem:
D waves in the laminate.

Hints:

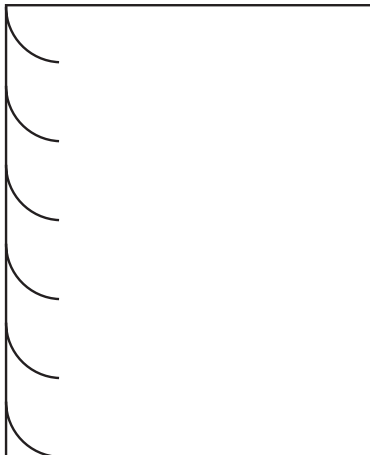
- Increase clutch tension.
- Check roll pressures.
- Check nip settings.



Problem:
Straight waves in the output.

Hints:

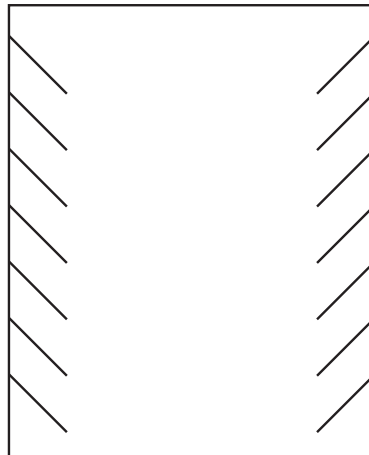
- Decrease clutch tension.
- Check operational settings for materials being used.



Problem:
Waves on only one side of the output.

Hints:

- Check nip settings.
- Check for even paper tension.



Problem:
Angled waves on the output.

Hints:

- Check for insufficient clutch tension.
- Check for insufficient main roll pressure

Feed
Direction



Other Common Problems:

Problem:
Blistering in the image.

Hints:

- Increase speed or lower the operating temperature.

Problem:
Coiling of encapsulated images.

Hints:

- Balance the upper and lower unwind brake tension. Make sure main roll temperatures are the same. Adjust cooling fans.

Problem:
Longitudinal waves or stuttering, jerking, or excessive noise from the drive side of the laminator.

Hints:

- Increase chain tension, decrease unwind brake tension.

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Section 5 : Warranty

Limited Warranty

GBC Pro-Tech Engineering Company, Inc. 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 GBC Pro-Tech and cannot 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, 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.



CAUTION

Unauthorized customer alterations will void this warranty.

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 rolls 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 on even surfaces.
3. Improper use of the machine.

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Section 6 : Technical Information

Specifications

Table 6-1. ORCA-III Laminator Specifications

Characteristic	Specifications
Dimensions (L x D x H)	82" x 33" x 60" (2.1 x .84 x 1.52 m)
Weight	Uncrated: 2500 lbs (1179 kg)
Laminating Rolls	61" (155 cm) roll face with thermally conductive high release silicone surface; upper and lower main rolls internally heated; temperature controlled by state-of-the-art infrared sensors and digital PID controllers
Laminating Opening	1.5" (3.8 cm) maximum opening controlled with dual air cylinders.
Laminating Material	Uses heat activated and pressure-sensitive materials 0 - 55" (0 - 140 cm) wide on a 3" (7.6 cm) ID core
Laminating Speeds	0 to 14.5 fmp (0 to 4.5 mpm)
Post Lamination	Fanless cooling system provides uniform, filtered air for thermal shock without exposure to dangerous fan blades.
Vinyl Transfer	Complete roll to roll transfer, lamination, and edge trimming in one pass
Safety Features	<ul style="list-style-type: none"> • Two emitter-receiver photoelectric systems protect rolls from damage. • Emergency kick cables front and rear. • All electrical and moving mechanical parts are located in bolted cabinets • Four emergency stop buttons
Installation Requirement	220 to 240 VAC, 50/60 Hz, 55 A. Or, in Europe only, 3-N phase, 32 A per phase. Air: 2 cfm at 100 psi, minimum (0.5 m ³ at 700 vPa)

Illustrated Parts List

Section 7 : Index**A**

Accessory pack, 2-4
Air cylinder rate, 4-10
Air cylinder rate - main rolls, 4-10
Air cylinder rates - pull rolls, 4-11

C

Chain
 Alignment, 3-1
 Lubrication, 4-13
 Tensioning, 3-1, 4-8-4-10, 4-8
Cleaning, 4-1
Cold/mount laminate, 3-9

E

Emergency stop buttons, 1-2, 2-6, 2-7, 3-1
Encapsulating, 6-3
Encapsulation, 3-8
Environment, 2-1
Equipment location, 3-1

F

Footswitch, 4-1, 6-3
FWD/REV switch, 4-2

G

Grease fittings, 4-13

H

Heater, 2-7
 Controller, 2-7

I

Installation requirements, 2-1, 6-3
Isopropyl alcohol, 4-1

L

Laminating material, 6-3
Laminating opening, 6-3
Laminating rolls, 6-3
Laminating speeds, 6-3
Leveling the laminator, 2-6
Loading the film, 3-4
Lubrication, 4-1-4-4

M

Maintenance schedule, 4-1
Motor, 2-7
Mounting, 3-7
Mounting/laminating, 3-7

N

Nip, 1-1, 1-2, 2-5, 2-6, 3-1, 3-5, 4-1, 4-3, 4-4-4-6
Nip - main roll, 4-5
Nip - pull roll, 4-6

P

Photoelectric eye, 1-1, 2-6, 3-1
Pneumatic Diagram, 4-16
Power cord, 2-1
Preinstallation checklist, 2-1
Process control charts, 3-7
Pull roll clutch
 Tensioning, 3-1

R

Riggers, 1-4, 2-4, 2-5
Roll pressure, 3-4
Roll to roll transfer, 3-9, 3-10
Roll to roll transfer and laminate (one pass), 3-9
Rubber cement eraser, 4-1

S

Safety features, 6-3
Safety information, 1-1
Safety labels, 1-6. *See* Safety information
Schematic Diagram, 4-15
Schematic, electrical, 3-1
Setup procedure, 2-5-2-6
Slow speed switch, 4-2
Specifications
 Dimensions, 6-3
 Encapsulating, 6-3
 Laminating material, 6-3
 Laminating opening, 6-3
 Laminating rolls, 6-3
 Laminating speeds, 6-3
 Weight, 6-3

T

Technical support
 Call 1-800-236-8843, 4-13, 4-14
Two-pass mount and laminate (hot and cold), 3-8

U

Unpacking, 2-4
 Crate, 2-4
Upper main roll, 1-3

W

Warnings and cautions. *See* Safety Information
Warranty, 5-1