ORCA 1600 OPERATION &

MAINTENANCE MANUAL

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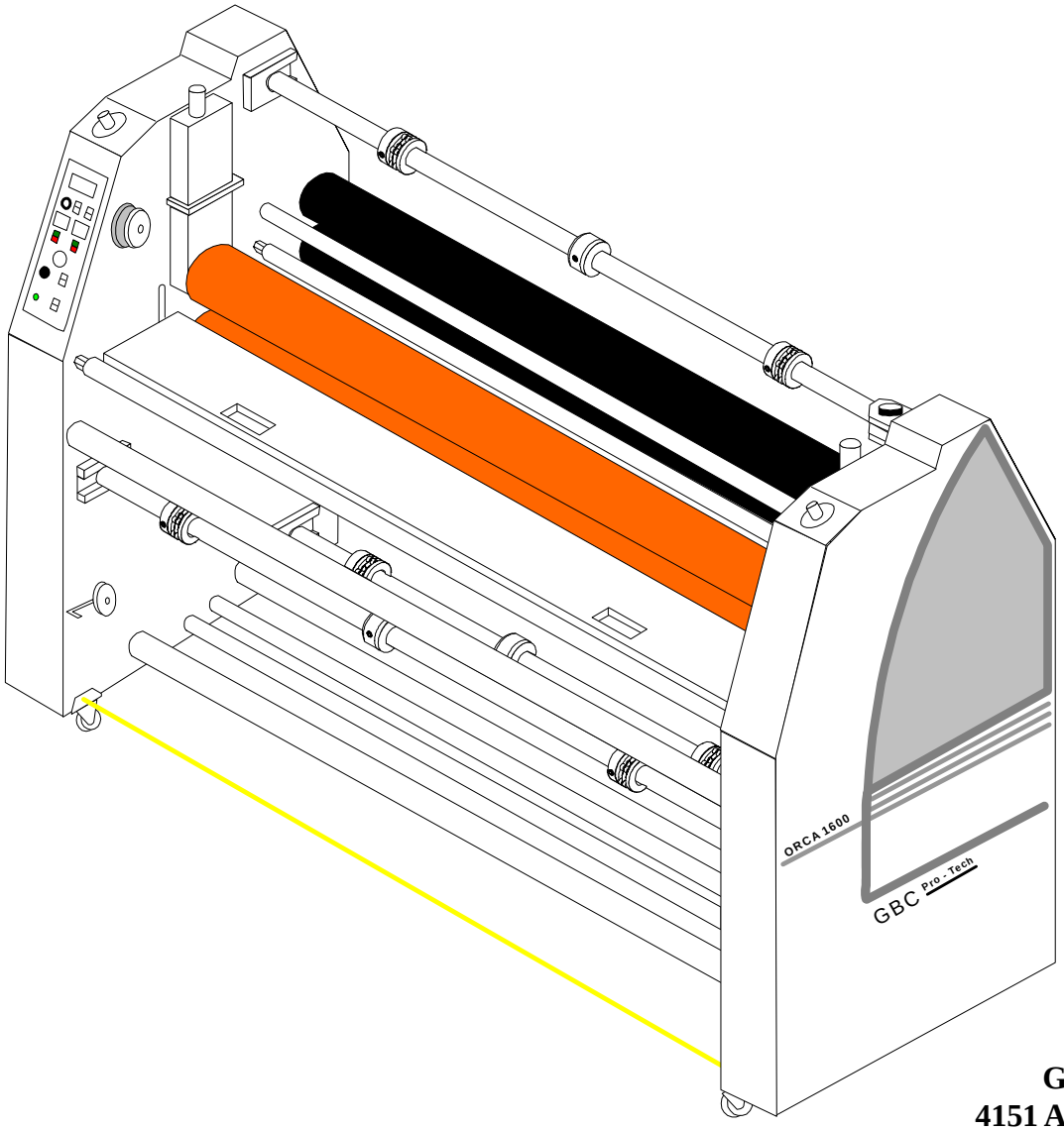

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Part number : 930 - 061

Read Me File . . . . . .

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Fax Correspondence

Fax number : (608) 246 - 8645 **Date : _____**

To : Sean Flood at GBC Pro-Tech
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DeForest, WI 53532

From : _____

Company : _____

Address : _____

Phone number : (_____)_____ Fax number : (_____) _____

Re : Orca 1600 Operations and Maintenance Manual (930061)

Section #: _____ Page #: _____

Correction (s): _____

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Additional comments: _____

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1.0 Safety

CAUTION

Do not attempt to operate your ORCA 1600 laminator until you have read this section carefully!

Your safety, as well as the safety of others, is important to GBC Films Group. This section contains important safety information.

The following symbols are used throughout this manual to indicate **Information, Caution**, **Warning**, **Danger** and **Electrical Shock** conditions.

1.1 Symbols

INFORMATION

Indicates helpful information that should be considered before, during, or after an action, step or procedure is given.

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.

WARNING

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

DANGER

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

ELECTRICAL SHOCK

Indicates an electrical shock situation which, if not avoided, could result in serious paralyzation of the body or death.

1.2 Pneumatic safety

The Orca 1600 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.

The pneumatic system used to provide downward pressure on the top main roller and the top pull roller is capable of producing great amount of forces. This force is applied to any object presented in the opening (called the nip) between the two rollers.

CAUTION

Objects other than media, film or approved substrates, will cause irreparable damage to the rollers if caught in the nip.

Use care in lowering the top main and/ or pull rollers. Know how to react quickly in an emergency. The top main laminator roller **UP-DOWN** switch is located on the front control panel. The top pull roller **UP-DOWN** switch is located on the rear control panel. This switch controls the up and down motion of the top pull roller.

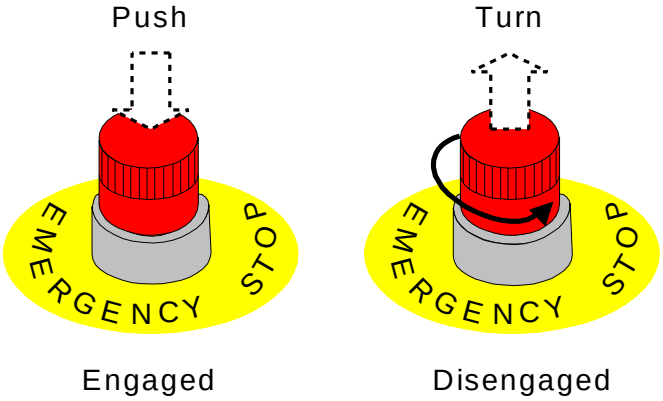
Before pressing either of these switches to the **DOWN** position, ensure that nothing is in the nip areas. If any problem or danger should occur, depressing any of the emergency stop push buttons or engaging the emergency cables, described in **Section 1.3**, stops the rollers from closing and raises them completely.

1.3 Safety features

Important safety features of the Orca 1600 laminator are the emergency stop push buttons (**E-STOP**), the emergency stop cables (**E-CABLE**) and the photo electric sensors (**PHOTO-EYE**). It is recommended that you become thoroughly familiar with each of these safety features purpose and how to use them in the event of an emergency.

E- STOP

To engage any one of the four **E-STOPs**, press the push button down. Any one of these, when engaged, removes power to the motor and opens the main roller and pull roller nips.



To continue operation, all **E-STOPS** must be in the up position. To reset the **E-STOP,** twist the button 1/4 turn counter clockwise and reset the main roller **UP-DOWN** switch to **UP**.

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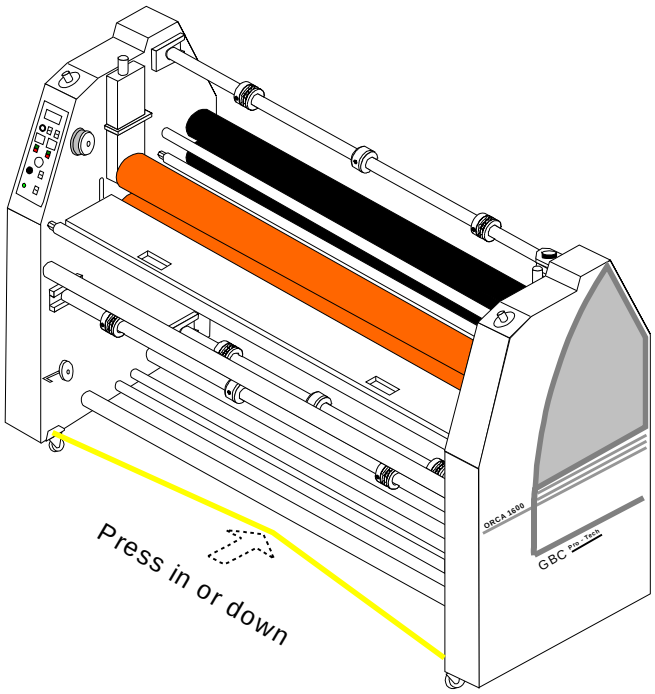
E- CABLE

To engage the front or rear **E-CABLE**, push in on the cable using your foot. Either cable, when engaged, removes power to the motor and opens the main roller and pull roller nips. The **E-CABLE** are provided in the event you are unable to reach one of the four **E-STOP**s.



To continue operation, reset the main roller **UP-DOWN** switch to **UP** and continue on with operation. The **E-CABLE** automatically resets itself when the cable springs back to it's original position. All **E-STOP**s must be in the unlatched position as well.

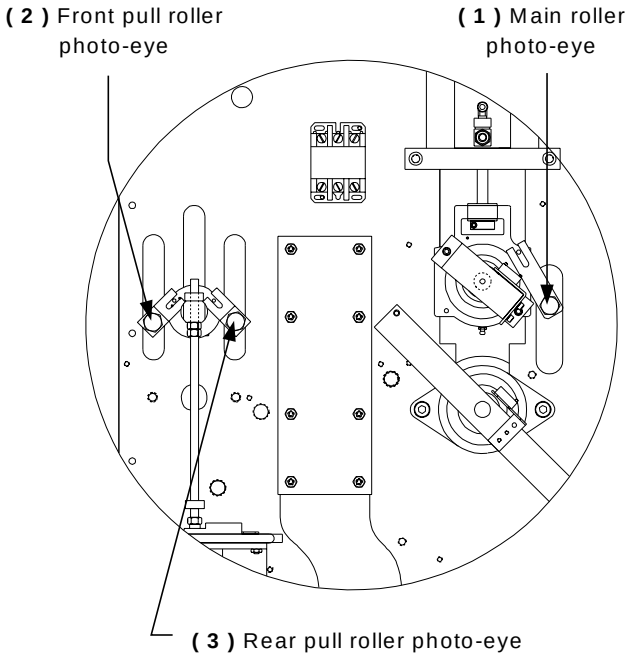
The **E-CABLE** may be adjusted if you feel the cable is too sensitive or too loose. Contact your local service representative for this adjustment.

PHOTO-EYE

The Orca 1600 is equipped with three sets of **PHOTO-EYE**s, one at the main roller nip, one behind the pull roller nip and one in front of the pull roller nip. The **PHOTO-EYE**s, when blocked by an object, stop the rollers from turning and will resume turning when the sensor is no longer blocked.

This safety feature not only protects the operator but also protects objects from entering the rollers nip causing damage. The **PHOTO-EYE**s are calibrated at time of installation.

With the **FWD/ REV** switch in the **FWD** position, the PHOTO-EYE at the front of the main roller nip **(1)** and the rear of the pull roller nip **(3)** are engaged.



With the **FWD/ REV** switch in the **REV** position, the **PHOTO-EYE** at the front of the pull roller nip **(2)** is engaged only.

1.4 Mechanical safety

WARNING

Never remove or open any guarding or covers from the machine. These are placed for you protection as well as the protection of the machine.

WARNING

Never place hands, fingers or objects through any opening of the side frame. Your hand or fingers may be pinched or crushed or you may cause damge to the machine.

WARNING

When swinging out or in an unwind, keep hands and fingers away from the pivot end. Your hand or fingers may be pinched.

WARNING

Keep hands and fingers away from the ends of the removable idlers when removing or installing them at various locations on the machine.

1.5 Heating safety

The heating components of the Orca 1600 can reach temperatures of over 200 ^{o}F (100 ^{o}C).

DANGER

At these temperatures there is a danger of severe burn if the rolls are touched during setup, operation or servicing.

In the event of a run away heat failure, the machine is equipped with a thermal cut off switch. This switch will remove power to the heating system before any damage can be caused by the run away heat failure.

INFORMATION

If run away heat failure occurs, call your local service representative before using the machine again.

CAUTION

Never leave the roller in the down position without rolling when the rollers are heated. This will cause damage to the rollers.

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1.6 Maintenance safety

Any maintenance requiring the cabinets to be opened with electrical power connected should be only performed by a qualified service technician.

INFORMATION

Only a qualified service technician should perform any procedure requiring the cabinet doors to be opened.

The word qualified is defined as;

Qualified ;

• Any engineer that has experience with electrical and mechanical design of lamination equipment. The engineers should be fully aware of all aspects of safety with regards to lamination equipment.

• Any commissioning or service engineer must be of competent nature, trained and qualified to GBC Films Group standards to fulfill that job. This person will have completed and passed the full service training course from GBC Films Group.

• Any GBC Technician, GBC Specialist, and / or GBC Films Group Technician that has been through the GBC Pro-Tech service training course.

1.7 Installation

The following symbols are positioned at various points in **Section 4 Installation.**

CAUTION

Failure to follow the pre-installation check list can result in damage to the laminator.

WARNING

The operating environment must be free of dust, flammable liquids and vapors. You can be injured by inhaling chemical vapors.

WARNING

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 output quality.

WARNING

The Orca 1600 Laminator is a large and heavy piece of equipment. It is necessary to employ LICENSED RIGGERS ONLY to move the laminator. 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. You can be crushed or seriously injured.

INFORMATION

Depending on the destination and customer preference, your machine may be shipped in various ways. The laminator may arrive shrink wrapped or in a plywood crate on a skid. Please follow the unpacking procedure that pertains to your method of shipment.

INFORMATION

***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.**

CAUTION

Do not use a knife or other sharp object to remove the shrink wrap from around the laminator. You can cause irreparable damage to the rollers.

INFORMATION

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 note of this on the Bill of Lading.

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.

WARNING

The unpacking process requires at least two people. You can be severely injured, crushed or cause damage to the laminator.

INFORMATION

GBC Film Group's warranty does not cover malfunction of the equipment due to mishandling and / or tipping. GBC Films Group bears no responsibility for personal injury or damage due to moving the laminator improperly.

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CAUTION

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

INFORMATION

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

INFORMATION

Do not put packing screws on the floor. They can cause problems when trying to roll the laminator into position or you can become injured if stepped on.

INFORMATION

Ensure sufficient space for opening of the cabinets for maintenance and servicing.

CAUTION

A second person must support the side labeled 5 in Figure 4.5.1 It can fall and damage the laminator or cause harm to you and others.

ELECTRICAL SHOCK

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 attempt to use the ramps if they are not secured to the pallet. Ensure the pallet is on a flat even surface before attempting to roll the machine off.

ELECTRICAL SHOCK

Only a qualified electrician should verify the voltage. You can be severely shocked, electrocuted or cause a fire.

1.8 Operation

WARNING

Do not operate the machine with the control side or drive side cabinet in the open position.

The following symbols are positioned at various points in **Section 5 Operation.**

ELECTRICAL SHOCK

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 wear ties, loose fit 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

When the laminator rollers are in motion, keep hands and fingers away from the nip of the rollers. You may be CRUSHED or BURNED!

INFORMATION

The upper main roller and the upper pull roller should be in the raised position.

INFORMATION

The laminator will only turn on if all E-STOPs are unlatched.

ELECTRICAL SHOCK

These calibrations require the laminator to be powered up while the cabinets are opened.

INFORMATION

The center position is to prevent jamming of the motor when changing directions

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INFORMATION

Top temperature control unit on/ off switch must be on to turn the lower temperature control unit to on.

INFORMATION

When requiring top and bottom heat, it is recommended to set both temperatures to the same set point.

INFORMATION

When decreasing pressure, allow the pressure guage to drop below the desired value, then increase pressure to the set pressure desired. This allows for a more accurate pressure reading.

INFORMATION

The maximum set point temperature is 270 ºF (132 ºC).

INFORMATION

The minimum set point temperature is 32 ºF (0 ºC).

INFORMATION

When an emergency stop feature is activated and the main roll is in the up position, the pull roll will only stay in the up position until the emergency stop feature is deactivated.

INFORMATION

When a safety feature is engaged, the upper rollers raise and power to the drive motor is removed.

INFORMATION

The motor must be engaged for the cooling fans to turn on. If the fan switch is in the "on" position, the fans will automatically turn on when the motor is engaged.

INFORMATION

The upper main roller UP/ DOWN switch resets the main roller to the correct position.

1.9 Applications

CAUTION

Do not use an open blade to cut the web near the rollers. You can put cuts into the rollers!

The following symbols are positioned at various points in **Section 6 Applications.**

INFORMATION

The nip can only be changed with the upper roller in the up position.

WARNING

Do not wear ties, loose fit 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.

INFORMATION

This will prevent the pull rollers from contacting if the air should be removed.

INFORMATION

For optimal temperature settings of various laminates, contact your supplier or sales representative.

INFORMATION

General rule: Smaller prints require more speed or less temperature. Larger prints require less speed or more temperature.

INFORMATION

Use film brake tension to control the separation point of the release liner.

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INFORMATION

Speeds and temperatures will affect the bond strength of thermal adhesives.

CAUTION

Excess pressure can damage the laminating rollers. Always use the minimum roll pressure necessary to complete the task.

INFORMATION

Not all papers and inks are compatible with thermal films. Test the combinations first.

INFORMATION

Never stop the laminator when an image is within the nip of either set of rollers.

INFORMATION

The mount adhesive must not exceed 1 in. the width of the substrate. If it does, you will experience complications with this application.

INFORMATION

Laminates and papers should always be stored in a controlled enviroment.

INFORMATION

Excessive pressure will cause the substrate to bow or flatten.

INFORMATION

Excessive brake tension may cause the image to curl. Always use the minimum amount of brake for the job.

1.10 Troubleshooting

The following symbols are positioned at various points in **Section 7 Troubleshooting.**

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.

INFORMATION

For optimal temperature settings of various laminates, contact your supplier or sales representative.

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.

1.11 Maintenance

The following symbols are positioned at various points in **Section 8 Maintenance.**

WARNING

Do not wear ties, loose fit 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.

INFORMATION

Improper maintenance, can result in poor output quality.

ELECTRICAL SHOCK

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

INFORMATION

Below is a recommended maintenance schedule. Before performing any of the steps listed, read through the procedures first. Please follow the instructions pertaining to the step you are performing.

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CAUTION

Use only isopropyl alcohol or rubber cement eraser to clean the rollers. Harsh chemicals like toluene, acetone, or MEK can destroy the silicone covering of the rolls.

CAUTION

Exercise care when cleaning the laminating rollers with 80% isopropyl alcohol:

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

CAUTION

Excessive pressure can destroy the silicone layer by pressing to hard or scrubbing too long in one spot.

INFORMATION

Keep the terry cloth towel kind of damp to make the rubbing of the roller smooth.

CAUTION

CLEANING HEATED ROLLERS CAN IGNITE THE FUMES!

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.

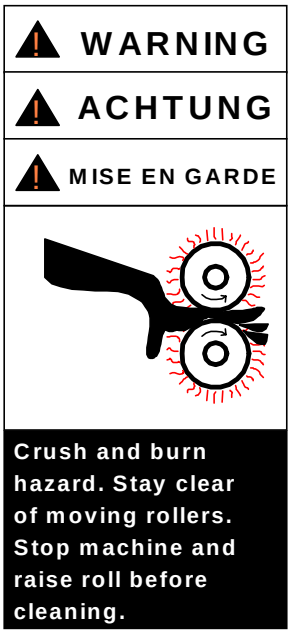
ELECTRICAL SHOCK

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 unless other wise specified.

1.12 Label locations

Posted at various locations on the Orca 1600 Laminator are important safety labels. **Pay careful attention to these labels at all times! Figure 1.12.1** illustrates the location of each of these labels.

Hazardous Voltage: Do not open these cabinets. This machine is to be serviced only by trained and authorized personnel.



Roller Pinch Point: Keep hands and fingers away. You may be crushed and/ or burned.

Moving Parts: Keep hands and fingers away. You may be crushed and/ or cut.

Read Manual: Read and understand the Operations Manual before attempting to run this machine.

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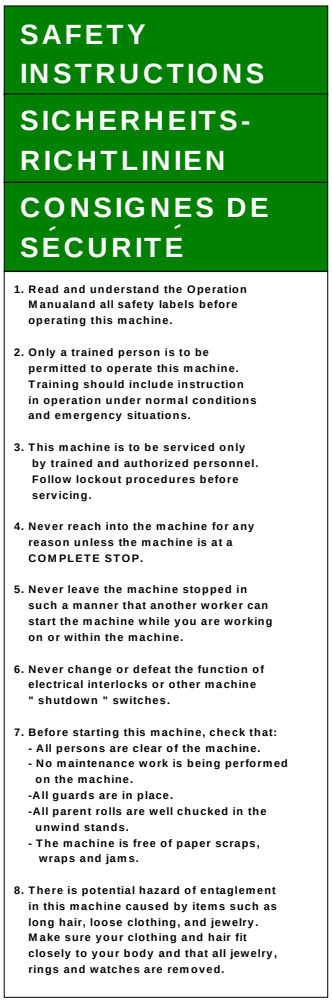


SAFETY INSTRUCTIONS

SICHERHEITS-RICHTLINIEN

CONSIGNES DE SÉCURITÉ

1. Read and understand the Operation Manualand all safety labels before operating this machine.

2. Only a trained person is to be permitted to operate this machine. Training should include instruction in operation under normal conditions and emergency situations.

3. This machine is to be serviced only by trained and authorized personnel. Follow lockout procedures before servicing.

4. Never reach into the machine for any reason unless the machine is at a COMPLETE STOP.

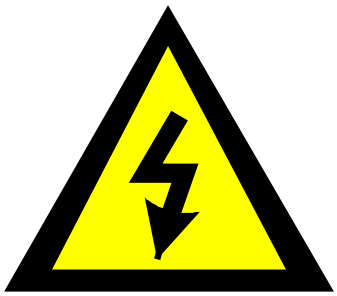
5. Never leave the machine stopped in such a manner that another worker can start the machine while you are working on or within the machine.

6. Never change or defeat the function of electrical interlocks or other machine " shutdown " switches.

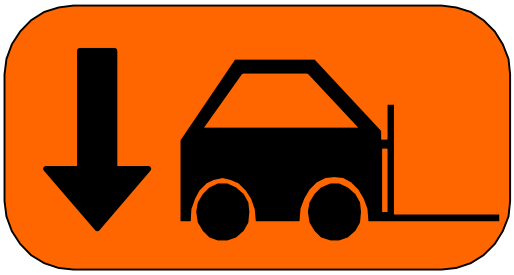
7. Before starting this machine, check that:
- All persons are clear of the machine.
- No maintenance work is being performed on the machine.
-All guards are in place.
-All parent rolls are well chucked in the unwind stands.
- The machine is free of paper scraps, wraps and jams.

8. There is potential hazard of entaglement in this machine caused by items such as long hair, loose clothing, and jewelry. Make sure your clothing and hair fit closely to your body and that all jewelry, rings and watches are removed.

Safety Instructions: Read this label first before all else!



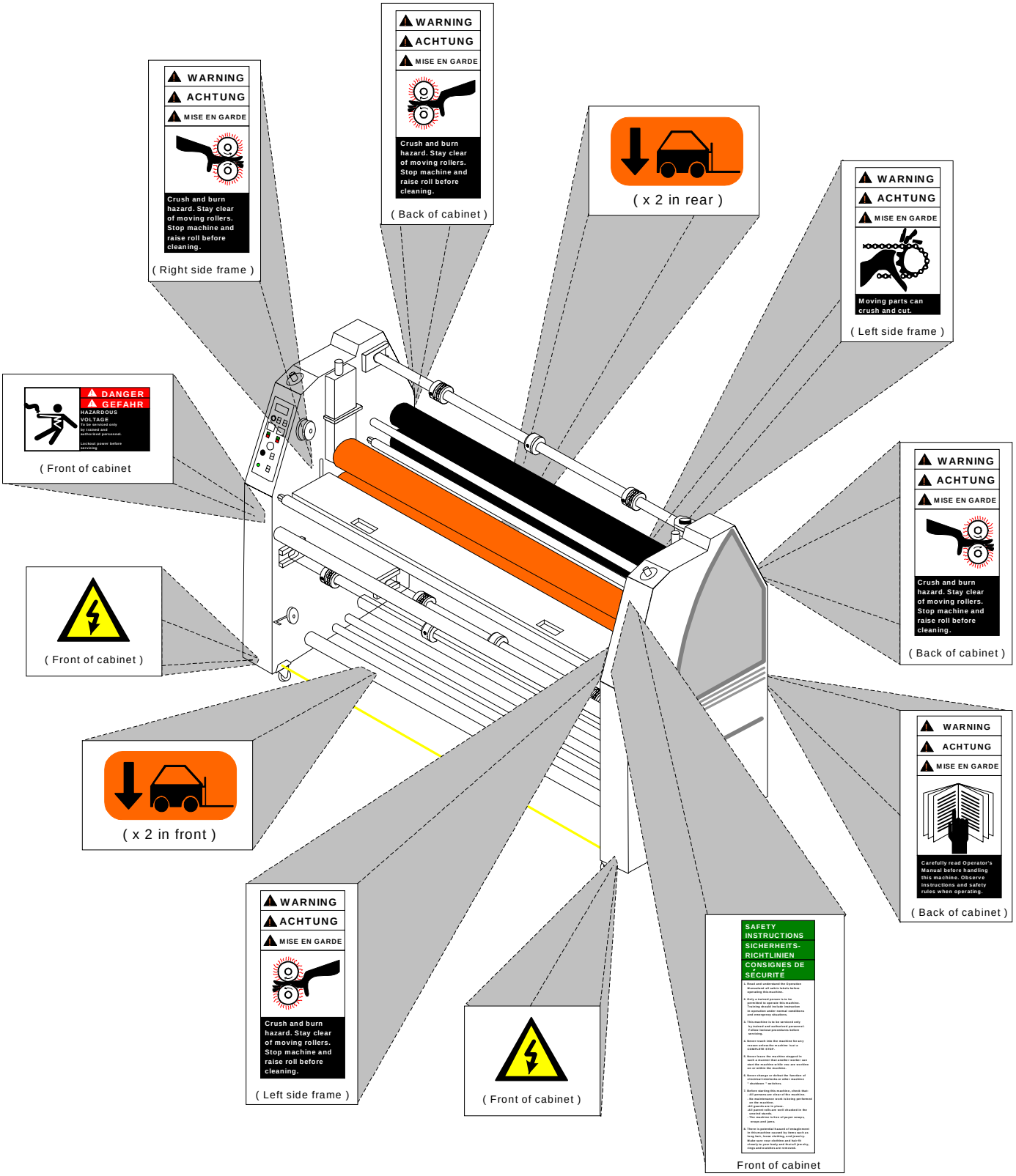
Electrical Shock: Live voltage present. Exercise extreme caution. You may be electrocuted!



Lift Here: This point may be used as a lifting point. If ignored, damage will occur to the laminator.

Refer to Figure 1.12.1 **illustrates the location of each of these labels.**

Figure 1.12.1 Label placement



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2.0 Warranty

CAUTION

Unauthorized customer alterations will void this warranty.

GBC Films Group warrants the equipment sold is free from defects in material and workmanship for a period of **one (1) year parts and 90 days labor** from the date of installation. This warranty is the only warranty made by GBC Films Group and con not be modified or amended.

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

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.

2.1 Limited Warranty

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.

2.2 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 castors on even surfaces.

3. Improper use of the machine.

4. Damage due from unqualified person(s) servicing the machine.

Qualified

• Any engineer that has experience with electrical and mechanical design of lamination equipment.The engineers should be fully aware of all aspects of safety with regards to lamination equipment.

• Any commissioning or service engineer must be of competent nature, trained and qualified to GBC Pro-Tech standards to fulfill that job. This person will have completed and passed the full service training course from GBC Pro-Tech.

• Any GBC Technician, GBC Specialist, and / or GBC Pro-Tech Technician that has been through the GBC Pro-Tech service training course.

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3.0 Specifications

Specifications provide all of the technical data for the Orca 1600 Laminator.

3.1 General

Description:

- Mid level, wide format color finisher for the sheet fed ink jet market. The Orca 1600 is a self standing, bi-directional laminator..

Features:

- Two swing out film unwinds (1 upper, 1 lower)
- One swing out print unwind
- Two rewinds (1 upper front, 1 lower rear center)
- Infeed and oufeed tables
- Pressure plate
- Footswitch
- Bi-directional operations
- Four emergency stop push buttons (E-STOPs)
- Front and rear emergency cables (E-CABLEs)
- Photo-electric nip sensors
- Independent top and bottom heater units
- Two fixed web tension idlers (1 lower, 1 upper)
- Three repositionable web idlers
- No slip core grip chucks (2 per unwind)
- Speed ranges from 0 to 15 ft/min (0 - 4.6 m/min)
- Pneumatic air cylinders for roller nip control
- Two removable cooling ducts (1 upper, 1 lower)
- Multiple thermal protection circuitry

Applications:

- Single sided lamination
- Encapsulation
- Mounting
- Decaling

3.2 Consumables

Film types:	• Pressure sensitive laminates • Pressure sensitive adhesives • Low melt laminates • Thermal laminates • Thermal adhesives
Film diameters:	• Up to a 10 in. roll diameter (25.4 cm)
Core size:	• 3 in. core standard (7.62 cm)
Film widths:	• 64 in. maximum pressure sensitive (163 cm) • 62 in. maximum thermal (158 cm)
Paper widths:	• 63 in. maximum paper width (160 cm)
Mounting thickness:	• Up to 1 in. thick (2.54 cm) either direction
Safety:	• Designed to UL / CSA / CE safety standards
Rewind tubes:	• 3 in. diameter x 66-3/8 in. length (7.62 x 168.59 cm)

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Section 3.3 Function

Speed:
- 0 - 15 ft / min (0 - 4.6 m / min)

Motor:
- 2-1/4 horse power drive motor
- Bi-directional D.C. motor

Heating capabilities:
- 68°F - 270°F (20°C - 132°C)

Controls:
- Front control panel
- Rear control panel
- Footswitch

Heater controls:
- Independent Cal 3200 control units

Rollers:
- Heat capable upper and lower main rollers
- Driven lower main roller
- Free spinning upper main roller
- Pneumatic controled lower pull roller
- Free spinning upper pull roller

Roll design:
- High release silicone rollers

Section 3.4 Electrical

United States and Canada:	• 230 - 240 VAC, 50/60 Hz, single phase, 55 amps.
Europe:	• 230 - 240 VAC, Wye 3 phase, 25 amps/ phase
B.T.U. output:	• 34,120 B.T.U. / hour
Heater wattages:	• 5000 watts per heater
Amperage draw:	• No heat, motor only : 1 - 3 amps • Top heat and motor : 20 - 23 amps • Both heat and motor : 40 - 43 amps
D/C voltage used:	• 24 vdc
A/C voltage used:	• 230 vac (minimum)

AIR

Compressor requirements:	• Filtered air at 2 cubic feet per minute (cfm), 50 liters/ minute at a pressure of 70 pounds per square inch (psi) (500 kPa).

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Section 3.5 Dimensions

Weight:

Crated: • 2800 lbs. (1270 kg.)

Uncrated: • 2300 lbs. (1043 kg.)

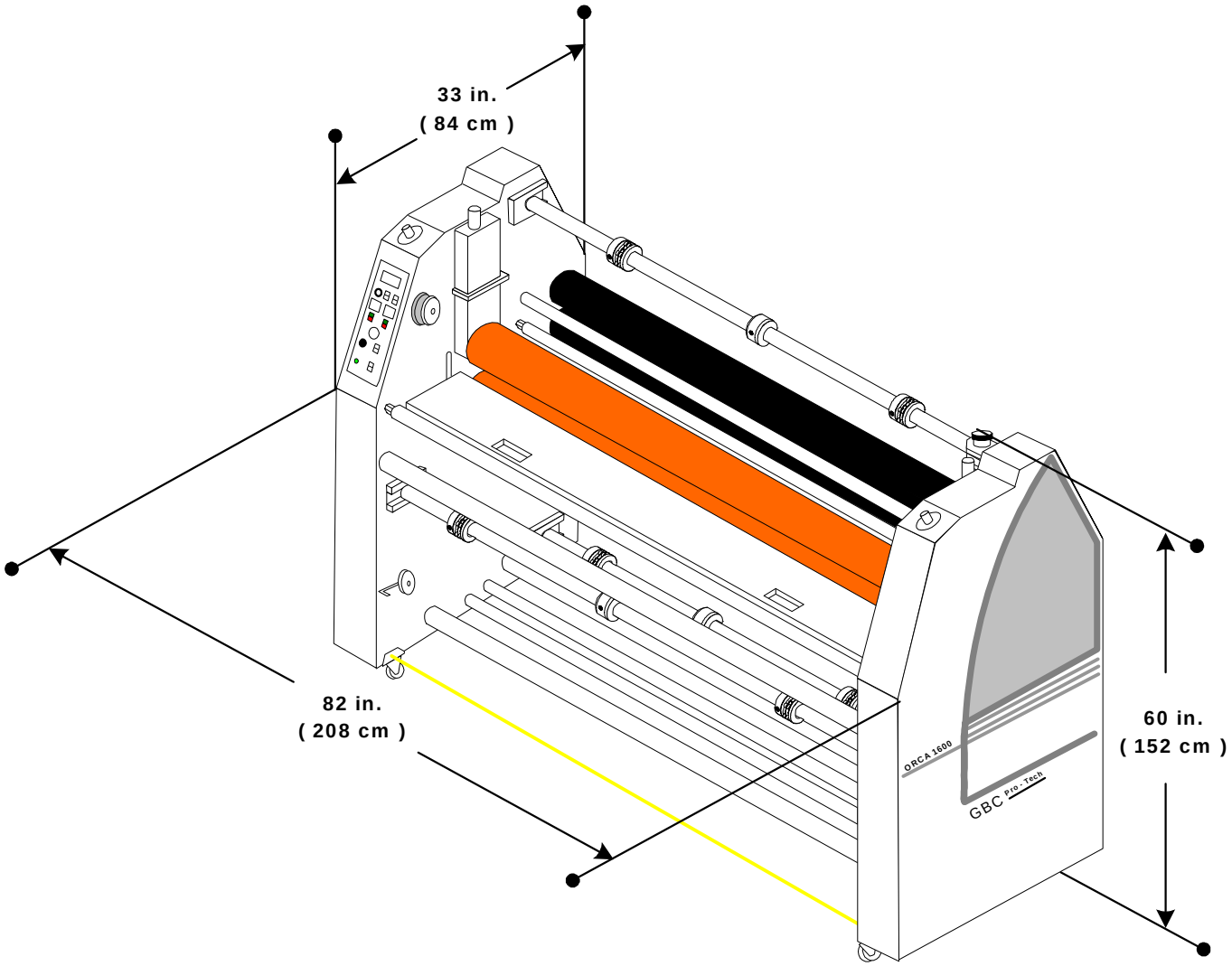
Dimensions

Crated: • 75 in. (H) x 43 in. (W) x 102 in. (L)
(191 cm (H) x 109 cm (W) x 259 cm (L))

Uncrated • 60 in. (H) x 33 in. (W) x 82 in. (L)
(152 cm (H) x 84 cm (W) x 208 cm (L))
Refer to **Figure 3.5.1**

Nip Height: • 35 1/5 in. (90 cm)

Figure 3.5.1 Dimensions



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4.0 Installation

GBC Films Group is committed to a program of ongoing product improvement. As a result, we are providing these instructions so you can insure that your new Orca 1600 Laminator is properly and securely unpacked, moved, and installed.

Before an Orca 1600 Laminator can be installed, there are a few requirements that must be met. Make certain that each of the requirements listed in the following pre-installation checklist are met before beginning installation.

CAUTION

Failure to follow the pre-installation check list can result in damage to the laminator.

4.1 Pre-installation

- ☐ 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 rear of the laminator and provides space for efficient material flow. **Figure 4.1.1** illustrates 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
- ☐ Have you contacted a certified electrician to both wire the laminator and ensure that adequate power is being supplied, having the appropriate capacity, over current protection and safety lockouts are available?

WARNING

The operating environment must be free of dust, flammable liquids and vapors. You can be injured by inhaling chemical vapors.

WARNING

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 output quality.

- ☐ The laminator requires 230 to 240 vac, 50/ 60 Hz, 55 amps. Or, in Europe only, 3-N phase, 240 vac, 32 amps/ phase.

WARNING

The Orca 1600 Laminator is a large and heavy piece of equipment. It is necessary to employ LICENSED RIGGERS ONLY to move the laminator. 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. You can be crushed or seriously injured.

For instructions on how to connect power, proceed to **4.7 Electrical connection** in this section.

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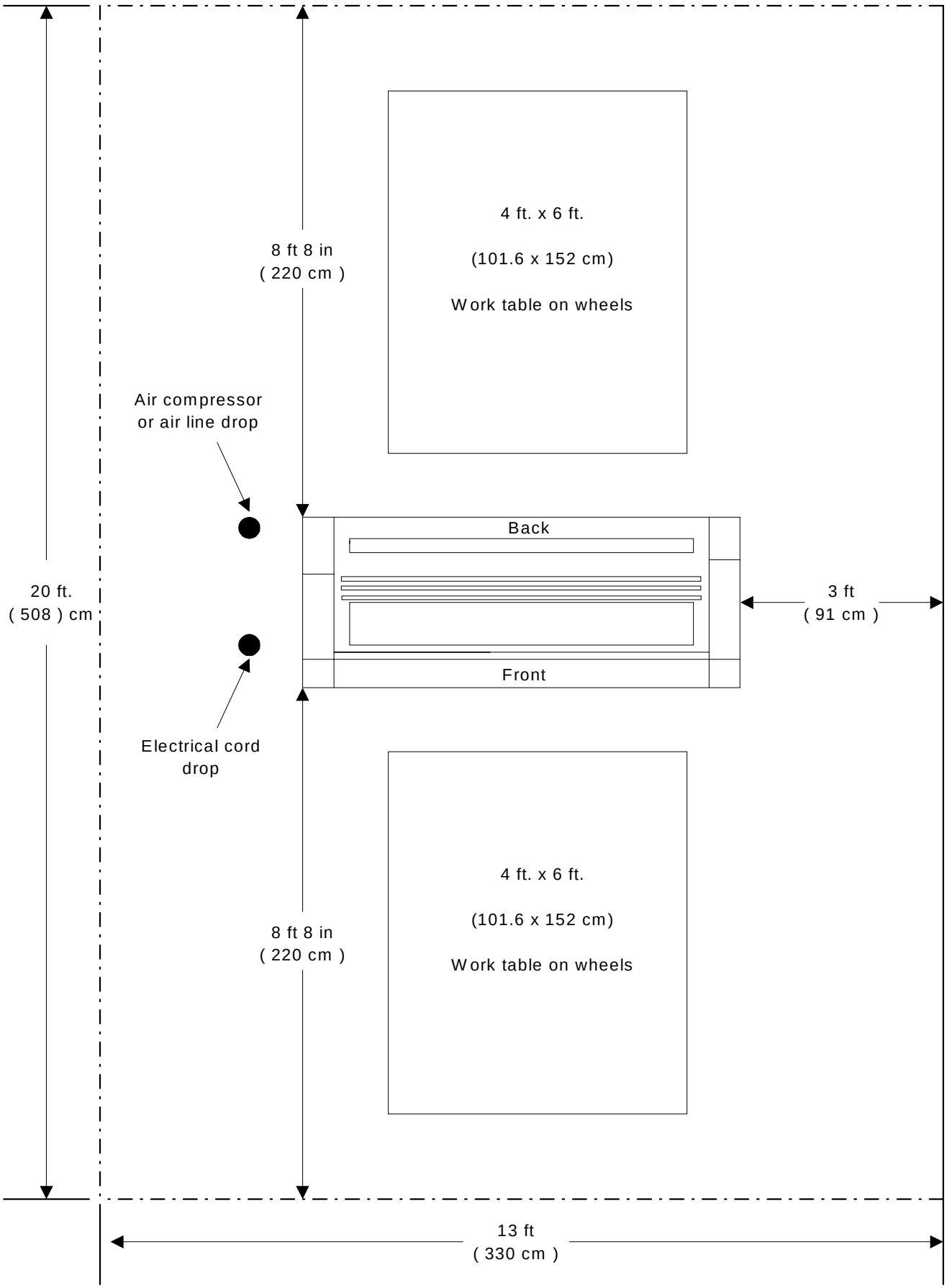
Figure 4.1.1 Suggested Floor Layout



4.2 Know your machine

Before performing any procedure within this manual, it is recommended that you take time to know the parts of your new machine.

Figure 4.2.1 The laminator

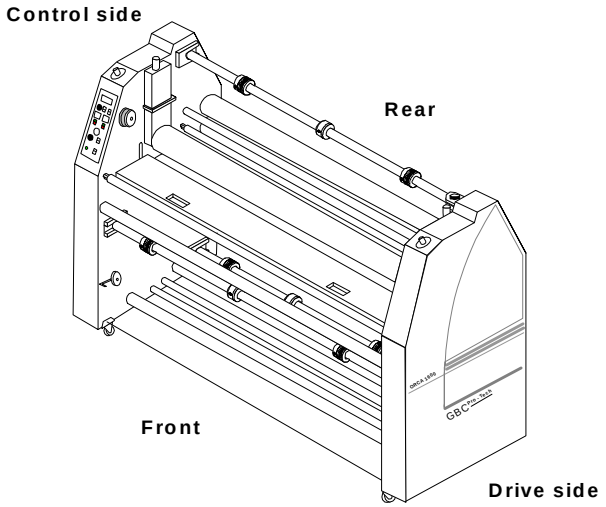


Figure 4.2.2 Top view

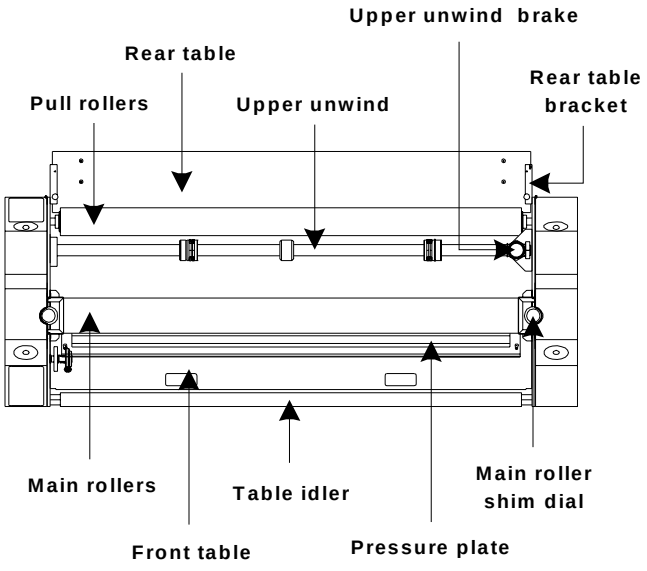


Figure 4.2.3 Front view

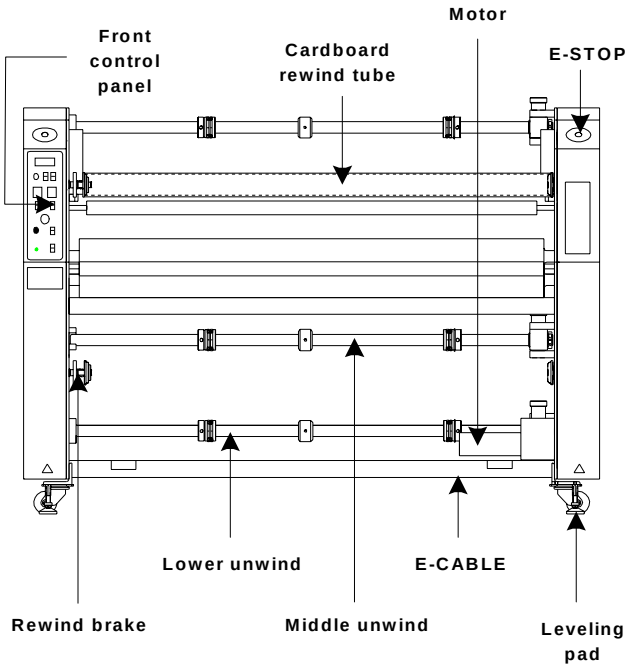
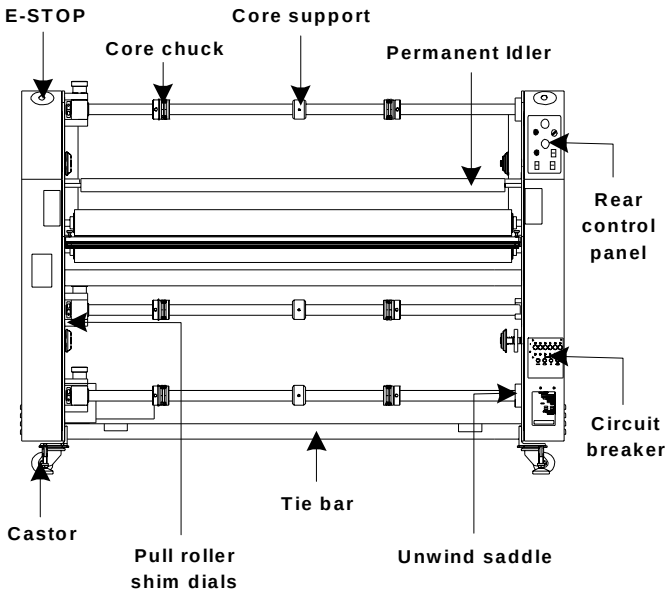


Figure 4.2.4 Rear view



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4.3 Unpacking

With regards to your shipping method, use one of the following procedures described to safely and properly unwrap / uncrate your laminator.

INFORMATION

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.**

INFORMATION

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 note of this on the Bill of Lading.

INFORMATION

Depending on the destination and customer preference, your machine may be shipped in various ways. The laminator may arrive shrink wrapped or in a plywood crate on a skid. Please follow the unpacking procedure that pertains to your method of shipment.

WARNING

The unpacking process requires at least two people. You can be severely injured, crushed or cause damage to the laminator.

4.4 Shrink Wrapped

a) Inspect the machine for any obvious shipping damages upon receipt.

b) Carefully unwrap the shrink wrap from around the laminator.

CAUTION

Do not use a knife or other sharp object to remove the shrink wrap from around the laminator. You can cause irreparable damage to the rollers.

c) With another person, carefully wheel your Orca 1600 Laminator to the installation site.

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.

4.5 Crated

WARNING

The Orca 1600 Laminator is a large and heavy piece of equipment. It is necessary to employ LICENSED RIGGERS ONLY to move the laminator. 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. You can be crushed or seriously injured.

INFORMATION

GBC Film Group's warranty does not cover malfunction of the equipment due to mishandling and / or tipping. GBC Films Group bears no responsibility for personal injury or damage due to moving the laminator improperly.

Tools required

- # 2 Phillips head screwdriver
- 7/8" open end wrench or adjustable wrench
- Crow bar
- A second person

4.5.1 Uncrate the laminator

a) Remove the top of the crate and then the sides in the order shown in **Figure 4.5.1**

CAUTION

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

INFORMATION

Do not put packing screws on the floor. They can cause problems when trying to roll the laminator into position or you can become injured if stepped on.

CAUTION

A second person must support the side labeled 5 in Figure 4.5.1 It can fall and damage the laminator or cause harm to you and others.

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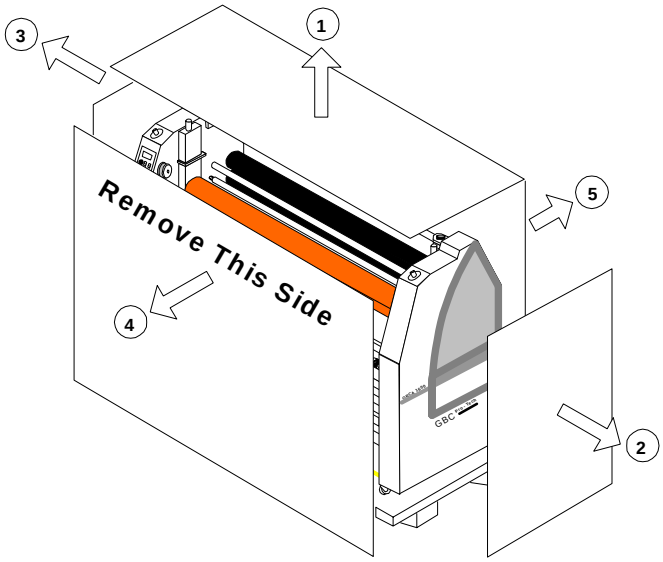
Figure 4.5.1 Disassembling of the crate



4.5.2 The shrink wrap

a) Gently unwrap the shrink wrap from around the laminator.

CAUTION

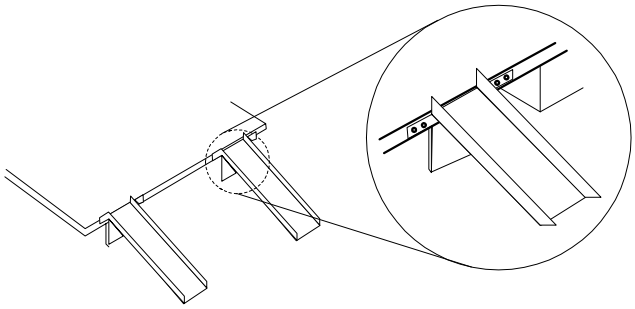
Do not use a knife or other sharp object to remove the shrink wrap from around the laminator. You can cause irreparable damage to the rollers.

b) Move all packing materials to a safe distance.

4.5.3 Moving the laminator

a) Have the laminator removed off of the skid one of two methods:

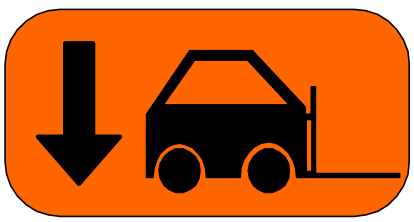
1) Rolled off the skid and placed on the floor by licensed riggers using the included ramps. The ramps must be secured utilizing screws removed from the disassembled crate.



WARNING

Do not attempt to use the ramps if they are not secured to the pallet. Ensure the pallet is on a flat even surface before attempting to roll the machine off.

2) Lifted off of the skid with a forklift by positioning the forks where indicated by fork lift decals located on the tie bars on the machine.



b) Remove any plastic strapping and/or packing paper taped to the rollers.

CAUTION

Do not use a knife or other sharp object to remove the shrink wrap from around the laminator. You can cause irreparable damage to the rollers.

c) Remove all packing materials to a safe distance from the laminator and dispose of properly.

INFORMATION

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

d) Use two people to carefully roll the laminator to the desired location.

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.

e) Consider the following when determining where to locate your machine;

WARNING

The operating environment must be free of dust, flammable liquids and vapors. You can be injured by inhaling chemical vapors.

WARNING

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.

INFORMATION

Ensure sufficient space for opening of the cabinets for maintenance and servicing.

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4.6 Accessory pack

Once the Orca 1600 Laminator has been unpacked and moved into final position, open the accessory pack and verify the contents.

Accessory Pack contents

- One T-handle allen wrench (475-200)
- One Zippy knife (475-620)
- One Terry clothe towel (475-950)
- One Operators manual (930-061)
- One roll masking tape (475-000)
- Two Polyurethane O-rings (480-005)
- One strain relief for main power (175-201)
- One rubber cement pad (930320)
- Four fuses, 3.0A (186-200)
- Four leveling pads (475-100)

If you are missing any of the items listed above, contact your local service technician or sales representative.

Contacts:

GBC Parts (800) 790 - 7787

GBC Europe parts 33 - 45 - 535 - 7676

4.7 Electrical Connection

The Orca 1600 laminator requires 220 ~ 240 VAC electrical power for proper operation. The power supply may be either single phase or three phase (five wire or four wire). For single-phase power, a 55 amp service is required and for three-phase power, 25 amps per phase is required.

The Orca 1600 requires the electrical power cord to be wired directly to the line terminal block located within the control side cabinet.

Before the machine is installed, a qualified electrician must route the proper wiring to the location where the machine will be stationed. The machine then can be connected to the power supply by a qualified electrician following one of the three instructions listed below.

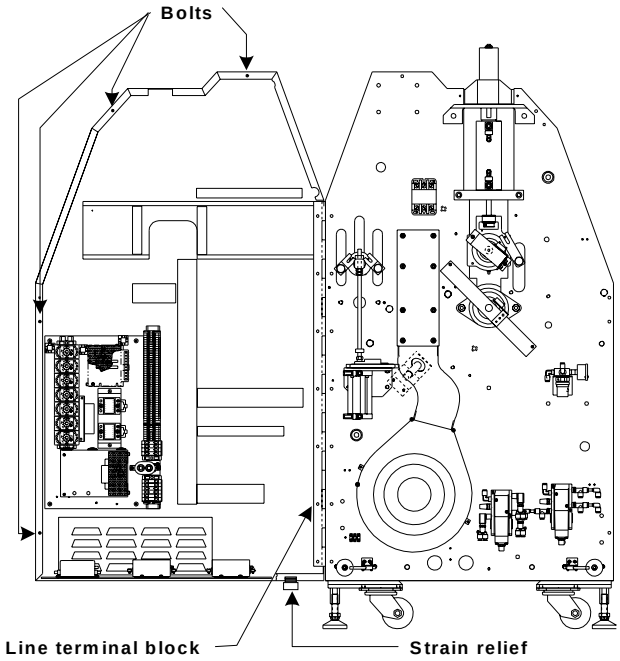
ELECTRICAL SHOCK

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.

4.7.1 Preparation

a) Ensure the power at the junction box is in the **OFF** position. Use a voltage meter to verify.

b) Open the control side cabinet by removing the four hex button head screws with a 5/32 in. allen wrench.



c) Remove the power cable strain relief (175-201) from the accessory box and install it at the lower rear hole of the control side cabinet.

d) Connect the power cord to the line terminal block. Refer to the correct **Figure** for your connection. Jumper bars may require removing or cutting.

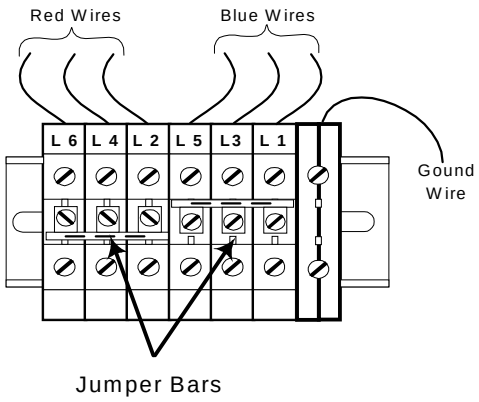


Figure 4.7.1 Single phase (3 wire)

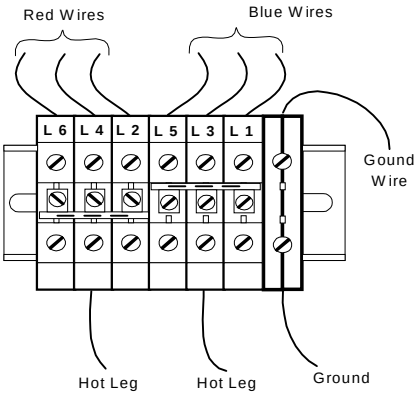


Figure 4.7.2 Delta three phase (4 wire)

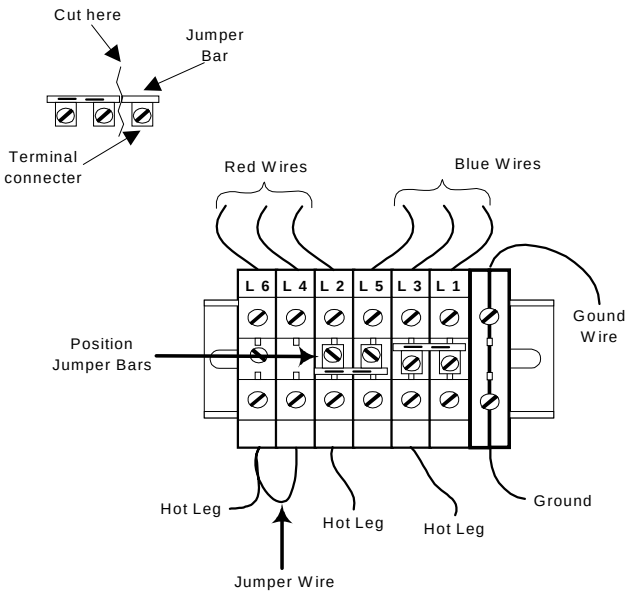
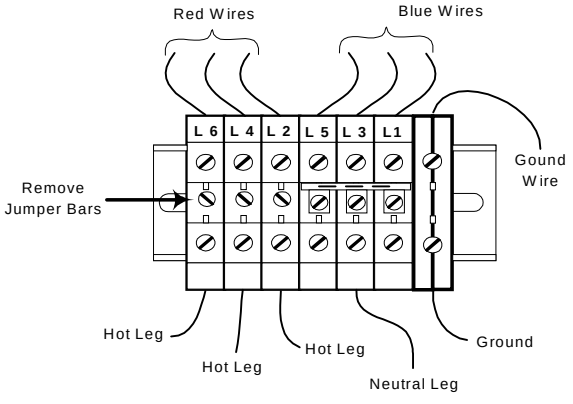


Figure 4.7.3 Wye three phase (5 wire)



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e) Turn the junction box power to the **ON** position.

f) Verify line voltage with regards to the type of power being supplied to the laminator at the line terminal block.

ELECTRICAL SHOCK

Only a qualified electrician should verify the voltage. You can be severely shocked, electrocuted or cause a fire.

g) Once the power has been properly connected, continue with **4.8 Air connection** before closing the control side cabinet.

WARNING

Do not operate the machine with the control side or drive side cabinet in the open position.

ELECTRICAL SHOCK

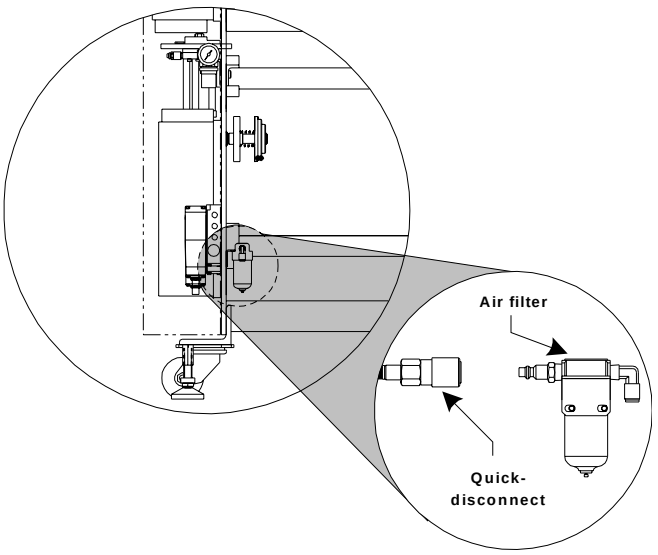
Do not operate the laminator if the power cord is damaged or frayed. You can be severely shocked, electrocuted or cause a fire. Contact a qualified electrician to replace the cord.

4.8 Air connection

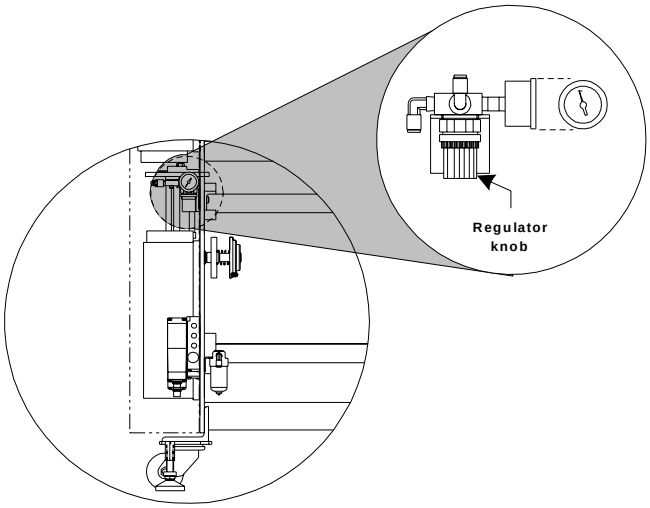
The laminator requires filtered air at 2 cubic feet per minute (cfm), 50 liters/minute at a pressure of 70 pounds per square inch (psi) (500 kPa). The air supply must be clean (free of dirt) and dry. Moisture causes corrosion and particles can block the pneumatic controls. Either problem can cause the 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. GBC 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 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.

a) Once a quick disconnect is attached to the end of the hose from the compressor, connect the air to the air filter located on the machine.



b) Set the main air in pressure to 70 pounds per square inch (psi) (500 kPa) by turning the air regulator knob.



INFORMATION

The upper main roller and the upper pull roller should be in the raised position.

c) Close the control side cabinet and secure with the factory bolts.

4.9 Installing levelers

Leveling of the machine is a customer option. If you choose not to level the laminator and you encounter output problems, please level the machine and try your application again before calling for technical support. Resting the laminator on the leveling pads will prevent the machine from rolling during set up, operation or servicing.

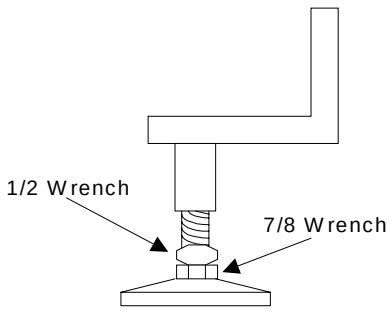
Tools required

- (1) 1/2 in. open end wrench
- (1) 7/8 in. open end wrench
- Four leveling pads
  (from the accessory pack)

a) Be sure that the machine is placed where you want it to rest.

b) Secure the four leveling pads onto the four foot bolts.

c) Use the 1/2 in. wrench on the foot bolt and the 7/8 in. wrench on the leveling pads and tighten them together.



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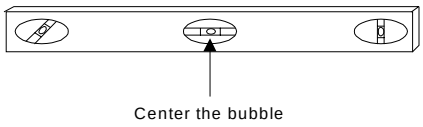
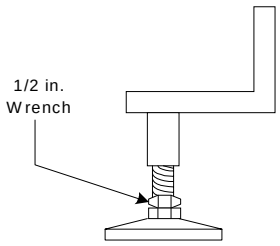
4.10 Leveling

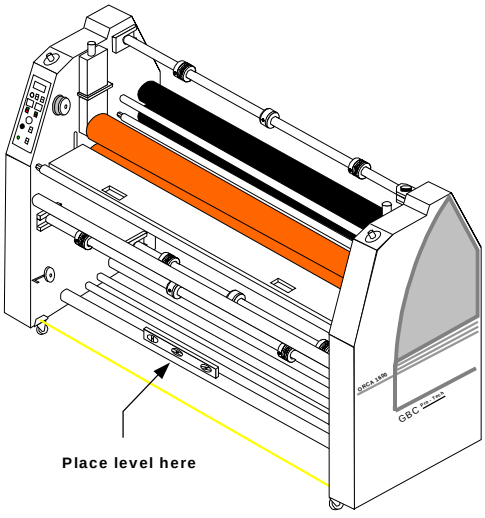
Leveling of the machine is an important step in assuring that the equipment will run at it's optimal speed and capabilities with little adjustments as possible.

a) Use the foot bolt to raise/ lower the machine so that the bubble in the leveler is centered.

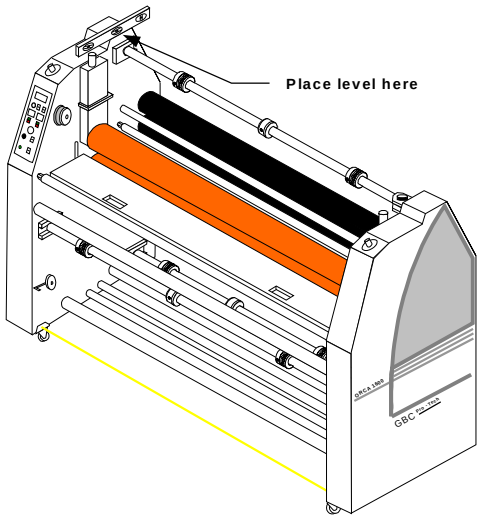




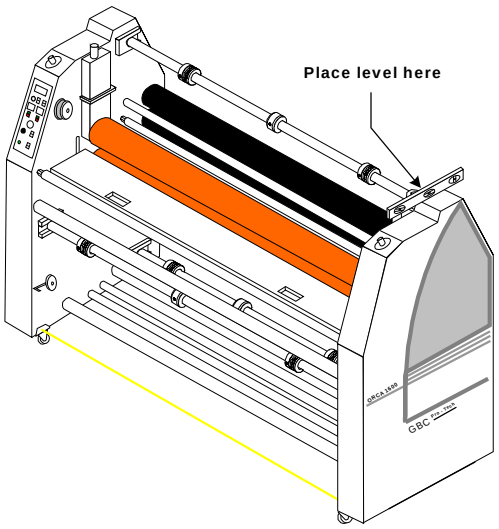
b) Place the leveler on the lower front tie bar and level the machine from left to right.



c) Place the leveler on the control side frame, not the top of the cabinet, and level the machine from front to rear.



e) Do the same for the drive side.



f) Place the leveler on the lower rear tie bar and level the machine from left to right.

g) Verify all sides to confirm that the machine is level.

4.11 Calibrations

The following calibrations should be performed by a qualified GBC technician before the machine is to be operated. These calibrations may not be performed by the operator. Improper calibrations can result in poor lamination output.

ELECTRICAL SHOCK

These calibrations require the laminator to be powered up while the cabinets are opened.

a) The main roller nip is to be calibrated.

b) The pull roller nip is to be calibrated.

c) All three photo-eyes are to be calibrated.

d) The drive chains are to be checked and tensioned if necessary.

e) Air rate on both set of rollers are to be checked.

f) Safety check and control panel operation checks are to be performed.

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5.0 Operations

5.1 Power on/ off

WARNING

Do not wear ties, loose fit 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.

ELECTRICAL SHOCK

Do not turn power on 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.

This section discusses power on/off, the function of the front control panel, the function of the rear control panel, how to set the temperature, what to do in case of an emergency, film loading and unloading, how to set the main roller nip, how to set the pull roller nip and how to properly shutdown the laminator.

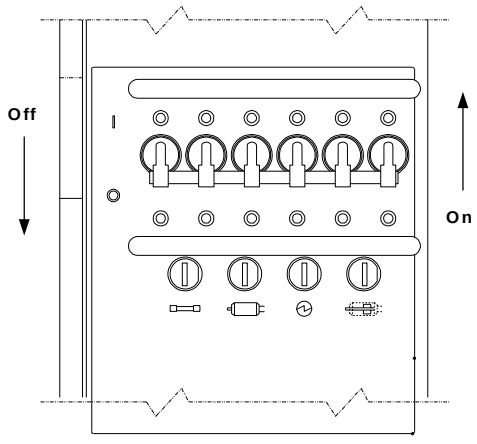
a) Ensure power from the junction box on the wall is in the **"ON"** position.

b) Physically check to confirm that all four **E-STOP**s are in the unlatched position.

WARNING

When the laminator rollers are in motion, keep hands and fingers away from the nip of the rollers. You may be CRUSHED or BURNED!

c) Turn the circuit breaker on the machine to the **"ON"** position.



INFORMATION

The laminator will only turn on if all E-STOPs are unlatched.

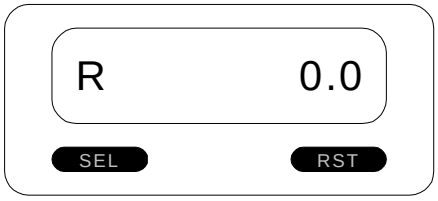
5.2 Front control panel

The control panel on the Orca 1600 Laminator is located at the front operating position of the machine on the left (control) side cabinet.

The front control panel enables the operator to control linear footage/ rate display, motor speed, motor direction, motor auto/ stop, top temperature, bottom temperature, main roller pressure and main roller up/ down.

(1) Speed Readout: Displays the speed of the machine and the linear footage total. When the " R" is displayed, the readout is displaying the rate. When only a numeric value is displayed, the readout is displaying linear footage.

- The " **SEL** " button will toggle the unit between the two choices of readouts. (speed rate or linear footage total)
- The " **RST** " button will reset the linear footage total whether the display is showing rate or linear footage total.



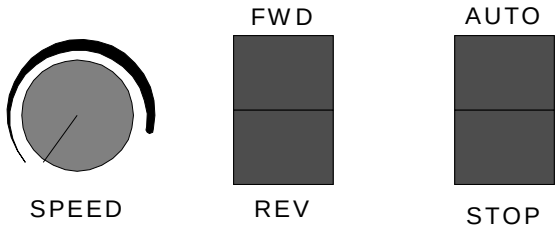
(2)Speed Control Dial: Adjusts the speed of the motor from zero to a maximum speed of 15 feet per minute (4.5 meters per minute). Turn the dial clockwise to increase speed and counter clockwise to reduce speed.

(3)Forward / Reverse Switch: determines the motor direction. In the **FWD** position, the motor will turn in a forward motion. In the **REV** position, the motor will turn in a reverse direction. In the center position, the motor will not turn at all.

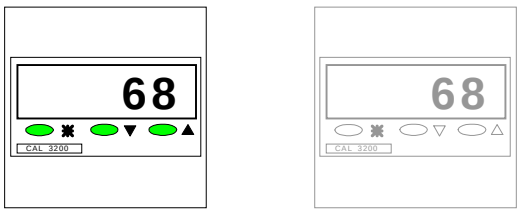
INFORMATION

The center position is to prevent jamming of the motor when changing directions

(4) Auto / Stop Switch: This switch will engage the motor circuitry and disengage the motor circuitry. This is a momentary switch for latching purposes so that two separate switches can serve the same function. See Rear Control Panel for the other location of this switch.



(5) Temperature Control Unit (Top): This unit is used to set the desired heating temperature of the top main roller. The display can be programmed to show ^{o}F or ^{o}C.



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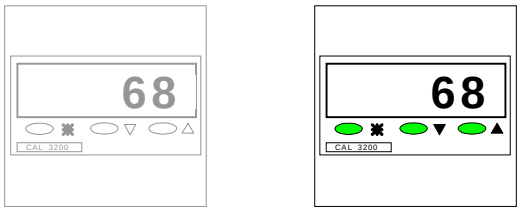
(6) Temperature Control Unit (Bottom): This unit is used to set the desired heating temperature of the bottom main roller. The display can be programmed to show °F or °C.

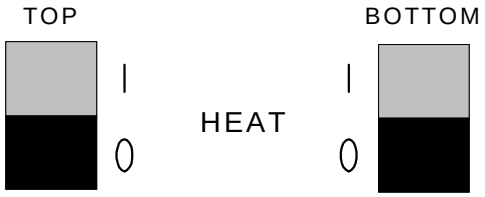


(7) Top Heater on / off Switch: Turns the temperature controller unit for the upper main roll to on **(I)** or off **(O)**.

INFORMATION

Top temperature control unit on/ off switch must be on to turn the lower temperature control unit to on.

(8) Bottom Heater on / off Switch: Turns the temperature controller unit for the lower main roll to on **(I)** or off **(O)**.



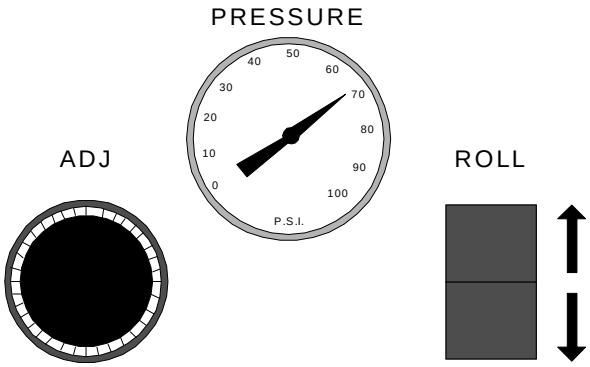
(9) Main Roll Pressure Adjustment: Adjusts the air pressure supplied to the main roller air cylinders. Pull out on the knob to turn and push in on the knob to lock down.

INFORMATION

When decreasing pressure, allow the pressure guage to drop below the desired value, then increase pressure to the set pressure desired. This allows for a more accurate pressure reading.

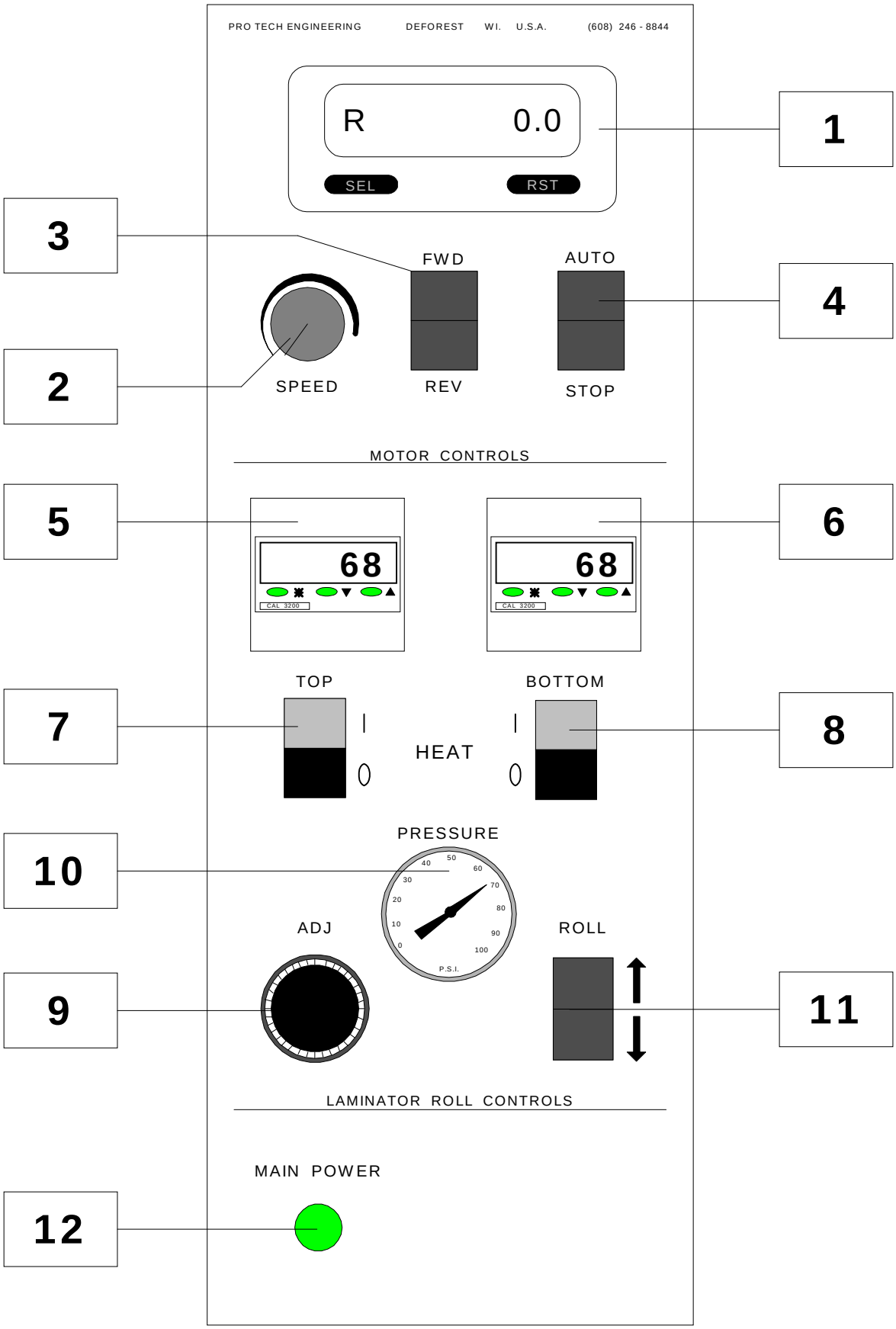
(10) Main Roll Pressure Gauge: Displays the air pressure supplied to the main roller air cylinders.

(11) Main Roll up / down Switch: When pressed to the down position, the upper main roller lowers. When pressed to the up position, the upper main roller raises.



(12) Main Power Indicator Light: When illuminated, there is electrical power going to the machine.

Figure 5.2.1 Front control panel



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5.3 Rear control panel

The rear control panel enables the operator to control the clutch operation, the upper pull roller operation, the cooling fans and the motor auto/ stop.

(1) Clutch pressure adjustment: Adjusts air pressure supplied to the pneumatic clutch for the lower pull roller. Pull out on the knob to turn and push in on the knob to lock down.

– With a lower pressure supplied to the clutch, the clutch slips more and the pull rolls pull with less force.

– With a higher pressure supplied to the clutch, the clutch slips less or not at all and the pull rolls pull with a greater force.

INFORMATION

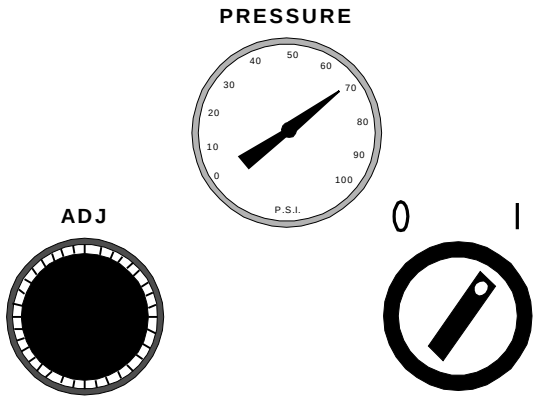
When decreasing pressure, allow the pressure guage to drop below the desired value, then increase pressure to the set pressure desired. This allows for a more accurate pressure reading.

(2) Clutch Pressure Gauge: Displays the air pressure supplied to the pneumatic clutch.

(3) Clutch on / off Switch: Engages or disengages air flow to the pneumatic clutch driving the lower pull roller. The lower pull roller is connected to the chain drive system via a pneumatic clutch.

– When the clutch switch is on (**I**), the lower pull roller is engaged with the chain drive system and pulls more or less depending on the clutch pressure adjustment setting.

– When the clutch is off (**0**), the clutch is in the “free spin” state. The lower pull roll is disengaged and will not respond to the motor controls.



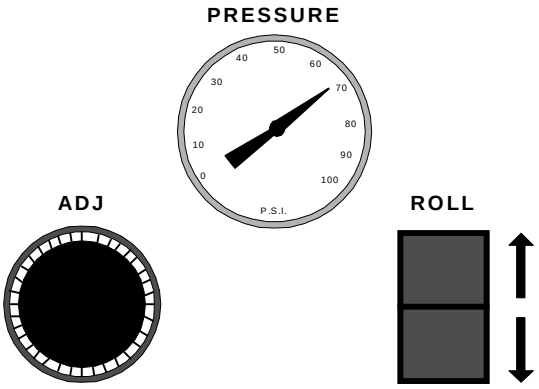
(4) Pull Roll Pressure Adjustment: Adjusts air pressure supplied to the pull roll air cylinders. Pull out on the knob to turn and push in on the knob to lock down.

(5) Pull Roll Pressure Gauge: Displays the air pressure supplied to the pull roll air cylinders.

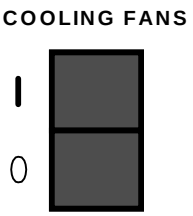
(6) Pull Roll up / down Switch: Signals the solenoid air valve for the pull roll air cylinders to shift to the appropriate position to either raise or lower the upper pull roll.

INFORMATION

When an emergency stop feature is activated and the main roll is in the up position, the pull roll will only stay in the up position until the emergency stop feature is deactivated.



(7) Cooling Fans on / off Switch: Turns the cooling fans on or off. The cooling fans only operate when the motor circuit is engaged.



INFORMATION

The motor must be engaged for the cooling fans to turn on. If the fan switch is in the "on" position, the fans will automatically turn on when the motor is engaged.

(8) Auto / Stop Switch: This switch will engage the motor circuitry and disengage the motor circuitry. This is a momentary switch for latching purposes so that two separate switches can serve the same function. See Front Control Panel for the other location of this switch.

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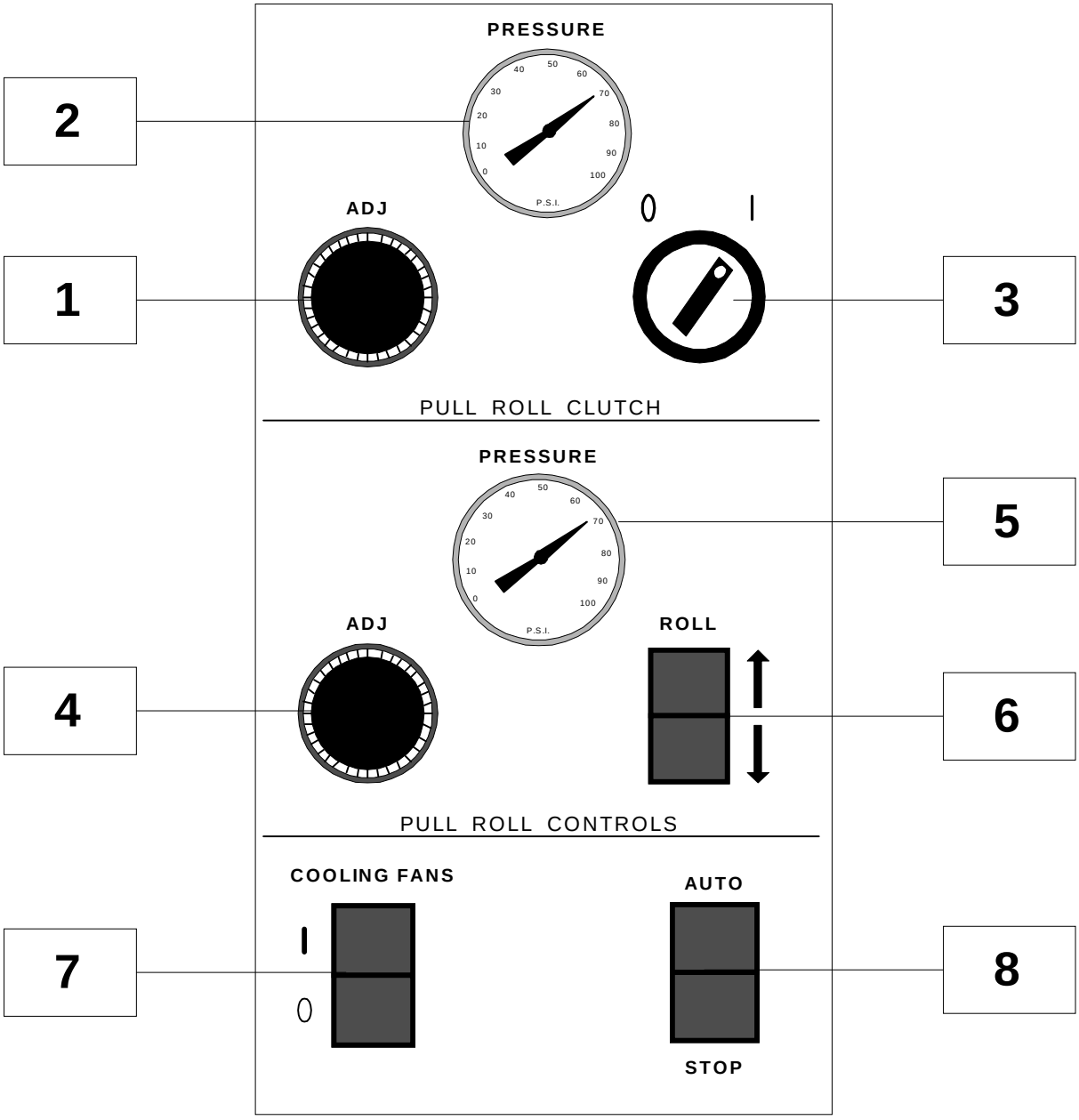
Figure 5.3.1 Rear control panel



5.4 Setting temperature

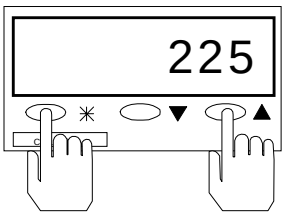
To increase or decrease temperature settings, perform the following steps.

Increase;

INFORMATION

When requiring top and bottom heat, it is recommended to set both temperatures to the same set point.

a) Press and hold the asterisk key while pressing the up key until the desired set point is displayed on the temperature control unit.



INFORMATION

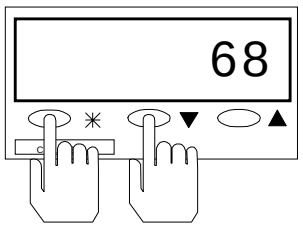
The maximum set point temperature is 270 ºF (132 ºC).

b) Once the desired set point is displayed, release both buttons.

c) Decrease main roller pressure, lower the upper main roller, set a slow speed and press **AUTO** to allow the rollers to roll for an even heating surface.

Decrease;

a) Press and hold the asterisk key while pressing the down key until the desired set point is displayed on the temperature control unit.



INFORMATION

The minimum set point temperature is 32 ºF (0 ºC).

b) Once the desired set point is displayed, release both buttons.

c) Decrease main roller pressure, lower the upper main roller, set a slow speed and press **AUTO** to allow the rollers to cool evenly.

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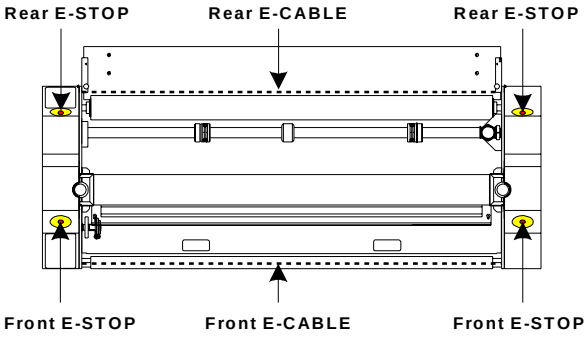
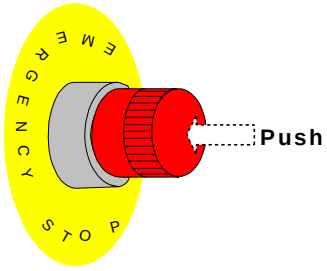
5.5 In case of an emergency

Four E-STOP buttons, two located on the left and right side from the front operating position and two located on the left and right side from the rear operating position. In the event you are unable to reach an **E-STOP**, a front and rear **E-CABLE** is installed for your safety.



a) Press in on any one of the four **E-STOP** buttons or press using your foot on either **E-CABLE** in the event of an emergency situation.

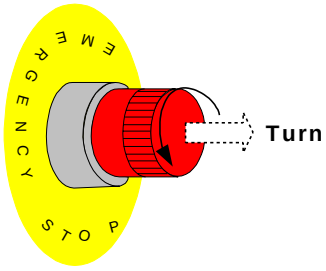


INFORMATION

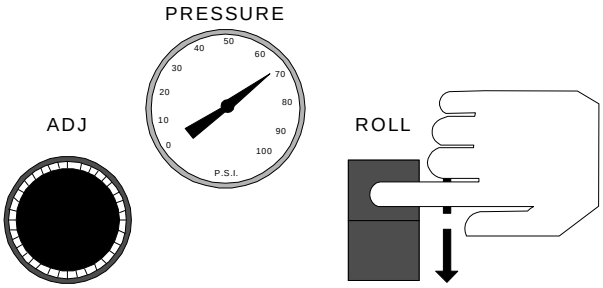
When a safety feature is engaged, the upper rollers raise and power to the drive motor is removed.

b) Resolve the emergency situation.

c) If an **E-STOP** was depressed, turn the knob counter clockwise to disengage the **E-STOP** button. If an **E-CABLE** was pressed, continue with next step.



d) On the front control panel, press the main roller UP/ DOWN switch to the **UP** position.



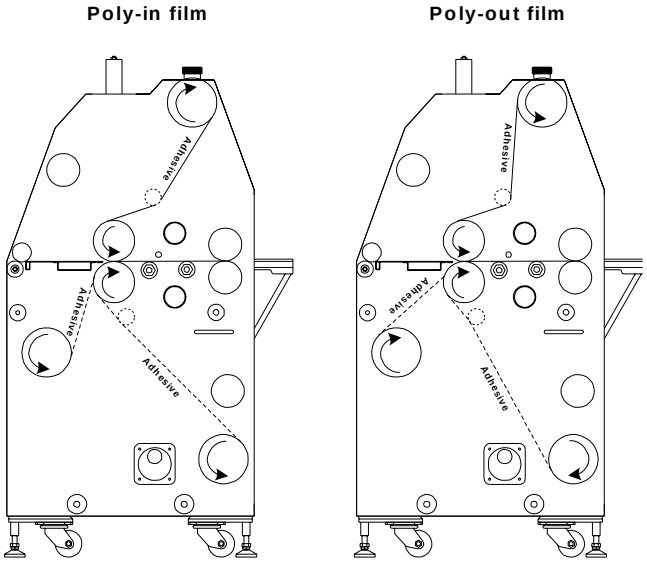
INFORMATION

The upper main roller UP/ DOWN switch resets the main roller to the correct position.

d) Resume running the laminator.

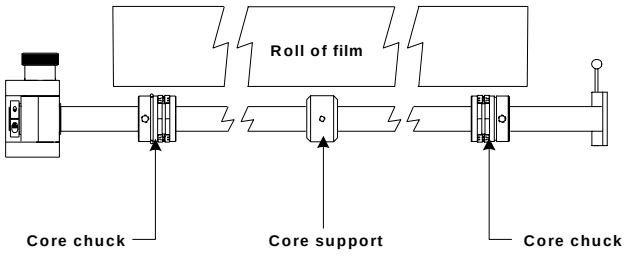
5.6 Film loading/ unloading

The Orca 1600 utilizes a swing out unwind arm for simple loading and unloading of film. Always pay particular attention to which side of the laminate is the adhesive side and which side is the laminate side. The adhesive side should always face away from the face of the rollers.

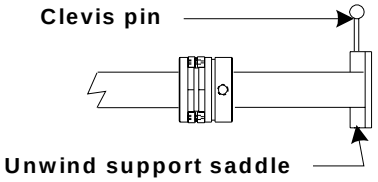


Load a roll of film

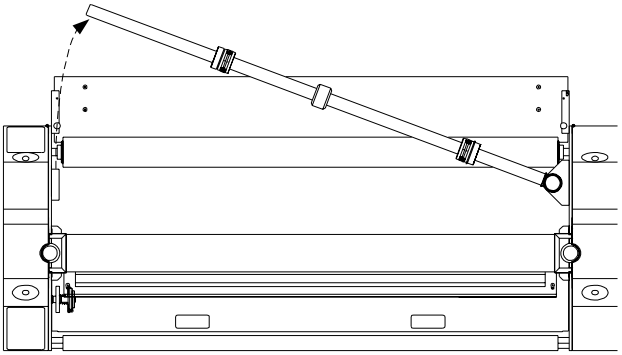
a) Adjust the core chucks to fit within the roll of film being used. The roll of film should be approximately center of the main rollers. The core chucks should be close to the edge of the roll of film.



b) Pull up on the clevis pin to the unwind support saddle you are about to load a roll of film to.



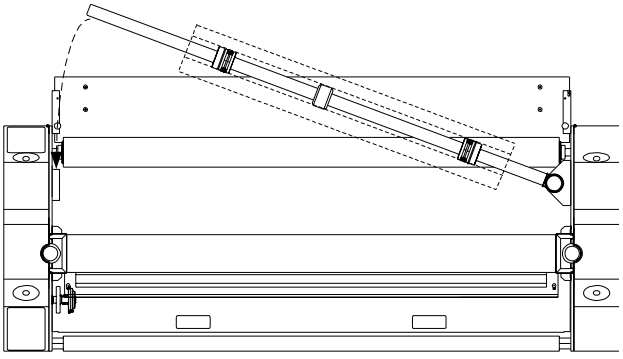
c) Swing the unwind arm out away from the machine.



(Upper unwind shaft shown for illustration purposes)

d) With respect to the adhesive side of the roll, slide the roll of film onto the unwind arm.

e) Swing unwind arm back into the unwind arm support saddle and push the clevis pin down.



(Upper unwind shaft shown for illustration purposes)

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Unloading a roll of film

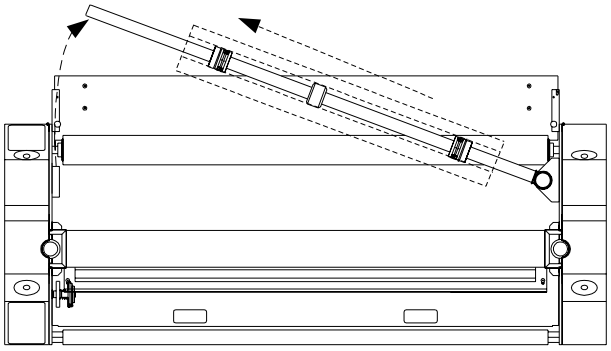
a) Cut the laminate from the web.

CAUTION

Do not use an open blade to cut the web near the rollers. You can put cuts into the rollers!

b) Pull up on the clevis pin.

c) Swing the unwind shaft out away from the laminator.



(Upper unwind shaft shown for illustration purposes)

d) With a little twist on the roll of film, pull the roll off of the unwind arm.

e) If finished, swing the unwind arm back into its unwind support saddle and push the clevis pin down. If not, follow the **Load a roll of film** procedure again from step **d).**

5.7 Main roller nip

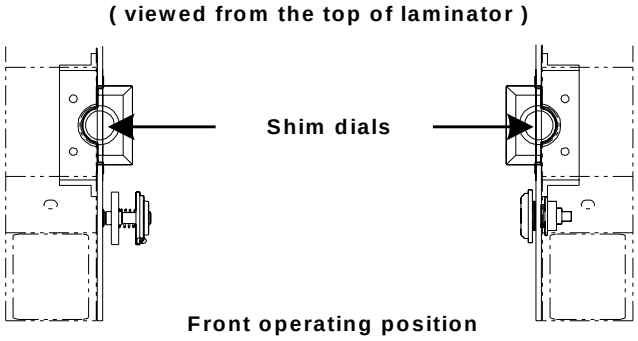
To set the main roller nip for use with substrates can easily be obtained by setting the shim dials on the main roller to the desired opening.

a) Ensure the upper main roller is in the up position.

INFORMATION

The nip can only be changed with the upper roller in the up position.

b) Turn the shim dial to the desired setting.



c) Adjust main roller pressure for the desired setting with respect to the substrate being used.

d) Press the main roller UP/ DOWN switch to **DOWN**.

5.8 Pull roller nip

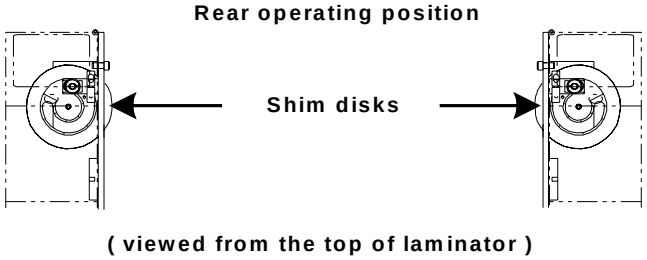
To set the pull roller nip for use with substrates can easily be obtained by setting the shim dials on the pull roller to the desired opening.

a) Ensure the upper pull roller is in the up position.

INFORMATION

The nip can only be changed with the upper roller in the up position.

b) Turn the shim dial to the desired setting.



c) Adjust pull roller pressure for the desired setting with respect to the substrate being used.

d) Press the pull roller UP/ DOWN switch to **DOWN** on the rear control panel.

5.9 Shutdown procedure

Perform the steps below to properly shutdown your machine.

a) Unweb the laminator and clean the rollers as described in **Section 8.2 Cleaning the rollers.**

b) Set the left and right shim dials of the main roller to greater than 1/2 inch (1.27 cm).

INFORMATION

This will prevent the main rollers from contacting if the air should be removed.

c) Set the pull roller shim disk to 1/2 inch.

INFORMATION

This will prevent the pull rollers from contacting if the air should be removed.

d) Turn the power ON/ OFF switch on the laminator to **OFF**.

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6.0 Applications

The Orca 1600 can accommodate Poly-in or Poly-out films. Poly-out means the adhesive is on the outside of the roll.

The shiny side of clear film must contact the main rollers with the dull sides (adhesive side) facing out. Use caution when loading matte or delustered film since both sides appear dull.

The top and bottom rolls of laminating film must be of the same width and be present simultaneously. If performing a single sided lamination process, a craft paper carrier or a substrate of the same width must be used in place of the bottom laminate.

WARNING

Do not wear ties, loose fit 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.

The process control charts and web diagrams illustrated in this section are reference points only. Parameters will vary with regards to laminate thickness, laminate widths, laminate types, print types, ink or toner types, paper types, environment conditions and operator experience.

6.1 Temperature chart

The temperature chart is only a starting point for general types of laminates. For optimal output quality, you may have to adjust up or down from the suggested temperature.

INFORMATION

For optimal temperature settings of various laminates, contact your supplier or sales representative.

Hot laminates		
mil	**Temperature**	**Speed** bond paper, E-stat, ink jet
3 mil	215 - 220 °F (102 - 104 °C)	3 - 7 fpm
5 mil	220 - 225 °F (104 - 107 °C)	3 - 5 fpm
6 mil	225 - 235 °F (107 - 113 °C)	3 - 5 fpm
10 mil	235 - 245 °F (113 - 118 °C)	3 - 5 fpm

INFORMATION

General rule: Smaller prints require more speed or less temperature. Larger prints require less speed or more temperature.

6.2 Helpful hints

Pressure sensitive materials

In most cases, a little heat (120 °F / 49 °C) helps the adhesive in pressure sensitive films flow smoothly to prevent what we call "silvering" in the laminate.

The release liner on pressure sensitive films should separate just above the main roller.

INFORMATION

Use film brake tension to control the separation point of the release liner.

Thermal films materials

Clutch pressure may have to be adjusted to obtain a quality output. Some thermal films require cooling to assist with the control of the expansion and contraction of the laminate or image.

INFORMATION

Speeds and temperatures will affect the bond strength of thermal adhesives.

INFORMATION

Not all papers and inks are compatible with thermal films. Test the combinations first.

Mounting

Mounting on the Orca 1600 can be achieved from the front operating position using the main rollers or from the rear operating position using the pull rollers. Heat can also assist with mounting, it follows the same hints as pressure sensitive materials.

INFORMATION

The mount adhesive must not exceed 1 in. the width of the substrate. If it does, you will experience complications with this application.

Pressure

Most lamination is performed with 80 psi of pressure on the main rollers, 80 psi on the pull rollers and 80 psi on the clutch. Once again, there are variables that may require some adjustments of the above mentioned pressures.

Typically the thicker the paper, the more pressure required and for thinner paper (tissue paper/ light bond paper) you can use less pressure (as little as 55 psi) on the main roller.

When it comes to mounting, the one general "rule" is to not crush the substrate. Most substrates only require about 20-50 psi of pressure, but variables can effect how much pressure is actually needed. (width, thickness, density, etc.)

INFORMATION

Excessive pressure will cause the substrate to bow or flatten.

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Brake tension

Brake tension should always be minimal. Brake tension should always be even from the top roll of film to the lower roll of film. Never use excessive amount of brake tension.

INFORMATION

Excessive brake tension may cause the image to curl. Always use the minimum amount of brake for the job.

General

CAUTION

Excess pressure can damage the laminating rollers. Always use the minimum roll pressure necessary to complete the task.

INFORMATION

Never stop the laminator when an image is within the nip of either set of rollers.

INFORMATION

Laminates and papers should always be stored in a controlled enviroment.

6.3 Temp conversion chart

A temperature conversion chart has been included for your convenience. Use **Figure 6.3.1 Temperature conversion chart** on page 6-4 for converting temperatures from **ºF** to **ºC** and vice a versa.

Figure 6.3.1 Temperature conversion chart

° F		° C	° F		° C	° F		° C	° F		° C	° F		° C
68	=	20	113	=	45	158	=	70	203	=	95	248	=	120
69	=	20.6	114	=	45.6	159	=	70.6	204	=	95.6	249	=	120.6
70	=	21.1	115	=	46.1	160	=	71.1	205	=	96.1	250	=	121.1
71	=	21.7	116	=	46.7	161	=	71.7	206	=	96.7	251	=	121.7
72	=	22.2	117	=	47.2	162	=	72.2	207	=	97.2	252	=	122.2
73	=	22.7	118	=	47.8	163	=	72.8	208	=	97.8	253	=	122.8
74	=	23.3	119	=	48.3	164	=	73.3	209	=	98.3	254	=	123.3
75	=	23.9	120	=	48.9	165	=	73.9	210	=	98.9	255	=	123.9
76	=	24.4	121	=	49.4	166	=	74.4	211	=	99.4	256	=	124.4
77	=	25	122	=	50	167	=	75	212	=	100	257	=	125
78	=	25.6	123	=	50.6	168	=	75.6	213	=	100.6	258	=	125.6
79	=	26.1	124	=	51.1	169	=	76.1	214	=	101.1	259	=	126.1
80	=	26.7	125	=	51.7	170	=	76.7	215	=	101.7	260	=	126.7
81	=	27.2	126	=	52.2	171	=	77.2	216	=	102.2	261	=	127.2
82	=	27.8	127	=	52.8	172	=	77.8	217	=	102.8	262	=	127.8
83	=	28.3	128	=	53.3	173	=	78.3	218	=	103.3	263	=	128.3
84	=	28.9	129	=	53.9	174	=	78.9	219	=	103.9	264	=	128.9
85	=	29.4	130	=	54.4	175	=	79.4	220	=	104.4	265	=	129.4
86	=	30	131	=	55	176	=	80	221	=	105	266	=	130
87	=	30.6	132	=	55.6	177	=	80.6	222	=	105.6	267	=	130.6
88	=	31.1	133	=	56.1	178	=	81.1	223	=	106.1	268	=	131.1
89	=	31.7	134	=	56.7	179	=	81.7	224	=	106.7	269	=	131.7
90	=	32.2	135	=	57.2	180	=	82.2	225	=	107.2	270	=	132.2
91	=	32.8	136	=	57.8	181	=	82.8	226	=	107.8	271	=	132.8
92	=	33.3	137	=	58.3	182	=	83.3	227	=	108.3	272	=	133.3
93	=	33.9	138	=	58.9	183	=	83.9	228	=	108.9	273	=	133.9
94	=	34.4	139	=	59.4	184	=	84.4	229	=	109.4	274	=	134.4
95	=	35	140	=	60	185	=	85	230	=	110	275	=	135
96	=	35.6	141	=	60.6	186	=	85.6	231	=	110.6	276	=	135.6
97	=	36.1	142	=	61.1	187	=	86.1	232	=	111.1	277	=	136.1
98	=	36.7	143	=	61.7	188	=	86.7	233	=	111.7	278	=	136.7
99	=	37.2	144	=	62.2	189	=	87.2	234	=	112.2	279	=	137.2
100	=	37.8	145	=	62.8	190	=	87.8	235	=	112.8	280	=	137.8
101	=	38.3	146	=	63.3	191	=	88.3	236	=	113.3	281	=	138.3
102	=	38.9	147	=	63.9	192	=	88.9	237	=	113.9	282	=	138.9
103	=	39.4	148	=	64.4	193	=	89.4	238	=	114.4	283	=	139.4
104	=	40	149	=	65	194	=	90	239	=	115	284	=	140
105	=	40.6	150	=	65.6	195	=	90.6	240	=	115.6	285	=	140.6
106	=	41.1	151	=	66.1	196	=	91.1	241	=	116.1	286	=	141.1
107	=	41.7	152	=	66.7	197	=	91.7	242	=	116.7	287	=	141.7
108	=	42.2	153	=	67.2	198	=	92.2	243	=	117.2	288	=	142.2
109	=	42.8	154	=	67.8	199	=	92.8	244	=	117.8	289	=	142.8
110	=	43.3	155	=	68.3	200	=	93.3	245	=	118.3	290	=	143.3
111	=	43.9	156	=	68.9	201	=	93.9	246	=	118.9		=	
112	=	44.4	157	=	69.4	202	=	94.4	247	=	119.4		=	

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6.4 Charts and diagrams

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 1600 as well as completed charts for the basic operations of the laminator. The process control charts should be kept in this manual or in a book close to the laminator.

The Orca 1600 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 completed process control charts included in this section are based on GBC films, GBC boards and typical prints. Charts and diagrams start on page 6-5.

Chart - 0

PROCESS CONTROL CHART
Orca 1600 Laminator

MATERIALS MENU	
Process:	
Top material:	Bottom material:
Other material(s):	

FRONT CONTROL PANEL SETTINGS	
Speed (ft/ min):	Roller direction: ☐ FWD ☐ REV
Main roller position: ☐ UP ☐ DOWN	Main roller shim:
Main roller pressure:	
Top heater power: ☐ ON ☐ OFF	Bottom heater power: ☐ ON ☐ OFF
Top heater temperature:	Bottom heater temperature:

REAR CONTROL PANEL SETTINGS	
Pull roller clutch: ☐ ON ☐ OFF	Pull roller position: ☐ UP ☐ DOWN
Pull roller clutch pressure:	Pull roller pressure:
Pull roller shim:	Cooling fans: ☐ ON ☐ OFF

SPECIAL INSTRUCTIONS
Comments: _____
_____
_____
_____
_____

RELATED DIAGRAM
Reference diagram: Diagram -

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Diagram - 0

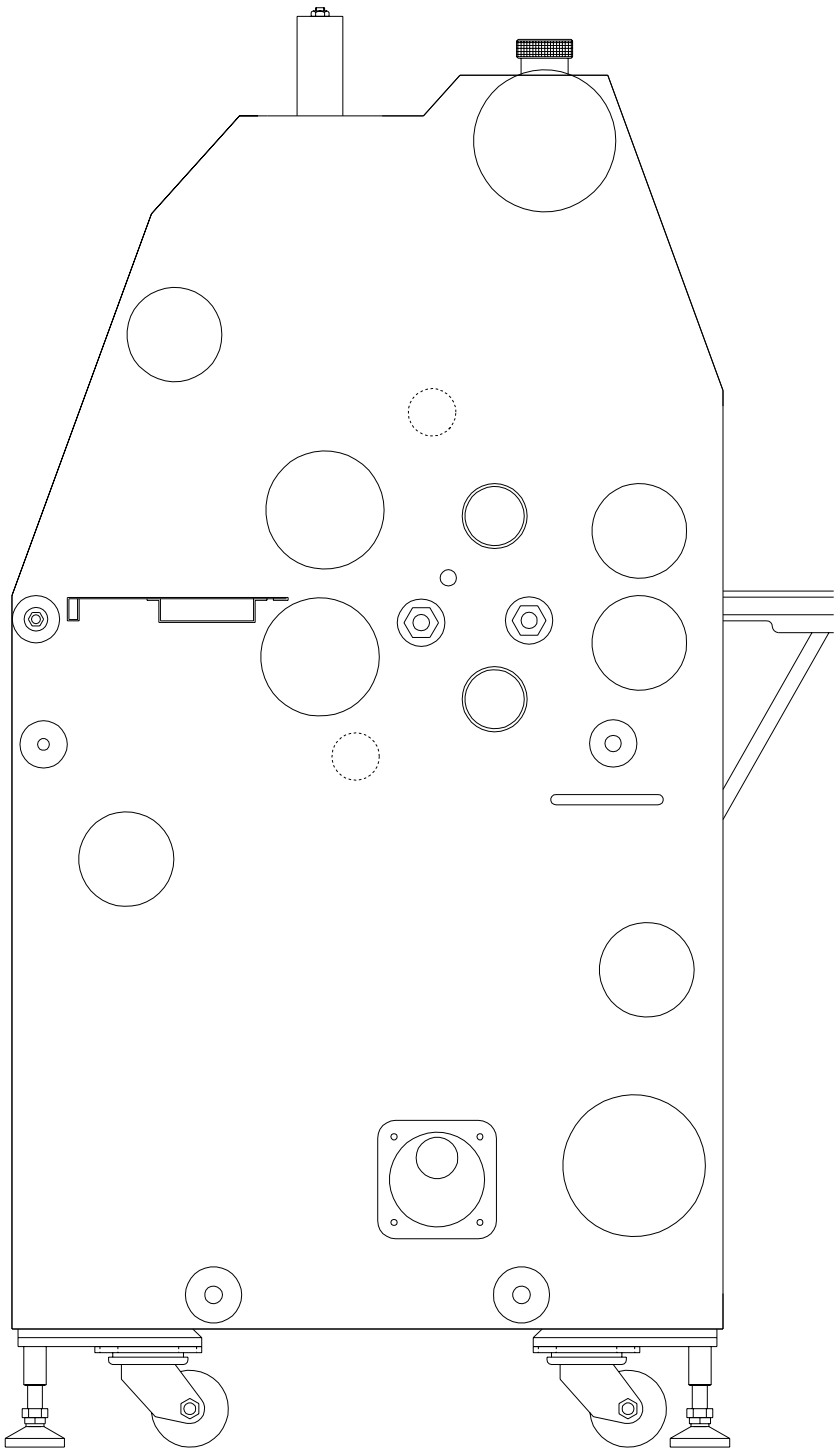

Chart - 1

PROCESS CONTROL CHART - 1
Orca 1600 Laminator

MATERIALS MENU	
Process: 1 Pass mounting	
Top material:	Bottom material:
Other material(s): Substrate, thermal mount adhesive and release liner or craft paper	

FRONT CONTROL PANEL SETTINGS	
Speed (ft/ min): 3 (90 cm/ min)	Roller direction: ☒ FWD ☐ REV
Main roller position: ☐ UP ☒ DOWN	Main roller shim: Substrate thickness
Main roller pressure: 20 - 40 psi	
Top heater power: ☒ ON ☐ OFF	Bottom heater power: ☒ ON ☐ OFF
Top heater temperature: 230-240 °F (110-115 °C)	Bottom heater temperature: 32 °F (0 °C)

REAR CONTROL PANEL SETTINGS	
Pull roller clutch: ☐ ON ☐ OFF	Pull roller position: ☒ UP ☐ DOWN
Pull roller clutch pressure: N/A	Pull roller pressure: N/A
Pull roller shim: N/A	Cooling fans: ☐ ON ☒ OFF

SPECIAL INSTRUCTIONS
Comments: If you are using a heat sensitive print, position the release liner over the image to prevent the ink from blistering or staining the rollers. Speed and temperature are critical factors in this process since the heat must penetrate through the release liner (if being used), through the print, heat up the thermal mount adhesive enough to bond with the substrate. All hints for mounting and thermal apply.

RELATED DIAGRAM
Reference diagram: Diagram - 1

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Diagram - 1

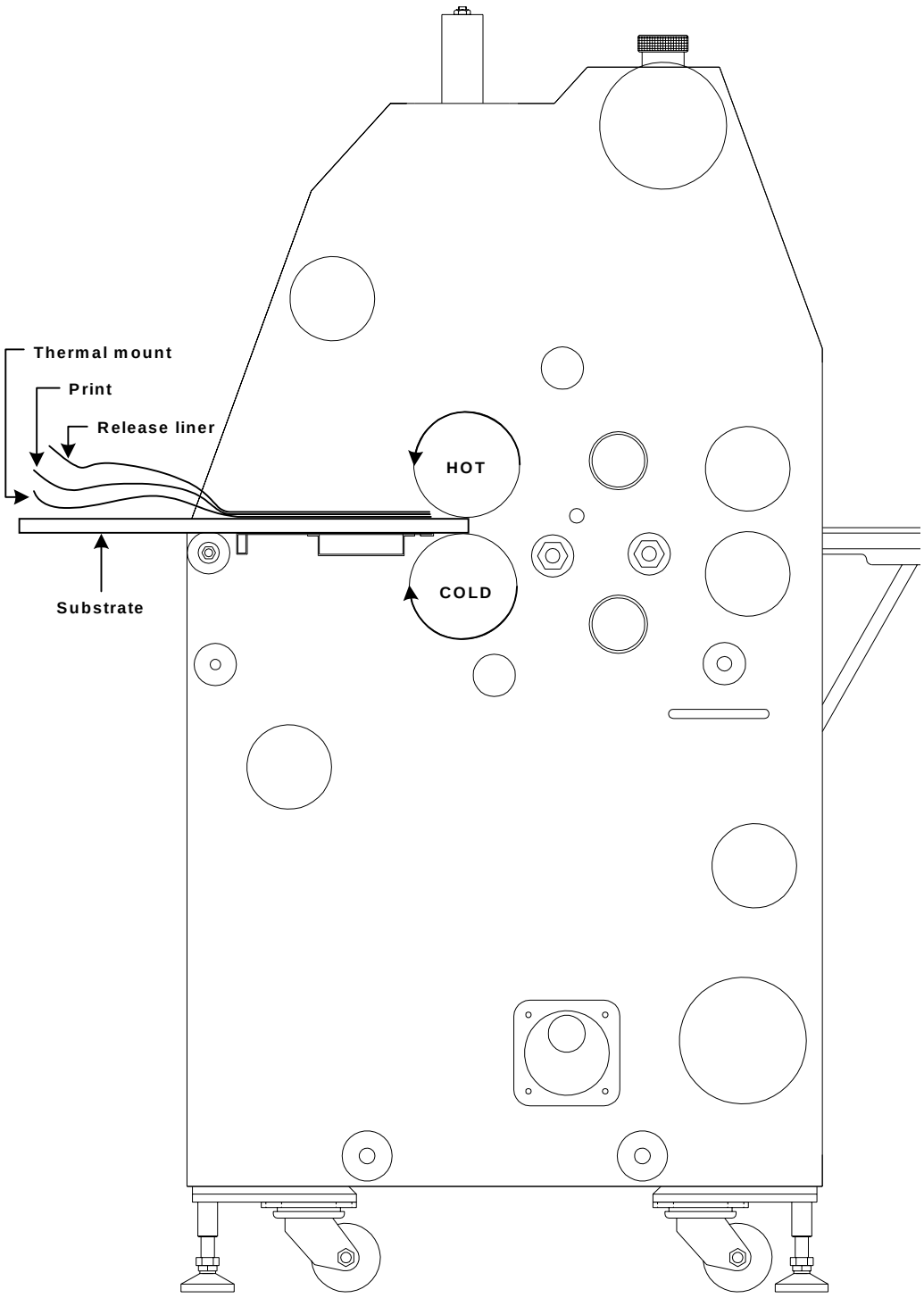

Chart - 2

PROCESS CONTROL CHART - 2
Orca 1600 Laminator

MATERIALS MENU	
Process: PSA Decaling	
Top material: PSA laminate	Bottom material: PSA mount adhesive
Other material(s): Prints	

FRONT CONTROL PANEL SETTINGS	
Speed (ft/ min): 3 - 5 (90 - 152 cm/ min)	Roller direction: ☒ FWD ☐ REV
Main roller position: ☐ UP ☒ DOWN	Main roller shim: 0 nip
Main roller pressure: 80 psi	
Top heater power: ☒ ON ☐ OFF	Bottom heater power: ☒ ON ☐ OFF
Top heater temperature: 120 °F (49 °C)	Bottom heater temperature: 32 °F (0 °C)

REAR CONTROL PANEL SETTINGS	
Pull roller clutch: ☒ ON ☐ OFF	Pull roller position: ☐ UP ☒ DOWN
Pull roller clutch pressure: 80 psi	Pull roller pressure: 80 psi
Pull roller shim: 0 nip	Cooling fans: ☐ ON ☒ OFF

SPECIAL INSTRUCTIONS
Comments: Even though it is PSA film, heat will assist the bonding and flow of adhesive on the print. Speed will vary with the operators comfort ability to feed the prints into the laminator. If the output is curling, adjust the brake tension on the roll of film or mount adhesive but watch the release liner separation point so that it remains just above the top main roller. Adjust pressures as necessary for quality output.

RELATED DIAGRAM
Reference diagram: Diagram - 2

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Diagram - 2

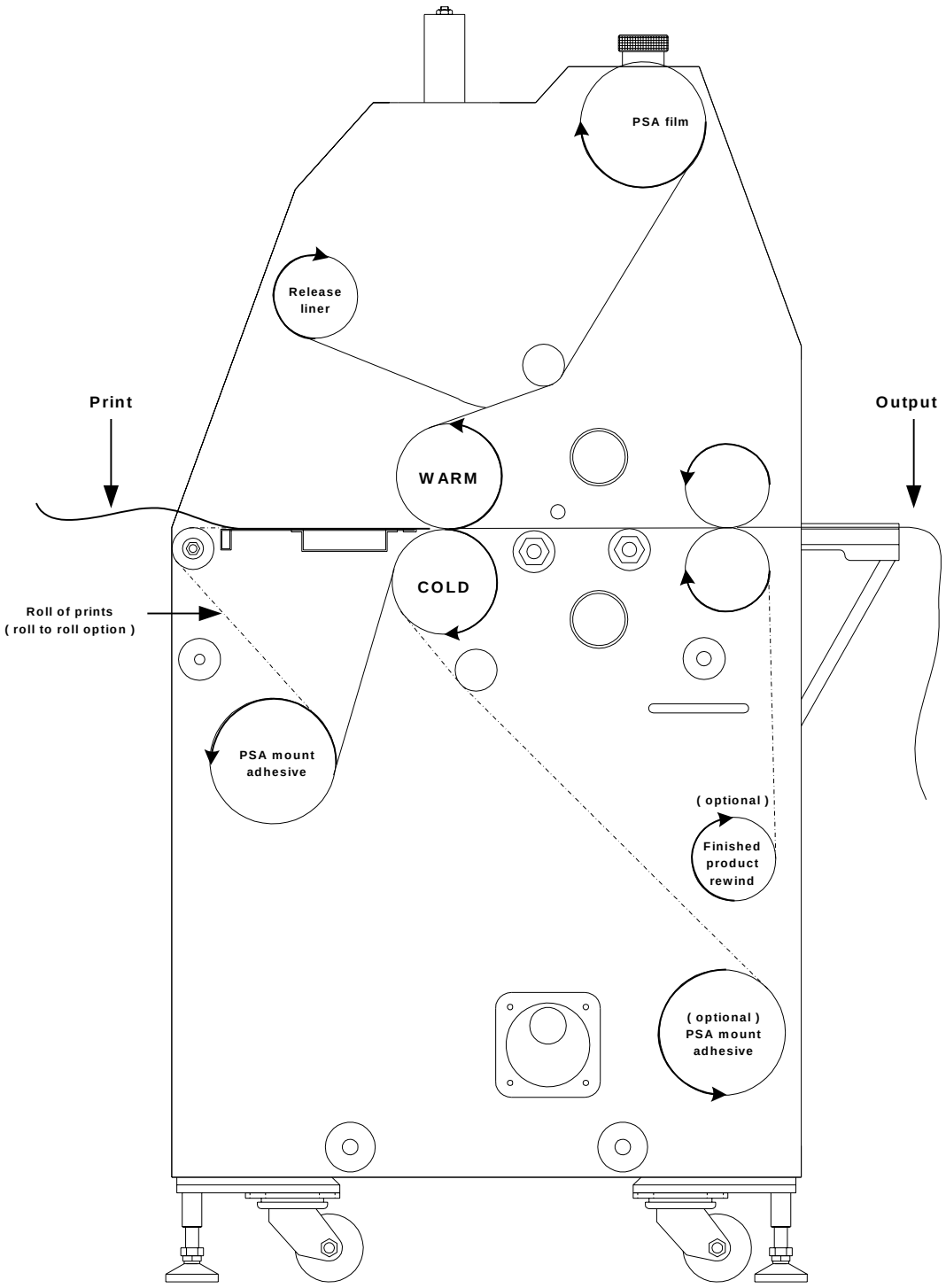
PSA film
Release liner
Print
Output
WARM
COLD
Roll of prints
(roll to roll option)
PSA mount adhesive
(optional)
Finished product rewind
(optional)
PSA mount adhesive

Chart - 3

PROCESS CONTROL CHART - 3
Orca 1600 Laminator

MATERIALS MENU	
Process: Mounting a PSA decal	
Top material:	Bottom material:
Other material(s): Substrate, thermal mount adhesive and release liner or craft paper	

FRONT CONTROL PANEL SETTINGS	
Speed (ft/ min): 3 (90 cm/ min)	Roller direction: ☒ FWD ☐ REV
Main roller position: ☐ UP ☒ DOWN	Main roller shim: Substrate thickness
Main roller pressure: 20 - 40 psi	
Top heater power: ☒ ON ☐ OFF	Bottom heater power: ☒ ON ☐ OFF
Top heater temperature: 120 °F (49 °C)	Bottom heater temperature: 32 °F (0 °C)

REAR CONTROL PANEL SETTINGS	
Pull roller clutch: ☐ ON ☐ OFF	Pull roller position: ☒ UP ☐ DOWN
Pull roller clutch pressure: N/A	Pull roller pressure: N/A
Pull roller shim: N/A	Cooling fans: ☐ ON ☒ OFF

SPECIAL INSTRUCTIONS
Comments: Using a little heat will assist the adhesive flow of the decal which in turn will help the bonding strength. Be sure to keep the decal nicely wrapped around the upper main roller as the decal is fed through the main roller nip. Remember, do not stop the laminator while the print is traveling through the nip. All hints for mounting and thermal apply.

RELATED DIAGRAM
Reference diagram: Diagram - 3

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Diagram - 3

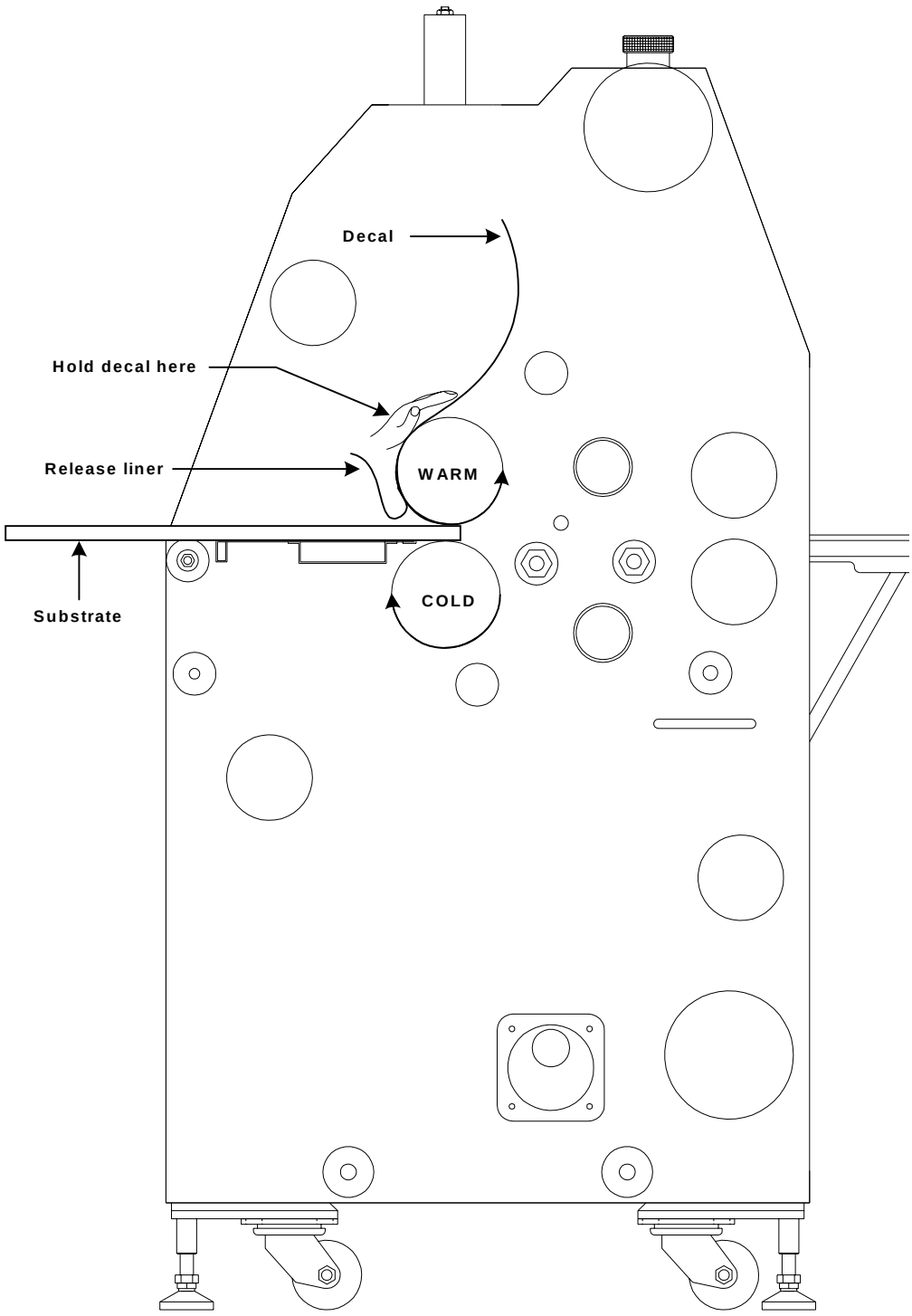

Chart - 4

PROCESS CONTROL CHART - 4
Orca 1600 Laminator

MATERIALS MENU	
Process: Thermal Decaling	
Top material: 3 mil thermal laminate	Bottom material: PSA mount adhesive
Other material(s): Prints	

FRONT CONTROL PANEL SETTINGS	
Speed (ft/ min): 3 - 5 (90 - 152 cm/ min)	Roller direction: ☒ FWD ☐ REV
Main roller position: ☐ UP ☒ DOWN	Main roller shim: 0 nip
Main roller pressure: 80 psi	
Top heater power: ☒ ON ☐ OFF	Bottom heater power: ☒ ON ☐ OFF
Top heater temperature: 220-225 °F (105-107 °C)	Bottom heater temperature: 32 °F (0 °C)

REAR CONTROL PANEL SETTINGS	
Pull roller clutch: ☒ ON ☐ OFF	Pull roller position: ☐ UP ☒ DOWN
Pull roller clutch pressure: 80 psi	Pull roller pressure: 80 psi
Pull roller shim: 0 nip	Cooling fans: ☒ ON ☐ OFF

SPECIAL INSTRUCTIONS
Comments: If using other than a 3 mil thermal film, use the Temperature chart from Section 6.1 . Speed will vary with the operators comfort ability to feed the prints into the laminator. If the output is curling, adjust the brake tension on the roll of film or mount adhesive. Adjust pressures as necessary to obtain a quality output. Cooling fans may help, if not run with cooling fans OFF.

RELATED DIAGRAM
Reference diagram: Diagram - 4

 © GBC Films Group February 2001

Diagram - 4

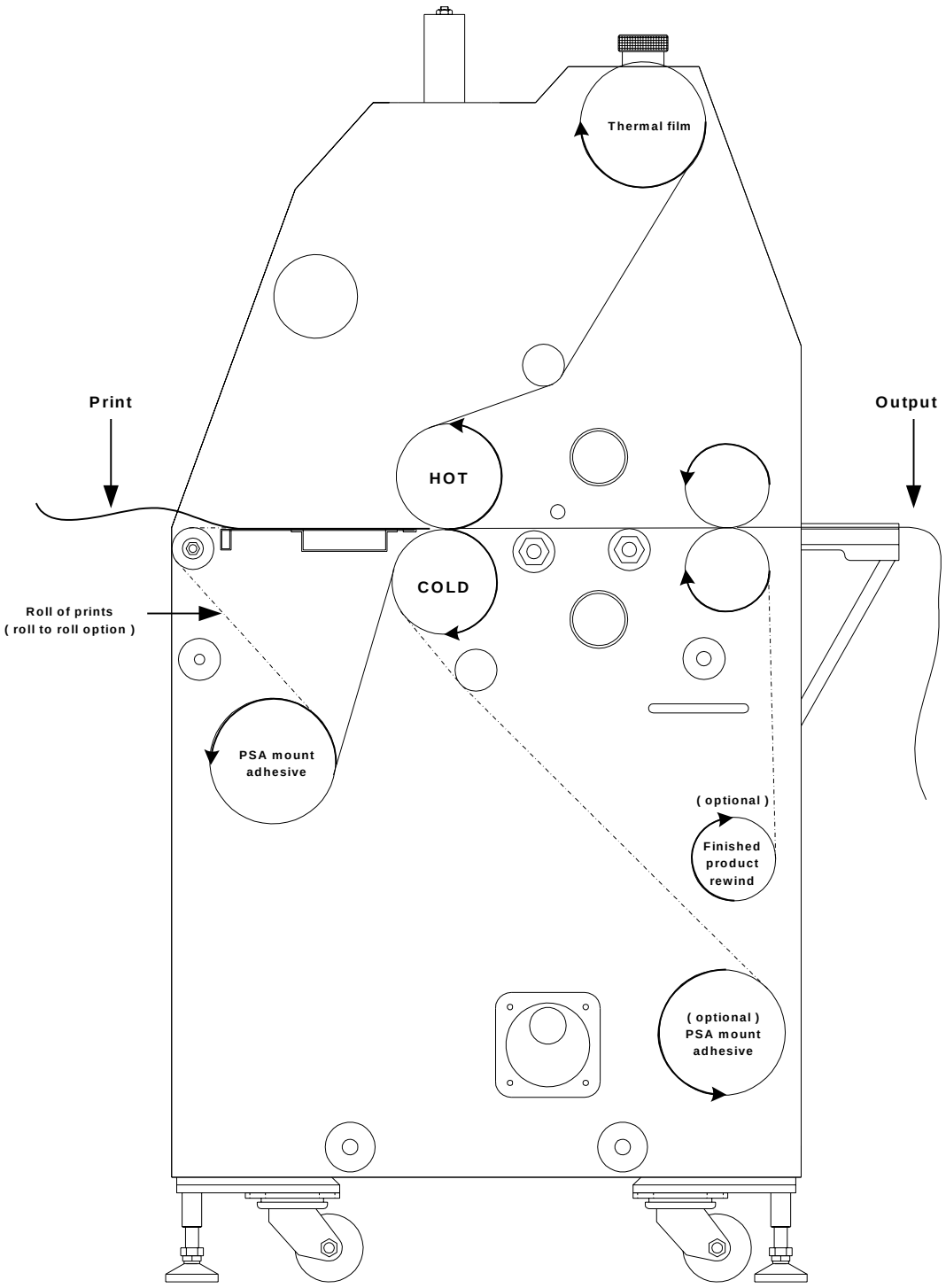
Thermal film
Print
Output
HOT
COLD
Roll of prints
(roll to roll option)
PSA mount
adhesive
(optional)
Finished
product
rewind
(optional)
PSA mount
adhesive

Chart - 5

PROCESS CONTROL CHART - 5
Orca 1600 Laminator

MATERIALS MENU	
Process: Mounting of a thermal decal (PSA decal will work for this process as well)	
Top material:	Bottom material:
Other material(s): Substrate, thermal decal or PSA decal	

FRONT CONTROL PANEL SETTINGS	
Speed (ft/ min): 3 - 5 (90 - 152 cm/ min)	Roller direction: ☐ FWD ☒ REV
Main roller position: ☒ UP ☐ DOWN	Main roller shim: N/A
Main roller pressure: N/A	
Top heater power: ☐ ON ☒ OFF	Bottom heater power: ☐ ON ☒ OFF
Top heater temperature: 32 °F (0 °C)	Bottom heater temperature: 32 °F (0 °C)

REAR CONTROL PANEL SETTINGS	
Pull roller clutch: ☒ ON ☐ OFF	Pull roller position: ☐ UP ☒ DOWN
Pull roller clutch pressure: 80 psi	Pull roller pressure: 20 - 40 psi
Pull roller shim: Thickness of substrate	Cooling fans: ☐ ON ☒ OFF

SPECIAL INSTRUCTIONS
Comments: This process is illustrated from the rear operating position because we are assuming the main rollers are too hot (<125 °F or <52 °C) for mounting purposes. Be sure to keep the decal nicely wrapped around the upper pull roller. Use comfortable operating speed. All hints for mounting apply.

RELATED DIAGRAM
Reference diagram: Diagram - 5

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Diagram - 5

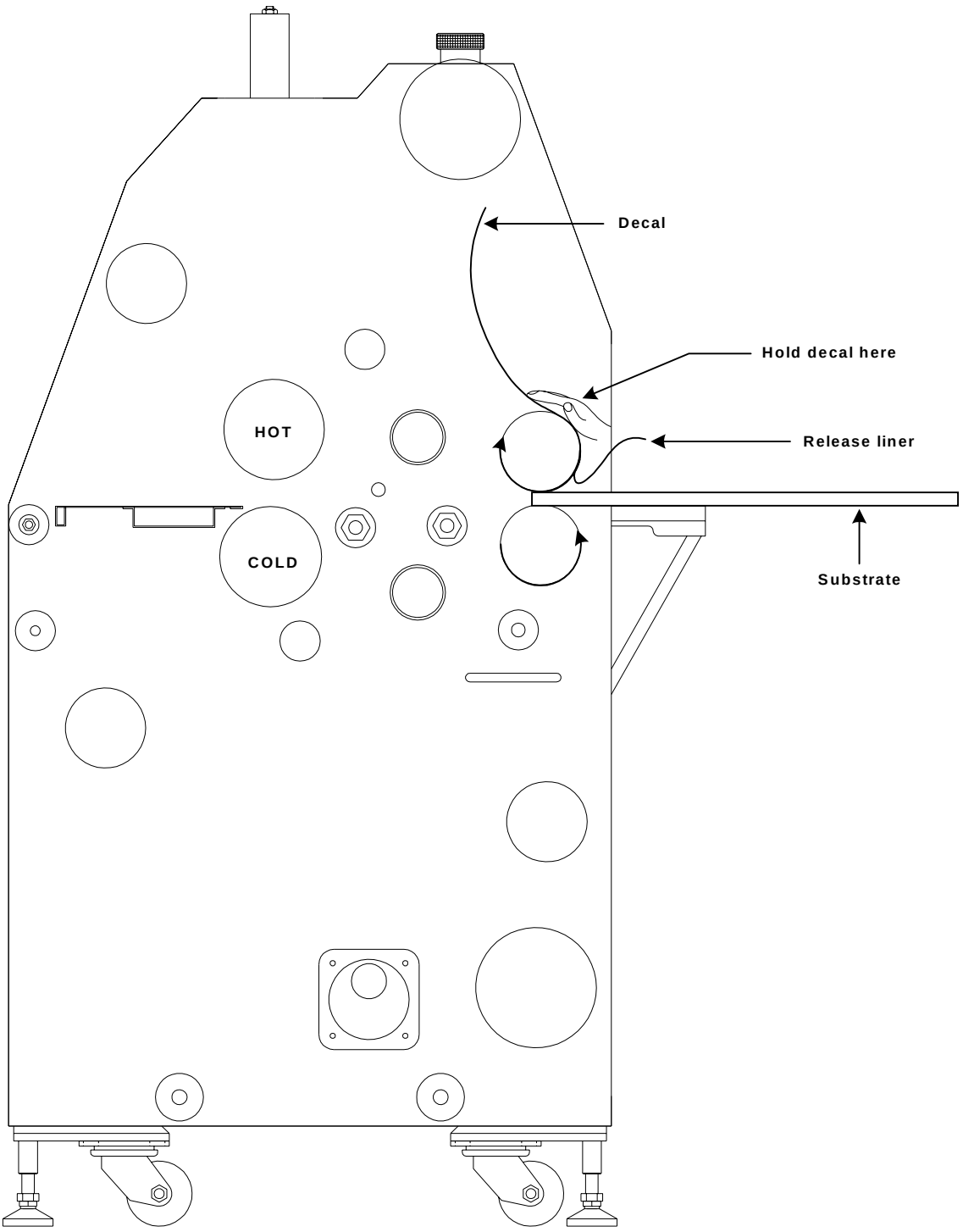

Chart - 6

PROCESS CONTROL CHART - 6
Orca 1600 Laminator

MATERIALS MENU	
Process: Thermal Encapsulation	
Top material: 3 mil thermal laminate	Bottom material: 3 mil thermal laminate
Other material(s): Prints	

FRONT CONTROL PANEL SETTINGS	
Speed (ft/ min): 3 - 5 (90 - 152 cm/ min)	Roller direction: ☒ FWD ☐ REV
Main roller position: ☐ UP ☒ DOWN	Main roller shim: 0 nip
Main roller pressure: 80 psi	
Top heater power: ☒ ON ☐ OFF	Bottom heater power: ☒ ON ☐ OFF
Top heater temperature: 220-225 °F (105-107 °C)	Bottom heater temperature: 220-225 °F (105-107 °C)

REAR CONTROL PANEL SETTINGS	
Pull roller clutch: ☒ ON ☐ OFF	Pull roller position: ☐ UP ☒ DOWN
Pull roller clutch pressure: 80 psi	Pull roller pressure: 80 psi
Pull roller shim: 0 nip	Cooling fans: ☒ ON ☐ OFF

SPECIAL INSTRUCTIONS
Comments: If using other than a 3 mil thermal film, use the Temperature chart from Section 6.1 . Speed will vary with the operators comfort ability to feed the prints into the laminator. If the output is curling, adjust the brake tension on the roll of film(s). Adjust pressures, speed and temperature as necessary to obtain a quality output. Cooling fans may help, if not, run with cooling fans OFF.

RELATED DIAGRAM
Reference diagram: Diagram - 6

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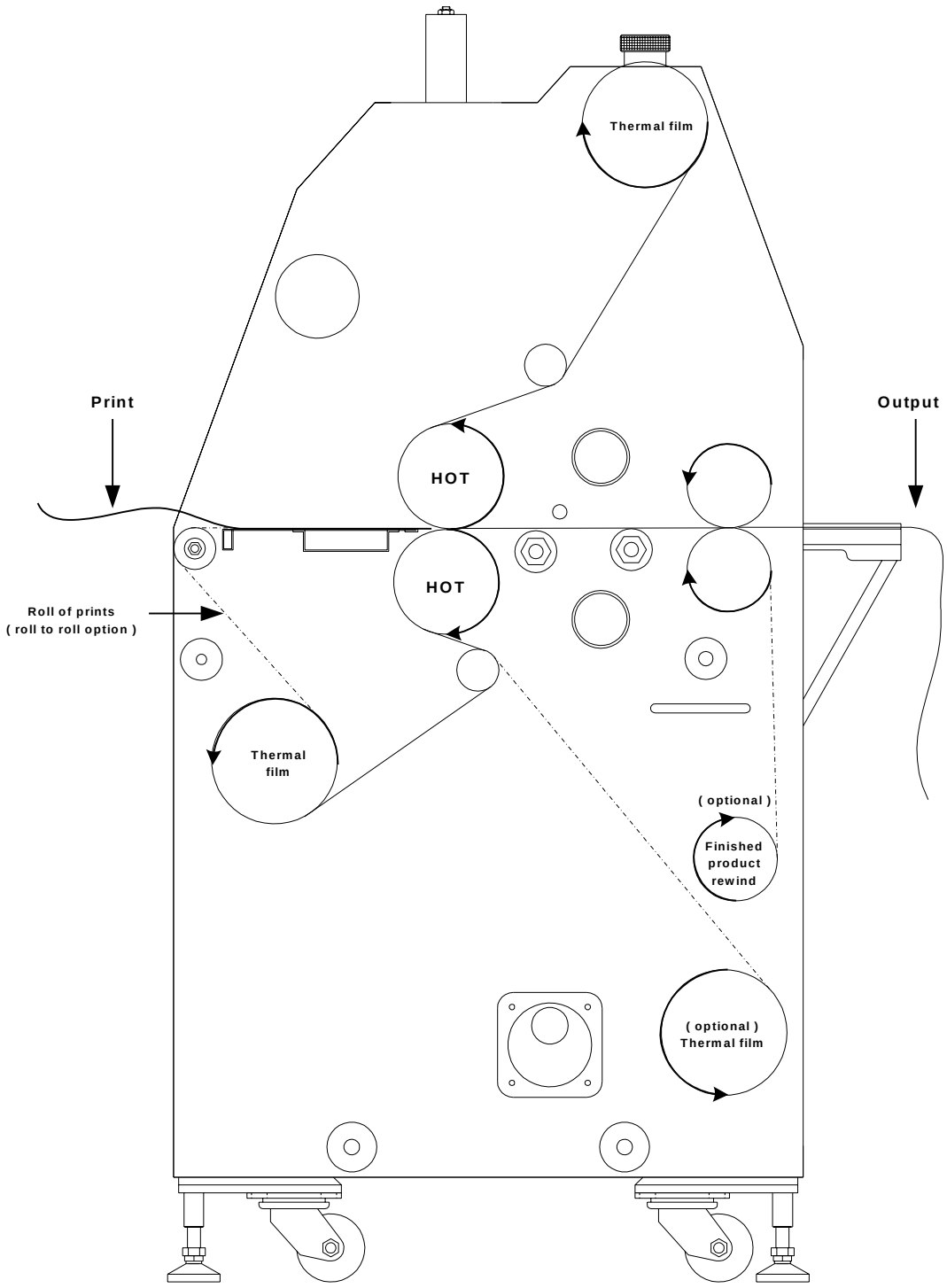
Diagram - 6


Thermal film
Print
Output
HOT
HOT
Roll of prints
(roll to roll option)
Thermal
film
(optional)
Finished
product
rewind
(optional)
Thermal film

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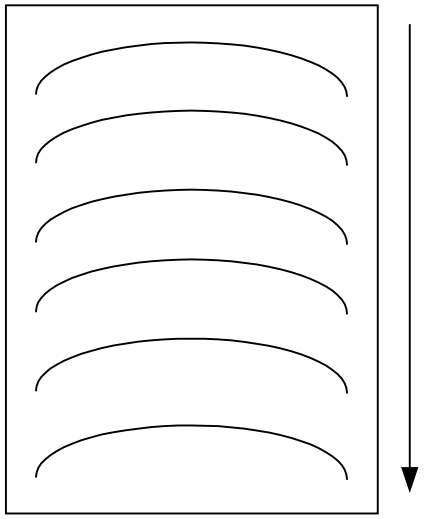
7.0 Troubleshooting

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.

As an operator, you can perform some simple troubleshooting in attempt to correct your typical output type problems. Use the easy to follow guide for assistance.

Problem: D waves in the image but not in the laminate



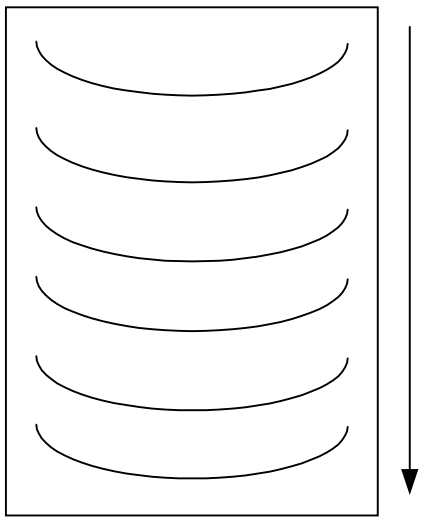
Hints: • Check paper tension
• Check relative moisture content of the paper

7.1 Wave problems

Problem: D Waves in the laminate

The following is a list of common output wave problems you may encounter.

The arrow along the length of the output represents the direction of feed (travel).

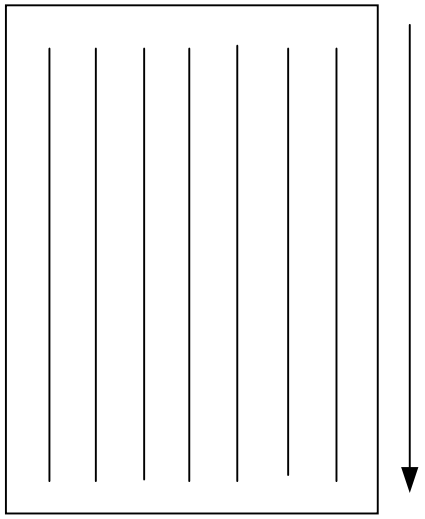


INFORMATION

For optimal temperature settings of various laminates, contact your supplier or sales representative.

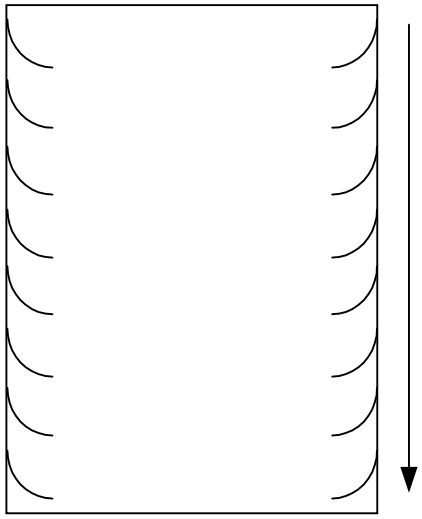
Hints: • Check the roller pressures
• Check the main roller nip settings
• Check the pull roller nip settings

Problem: Straight waves in the output



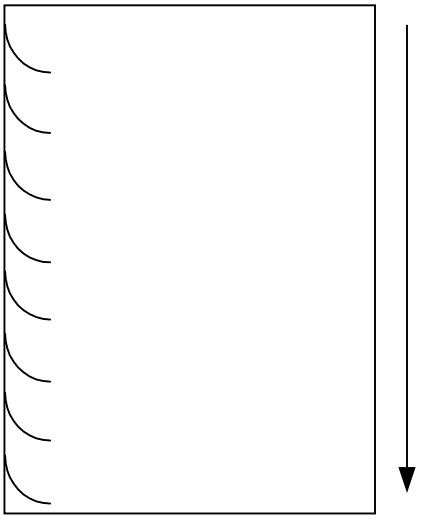
Hints:
- Check operational settings for materials being used.
- Check clutch pressure.

Problem: Angled waves in the output on both sides



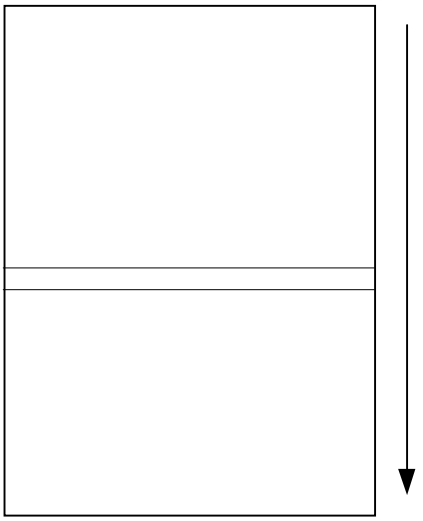
Hints:
- Check for insufficient main roller pressure
- Check for insufficient pull roller pressure
- Check the main roller nip settings
- Check the pull roller nip settings

Problem: Waves on only one side of the output



Hints:
- Check the nip setting of main rollers
- Check the nip setting of pull rollers
- Check for even paper tension

Problem: Indent waves in output after the pull rollers



Hints:
- Insufficient cooling time
- Allow output to cool before handling
- Check operating temperatures of material

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7.2 Film problems

The following is a list of common film problems you may encounter.

For definitions of terminologies, please refer to **7.4 Glossary of terminology**.

7.2.1 Thermal laminates

Problem: Blistering within the image

Hints: • Increase the speed
• Decrease the operating temperature
• Allow a longer drying time for the image

Problem: Coiling or curling of encapsulated images

Hints: • Balance the upper and the lower brake tension
• Make sure set point temperatures are the same
• Change the chill idler configuration (if applicable)

Problem: Silvering in the laminate

Hints: • Decrease the speed
• Increase the operating temperature

Problem: Delamination

Hints: • Check operating temperatures
• Check operating speed
• Laminate compatibility with ink
• Ink compatibility with paper

7.2.2 Pressure sensitive

Problem : Silvering in the laminate

Hints : • Add 100 - 120°F (37 - 49°C) to the temperature
• Increase pressure to laminating rollers

Problem : Tunneling in finished product

Hints : • Print should be wound image side out.
• Do not roll tightly
• Do not roll at all.

Problem : Image creases when mounting

Hints : • Press down on leading edge from center outwards.
• Be sure image is conformed to the roll
• Use a speed you are comfortable with
• Be sure even tension is supplied to the image

Problem: Delamination

Hints: • Check operating pressures
• Check operating speed
• Laminate compatibility with ink
• Ink compatibility with paper

Problem: Coiling or curling of output

Hints: • Balance the upper and the lower brake tension
• Change the chill idler configuration (if applicable)

7.3 Machine problems

Once the **Hints** are all checked, and your problem still exists, a service call must be placed for a qualified service personnel to fix the problem.

You may do this by dialing 1 (800) 790 - 7787. This will connect you with GBC National Service dispatch . You will be required to give the serial number of your machine when placing a service call.

A space below has been provided to keep this number readily available if and when needed.

My Orca 1600 Laminator serial # is :

At no time does GBC Films Group suggest or recommend that you attempt to fix the machine by opening the cabinets or covers yourself.

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.

Problem : No control panel functions

Hints : • Ensure an E-STOP has not been pushed down

• Reset the main roller UP/ DOWN switch.

• Confirm that the **MAIN POWER** is to the ON position.

• Be sure power is supplied to the laminator

Problem : I can only operate using the footswitch.

Hints : • Ensure nothing is blocking the PHOTO-EYE.

Problem : I press **AUTO** and the motor will not turn.

Hints : • Ensure nothing is blocking the PHOTO-EYE.

• Ensure an E-STOP has not been pushed down

• Ensure the FWD/ REV switch is not in the middle position.

Problem : Jerking, stuttering, or excessive noise from the laminator.

Hints : • Check for excessive brake tension

• Confirm that the rolls of laminate are on correctly.

• Place a service call.

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7.4 Glossary

The glossary can help you in understanding some of the terminology used when referring to the laminator, applications, or troubleshooting aspects of the machine.

Blistering

A condition where the paper coating is bubbled up from the image paper causing a “blister”. It is created by using excessive heat during the lamination process. Blistering is most commonly found with photographic and ink jet media.

Bond strength

Refers to one of three conditions; 1) the anchor strength of adhesive to laminate substrate, 2) the anchor strength of the laminating film to the product that has been laminated, or 3) when two layers of film are laminated together, the strength of the adhesive to adhesive bond.

Center mount

A mounting technique where an image is mounted centrally on a substrate to provide a decorative border.

Clutch tension

The tension that is applied to the laminated material between the main and pull rolls. This tension is applied by having the pull rolls turn faster than the main rolls, and then having some form of clutching or torque limiting applied to the pull rolls. This tension is important for maintaining a smooth flat finished image.

Coiling

A term used to describe an image rolling up on itself. This is caused by differences in the brake tension used between the upper and lower laminates during and application process.

Cold laminate

Film that does not require heat to activate the adhesive. Please see P.S.A. for more information.

D waves

A term used to describe a wave pattern caused, generally, by incorrect paper tension.

Delamination

Refers to either one of two conditions; 1) the adhesive separating from the laminate substrate, or 2) the laminate separating from the product being laminated.

Edgewrap

A mounting technique where the image wraps around the edges of the mounting substrate so as to provide a finished edge.

Encapsulation

When an image is completely encased in laminating film, it is encapsulated. A border of laminate on laminate exists around the perimeter of the product.

Film

A two part material consisting an adhesive layer and a substrate. The adhesive and the substrate may or may not be clear. This is the material used for lamination. Please refer to laminate.

Foamboard

A material commonly used as a mounting substrate. It is made up of foam sandwiched between two layers of paper, or paper like media.

Inkjet

A term used to describe a type of printing where an ink is projected topically onto a paper or paper like media. This is a noncontact form of printing.

Craft paper

A strong brown paper commonly used for single sided applications.

Laminate

A two part material consisting an adhesive layer and a substrate. The adhesive and the substrate may or may not be clear. This is the material used for lamination.

Main rollers

These are the rolls that perform the actual lamination. They are rolls capable of being heated in thermal roll laminators and are usually larger in diameter than the pull rolls.

Media

Term used to describe the materials used to print an image, i.e. the papers, inks, toners, etc.

Mount adhesive

A term used to describe a two sided pressure sensitive adhesive used in mounting images to various substrates. This material can come with one or two release liners and may be optically clear for face mounting applications.

Mount tissue

A thermally activated mount adhesive used in either a vacuum or roll type laminator. Primarily used for mounting bond type papers to porous substrates.

Nip

The interrelationship of any two rolls. The distance between the closest points of the two rolls is referred to as the nip of the rolls.

Outgassing

The term that describes the phenomenon where the heat from the laminating process turns components of the printed media into a gas. This is seen as a cloudy or murky finished image. It can also be caused by a chemical incompatibility between the overlaminate's adhesive and the printed media.

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Pull rollers

These rolls provide tension of the laminated media. Tensioning of the laminated media helps to make it flat and smooth. In most laminators they may also be used for cold mounting and laminating applications. Usually these rolls are of smaller diameter than the main rolls.

P.S.A.

Stands for **P**ressure **S**ensitive **A**dhesive. An adhesive that requires no heat to activate, only pressure. It is employed by removing a protective release liner and then pressed onto the material to be laminated. This type of film is commonly used on materials that are temperature sensitive.

Release liner

A coated paper or other media used to protect the adhesive side of a pressure sensitive material.

Rewind

A system that rolls up media. The rewind tubes used on the Orca 1600 laminator is a prime example.

Scarring

The visual effect of folding papers or laminates and breaking the surface. When done to a printed material it will be seen as a white crack in the image.

Second surface

A term to denote the back side of a substrate. Commonly referenced when discussing front mounted images to a clear substrate with an optically clear mount adhesive.

Silvering

A term used to describe one of two occurrences; 1) air bubbles trapped between the product and a thermal laminate, generally caused by insufficient heat being applied by the laminator or 2) the adhesive is not fully activated in a pressure sensitive film, which will disappear once the adhesive is fully activated. This activation process can be sped up if a small amount of heat is applied during the application.

Substrate

The material to which an adhesive is to be bonded. In film, the substrate is the polyester and in mounting, the substrate is the material being mounted to.

Tunneling

When a laminated image is rolled up for any period of time and the laminate separates from the image. Generally in a pattern that follows the direction the laminated image was rolled up in. This is very common with pressure sensitive laminates and finished products that have been wound tightly.

Unwind

A system that unwinds media. Unwinds are used on all laminators to dispense laminate for lamination.

Web

The path that rolled media unwinding from a supply roll takes through a machine or array of rollers.

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8.0 Maintenance

GBC Films Group 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.

WARNING

Do not wear ties, loose fit 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.

INFORMATION

Improper maintenance, can result in poor output quality.

ELECTRICAL SHOCK

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

8.1 Maintenance Schedule

INFORMATION

Below is a recommended maintenance schedule. Before performing any of the steps listed, read through the procedures first. Please follow the instructions pertaining to the step you are performing.

Daily

- Clean the rollers
  (See cleaning in this section)
- Inspect the electrical cord for damage.
  (If damaged, you should replace or repair it immediately)
- Inspect the footswitch cord for damage.
  (If damaged, you should replace or repair it immediately)

Monthly

- Adjust the nip if needed.
  (performed by service technician)
- Check the chain tension.
  (performed by service technician)
- Inspect the area around the laminator for possible hazards
  (dust buildup, combustible items stored too close, etc.)

Semi-Annual

- Lubricate the grease fittings, chain, and gears.
  (performed by service technician)

- Check wire termination tightness.
  (performed by service technician)

Service work performed by a service technician must be qualified to work on GBC equipment.

The word qualified is defined as;

Qualified ;

• Any engineer that has experience with electrical and mechanical design of lamination equipment. The engineers should be fully aware of all aspects of safety with regards to lamination equipment.

• Any commissioning or service engineer must be of competent nature, trained and qualified to GBC Films Group standards to fulfill that job. This person will have completed and passed the full service training course from GBC Films Group.

• Any GBC Technician, GBC Specialist, and / or GBC Films Group Technician that has been through the GBC Pro-Tech service training course.

8.2 Cleaning the rollers

Tools required

- Adhesive coated boards
  (picks up dust and particles off of the rolls)
- Protective rubber gloves
  (This will protect your hands from the isopropyl alcohol)
- 80% isopropyl alcohol
  (a mild dishwashing detergent and water may be used instead)
- Rubber cement eraser
  (a belt sander dressing block may be used instead)
- Several 100% cotton terry cloths
  (best for lint free cleaning)

CAUTION

Use only isopropyl alcohol or rubber cement eraser to clean the rollers. Harsh chemicals like toluene, acetone, or MEK can destroy the silicone covering of the rolls.

CAUTION

Exercise care when cleaning the laminating rollers with 80% isopropyl alcohol:

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

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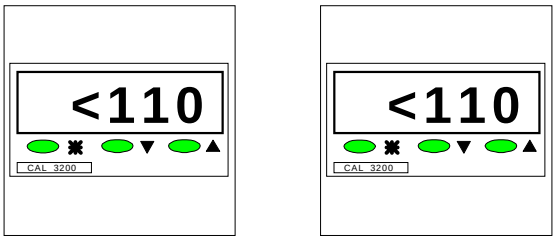
8.3 Dust - Pre-coated boards

a) The main rollers must be below 110 ºF (43 ºC).



b) Set the nip of the rollers to the thickness of the adhesive coated boards.

c) Set the roller pressure to which ever roller you are cleaning to 20 - 40 psi..

d) Align the adhesive coated board in front of the area on the roller to be cleaned.

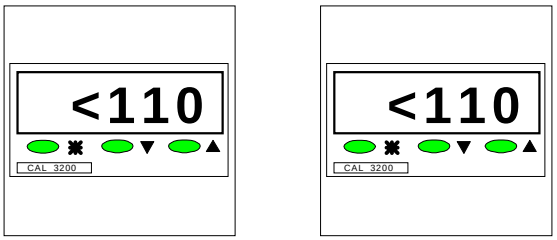
e) Using the footswitch, run the adhesive coated boards through the rollers.

f) Perform steps **d)** and **e)** again.

g) Do this as many times as needed to clean the laminator rolls.

8.4 Dirt and PSA adhesive - Alcohol and cloth

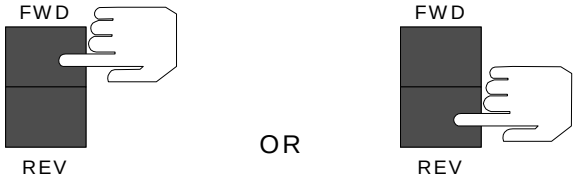
a) Allow the laminator to cool slightly to no higher than 110 ºF (43 ºC).



CAUTION

CLEANING HEATED ROLLERS CAN IGNITE THE FUMES!

b) Set the machine direction to **FWD** when cleaning the pull rollers. Set the machine direction to **REV** when cleaning the main rollers.



(if cleaning pull rollers)

(if cleaning main rollers)

c) Remove the front table and table idler to gain more access to the main rollers or remove the rear table to gain more access to the pull rollers.

d) Set a slow speed of less than 3 ft/ min. (91 cm/ min.).

e) Put on the rubber gloves and use the isopropyl alcohol and terry cloth towel to rub where the dirt is on the rollers.

CAUTION

Excessive pressure can destroy the silicone layer by pressing to hard or scrubbing too long in one spot.

INFORMATION

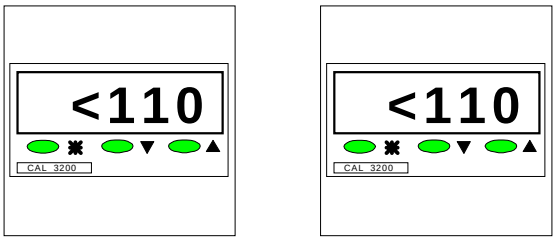
Keep the terry cloth towel kind of damp to make the rubbing of the roller smooth.

f) Use the footswitch to rotate the roller to a new spot to clean.

g) Do this as many times as needed to clean the laminator rolls.

8.5 Thermal adhesive

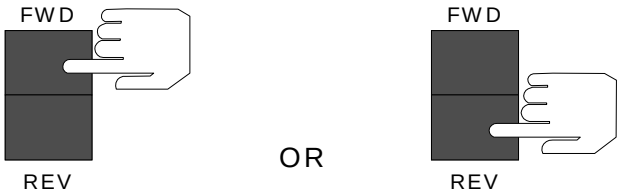
a) Allow the laminator to cool slightly, no higher than 110 °F (43 °C).



CAUTION

CLEANING HEATED ROLLERS CAN IGNITE THE FUMES!

b) Set the machine direction to **FWD** when cleaning the pull rollers. Set the machine direction to **REV** when cleaning the main rollers.



(if cleaning pull rollers)

(if cleaning main rollers)

c) Remove the front table and table idler to gain more access to the main rollers or remove the rear table to gain more access to the pull rollers.

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d) Set a slow speed of less than 3 ft/ min. (91 cm/ min.).

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.

e) Put on the rubber gloves and use the rubber cement eraser to bead up the adhesive.

f) Use the footswitch to rotate the roller to a new spot to clean.

g) Do this as many times as needed to clean the laminator rolls.

CAUTION

Excessive pressure can destroy the silicone layer by pressing to hard or scrubbing too long in one spot.

c) Wipe away the beads with isopropyl alcohol and a cotton terry cloth.

8.6 Clean the laminator

ELECTRICAL SHOCK

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

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

b) If water is not strong enough, you may use a mild dishwashing detergent with water and a cotton terry cloth.

ELECTRICAL SHOCK

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 unless other wise specified.

8.7 Clean the control panels

ELECTRICAL SHOCK

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

a) Use a terry cloth towel to wipe he control panels.

ELECTRICAL SHOCK

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 unless other wise specified.

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