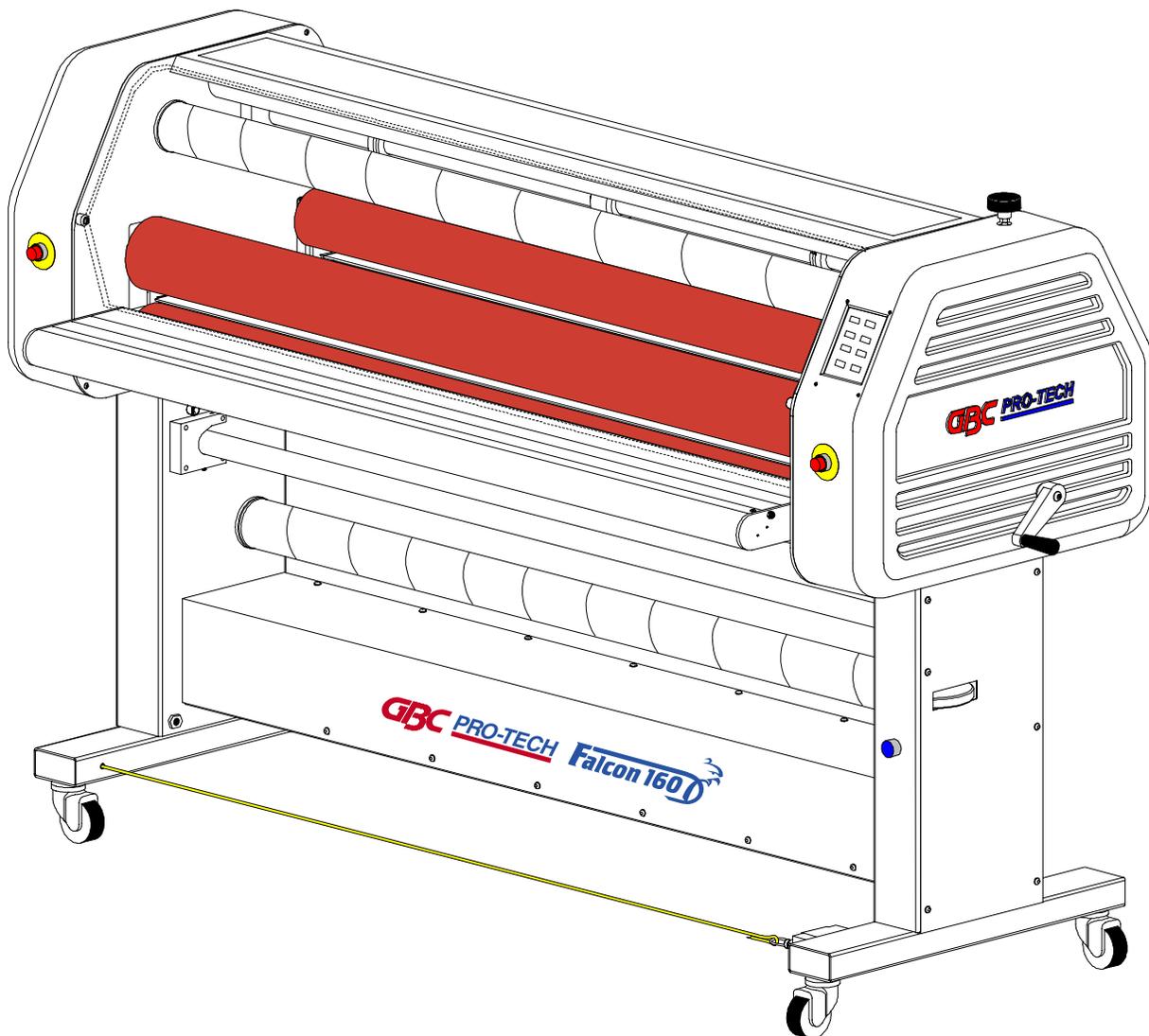

F - 160 CE OPERATION AND MAINTENANCE MANUAL

© April 2000 GBC Films Group

Do not duplicate without written permission.



Revision :
Part number : 930 - 065

GBC Films Group
4151 Anderson Road
DeForest, WI 53532
Ph: (608) 246 - 8844
Fx: (608) 246 - 8645

Table of Contents

Section 1: Safety

1.1 Symbols1 - 1

1.2 Safety features1 - 2

1.3 Safety shield1 - 3

1.4 Emergency stop1 - 4

1.5 Emergency cable1 - 5

1.6 Front feed table1 - 6

1.7 Decal locations1 - 7

 Figure 1.7.1 Decal location - front1 - 9

 Figure 1.7.2 Decal location - rear1 - 10

Section 2: Warranty

2.1 Limited warranty information2 - 1

2.2 Exclusions to the warranty2 - 1

Section 3: Specifications

3.1 General	3 - 1
3.2 Consumables	3 - 1
3.3 Function	3 - 2
3.4 Electrical	3 - 3
3.5 Dimensions	3 - 4
Figure 3.5.1 Dimensions	3 - 5

Section 4: Installation

4.1 Preinstallation check list	4 - 1
Figure 4.1.1 Suggested floor layout	4 - 3
4.2 Know your machine	4 - 4
4.3 Unpacking	4 - 5
4.4 Shrink wrapped	4 - 5
4.5 Crated	4 - 6
4.6 Accessory pack content	4 - 8

4.7 Installing levelers4 - 9

4.8 Leveling4 - 11

4.9 Connecting power4 - 15

Figure 4.9.1 Single phase (U.S. & Canada)4 - 17

Figure 4.9.2 Three phase (Europe)4 - 17

4.10 Safety check4 - 18

4.10.1 Front feed table4 - 18

4.10.2 Safety shield4 - 20

4.10.3 E-STOP4 - 21

4.10.4 E-CABLE4 - 22

4.11 Function check4 - 23

4.11.1 Control panel4 - 23

Figure 4.11.1 Default settings4 - 27

4.11.2 Variable speed footswitch4 - 27

4.11.3 Unwind shafts and unwind brakes4 - 28

Section 5: Operations

5.1 Control panel	5 - 1
Figure 5.1.1 Front control panel	5 - 9
5.2 Emergency	5 - 10
5.2.1 In an emergency	5 - 10
5.2.2 Resume operation	5 - 11
5.3 Set up	5 - 12
5.3.1 Power	5 - 12
5.3.2 Film loading	5 - 12
Chart 5.3.1 Measurement chart	5 - 14
5.3.5 Heating	5 - 14
5.4 Job programming	5 - 16
Chart 5.4.1 Job save chart	5 - 17
5.5 Manual nip adjustment	5 - 18
5.5.1 Main roller manual nip adjustment	5 - 18

5.5.2 Pull roller manual nip adjustment5 - 21

5.6 Front feed table5 - 24

5.6.1 Removing the table5 - 24

5.6.2 Replacing the table5 - 24

Section 6: Applications

6.1 Parameter charts and diagrams

Chart 6.1.1 Temperature conversion chart6 - 3

Blank chart6 - 4

Blank diagram6 - 5

Chart 1 - Precoating substrates6 - 6

Diagram 1 - Precoating subtrates6 - 7

Chart 2 - Mounting only6 - 8

Diagram 2 - Mounting only6 - 9

Chart 3 - Single sided (Sled)6 - 10

Diagram 3 - Single sided (Sled)6 - 11

Chart 4 - Single sided (Craft paper)6 - 12

Diagram 4 - Single sided (Craft paper)6 - 13

Chart 5 - Decal and mount (Decal)6 - 14

Diagram 5 - Decal and mount (Decal)6 - 15

Chart 6 - Decal and mount (Mount)6 - 16

Diagram 6 - Decal and mount (Mount)6 - 17

Chart 7 - Precoating substrates6 - 18

Diagram 7 - Precoating substrates6 - 19

Chart 8 - One pass mount6 - 20

Diagram 8 - One pass mount6 - 21

Chart 9 - Thermal decal and mount (Decal)6 - 22

Diagram 9 - Thermal decal and mount (Decal)6 - 23

Chart 10 - Thermal decal and mount (Mount)6 - 24

Diagram 10 - Thermal decal and mount (Mount)6 - 25

Chart 11 - Encapsulation6 - 26

Diagram 11 - Encapsulation6 - 27

Section 7: Troubleshooting

7.1 Wave problems7 - 1

7.2 Film problems7 - 3

7.2.1 Thermal laminates7 - 3

7.2.2 Pressure sensitive7 - 3

7.3 Machine problems7 - 4

7.4 Glossary7 - 5

Section 8: Maintenance

8.1 Maintenance schedule8 - 1

8.2 Cleaning the rollers8 - 2

8.2.1 Cabinets and covers8 - 7

8.2.2 Touch screen control panel8 - 7

This page intentionally left blank.

Section 1 Safety



CAUTION

Do not attempt to operate your Falcon 160 CE laminator until you have read this section carefully!



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.

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



WARNING

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

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



DANGER

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

1.1 Symbols



INFORMATION

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



ELECTRICAL SHOCK

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

1.2 Safety features

The F-160 CE laminator has been designed with safety as a primary consideration; however, you must become thoroughly familiar with the controls, proper operation, proper service procedures and safety features of the laminator before using or servicing the unit.

GBC Films Group laminators are powerful machines that are designed to mount, laminate, and encapsulate. The forces required to accomplish these tasks can vary from negligible to very large.

The motorized main roller lift mechanism used to provide downward pressure on the upper main roller is capable of producing forces greater than 400 pounds. This force is applied to any object presented in the opening (called the nip) between the two rollers.

Use care in lowering the upper laminating roller and know how to react quickly in an emergency. The main laminator roll up / down control is located on the right side of the machine within the front control panel. The **GAP** up / down arrows control the motion of the upper laminating roller. Before pressing **GAP** down arrow, ensure that nothing is in the nip area.

In addition, the main laminating rollers of the F-160CE can reach temperatures of over 200°F (100°C).



DANGER

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



INFORMATION

Only a qualified service technician should perform any procedure in Part B of this manual.

The word qualified is defined below;

Qualified ;

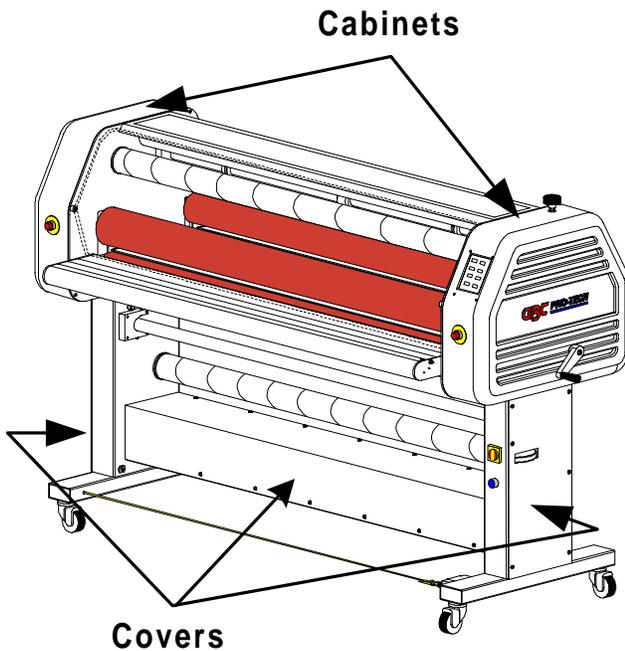
- Any engineer that has experience with electrical and mechanical design of lamination equipment. The engineers should be fully aware of all aspects of safety with regards to lamination equipment.

- 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 Pro-Tech.

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

The F-160CE laminator has cabinets and panels that are bolted close to isolate the electrical and drive system components for the safety of the operator. **Figure 1.2.1** illustrates placement of the cabinets and covers.

Figure 1.2.1 Cabinets and covers



1.3 Safety shield

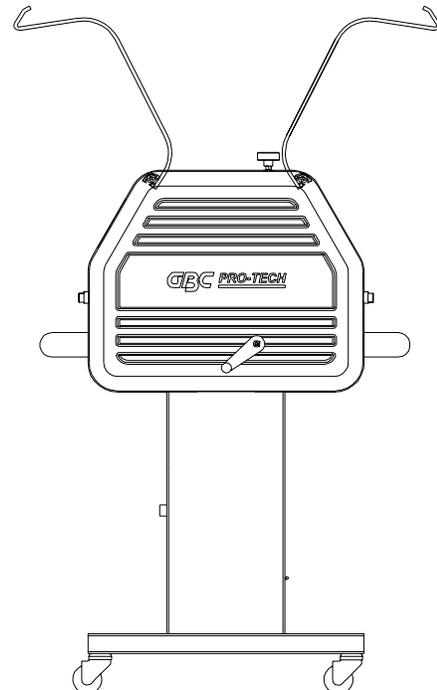
An important feature of the F-160 CE laminator is the safety shields, when raised, the auto run is disabled and drive control is transferred to the footswitch. Refer to **Figure 1.3.1 Safety shield raised**.



WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously HURT or INJURED!

Figure 1.3.1 Safety shields raised



1.4 Emergency stop

To engage an **E-STOP**, press down on any of the four. Any **E-STOP**, when engaged, removes power to the laminator. Refer to **Figure 1.4.2 Engage an E-STOP**.

The laminator is equipped with four emergency stops (**E-STOP**) located at the front of the cabinets and the rear of the cabinets. Refer to **Figure 1.4.1 Emergency stops**.

Figure 1.4.2 Engage an E-STOP

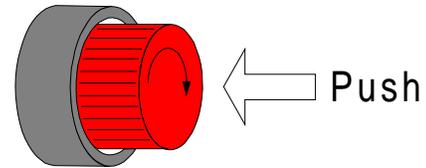
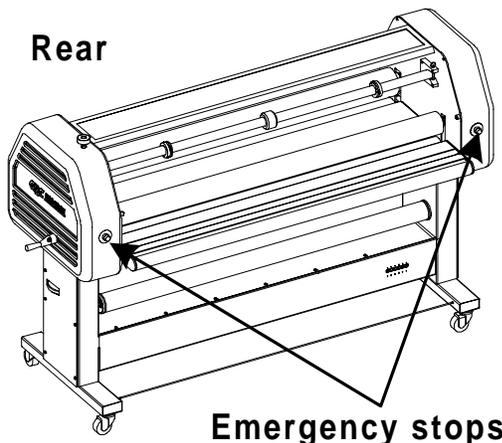
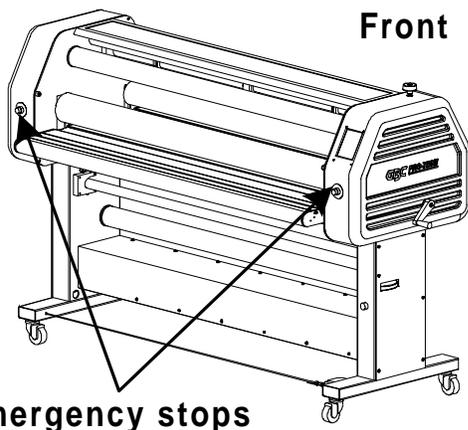


Figure 1.4.1 Emergency stops

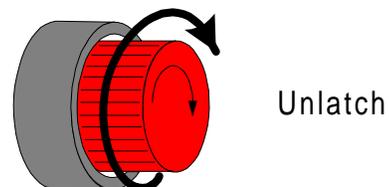


INFORMATION

The machine will only operate if all four E-STOPS are in the unlatched position.

To continue operation, all **E-STOPS** must be in the unlatched position. To reset, twist the **E-STOP** 1/4 turn clockwise. Refer to **Figure 1.4.3 Reset the E-STOP**.

Figure 1.4.3 Reset the E-STOP



Press **RESET** located on the right leg at the front of the machine. Refer to **Figure 1.4.4 Machine reset**.

Figure 1.4.4 Machine reset

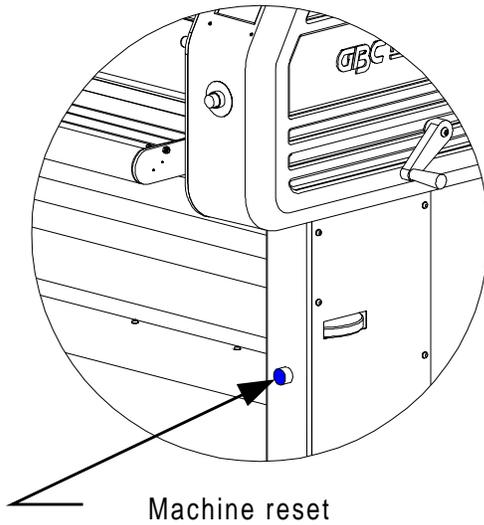
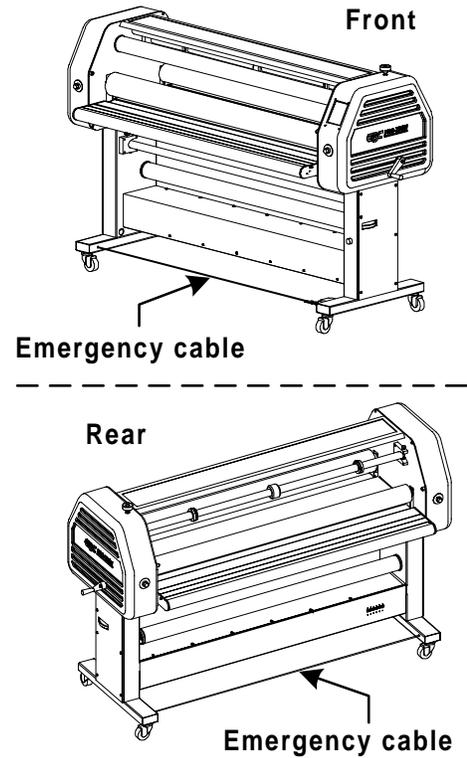


Figure 1.5.1 Emergency cable

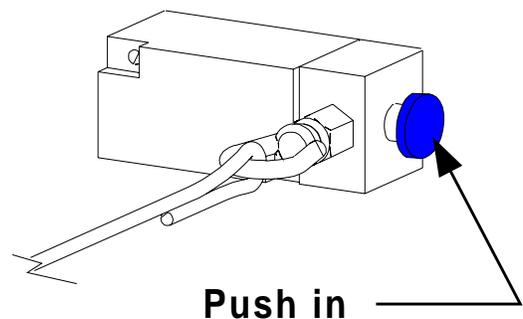


1.5 Emergency cable

In the event an **E-STOP** is not reachable, use your foot to activate an emergency cable (**E-CABLE**) located at the base of the stand from the front or rear of the machine. Refer to **Figure 1.5.1 Emergency cable**.

To continue operation, press in on the cable reset located on the right leg of the front operating position. Refer to **Figure 1.5.2 Reset the E-CABLE**.

Figure 1.5.2 Reset the E-CABLE



INFORMATION

The machine will only operate if the E-CABLE is in the unlatched position.

Press **RESET** located on the right leg at the front of the machine. Refer to **Figure 1.5.3 Machine reset**.

Figure 1.5.3 Machine reset

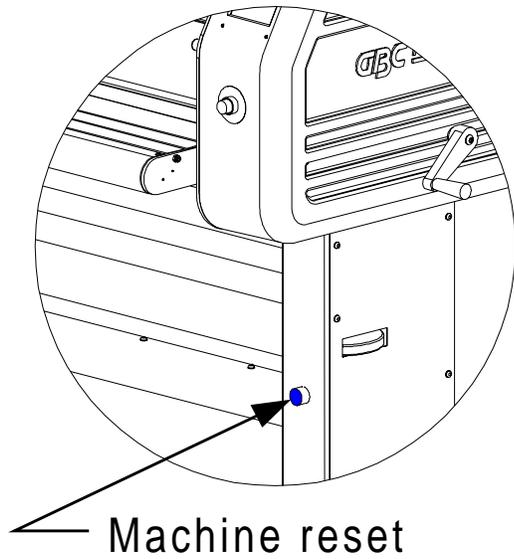
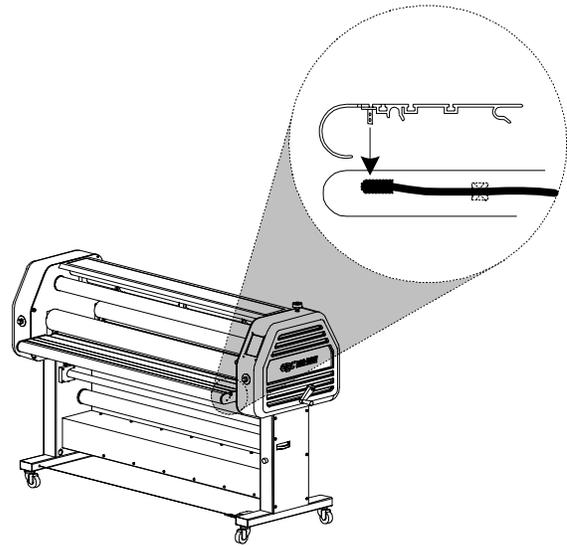
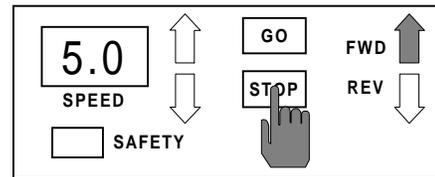


Figure 1.6.1 Front feed table



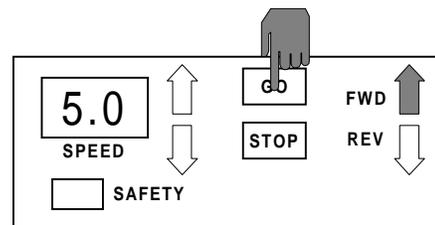
To continue operation, press **STOP**.



1.6 Front feed table

The front feed table must be in proper position for the laminator to operate in auto run. Refer to **Figure 1.6.1 Front feed table**.

Then press **GO**.



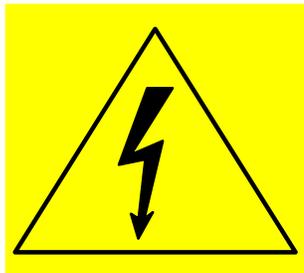
When the key is removed from the interlock, the laminator will stop. With the table removed, the laminator will operate using the variable speed footswitch.

1.7 Label locations

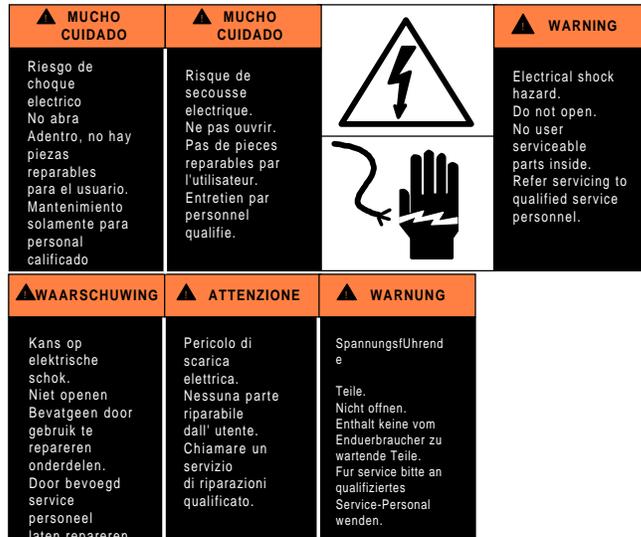
Posted at various locations on the Falcon 160 Laminator are important safety labels. **Pay careful attention to these labels at all times!** Figure 1.7.1 and Figure 1.7.2 illustrates the location of each of these labels.



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



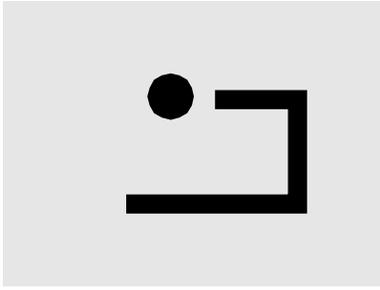
Electrical Shock: Live voltage present. Exercise extreme caution. You may be electrocuted!



Danger Voltage: High voltage wires behind this panel. Do not remove cover. You may be shocked, electrocuted, paralyzed or die!

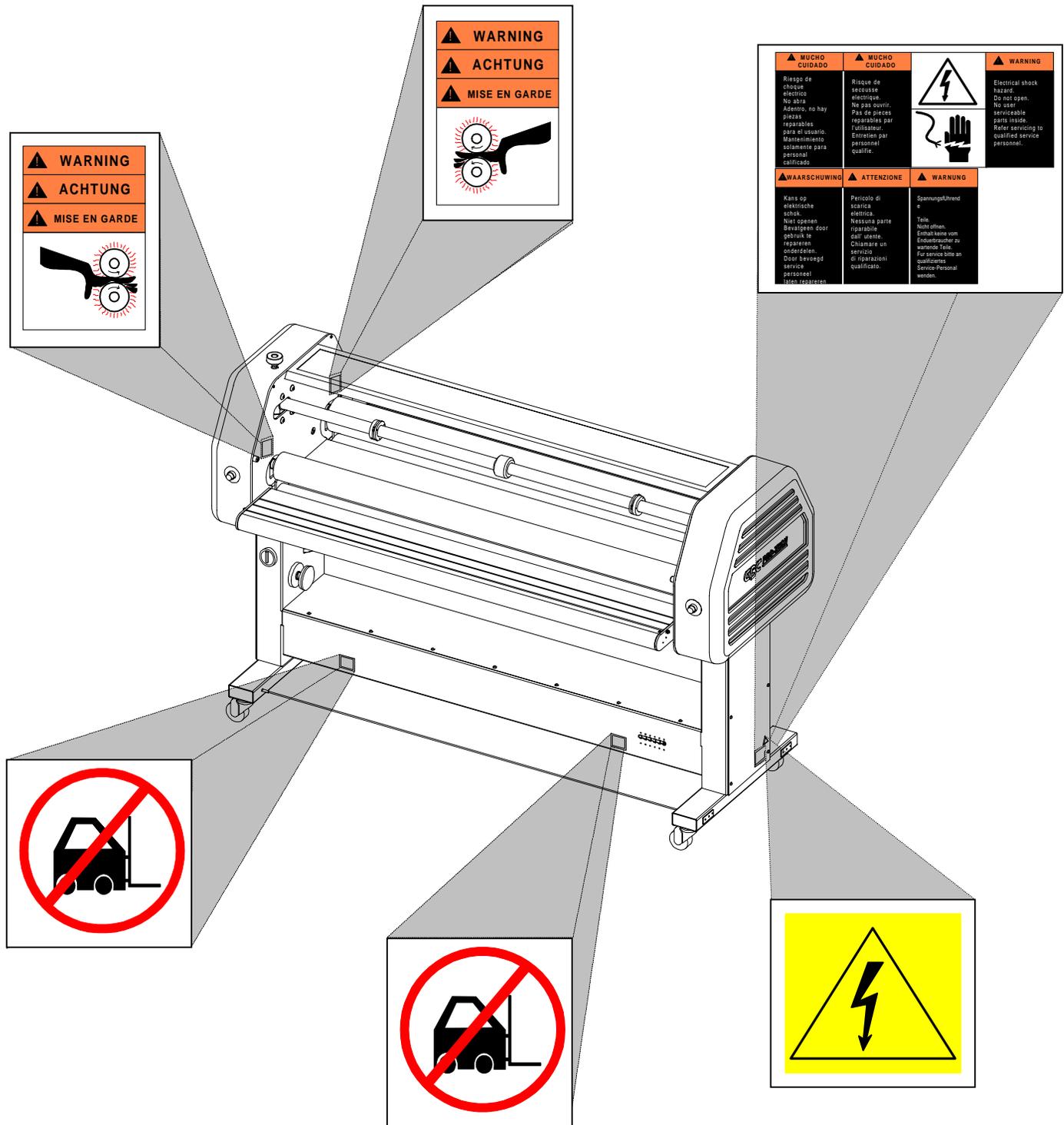


Do not Lift: This point can not be used as a lifting point. If ignored, damage will occur to the laminator.



Reset: Machine reset. Press after initiating power to the laminator or after an E-STOP or E-CABLE has been engaged then resetted.

Figure 1.7.2 Label locations - Rear



Section 2 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 cannot 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.

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.



CAUTION

Unauthorized customer alterations will void this warranty.

THE WARRANTY MADE HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. GBC FILMS GROUP 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.

2.2 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 Films Group 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 Films Group Technician that has been through the

Section 3: Specifications

Specifications provide all of the technical data for the Falcon 160 CE Laminator.

Section 3.1 General

Description:

- Mid level, wide format color finisher for the sheet fed ink jet market. The Falcon 160 CE is a self standing, bi-directional laminator.

Features:

- Two unwinds (1 upper, 1 lower)
- Two rewinds (1 upper front, 1 lower center)
- Safety shielded
- Infeed and oufeed tables
- Accelerator footswitch
- Job programmable
- Bi-directional system
- Four E-STOPS
- Front and rear E-Cable

Applications:

- Single sided lamination
- Encapsulation
- Mounting
- Decaling

Section 3.2 Consumable

Film types:

- Pressure sensitive laminates
- Pressure sensitive adhesives
- Low melt laminates
- Thermal laminates
- Thermal adhesives

Film diameters:	<ul style="list-style-type: none">• Up to a 8” roll diameter (20.3 cm)
Core size:	<ul style="list-style-type: none">• 3” core standard (7.62 cm)• 2-1/4” optional (must have optional core adapters) (5.72 cm)
Film widths:	<ul style="list-style-type: none">• 64” Pressure sensitive (162.6 cm)• 62” Thermal (157.8 cm)
Paper widths:	<ul style="list-style-type: none">• 62” maximum paper width (157.8 cm)
Mounting thickness:	<ul style="list-style-type: none">• Up to 1” inch thick (2.54 cm) either direction
Safety:	Designed to UL / CSA / CE safety standards

Section 3.3 Function

Speed:	<ul style="list-style-type: none">• 0 - 15 ft / min (0 - 4.6 m / min)
Motor:	<ul style="list-style-type: none">• 2-1/4 horse power drive motor• Bi-directional D.C. motor
Heating capabilities:	<ul style="list-style-type: none">• 68°F - 290°F (20°C - 143°C)
Controls:	<ul style="list-style-type: none">• Front control panel• Variable speed footswitch

- Job save:**
- Save up to 9 job parameters
- Roll design:**
- High release silicone rolls

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, 32 amps/ phase
- B.T.U. output:**
- 31,732 B.T.U. / hour
- Heater wattages:**
- 5600 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
 - 12 vdc isolated x 2
 - 24 vdc isolated
- A/C voltage used:**
- 230 vac (minimum)

Section 3.5 Dimensions

Weight:

Crated: • 1568 lbs. (711 kg.)

Uncrated: • 1200 lbs. (544 kg.)

Dimensions

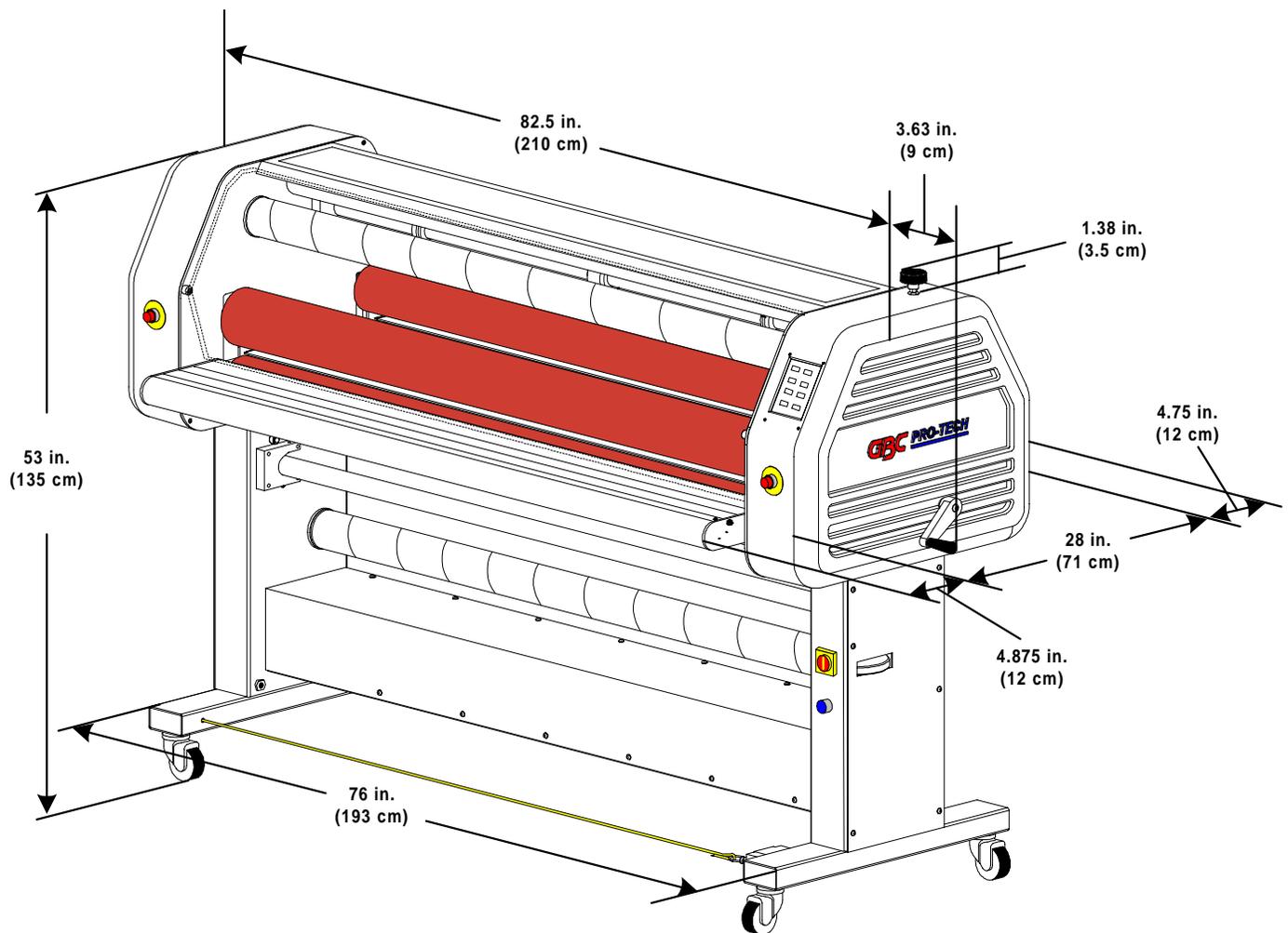
Crated: • 90 in. (H) x 46 in. (W) x 72 in. (L)
(229 cm (H) x 117 cm (W) x 183 cm (L))

Uncrated • 54 in. (H) x 38 in. (W) x 82.5 in. (L)
(137 cm (H) x 96 cm (W) x 209 cm (L))
Refer to **Figure 3.5.1**

Nip Height: • 37 3/16 in. (95 cm)

Safety Shield Raised Height: • 66 5/8 in. (169 cm)

Figure 3.5.1 Dimensions



This page intentionally left blank.

Section 4 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 Falcon 160 CE Laminator is properly and securely unpacked, moved, and installed.

Before a Falcon 160 CE 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.

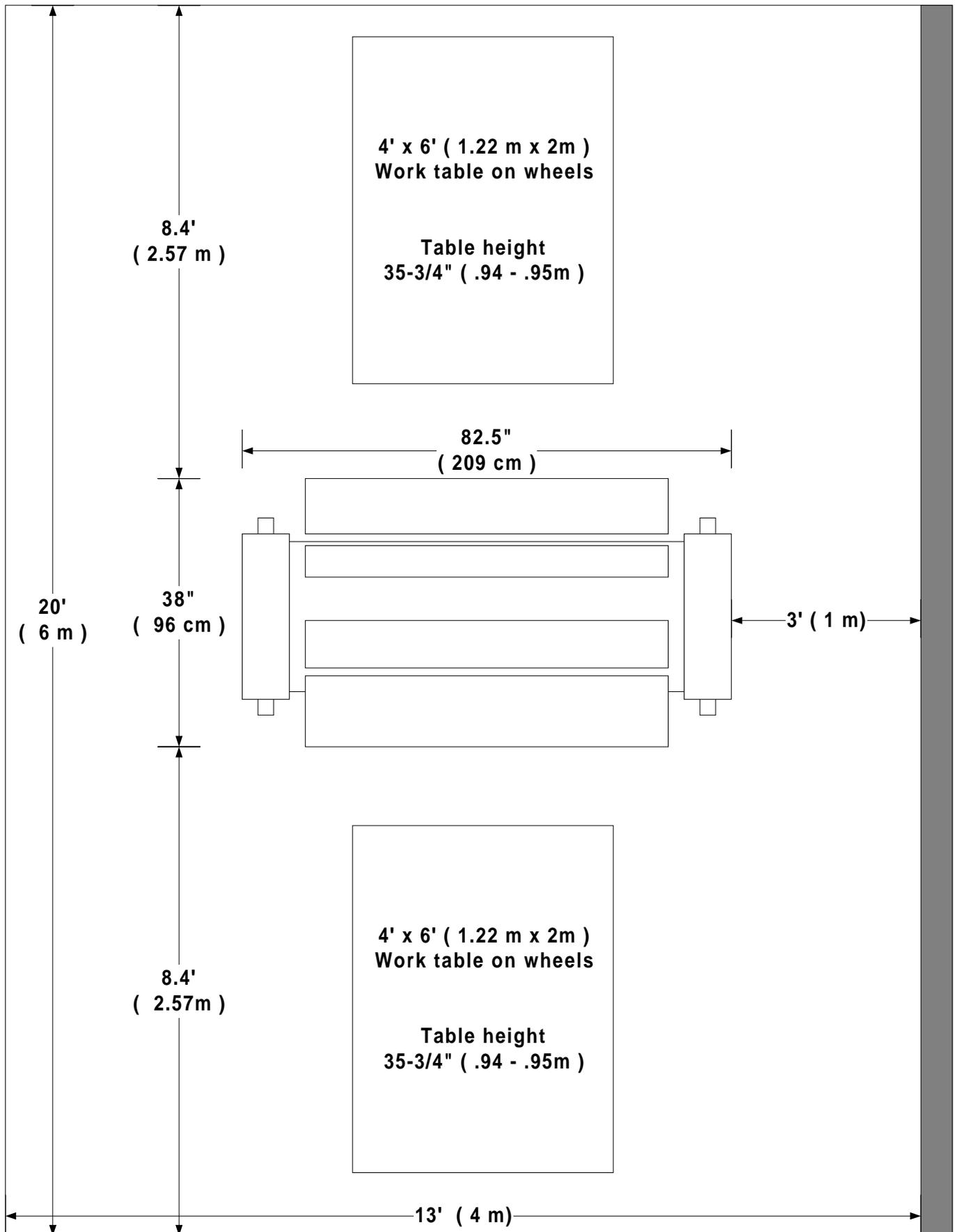
- The laminator requires 230 to 240 vac, 50/ 60 Hz, 55 amps. Or, in Europe only, 3-N phase, 240 vac, 32 amps/ phase.

**WARNING**

The Falcon 160 CE 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 **4.9 Connecting power** in this section.

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

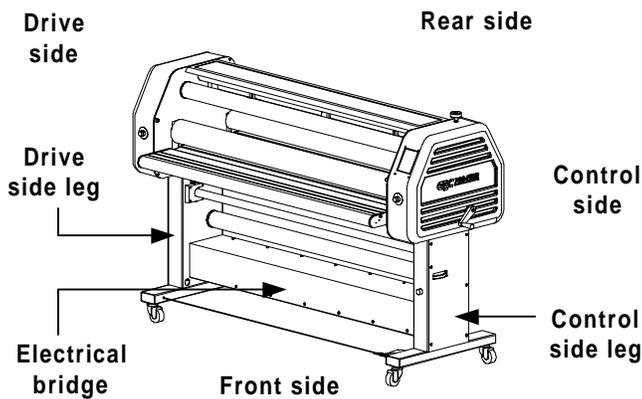


Figure 4.2.2 Safety features

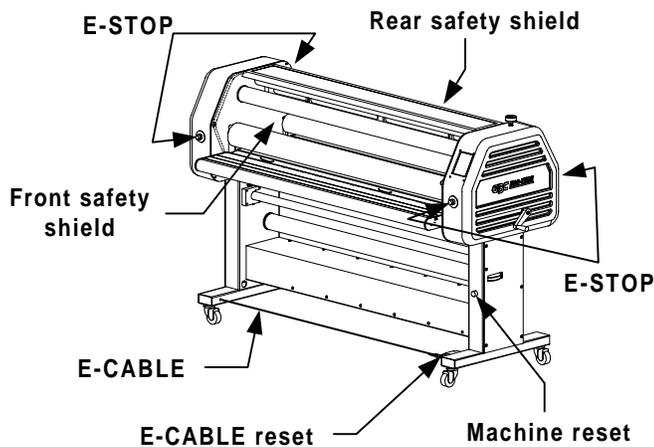


Figure 4.2.3 Front view

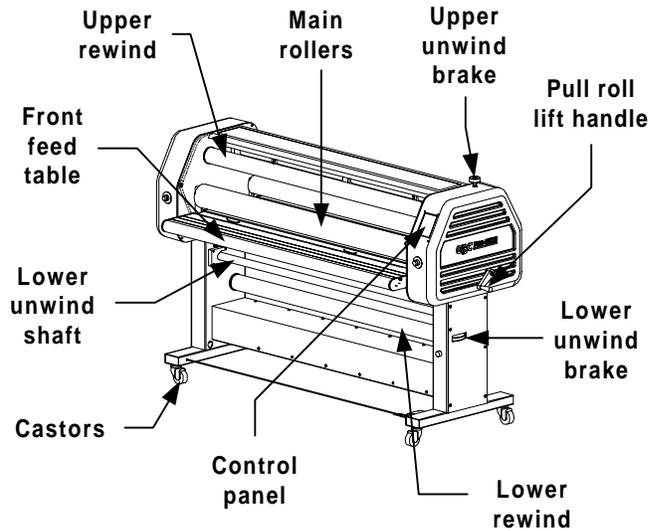


Figure 4.2.4 Rear view

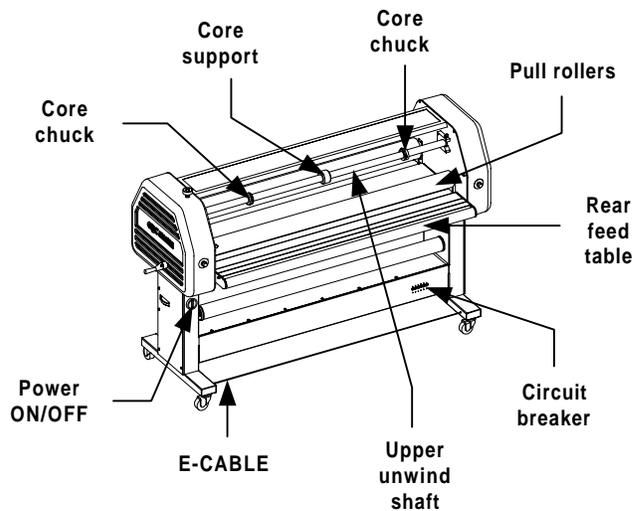
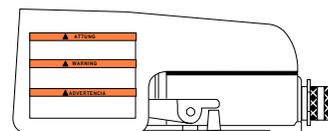


Figure 4.2.5 Footswitch



4.3 Unpacking



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.

With regards to your shipping methods, use one of the following procedure described to safely and properly unwrap / uncrate your 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 F - 160 CE 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

To uncrate the laminator



WARNING

The Falcon 160 CE 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.

- 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

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.



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.

Tools required

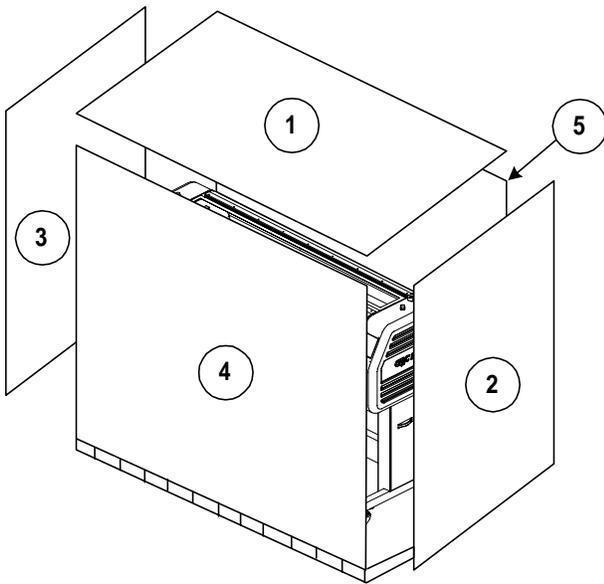
- # 2 Phillips head screwdriver
- 7/8" open end wrench or adjustable wrench
- Crow bar
- A second person



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.

Figure 4.5.1 Disassembling of the crate



b) Move all packing materials to a safe distance.

Moving the laminator

a) Have the laminator rolled off the skid and placed on the floor by licensed riggers. The ramps included with the laminator can be secured utilizing screws removed from the disassembled crate. **Figure 4.5.2** illustrates positioning of the ramps.

Removing the shrink wrap

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



WARNING

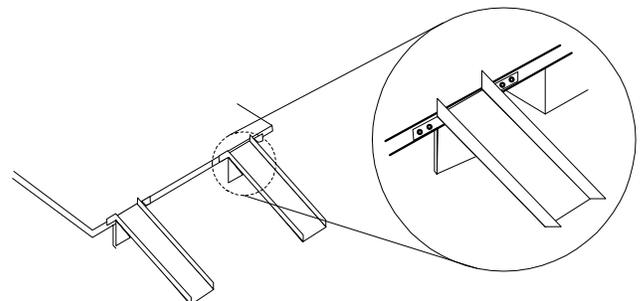
Do not attempt to use the ramps if they are not secured to the pallet. Ensure the pallet is on a flat even surface before attempting to roll the machine off.

Figure 4.5.2 Positioning of the ramps



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) 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.

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

**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.

4.6 Accessory pack

Once the Falcon 160 CE 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 (930-045 rev. A)
- 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)
- One crankhandle (629-018)
- One fuse, 0.5A (186-022)
- Two fuses, 2.5A (186-220)
- Four leveling bolts (645-011)
- Twelve 3/4 - 10 nuts (No P/N)

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 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.

Before leveling can be performed, the castors must be replaced with leveling bolts and leveling pads.

Tools required

- Torpedo level
- (2) 3/4" open end wrenches
- Four leveling pads
(from the accessory pack)
- Four Leveling bolts
(from the accessory pack)
- Twelve 3/4 - 10 nuts
(from the accessory pack)
- Floor jack
(600 pound rating)
- Second person

Control side

- a) Verify that the laminator has sufficient room around it to load film, walk around and to be serviced if necessary.

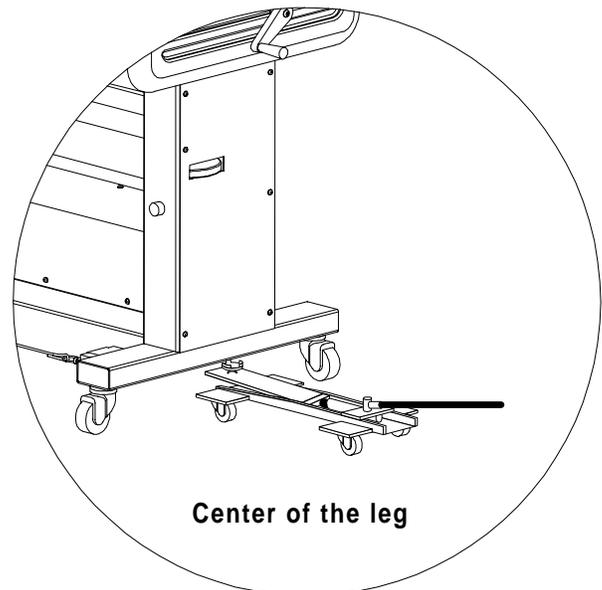
- b) Lock the castors on the drive side leg.



CAUTION

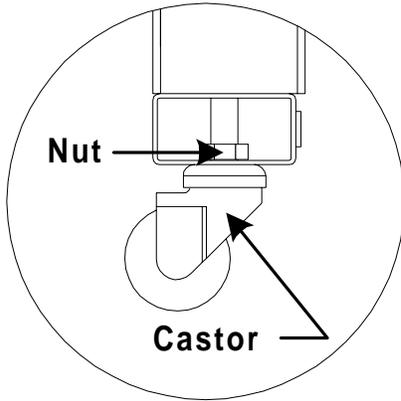
Do not lift the machine where NO LIFT warnings are located. You can cause damage to the electrical bridge.

- c) Slide the floor jack under the control side leg.

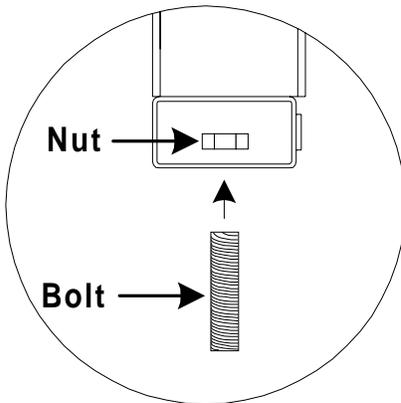


- d) Raise the control side approximately 4 in. from the bottom of the castor to the floor. (10 cm) Must have enough clearance to remove the castors

- e) Remove the front control side castor by turning the nut securing the castor in the leg.



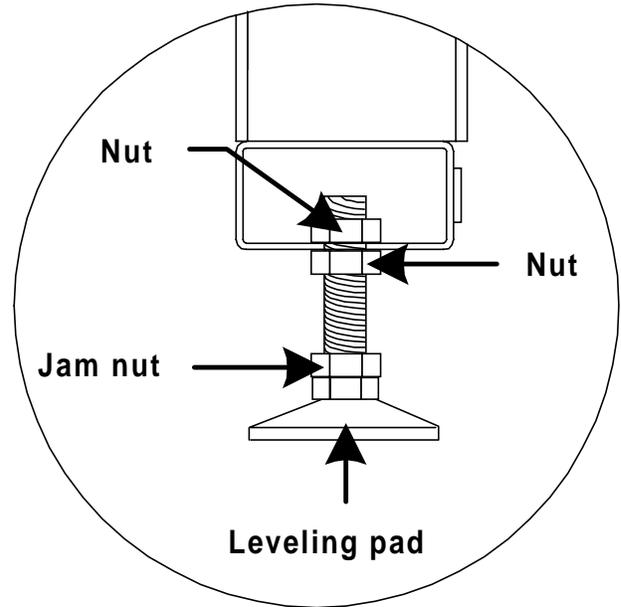
- f) Slide one of the leveling bolts where the castor was removed and along with a 3/4-10 nut inside the leg.



- g) Place two more 3/4-10 nuts on the leveling bolt under the leg. Refer to **Figure 4.7.1 Leveling pad installed.**

- h) Attach the leveling pad to the bottom of the leveling bolt and secure with wrenches. Refer to **Figure 4.7.1 Leveling pad installed.**

Figure 4.7.1 Leveling pad installed



- i) Tighten the jam nut against the leveling pad. Refer to **Figure 4.7.1 Leveling pad installed.**

- j) Perform steps **e** through **i** for the rear control side castor and leveling pad.

Drive side

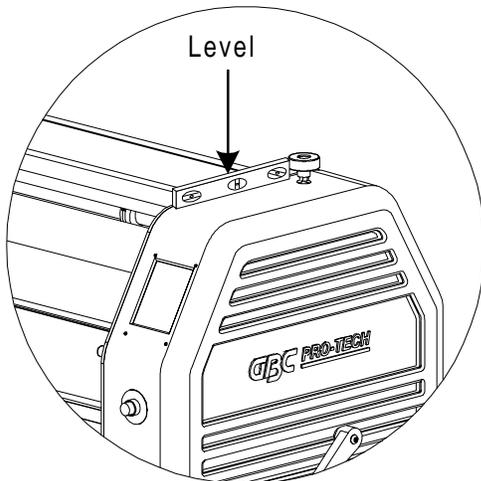
- a) Perform steps **a** through **j** from the *Control side*.

4.8 Leveling

Leveling of the laminator is very important in the way the machine performs. Leveling is crucial to the tram (tracking) of the materials through the machine.

- a) Position the level on the top of the control side frame. Not on the cabinet. Refer to **Figure 4.8.1 Front to back control side**

4.8.1 Front to back control side



INFORMATION

The side frame provides a more accurate reading than the cabinet.

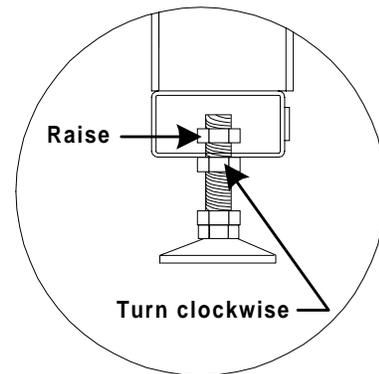
- b) Level the control side from front to back by holding the nut inside the leg and turning the nut below the leg with the wrench.



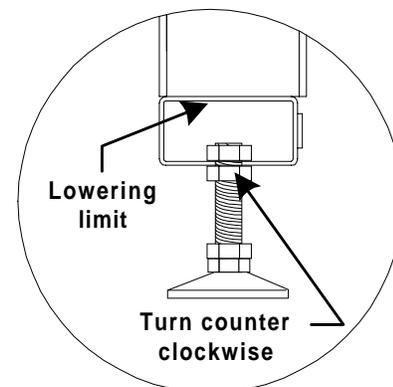
INFORMATION

A second person can read the level while you make the appropriate adjustments.

- To raise; raise the nut inside the leg and turn the nut below the leg clockwise.



- To lower; turn the nut below the leg counter clockwise.





INFORMATION

Lowering is limited to the amount of height within the inside of the leg.



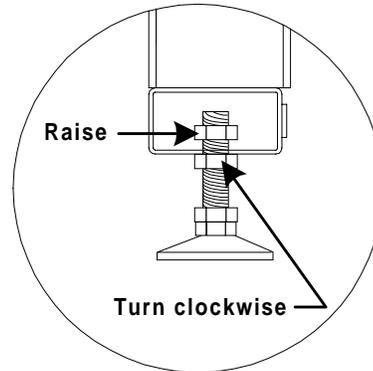
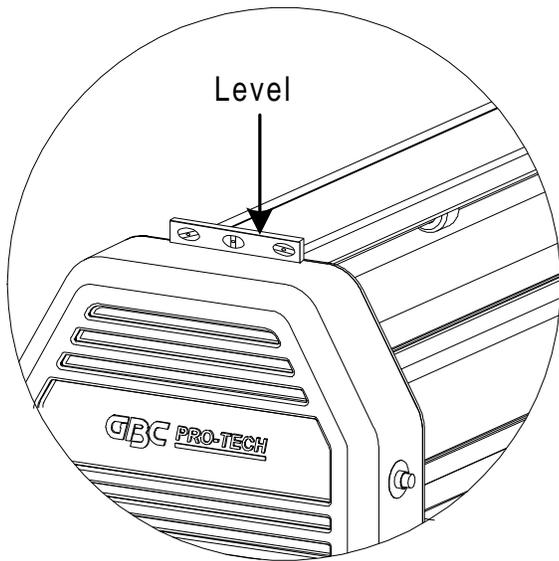
INFORMATION

A second person can read the level while you make the appropriate adjustments.

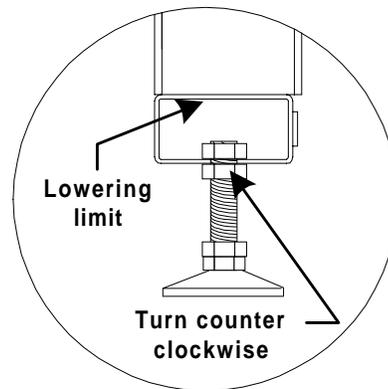
c) Position the level on the top of the drive side frame. Not on the cabinet. Refer to **Figure 4.8.2 Front to back drive side**

- To raise; raise the nut inside the leg and turn the nut below the leg clockwise.

Figure 4.8.2 Front to back drive side



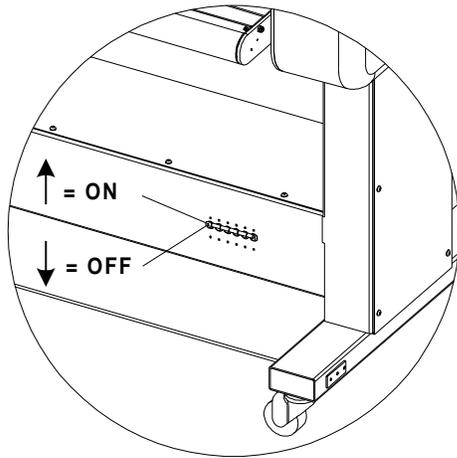
- To lower; turn the nut below the leg counter clockwise.



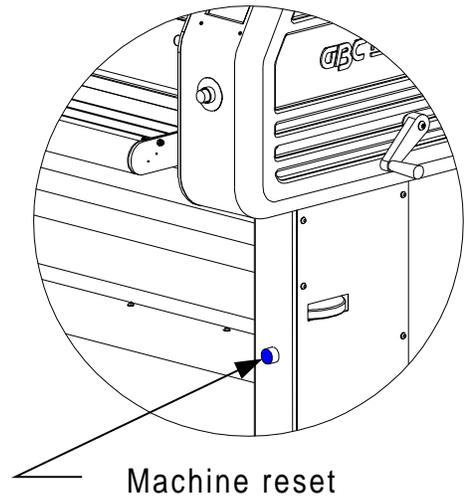
d) Level the control side from front to back by holding the nut inside the leg and turning the nut below the leg with the wrench.

e) Confirm that power is supplied to the laminator.

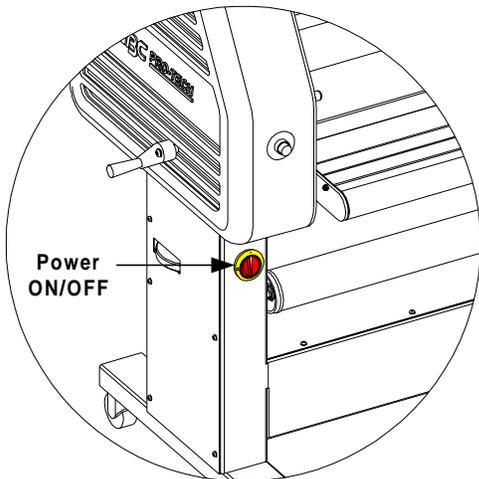
f) Flip the circuit breaker on the laminator to the up position.



h) Press **RESET**. The front control panel should be illuminated at this point.



g) Turn **MAIN POWER** to “I” position.



WARNING

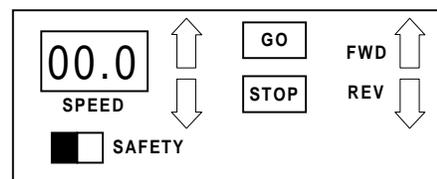
Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously **HURT** or **INJURED**!

i) Raise the front safety shield. The **SAFETY** indicator will begin flashing.



INFORMATION

Ensure all **E-STOPS** are unlatched and the **E-CABLE** is reset before turning power on to the laminator.



= Flashing

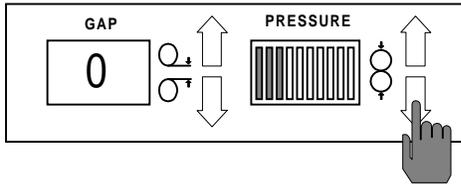


WARNING

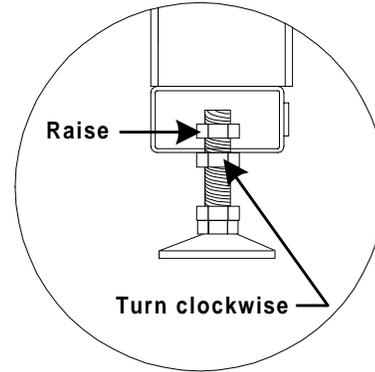
Keep hands and fingers clear of the laminator roller nip when changing GAP.
You can be **CRUSHED** or **BURNED**!

l) Level the laminator from drive side to control side by adjusting the two front leveling pads.

j) Press **PRESSURE** ▼ to illuminate 3 bars in the pressure display.



- To raise; raise the nut inside the leg and turn the nut below the leg clockwise.



- To lower; turn the nut below the leg counter clockwise.

k) Place the level across the top of the upper main roller in the center. Refer to **Figure 4.8.3 Drive to control side front**

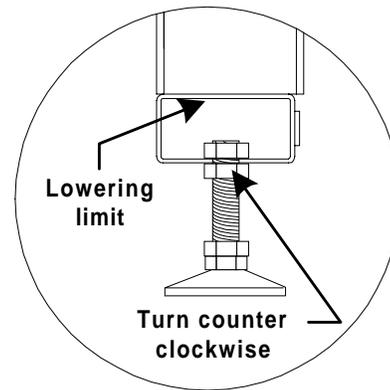
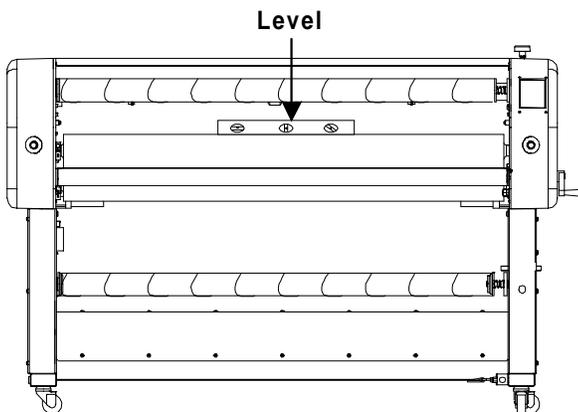
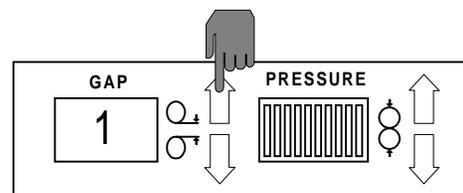


Figure 4.8.3 Drive to control side front



n) Press **GAP** ▲ to 1 in. setting.

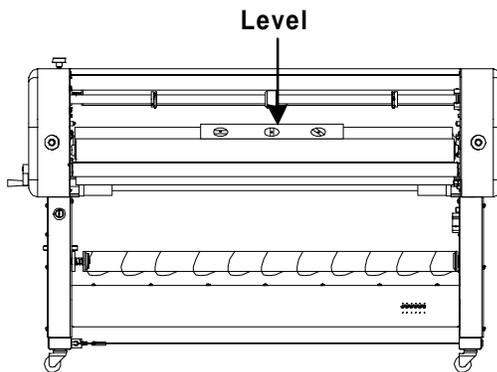


- m) Turn the pull roller lift handle towards the rear of the machine to lower the upper pull roller. Stop after initial contact with the lower pull roller plus 1/2 turn.

- n) Raise the rear safety shield

- o) Place the level across the top of the upper pull roller in the center. Refer to **Figure 4.8.4 Drive to control side rear**

Figure 4.8.4 Drive to control side rear



- p) Verify all four leveling points. Make any adjustments necessary. If all four points are leveled, secure all nuts in place.

- q) Lower the front and rear safety shields.

- r) Turn **MAIN POWER** to “OFF”.

4.9 Connecting power

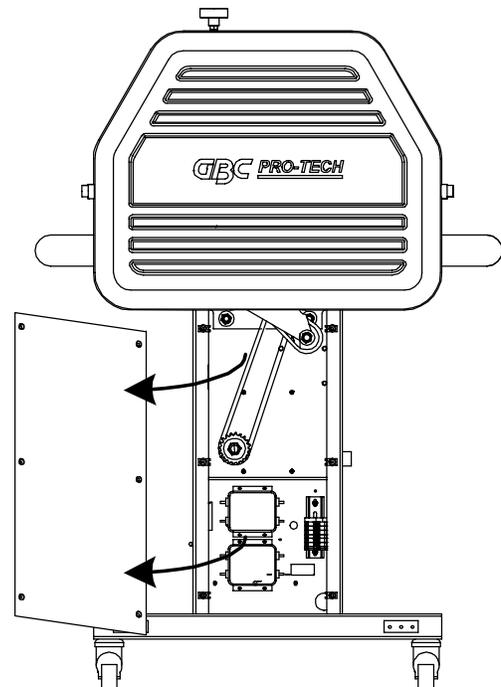


ELECTRICAL SHOCK

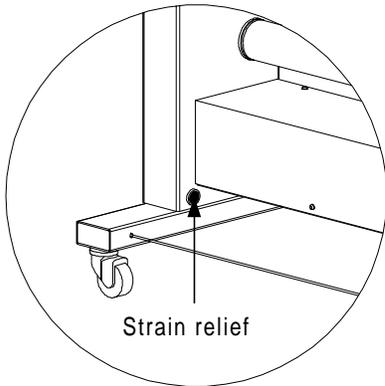
Only a qualified electrician should connect power to the laminator. You can be severely shocked, electrocuted or cause a fire if power is improperly applied.

- a) Ensure the power at the junction box is in the **OFF** position.

- b) Remove the drive side leg cover with a #2 phillips screw driver.



- c) Feed the power cable through the power cable strain relief located at the bottom of the drive side leg.



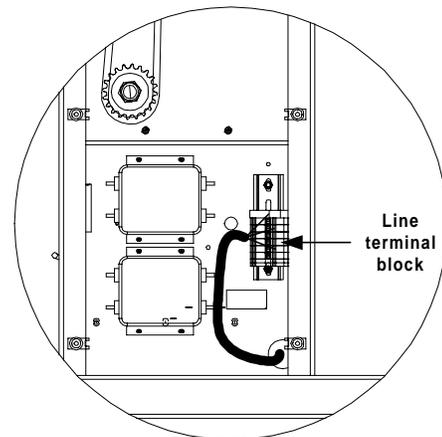
- e) Turn the junction box power to the ON position.

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



WARNING

Follow the correct wiring diagram when supplying power to the laminator. If improperly connected, you can be seriously injured or cause damage to the laminator.



- d) Connect the power cord to the line terminal block. Refer to **Figure 4.9.1 Single phase** or **Figure 4.9.2 Wye three phase**.

- g) Once the power cord has been properly connected, replace the drive side leg cover.

Figure 4.9.1 Single phase illustrates proper single phase wiring for the U.S. and Canada.

- h) Proceed with **4.10 Safety check**.

Figure 4.9.2 Wye three phase illustrates proper Wye 3 phase wiring for Europe.

Figure 4.9.1 Single phase, U.S. and Canada

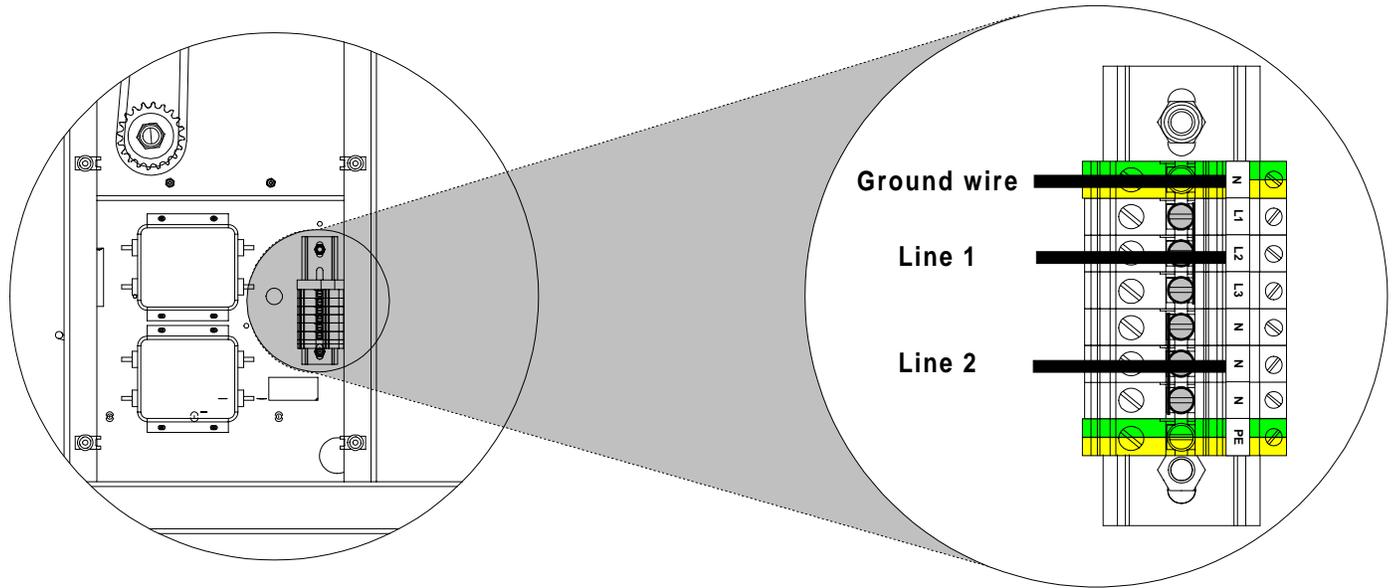
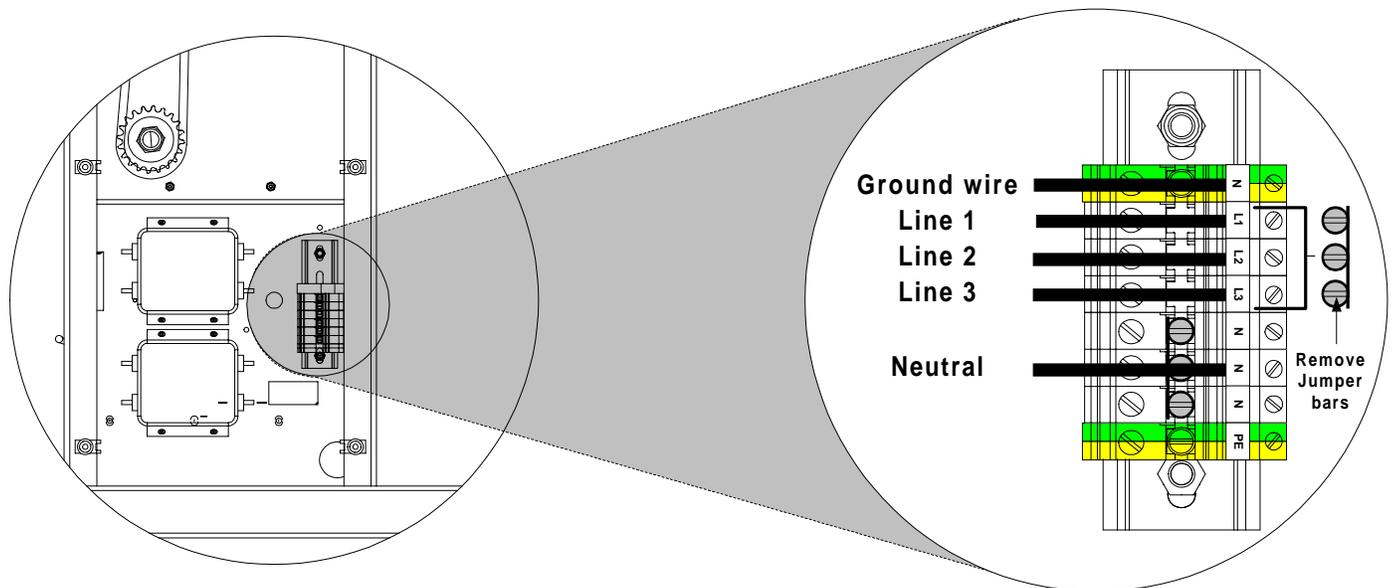


Figure 4.9.2 Wye 3 phase, Europe only



4.10 Safety check

The safety check will ensure that all safety devices and interlocks are functioning properly.

This procedure describes how to check one **E-STOP**, the front **E-CABLE**, the front safety shield and the front feed table. Repeat the steps for the remaining three **E-STOPS**, the rear **E-CABLE** and the rear safety shield. The rear feed table is not removable. **ALL SAFETY FEATURES MUST BE CHECKED!**



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

If a safety feature is not working properly, contact your local service representative immediately.

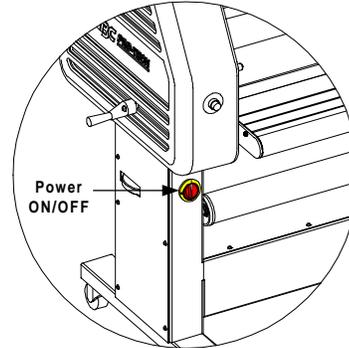
Contacts:

GBC National Service: (800) 790 - 7787

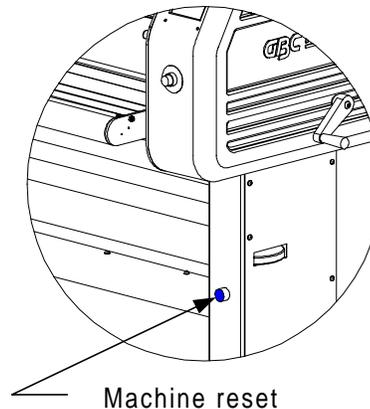
GBC Europe Service: 33 - 45 - 535 - 7676

4.10.1 Front feed table

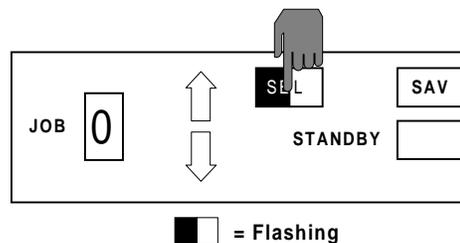
a) Turn **MAIN POWER** to “ON” .



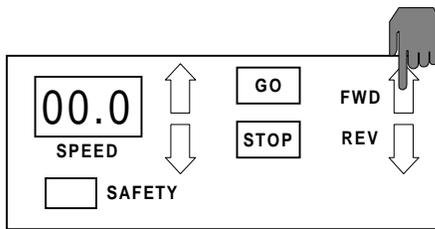
b) Press **RESET**. The front control panel will be illuminated.



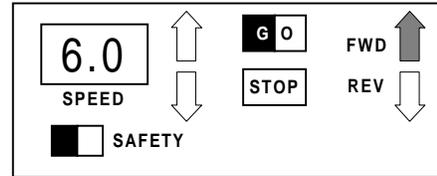
c) Press **SEL**. **SEL** stops flashing.



d) Press **FWD** ▲ to set a forward motor direction.

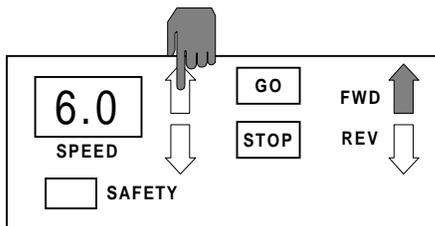


g) Slightly lift the front feed table. **SAFETY** indicator and **GO** begin flashing and the bottom rollers stop.

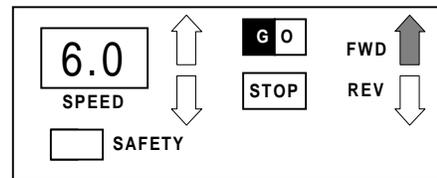


■ = Flashing

e) Press **SPEED** ▲ to set a speed of 6 ft/min.

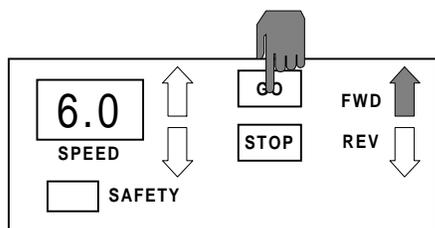


h) Lower the front feed table. **SAFETY** indicator reverts to white and **GO** remains flashing.

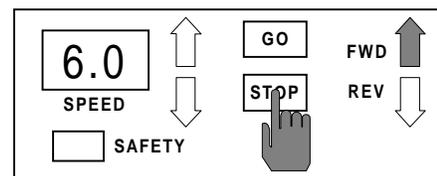


■ = Flashing

f) Press **GO**. The bottom rollers begin turning.

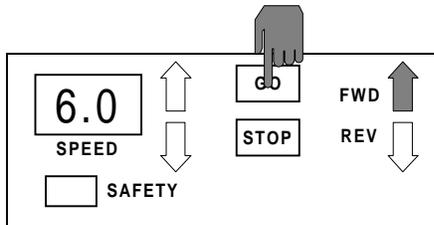


i) Press **STOP**. **GO** stops flashing.

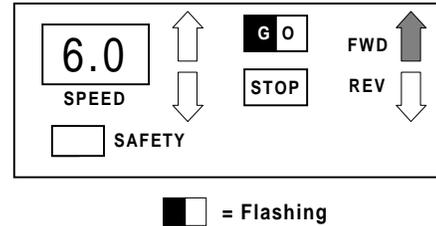


4.10.2 Safety shield

a) Press **GO**. The bottom rollers begin turning.



c) Lower the front safety shield. **SAFETY** indicator reverts to white and **GO** remains flashing.

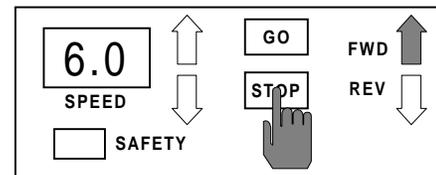


d) Press **STOP**. **GO** stops flashing.



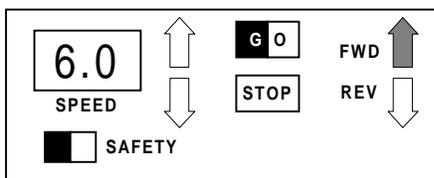
WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously **HURT** or **INJURED**!



b) Raise the front safety shield. **SAFETY** indicator and **GO** begin flashing and the bottom rollers stop.

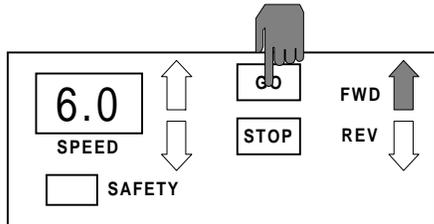
e) Repeat steps “a” through “d” for the rear safety shield.



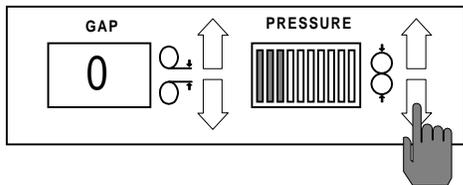
■ = Flashing

4.10.3 E-STOP

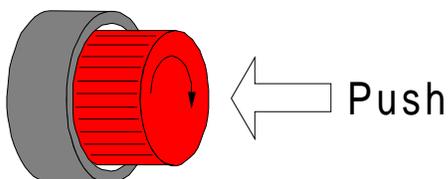
a) Press **GO**. The bottom rollers begin turning.



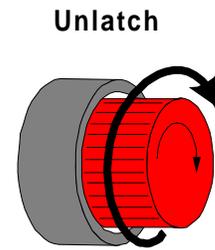
b) Press **PRESSURE** ▼ to illuminate 3 bars in the pressure display.



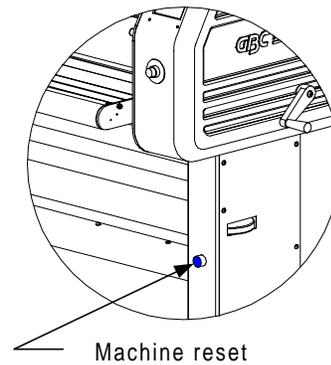
c) Press down on the front control side **E-STOP**. The **E-STOP** latches in the down position, bottom rollers stop, the upper main roller raises and the control panel is blank.



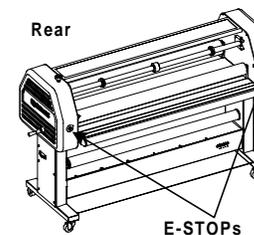
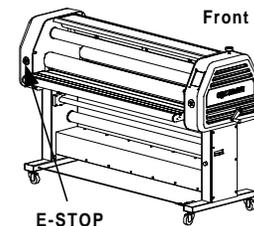
d) Unlatch the **E-STOP**.



e) Press machine **RESET**. The front control panel is illuminated.

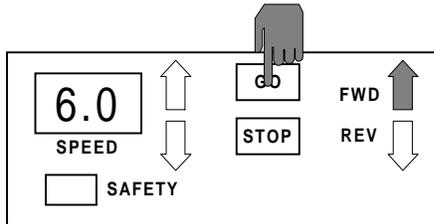


f) Repeat steps “a” through “e” for the remaining three **E-STOPs**.

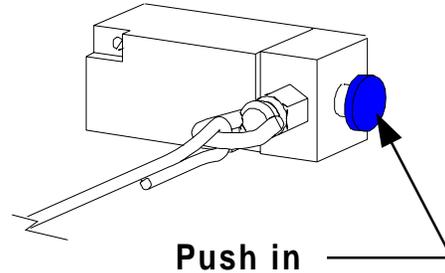


4.10.4 E-CABLE

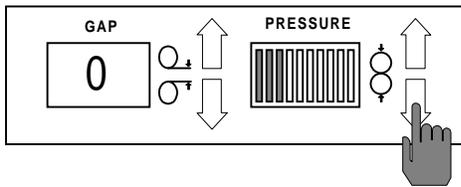
a) Press **GO**. The bottom rollers begin turning.



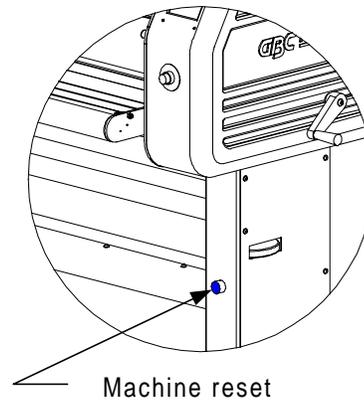
d) Latch the **E-CABLE** by pushing in on the **E-CABLE** reset located in the front at the bottom of the control side leg.



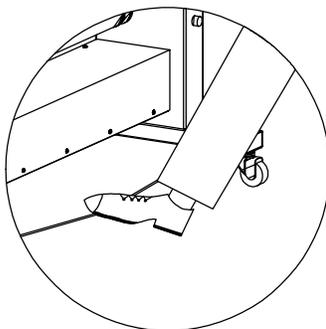
b) Press **PRESSURE** ▼ to illuminate 3 bars in the pressure display.



e) Press machine **RESET**. The front control panel is illuminated.



c) Press on the front **E-CABLE** with your foot. The bottom rollers stop, the upper main roller raises and the control panel is blank.



f) Repeat steps “a” through “e” for the rear **E-CABLE**.

4.11 Function check

The function check ensures that the laminator functions properly when operating. This check is recommended before performing any applications.

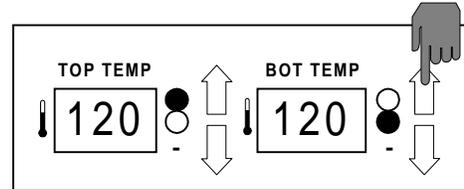
If a step that does not react according to the description, call your local area service representative immediately.



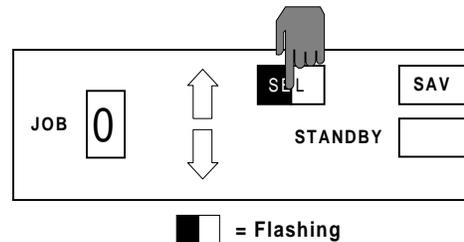
WARNING

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.

- b) Press **BOT TEMP ▲** to a value of 120°F (48 °C). **BOT TEMP DISPLAY** begins flashing.

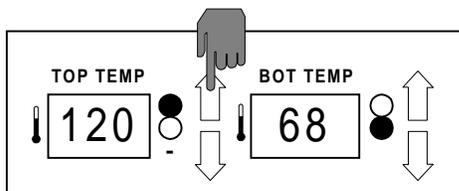


- c) **SEL** can not be tested until you have saved parameters within a **JOB** location. Refer to Section 5.4 Job programming for **SEL** and **SAV**.

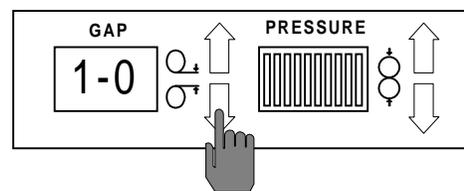


4.11.1 Control panel

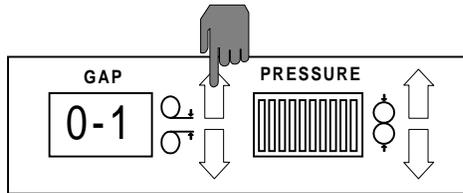
- a) Press **TOP TEMP ▲** to a value of 120°F (48 °C). **TOP TEMP DISPLAY** begins flashing.



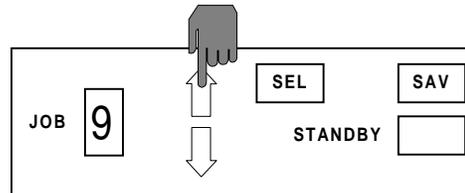
- d) Press **GAP ▼** once. **GAP DISPLAY** decreases 1/16th of an inch per press. The upper main roller moves accordingly. Once to "0", the upper main roller is contacting the lower main roller.



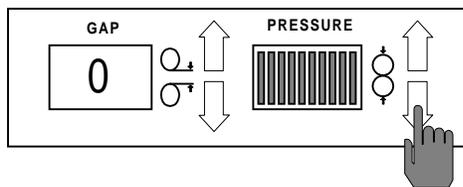
e) Press **GAP ▲**. **GAP DISPLAY** increases 1/16th of an inch per press. The upper main roll moves accordingly. Once to “1”, the upper main roller stops.



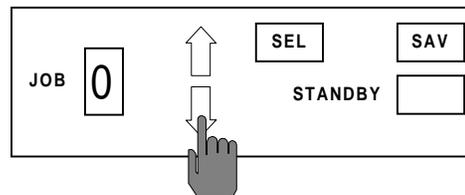
h) Press **JOB ▲**. The **JOB DISPLAY** increases in increments of 1 to 9.



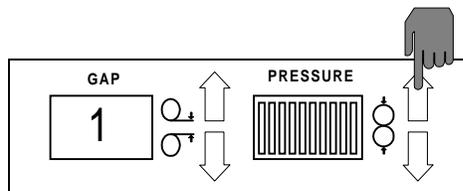
f) Press and hold **PRESSURE ▼**. The upper main roller travels in a constant downward motion. Once making contact with the lower main roller, the bars turn solid one at a time until all 10 bars are solid.



i) Press **JOB ▼**. The **JOB DISPLAY** should decrease in increments of 1 from 9 to 0.



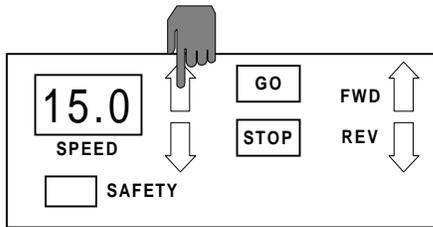
g) Press and hold **PRESSURE ▲**. The upper main roller travels in a constant upward motion. The pressure bars turn hollow one at a time until no bars are solid and **GAP DISPLAY** changes to “ 1 ” then stops.



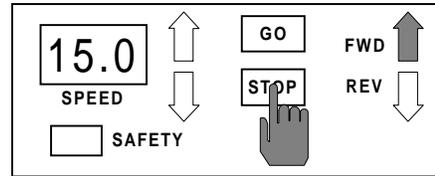
INFORMATION

To continue with the function checks, you must press SEL so that it discontinues flashing.

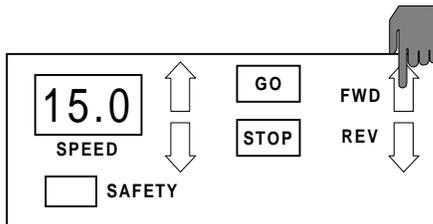
j) Press **SPEED ▲** once. **SPEED DISPLAY** increases in increments of .5 per press up to 15.



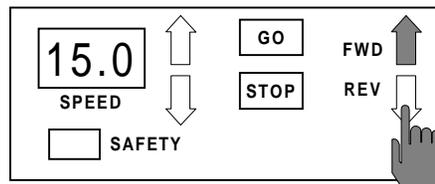
m) Press **STOP**. The bottom rollers stop turning.



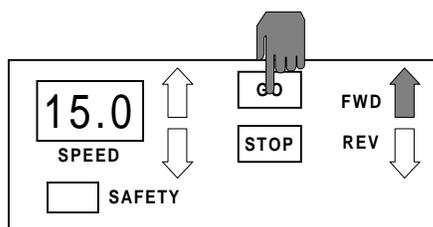
k) Press **FWD ▲**. **FWD** is solid.



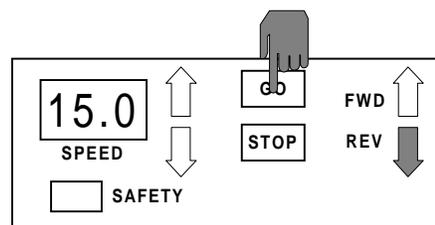
n) Press **REV ▼**. **REV** is solid and **FWD** reverts to hollow.



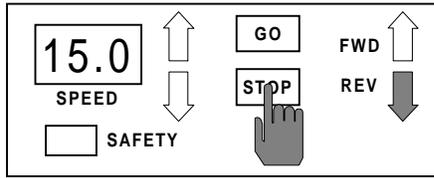
l) Press **GO**. The bottom rollers turn in a forward motion at a speed of 15 ft./min. (4.57 m / min.).



o) Press **GO**. The bottom rollers turn in a reverse motion at a speed of 15 ft./min. (4.57 m / min.).



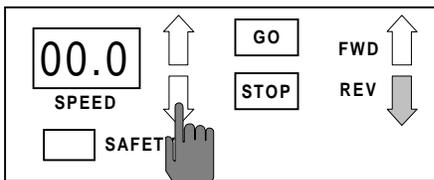
p) Press **STOP**. The bottom rollers stop turning.



WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously **HURT** or **INJURED**!

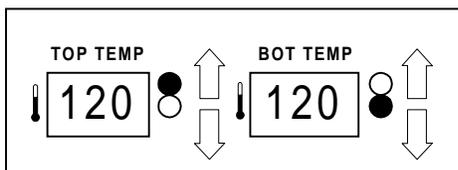
q) Press **SPEED** ▼ once. **SPEED DISPLAY** decreases in increments of .5 per press down to 00.0.



s) Raise the front safety shield, remove the front feed table.

t) Touch the upper and lower main rollers. They should feel warm to the touch.

r) The **TOP TEMP DISPLAY** and **BOT TEMP DISPLAY** are solid indicating the actual temperature is within a +/- 6 °F of the set point temperature.



u) Replace the front feed table and lower the front safety shield.

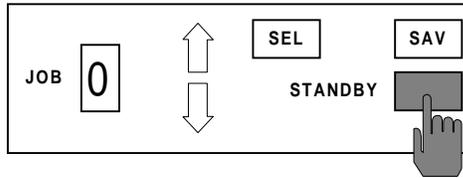


INFORMATION

The **SAFETY** indicator should not be flashing when the tables are properly seated and the safety shields are in the closed position..

- u) Press **STANDBY**. The laminator reverts to the default settings and **STANDBY** is solid. Refer to **Figure 4.11.1 Default settings**

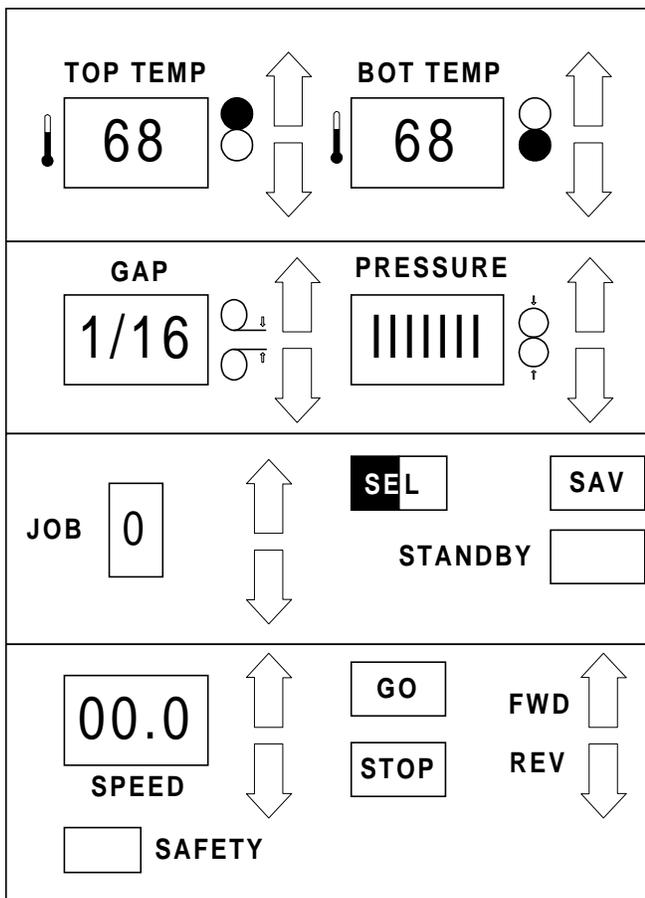
4.11.2 Variable speed footswitch



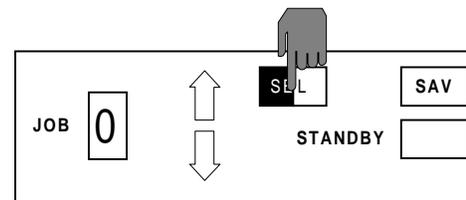
This check is to ensure that the footswitch works. For complete instructions on the footswitch and its relation to “Footswitch” mode to “Panel” mode, refer to **Section 5.1 Controls / (28) Footswitch**.

Figure 4.11.1 Default settings

- a) Press **SEL** on the front control panel to “wake” the laminator from **SLEEP** mode. **SLEEP** indicator reverts to hollow.

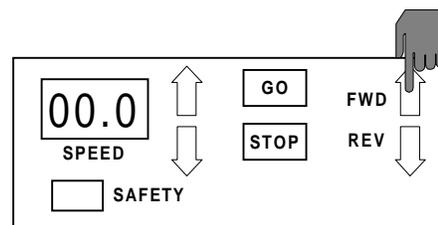


= Flashing

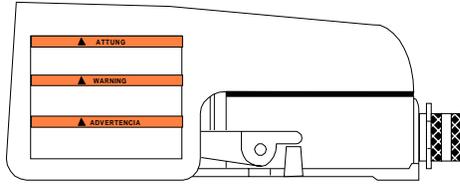


= Flashing

- b) Press **FWD ▲** for a forward motor direction. **FWD** is solid.



- c) Press down on the variable speed footswitch. **GO** begins flashing and the bottom rollers are turning.



WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously **HURT** or **INJURED!**

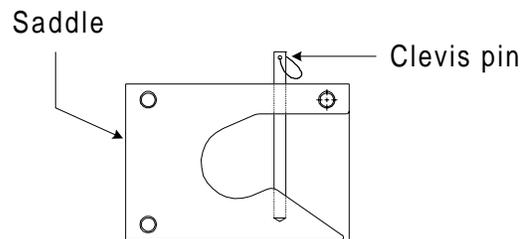


INFORMATION

Footswitch speed is not indicated in the **SPEED DISPLAY** on the control panel.

- a) Raise the rear safety shield.

- b) Lift the clevis pin up from the saddle of the upper unwind shaft.



4.11.3 Unwind shafts and unwind brakes

The unwind shafts swing out and the unwind brakes tension the turning of the shaft from no tension to complete stop tension.

Should you detect or experience complications with the unwind shaft movement or the unwind brake tension, call you local area service representative.

- c) Swing the upper unwind shaft to its fully extended position. Swing back and reseat the shaft in the saddle. The swing movement should be smooth and easy.

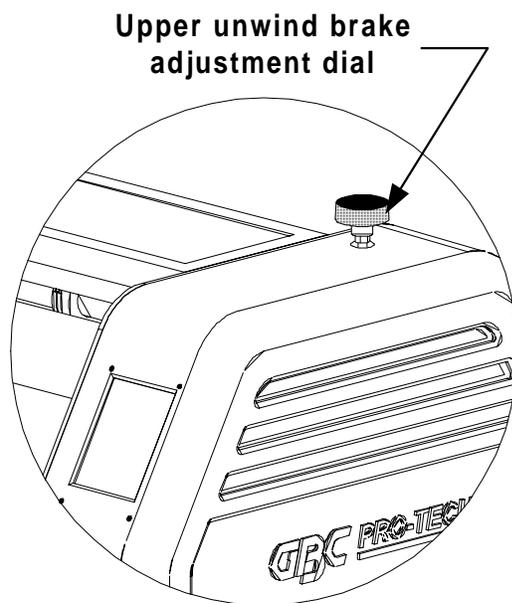
- d) Ensure that the upper unwind brake adjustment knob is backed off completely. The counter clockwise turn should be easy.

**INFORMATION**

Steps "e" and "f" will be performed simultaneously.

e) With one hand, slowly turn the upper unwind shaft in either direction.

f) With the other hand, slowly turn the upper unwind brake adjustment knob clockwise.



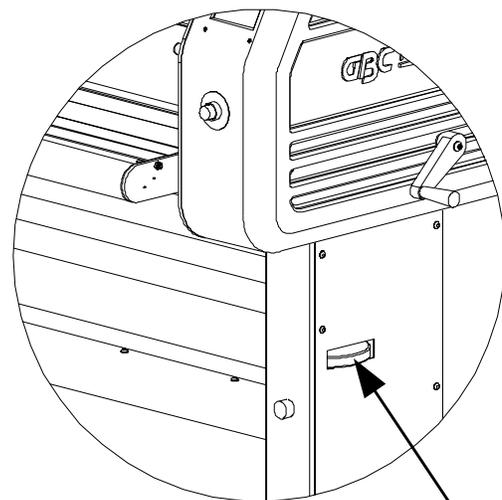
g) You should feel an increase in resistance on the turning of the upper unwind shaft as you turn the upper unwind brake adjustment knob clockwise.

h) Slowly turn the upper unwind brake adjustment knob counter clockwise.

i) You should feel a decrease in resistance on the turning of the upper unwind shaft as you turn the upper unwind brake adjustment knob counter clockwise.

j) Lower the rear safety shield.

k) Repeat steps "b" through "h" again for the lower unwind shaft.



Lower unwind brake adjustment dial

This page intentionally left blank.

Section 5 Operations

The operator control panel for the Falcon 160 CE Laminator is located on the front of the machine, to the right of the front operating position.

For an illustration of the complete front control panel, please refer to **Figure 5.1.1**. The names and functions of these controls are as follows:

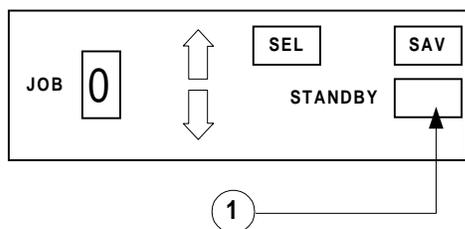


INFORMATION

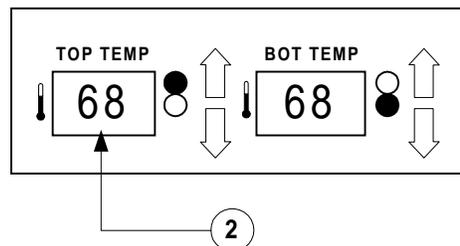
When any command is pressed on the control panel, a "beep" will sound. If the command is held down, the panel will "beep" only once.

5.1 Control Panel

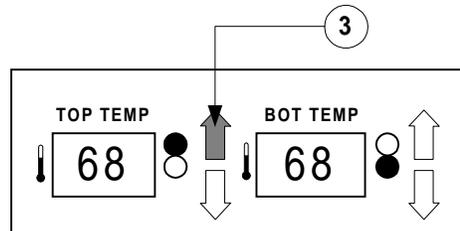
(1) STANDBY: If flashing, the machine is in standby mode. This will occur after 3 hours of no activity. To wake the laminator from standby mode or manual engage standby mode, press **STANDBY**.



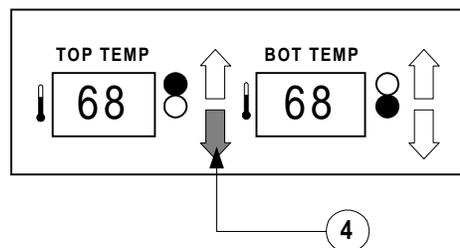
(2) TOP TEMP DISPLAY : The display will show the set point temperature of the top main roller as the default display. When the top roller temperature has reached in the +/- 6 °F range of the set point, the display will be solid. When outside of this range, the display will flash.



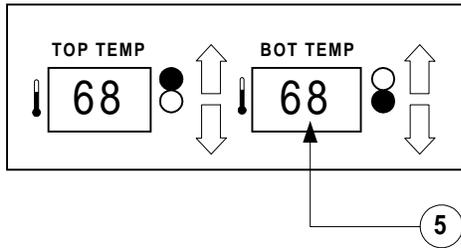
(3) TOP TEMP ▲ : When pressed, will increase the set point value of the top main roller in increments of 2 degrees. If held down, it will only increase to the maximum temperature setting of 290°F (143°C).



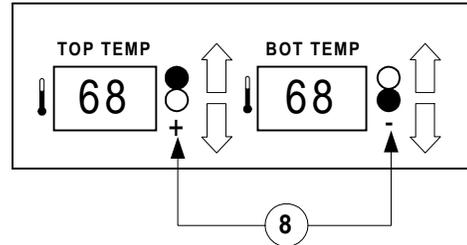
(4) TOP TEMP ▼ : When pressed, will decrease the set point value of the top main roller in increments of 2 degrees. If held down, it will only decrease to the minimum temperature setting of 68°F (20°C).



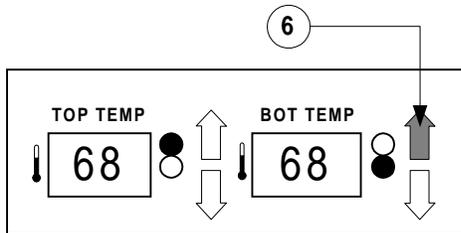
(5) **BOT. TEMP. DISPLAY** : The display will show the set point temperature of the bottom main roller as the default display. When the bottom roller temperature has reached in the +/- 10°F range of the set point, the display will be solid. When outside of this range, the display will flash.



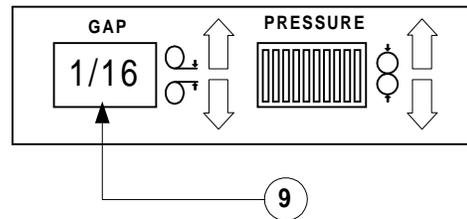
(8) **OVER/ UNDER INDICATORS** : Displays a “+” if the temperature is above the set point. Display a “-” if the temperature is below the set point. If neither (+/-) is displayed, the temperature is within the +/- 6 °F range.



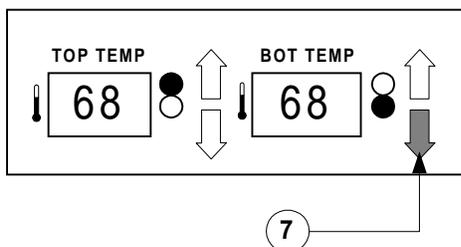
(6) **BOT. TEMP. ▲** : When pressed, will increase the set point value of the bottom main roller in increments of 2 degrees. If this key is held down, it will only increase to the maximum temperature setting of 290°F (143°C).



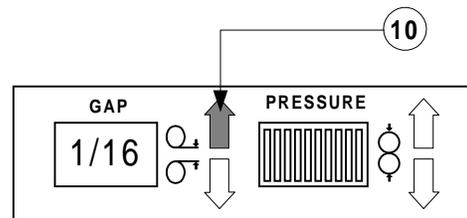
(9) **GAP DISPLAY** : Displays the current main roller nip opening. The nip has a range of 0 to 1” gap.



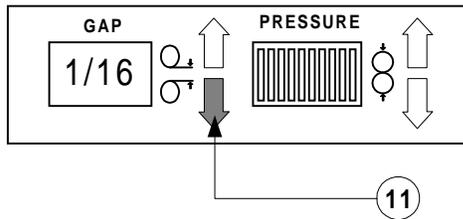
(7) **BOT. TEMP. ▼** : When pressed, will decrease the set point value of the bottom main roller in increments of 2 degrees. If held down, it will decrease to the minimum temperature setting of 68°F (20°C).



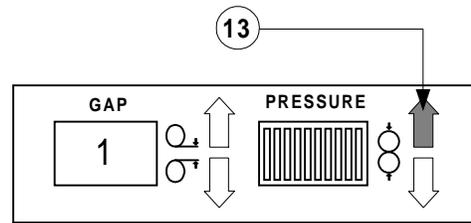
(10) **GAP ▲** : When pressed, will increase the gap by 1/16 in. increments. If held down, it will automatically increase the gap by 1/16 in. increments until it has reached a maximum opening of 1 in. on the **GAP DISPLAY**.



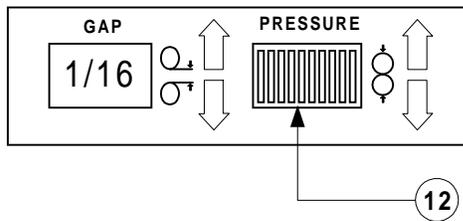
(11) **GAP ▼** : When pressed, will decrease the gap by 1/16 in. increments. If held down, it will automatically decrease the gap by 1/16 in. increments until it has reached a minimum opening of 0 in. on the **GAP DISPLAY**.



(13) **PRESSURE ▲** : When pressed once, will decrease the pressure by 5%. If held down, it will decrease from 100% of the maximum allowed pressure to 0% at which point no bars will be illuminated.



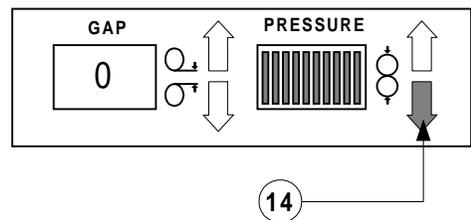
(12) **PRESSURE DISPLAY** : Displays the amount of pressure being used. Each bar represents 10% of the maximum allowable pressure. All ten bars illuminated equals 100% of the maximum allowable pressure.



WARNING

Keep hands and fingers clear of the laminator roller nip when adjusting **PRESSURE**.
You can be **CRUSHED** or **BURNED**!

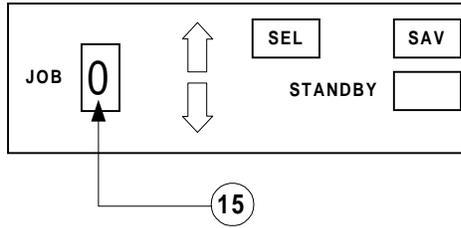
(14) **PRESSURE ▼** : When pressed once, will increase the pressure by 5%. If held down, it will increase from 0% of the minimum allowed pressure to 100% at which point all bars will be illuminated.



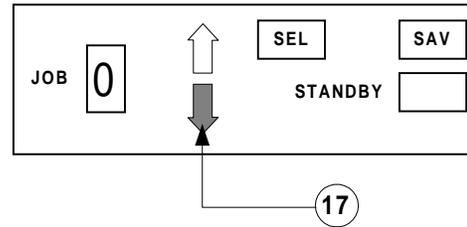
INFORMATION

When adjusting the pressure, the gap will be affected as well.

(15) **JOB DISPLAY** : Displays the job number selected and will set the operating parameters saved for that number once **SEL** has been pressed.



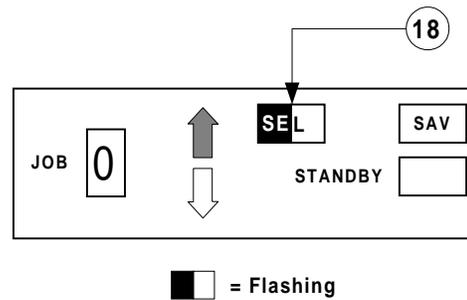
(17) **JOB ▼** : When pressed once will decrease the job number in **JOB DISPLAY** by increments of 1. If pressed and held, the **JOB DISPLAY** will decrease to 0 at which point it will stop.



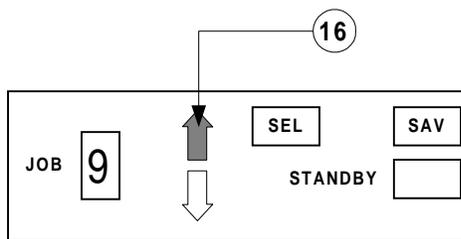
INFORMATION

Job programming is explained in Section 5.4

(18) **SEL** : When pressed will send the operating parameters for the stored job number selected to the correct devices. Any time **JOB ▲** or **JOB ▼** is pressed, **SEL** will flash indicating a change in job number.



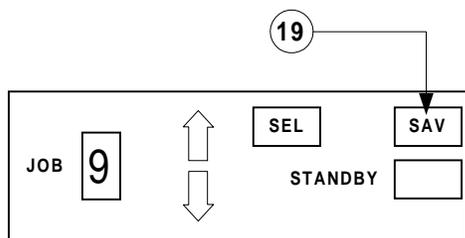
(16) **JOB ▲** : When pressed once will increase the job number in **JOB DISPLAY** by increments of 1. If pressed and held, the **JOB DISPLAY** will increase to 9 at which point it will stop.



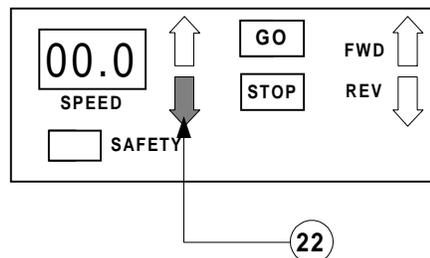
INFORMATION

If not using a JOB number, Press SEL before changing parameters on the control panel.

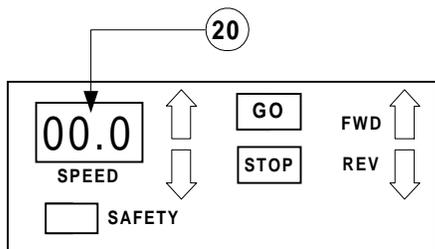
(19) **SAVE** : When pressed and held (approximately 4 seconds), will beep and save the current settings for the number showing in the **JOB DISPLAY**. For more information, refer to **Section 5.4 Job Programming** on how to save parameters.



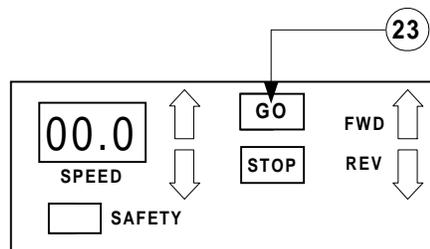
(22) **SPEED ▼**: When pressed, decreases the speed of the laminator in increments of 0.5 ft/min. When pressed and held, speed will automatically decrease by 0.5 ft/min increments until it has reached 0 ft/min.



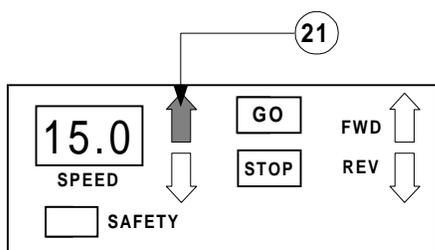
(20) **SPEED DISPLAY** : Displays the current speed setting of the laminator.



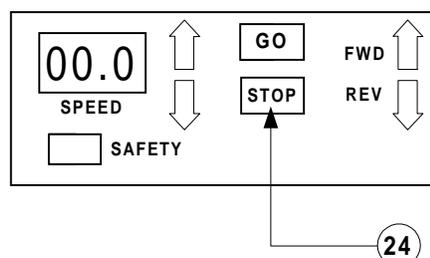
(23) **GO**: When pressed, starts the rollers in motion. **GO** is solid. This solid indication is referred to as the “panel mode”. If a safety shield is raised during “panel mode”, **GO** and **SAFETY** (refer to (27) **SAFETY** for explanation) begin flashing enabling “footswitch” mode. (refer to (28) **FOOTSWITCH** for explanation)



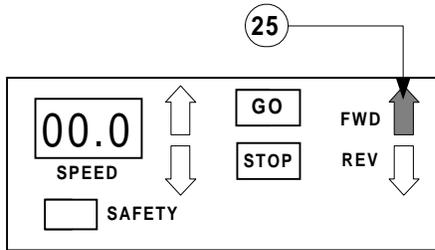
(21) **SPEED ▲**: When pressed, increases the speed of the laminator in increments of 0.5 ft/min. When pressed and held, speed will automatically increase by 0.5 ft/min increments until it has reached the maximum allowed speed of 15 ft/min.



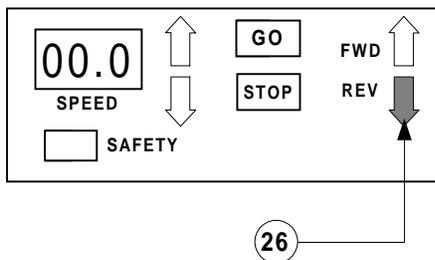
(24) **STOP** : When pressed, stops the rollers and **GO** becomes white.



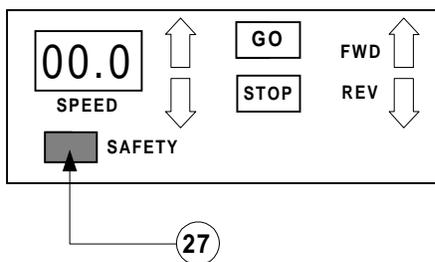
(25) **FORWARD ▲** : When pressed, signals the laminator to run in a forward motion and **FORWARD ▲** becomes solid.



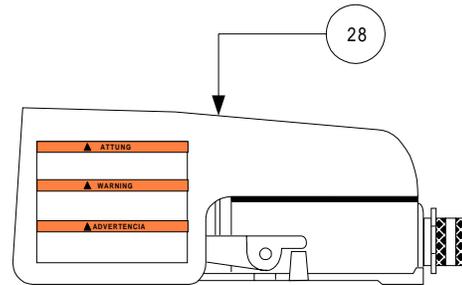
(26) **REVERSE ▼** : When pressed, signals the laminator to run in a reverse motion and **REVERSE ▼** becomes solid.



(27) **SAFETY** : Begins flashing anytime the front or the rear safety shield is in the raised position. This is an indication for the operator to be very careful when operating the laminator in the “Footswitch” mode.



(28) **Variable Speed Footswitch** : The variable speed footswitch, operates the laminator in “Footswitch” mode. Within this mode, if the safety shield is up, speed is determined by the variable speed footswitch but limited to the speed set in the display. If the safety shield is down, the speed is controlled through the control panel.



Panel to Footswitch

1. To switch from “Panel” mode (**GO** is solid) to “Footswitch” mode (**GO** is flashing) with the safety shields in the down position. Perform the following steps;

- Press on the variable speed footswitch. **GO** begins flashing identifying “Footswitch” mode.

- Once the variable speed footswitch is released, the rollers will stop.

- To make the rollers turn, simply press on the variable speed footswitch.



INFORMATION

When the safety shield is in the lowered position and "Footswitch" mode is engaged, speed is controlled through the control panel



INFORMATION

If the variable speed footswitch is not close to the speed of the control panel, output quality may be affected by the speed difference.

Footswitch to Panel

2. To switch from "Footswitch" mode (**GO** is flashing) to "Panel" mode (**GO** is solid) with the safety shields in the down position. Perform the following steps;

- Press and hold the variable speed footswitch down.
- Press and hold **GO** for 3 -4 seconds before releasing the variable speed footswitch.
- Release the variable speed footswitch.
- Release **GO**. **GO** should be solid.

3. In the event that the safety shield must be raised while the laminator is running, Perform the following steps;

To raise the safety shield



WARNING

When operating the laminator using the variable speed footswitch, keep hands and fingers away from the nip of the rollers. You may be **CRUSHED** or **BURNED**!

- Press and hold on the variable speed footswitch. (approximately 1/2 the travel distance of the variable speed footswitch)



CAUTION

Speed is controlled through the variable speed footswitch when the safety shield is in the raised position.

**WARNING**

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously **HURT** or **INJURED**!

- Raise the safety shield.

**INFORMATION**

When a safety shield is raised while pressing on the variable speed footswitch, the speed may be faster or slower than the indicated panel speed.

**INFORMATION**

When the safety shield is raised, the laminator will only run while the variable speed footswitch is depressed.

- Adjust for desired speed using the variable speed footswitch.

**INFORMATION**

Footswitch speed is not indicated in the **SPEED DISPLAY** on the control panel.

To lower the safety shield

- Lower the safety shield.

**INFORMATION**

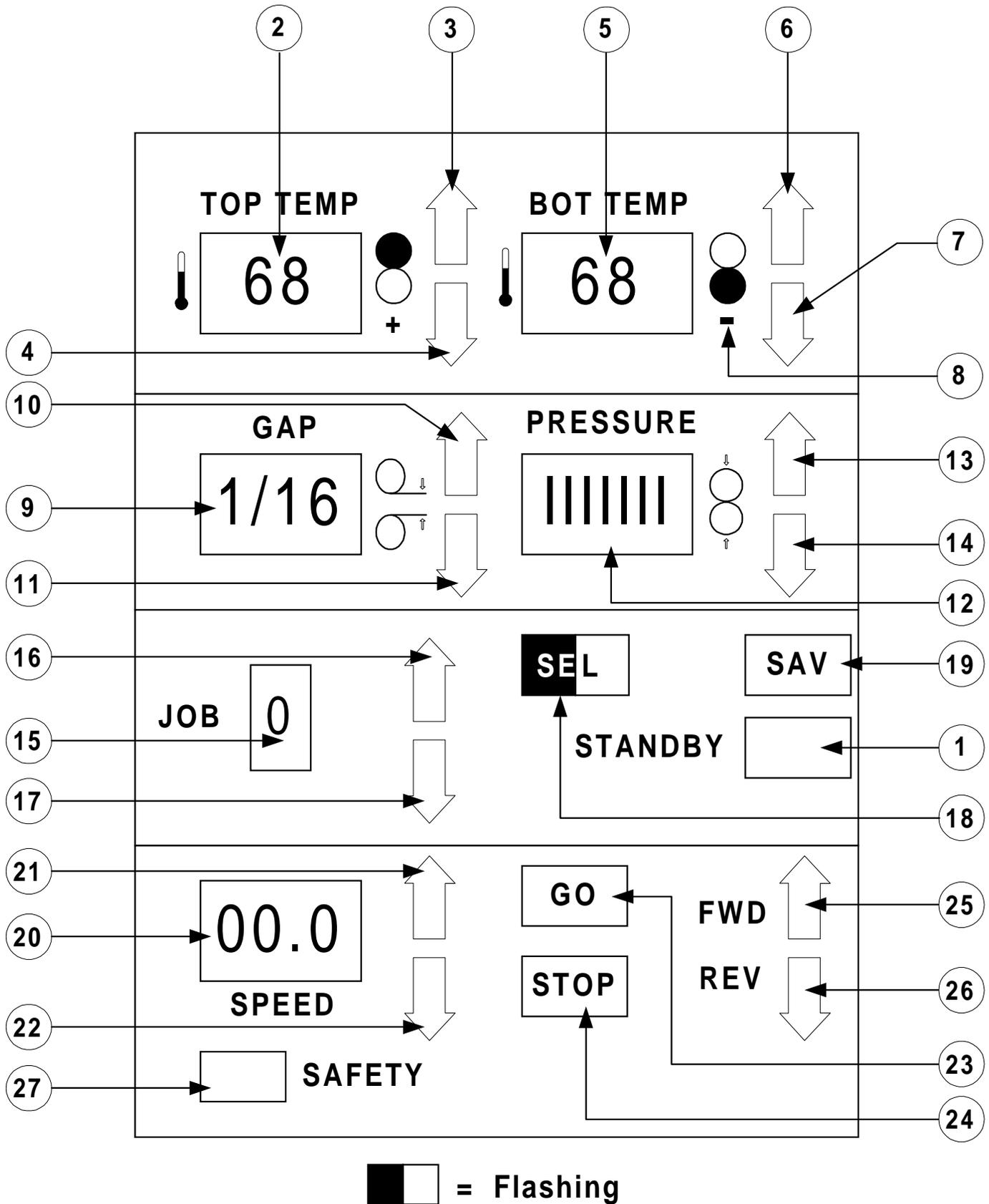
When the safety shield is lowered, speed reverts to the panel speed setting.

- Press and hold **GO** for 3 -4 seconds before releasing the variable speed footswitch.

- Release the variable speed footswitch.

- Release **GO**. **GO** reverts to solid.

Figure 5.1.1 Front control panel



5.2 Emergency

5.2.1 In an emergency

The F-160 CE laminator has been designed with safety as a primary consideration; however, you must become thoroughly familiar with the controls, proper operation, proper service procedures, and safety features of the laminator before using or servicing the unit.

GBC Films Group laminators are powerful machines that are designed to mount, laminate, and encapsulate. The forces required to accomplish these tasks can vary from negligible to very large.

The motorized main roller lift mechanism used to provide downward pressure on the upper main roller is capable of producing forces greater than 400 pounds.



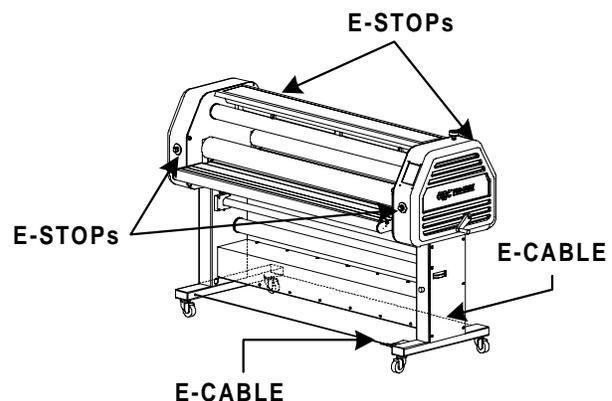
WARNING

This force is applied to any object presented in the opening (called the nip) between the two rollers.

a) In the event of an emergency;

- Press any of the four **E-STOPS**, or

- Step on the front or rear **E-CABLE**



INFORMATION

When an E-STOP or E-CABLE is engaged, all motion stops, main rollers will gap and power is removed.

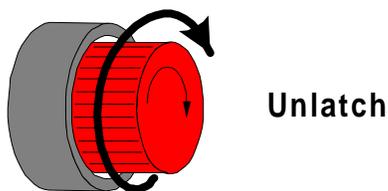
Use care in lowering the upper laminating roller and know how to react quickly in an emergency. The main laminator roll up / down control is located on the right side of the machine within the front control panel. The **GAP** up / down arrows control the motion of the upper laminating roller. Before pressing **GAP** down arrow, ensure the nip area is clear.

b) Resolve the emergency situation.

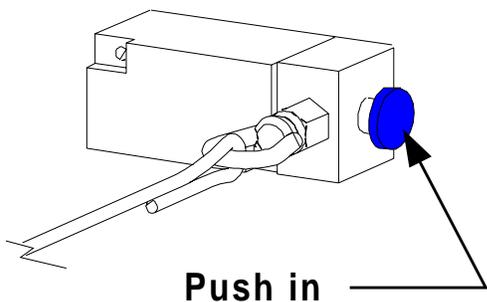
5.2.2 Resume operation

a) Reset the **E-STOP** or the **E-CABLE**.

-Resetting the **E-STOP**



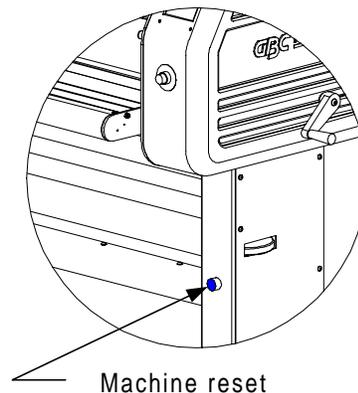
-Resetting the **E-CABLE**



 **INFORMATION**

The laminator will only turn on if all E-STOPS are unlatched and the E-CABLE is reset.

b) Press machine **RESET**. All parameters have defaulted.



 **INFORMATION**

Once **RESET** has been engaged, power will be restored, Laminating rollers will reset to 1 in. GAP and the display will return to it's default settings.

Default mode; TOP TEMP. = 68 °F (20 °C), BOT. TEMP. = 68 oF (20 oC), GAP = 1 in., PRESSURE = no bars are solid, JOB = 0, no motion direction selected, SPEED = 00.0 and SLEEP = flashing

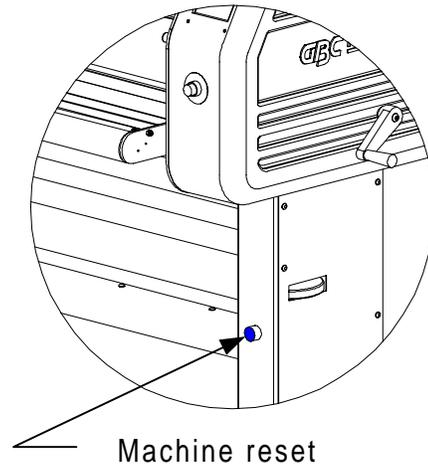
c) Enter the desired operating parameters or select the job number prior to the emergency stop situation.

d) You may now resume operating the laminator.

5.3 Set up

Initial set up of the Falcon 160 CE laminator is easily attained when instructions are followed exactly. It is suggested and helpful if you take the time to read this section thoroughly before attempting to do any of the steps. A complete understanding of this section will enable you to follow the procedures described in **Section 6.1 Application**.

- d) Press machine **RESET**. The front control panel is illuminated.

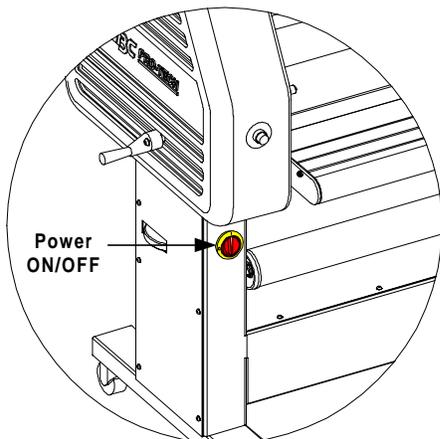


5.3.1 Power

- a) Clear the area around the laminating rollers and pull rollers nip..

- b) Ensure the laminator is plugged in.

- c) Turn the **MAIN POWER** to the “I” position.



5.3.2 Film loading



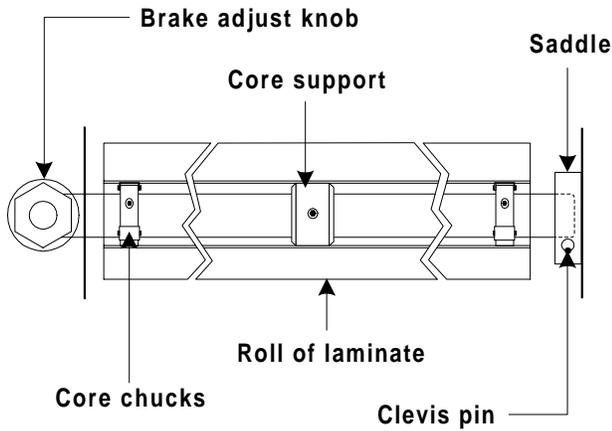
WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously **HURT** or **INJURED!**

- a) Raise the rear safety shield if placing a roll of laminate onto the upper unwind shaft.

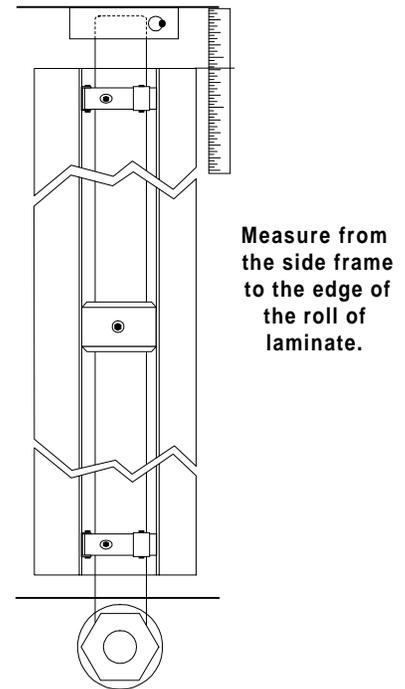
- b) Lift the clevis pin located in the saddle of the upper unwind shaft.

c) Swing the unwind shaft out enough to slide the roll of laminate over the core chucks and onto the unwind shaft.



e) Push the clevis pin back down to secure the unwind shaft its saddle.

f) Now you must center the roll of laminate on the unwind shaft. For centering measurements, refer to **Chart 5.3.1 Measurement chart**.



i INFORMATION

Twisting the roll of film while sliding makes loading the film onto the unwind shaft easier.

d) Onceloaded, swing the unwind shaft back into the saddle.

h) Close the rear safety shield.

! CAUTION

Ensure the roll of laminate is loaded properly on the unwind shaft. Exposed adhesive should be facing away from the rollers. This will prevent hours of roll cleaning!

g) For the lower unwind shaft, repeat steps “b” through “f”.

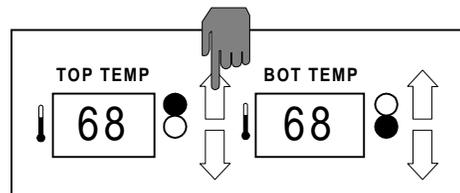
Chart 5.3.1 Measurement chart

5.3.5 Heating

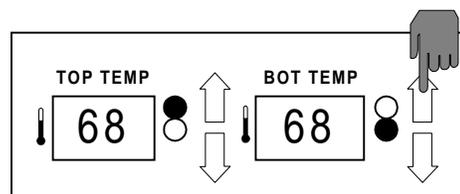
Common film widths	
Film width	Measurement
12 "	28 "
24 "	22 "
31 "	18.5 "
37 "	15.5 "
38 "	15 "
41 "	13.5 "
47 "	10.5 "
49 "	9.5 "
51 "	8.5 "
55 "	6.5 "
58 "	5 "
60 "	4 "
62 "	3 "

Perform the following steps if the application requires heat. Allow the rolls to heat up while rotating for even heat disbursement.

- a) Press **TOP TEMP. ▲** to set your upper roller temperature.



- b) If required, press **BOT. TEMP. ▲** to set your lower roller temperature.



INFORMATION

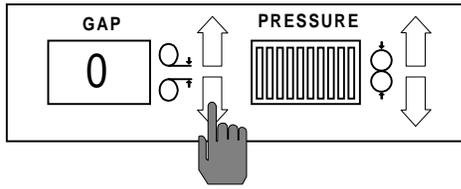
For the lower unwind shaft, add 1/4 in. to the measurement.



INFORMATION

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

c) Press **GAP** ▼ to set the gap to “0”.



INFORMATION

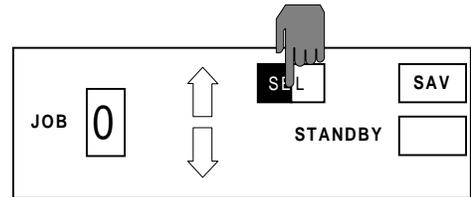
A slow speed helps distribute heat evenly.

f) Press **SEL** to engage the parameters.



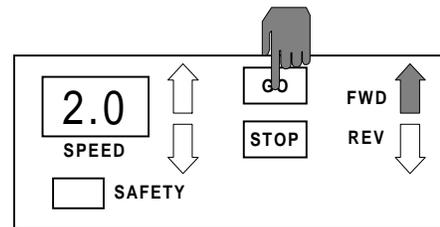
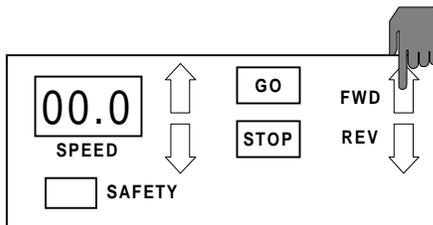
INFORMATION

Do not add **PRESSURE** when heating the laminating rollers. The rollers expand.



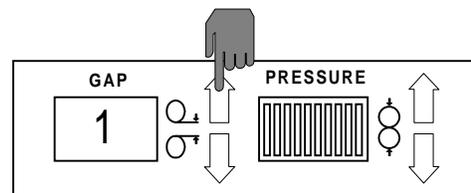
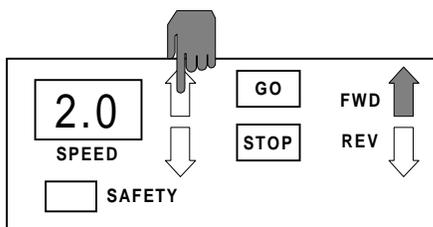
d) Press **FWD** ▲ to set a forward motion direction.

g) Press **GO** to engage the motor drive system.



e) Press **SPEED** ▲ to set a speed of 2 ft/min (.61 m / min.).

h) When the rollers are close to it’s set point value, the temperature displays stop flashing, press **STOP** and raise the gap to 1 in. by pressing **GAP** ▲

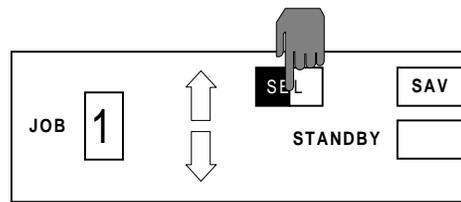


5.4 Job programming

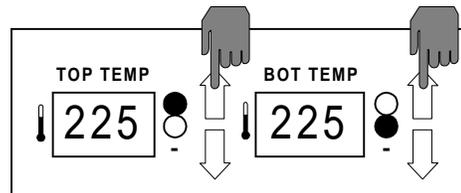
The job save feature is very convenient if the same parameters are required to perform various applications. This procedure will guide you step by step through this feature.

a) Follow the procedure in **Section 5.3.1 Power**.

c) Press **SEL**.



d) If heat is required, press **TOP TEMP. ▲** and **BOT. TEMP. ▲** to desired settings. If no heat is required, leave the settings at 68 °F (20 °C).



INFORMATION

When the laminator is first turned on, the front control panel will go into the default mode.

Default mode; TOP TEMP. = 68 °F (20 °C), BOT. TEMP. = 68 oF (20 oC), GAP = 1 in., PRESSURE = no bars are solid, JOB = 0, no motion direction selected, SPEED = 00.0 and SLEEP = flashing

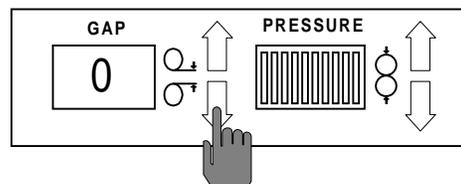
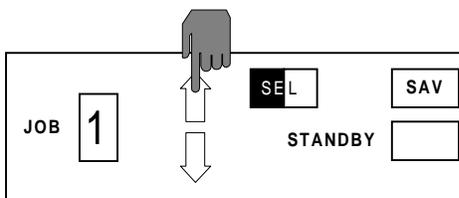


WARNING

Keep hands and fingers clear of the laminator roller nip when changing GAP. You can be **CRUSHED** or **BURNED**!

b) Press **JOB ▲** to enter the desired job number for the parameters you require to be stored.

e) Enter in the **GAP** setting desired by pressing **GAP ▼**.





INFORMATION

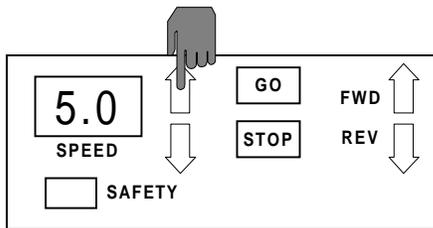
When storing parameters within the JOB SAVE feature of the laminator, **PRESSURE** is not a storable setting.



CAUTION

If you accidentally press SAVE at any time, the old parameters will be replaced with the new parameters.

f) Enter a desired speed by pressing **SPEED ▲**.

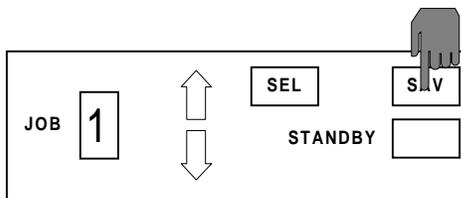


INFORMATION

You should store each job location with its parameters on the chart provided in Chart 5.4.1

Chart 5.4.1 Job save chart

g) Press and hold **SAVE** (approximately 4 seconds) until an audible beep is heard. The parameters entered have just been stored.



JOB #	TOP TEMP.	BOT. TEMP.	GAP	SPEED
1				
2				
3				
4				
5				
6				
7				
8				
9				

h) Repeat steps “b” through “f” to save other parameters in job location numbers.

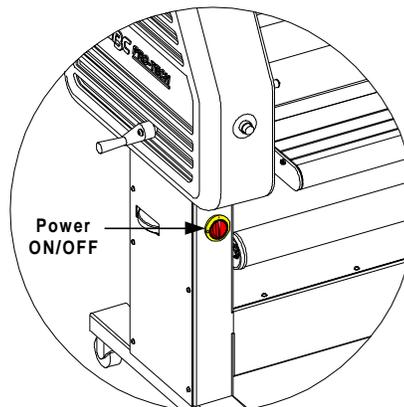
5.5 Manual nip adjustment

If the substrate does not fall within the preset **GAP** settings available, a manual nip setting must be performed.

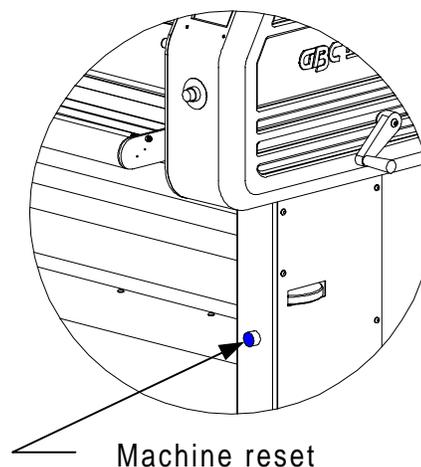
If you are unsure of a substrate thickness, it is recommended that you use the manual nip setting procedure.

If you are performing a mounting application from the rear of the machine, the pull rollers must be set manually. Refer to **Section 5.5.2 Pull roller nip adjustment procedure**.

- a) Turn the **MAIN POWER** to the “I” position.



- b) Press **RESET**. The front control panel will illuminate.



5.5.1 Main roller manual nip adjustment



INFORMATION

The laminator will only turn on if all **E-STOPS** are unlatched and the **E-CABLE** is reset.



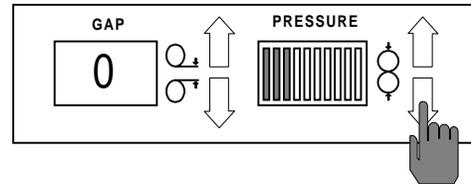
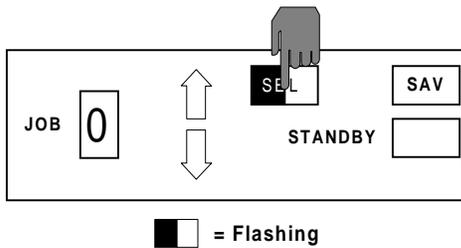
WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously **HURT** or **INJURED!**

c) Raise the front safety shield.

f) At eye level with the main rollers, press **PRESSURE ▼** until you see the upper main roller make contact with the substrate.

d) Press **SEL**.



e) Position the leader board in the center of the main rollers between the nip.

CAUTION

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

CAUTION

Sharp edges on a substrate should be filed smooth and GAP manually adjusted. Sharp edges can CUT the rollers!

INFORMATION

Excessive pressure will cause the substrate to bow or flatten.

INFORMATION

Density of the substrate will determine the amount of pressure you may use.

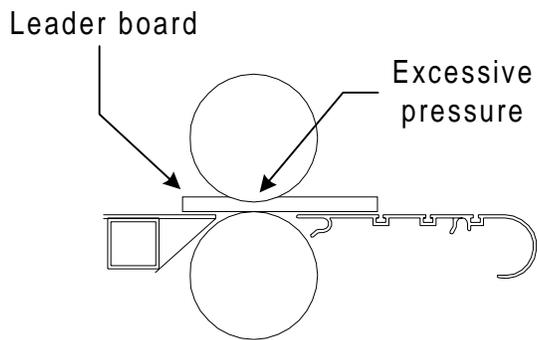
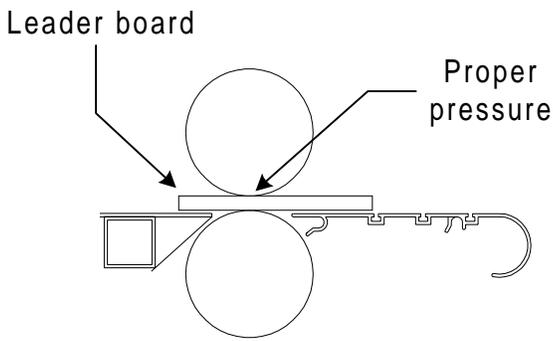
WARNING

Keep hands and fingers clear of the laminator roller nip when changing GAP. You can be CRUSHED or BURNED!

INFORMATION

Refer to Figure 5.5.1 for proper roller pressure.

Figure 5.5.1 Main roller pressure



WARNING

When operating the laminator using the variable speed footswitch, keep hands and fingers away from the nip of the rollers. You may be **CRUSHED** or **BURNED**!

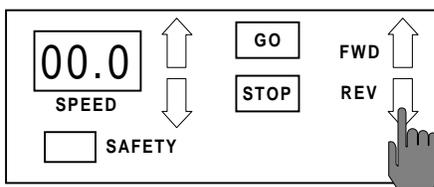
i) Step on the variable speed footswitch to back the leader board out.



CAUTION

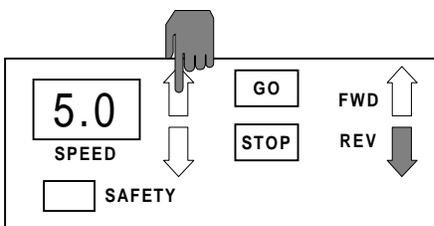
Speed is controlled through the variable speed footswitch when the safety shield is in the raised position.

g) Press **REV** ▼ for a reverse motor direction.

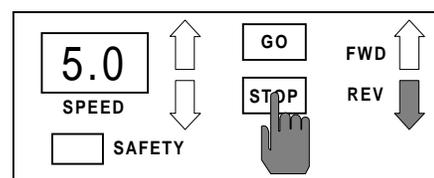


j) The main roller nip has now been manually set.

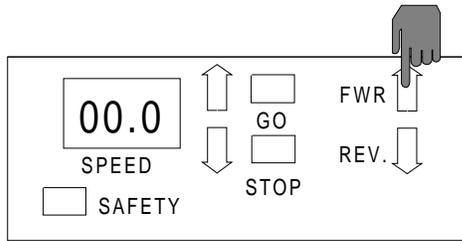
h) Press **SPEED** ▲ to 5.



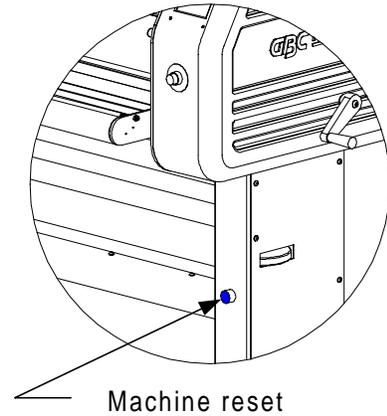
k) Press **STOP**.



l) On the control panel press **FWD ▲** for a forward motor direction. Nip is now set.



b) Press **RESET**. The front control panel will be illuminated.



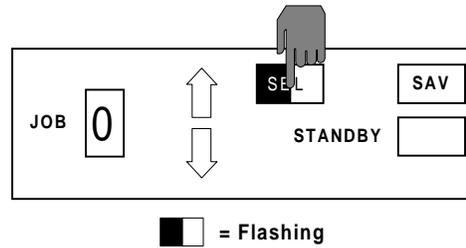
5.5.2 Pull roller manual nip adjustment



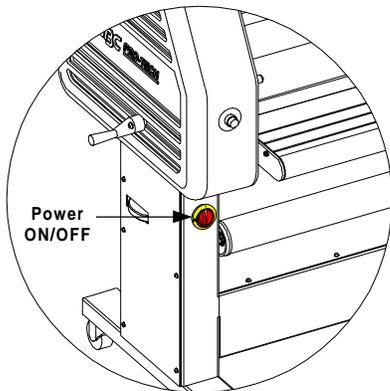
INFORMATION

If the main laminating rollers are heated, mounting application may be run from the rear operating position of the machine.

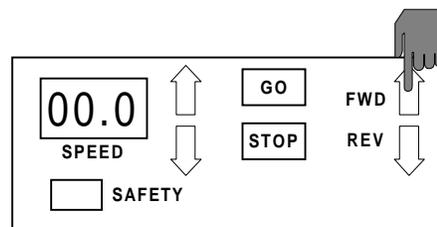
c) Press **SEL**.



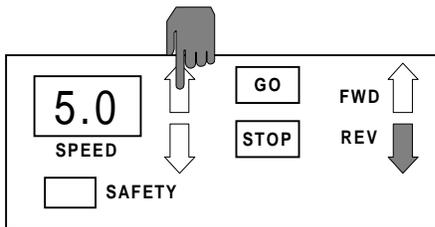
a) Turn the **MAIN POWER** to the “I” position.



d) Press **FWD ▲** for a forward motor direction.



e) Press **SPEED ▲** to 5.



CAUTION

Sharp edges on a substrate should be filed smooth and GAP manually adjusted. Sharp edges can CUT the rollers!

f) Bring the footswitch around to the rear of the laminator.



WARNING

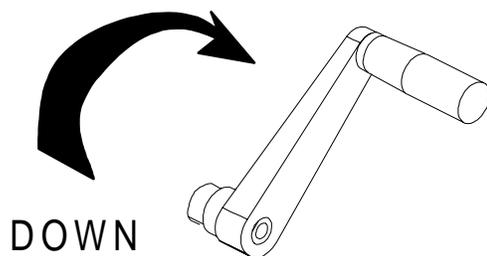
Keep hands and fingers clear of the pull roller nip when changing the gap. You can be CRUSHED!



WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously HURT or INJURED!

i) At eye level with the pull rollers, turn the pull roll crank handle clockwise until you see the upper pull roller make contact with the substrate.



g) Raise the rear safety shield.

h) Position the leader board in the center of the pull rollers between the nip.



CAUTION

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



INFORMATION

Excessive pressure will cause the substrate to bow or flatten.



INFORMATION

Density of the substrate will determine the amount of pressure you may use.



INFORMATION

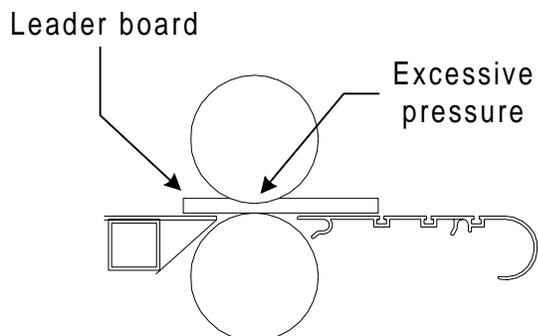
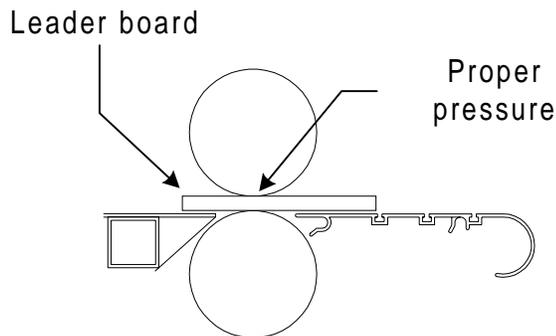
Refer to Figure 5.5.2 for proper roller pressure.



WARNING

When operating the laminator using the variable speed footswitch, keep hands and fingers away from the nip of the rollers. You may be **CRUSHED** or **BURNED**!

Figure 5.5.2 Pull roller pressure



j) Step on the variable speed footswitch to back the leader board out.

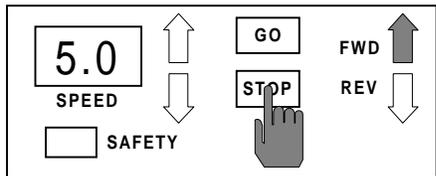


CAUTION

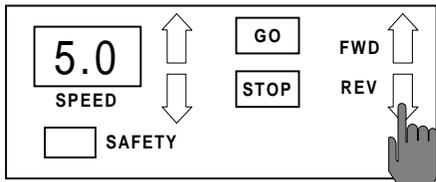
Speed is controlled through the variable speed footswitch when the safety shield is in the raised position.

k) The pull roller nip has now been manually set.

l) Press **STOP**.



m) Press **REV** ▼ for a reverse motor direction.
The nip is now set



5.6.1 Removing the table



WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously **HURT** or **INJURED**!

a) Raise the safety shield.



INFORMATION

SAFETY flashes when a safety feature is not in proper position.

5.6 Front feed table

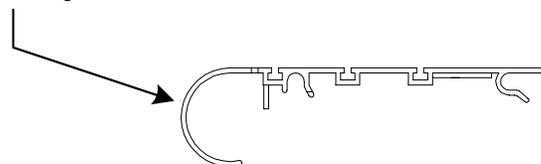
The table is part of the Falcon 160 CE safety feature. It is necessary to have the front feed table properly positioned before using the laminator for an application.



CAUTION

If not installed properly, you can be injured or cause damage to the table or laminator.

Front edge



b) With both hands, grip the front edge of the infeed table and lift up and then out.

5.6.2 Replacing the infeed table

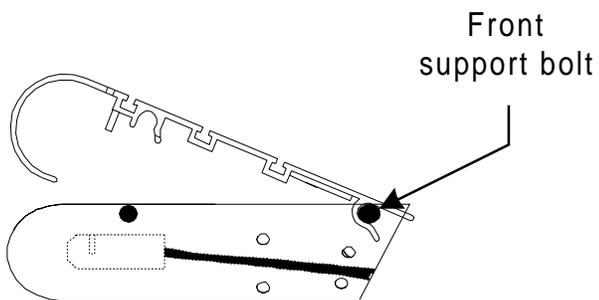


INFORMATION

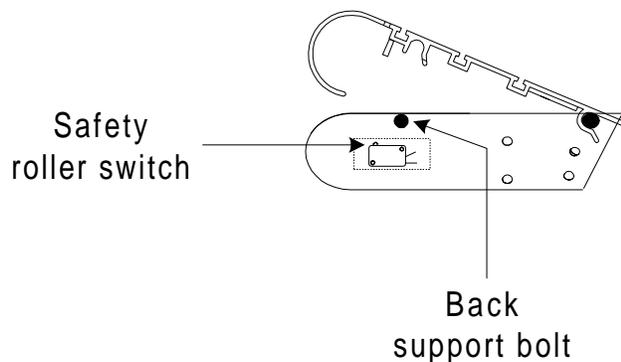
If the tables are not properly seated, the laminator will not operate in "Panel" mode.

- a) Ensure the safety shield is in the raised position.

- b) With both hands, grip the front edge of the infeed table and align the back edge with the support bolts.



- c) Now lower the front edge while ensuring that the pin aligns with the safety roller switch and the back support bolt. Refer to **Figure 5.6.3**



This page intentionally left blank.

Section 6 Applications

To assist you with a variety of web ups, please refer to the process control charts and diagrams.

Process control charts allow you to record the way you thread film through the machine's rollers (called webbing) and the control settings for each application with regards to your products.

This section contains a blank process control chart and diagram for the Falcon 160 CE as well as completed charts and diagrams for the basic operations of the laminator. It is recommended that you make copies of the blanks and fill them in as needed.



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 procedures and parameters described 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, environment conditions, operator experience and various substrates.

6.1 Charts and Diagrams

Use the parameter charts and web up diagrams can to assist you with the applications described. It is recommended that you keep these parameter charts and web up diagrams in the manual for reference. Make copies if you require them in other locations.

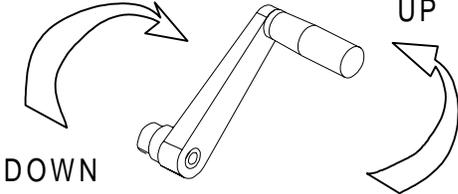
Use the blank parameter chart and blank web up diagram to record specific applications not illustrated in this section. For converting degrees Fahrenheit to degrees Celsius, refer to **Chart 6.1.1**

Parameters will vary with regards to laminate thickness, laminate widths, laminates types, print types, ink or toner types, enviroment conditions, operater experience, and various substrates.

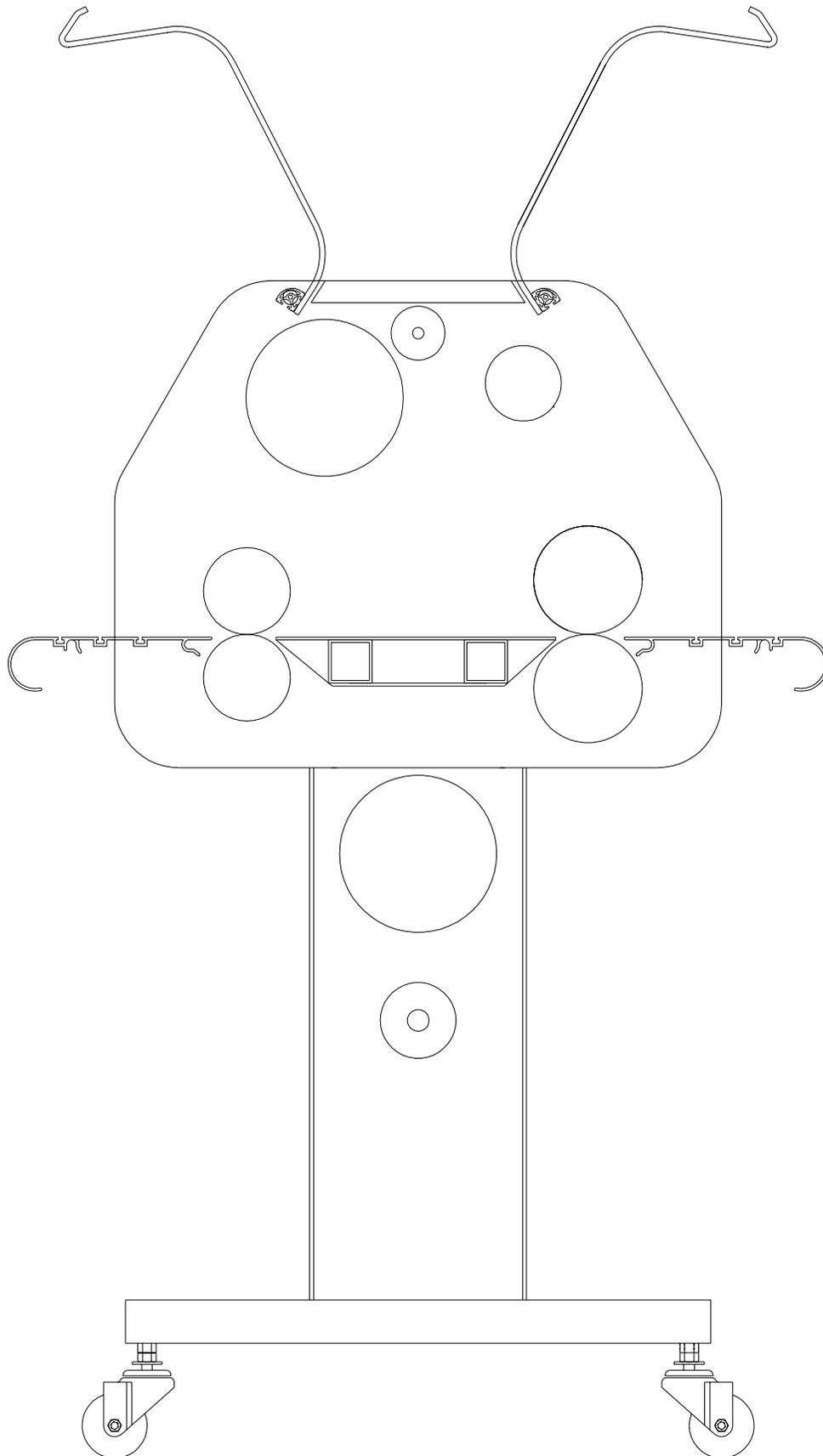
Chart 6.1.1 Temperature conversion chart

° 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		=	

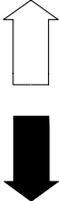
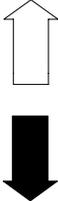
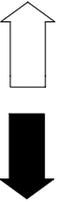
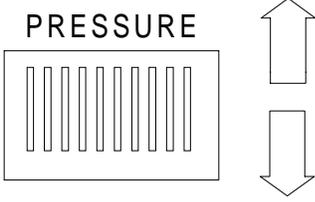
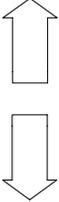
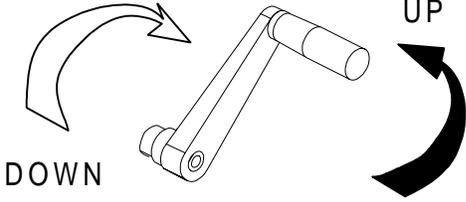
Parameter Chart - Blank

MATERIALS	
UPPER UNWIND : _____	SUBSTRATE : _____
LOWER UNWIND : _____	PRINTS : _____
TEMPERATURE	
TOP TEMP. <input style="width: 100px; height: 40px;" type="text"/>	BOT. TEMP. <input style="width: 100px; height: 40px;" type="text"/>
GAP & PRESSURE	
GAP <input style="width: 100px; height: 40px;" type="text"/>	PRESSURE <input style="width: 100px; height: 40px;" type="text"/>
MOTOR DIRECTION & SPEED	
SPEED <input style="width: 100px; height: 40px;" type="text"/>	<input type="checkbox"/> SOLID = Panel GO <input type="checkbox"/> FLASHING = Footswitch GO
FWR <input style="width: 100px; height: 40px;" type="text"/>	REV. <input style="width: 100px; height: 40px;" type="text"/>
PULL ROLL SETTINGS	
	PRESSURE <ul style="list-style-type: none"> <input type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input type="checkbox"/> 3/4 Turn
NOTES	
_____ _____ _____	

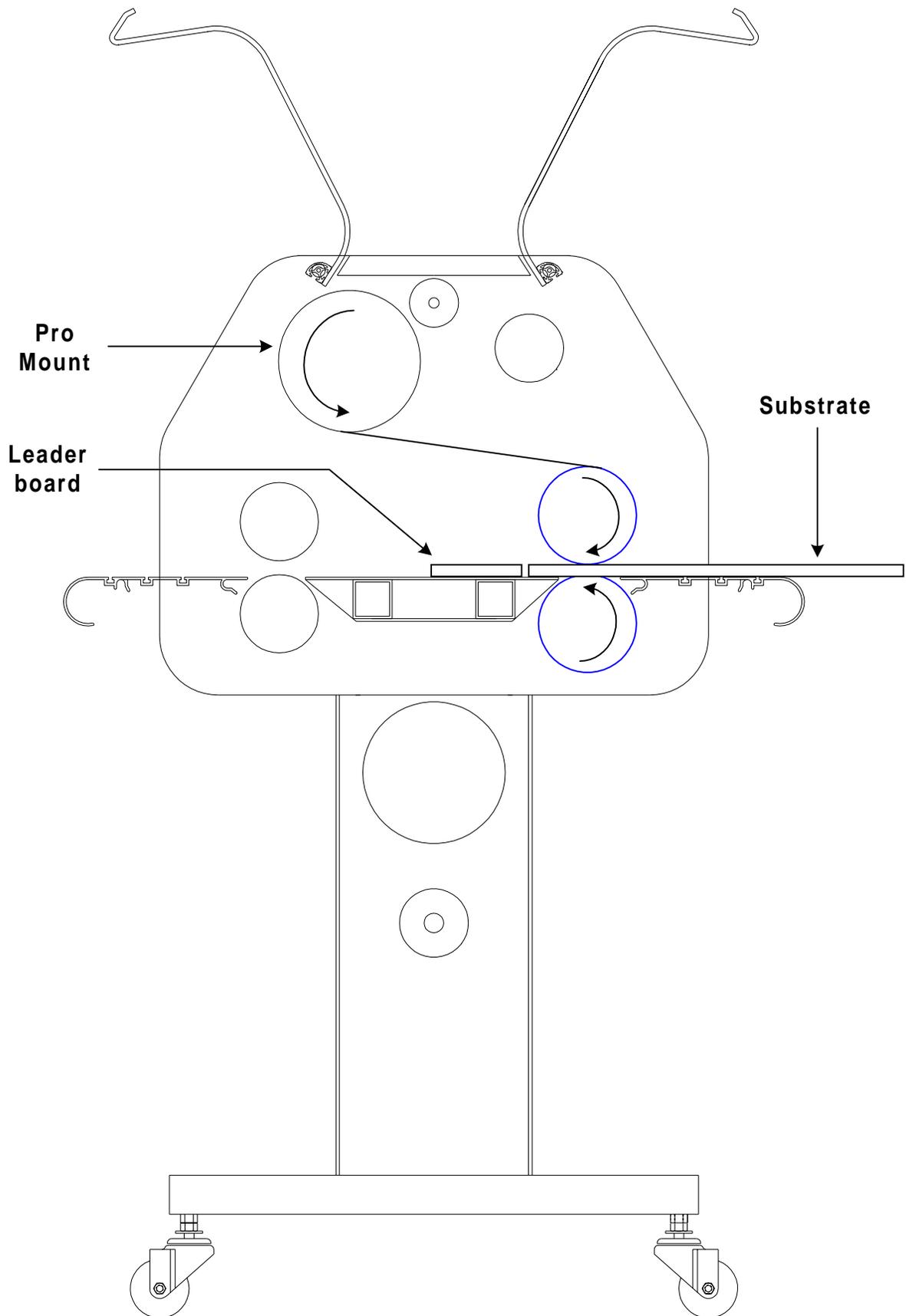
Web Diagram - Blank



Parameter Chart 1 - Precoating substrates

MATERIALS	
UPPER UNWIND : Pro Mount	SUBSTRATE : 1/4" Foam Core
LOWER UNWIND : N / A	PRINTS : N / A
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div> 	BOT. TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div> 
GAP & PRESSURE	
GAP <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">1/4"</div> 	PRESSURE 
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">00.0</div> SPEED 	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> SOLID = Panel GO </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> FLASHING = Footswitch GO </div> <div style="text-align: center;"> FWD  REV.  </div> </div>
PULL ROLL SETTINGS	
	PRESSURE <ul style="list-style-type: none"> <input checked="" type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input type="checkbox"/> 3/4 Turn
NOTES	
<p>Pro Mount can be substituted with a similar product. Substrate can vary. GAP will be dependent on the substrate thickness. Pressure will be determined by operator. Speed is not indicated in Footswitch mode. Because the process is described from the front of the laminator, motor direction is FWD and the pull rolls are not required for this application.</p>	

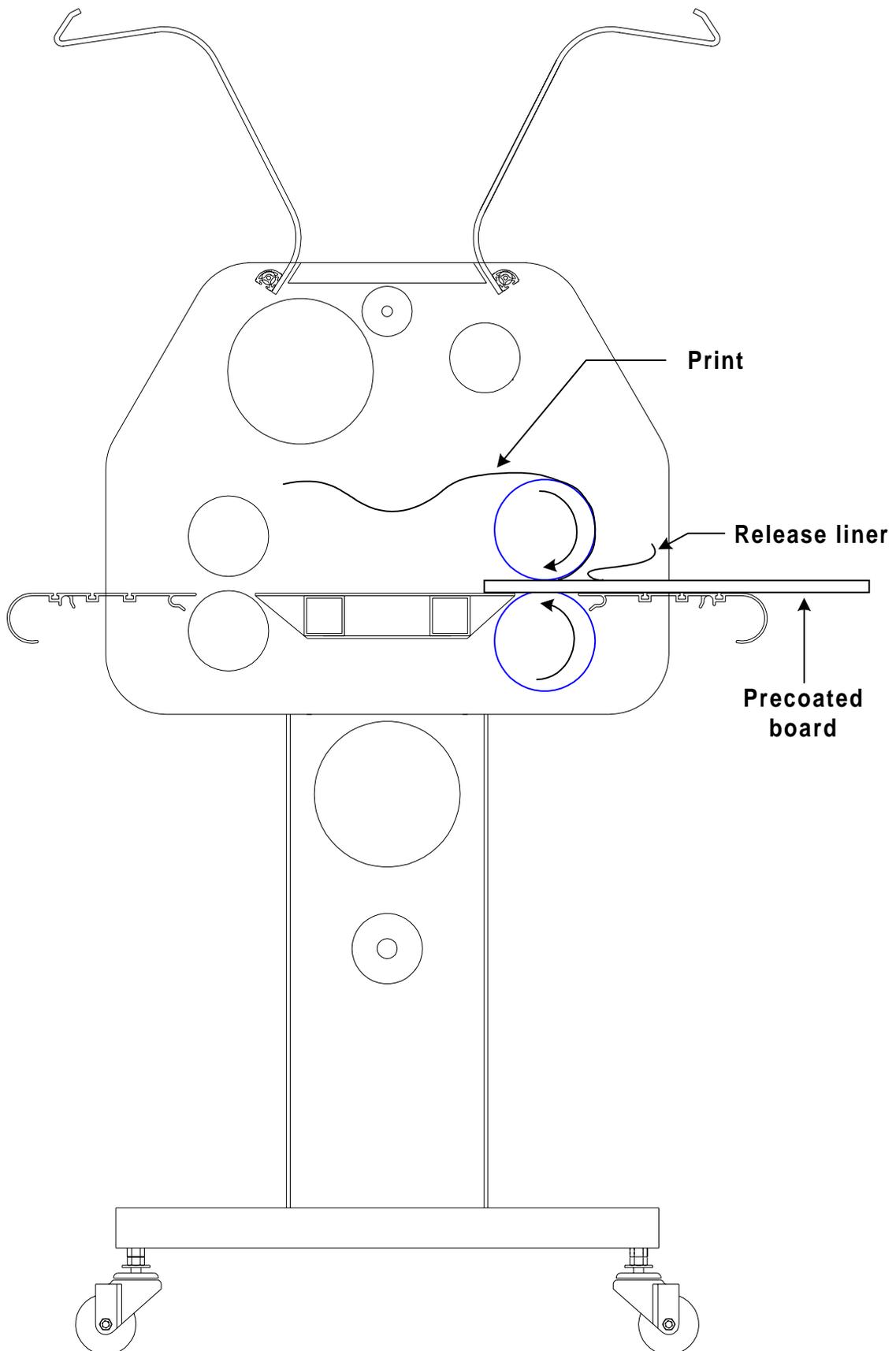
Web Diagram 1 - Precoating substrate



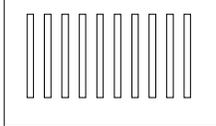
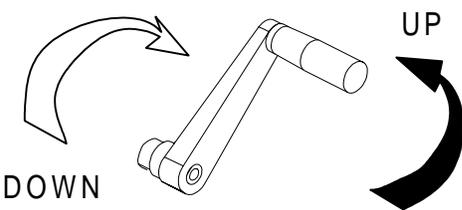
Parameter Chart 2 - Mounting only

MATERIALS	
UPPER UNWIND : N / A	SUBSTRATE : Precoated boards
LOWER UNWIND : N / A	PRINTS : Inkjet prints
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; padding: 5px; display: inline-block; width: 60px; text-align: center; font-size: 24px;">68</div>	BOT. TEMP. <div style="border: 1px solid black; padding: 5px; display: inline-block; width: 60px; text-align: center; font-size: 24px;">68</div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; padding: 5px; display: inline-block; width: 60px; text-align: center; font-size: 24px;">1/4</div>	PRESSURE
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; padding: 5px; display: inline-block; width: 60px; text-align: center; font-size: 24px;">00.0</div> SPEED	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> </div> <div style="text-align: center;"> <input type="checkbox"/> SOLID = Panel GO <input checked="" type="checkbox"/> FLASHING = Footswitch GO </div> <div style="text-align: center;"> FWD REV. </div> </div>
PULL ROLL SETTINGS	
	PRESSURE <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 5px; margin-left: 10px;"> <input checked="" type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input type="checkbox"/> 3/4 Turn </div>
NOTES	
Substrate will vary. Print can be of any type. GAP will be dependent on the substrate thickness. Pressure will be determined by operator. Speed is not indicated in Footswitch mode. Because the process is described from the front of the laminator, motor direction is FWD and the pull rolls are not required for this application.	

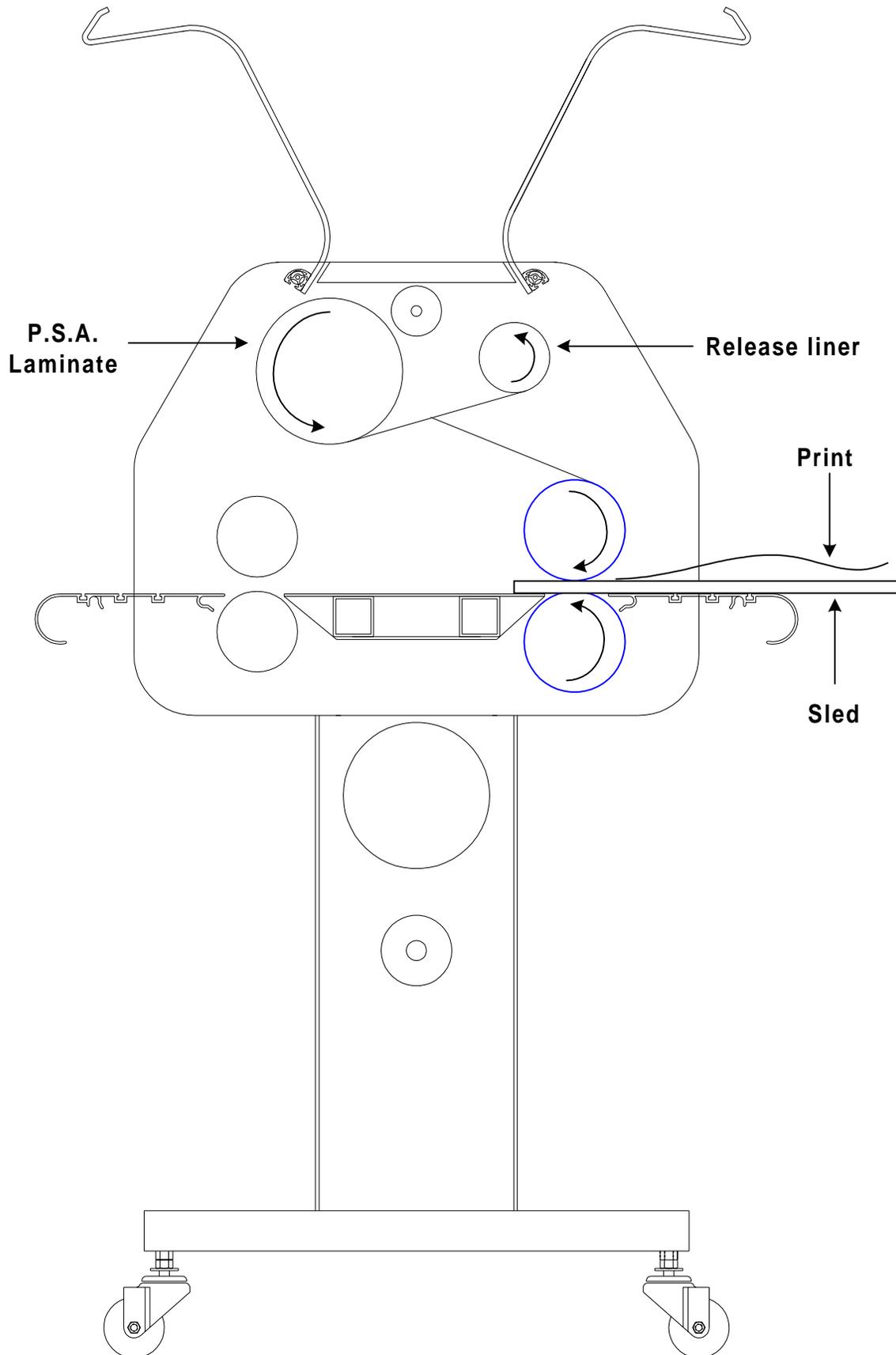
Web Diagram 2 - Mounting only



Parameter Chart 3 - Single sided (Sled)

MATERIALS	
UPPER UNWIND : Pro Gloss	SUBSTRATE : 1/4" Foam Core
LOWER UNWIND : N / A	PRINTS : Inkjet prints
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>	BOT. TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">1/4</div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>	PRESSURE <div style="border: 1px solid black; padding: 5px; width: 100px; margin: 0 auto;">  </div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">00.0</div> SPEED	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ↑ ↓ </div> <div style="text-align: center;"> <input type="checkbox"/> SOLID = Panel GO <input checked="" type="checkbox"/> FLASHING = Footswitch GO </div> <div style="text-align: center;"> ↑ FWD REV. ↓ </div> </div>
PULL ROLL SETTINGS	
	PRESSURE <ul style="list-style-type: none"> <input checked="" type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input type="checkbox"/> 3/4 Turn
NOTES	
Substrate will vary. Print can be of any type. GAP will be dependent on the substrate thickness. Pressure will be determined by operator. Speed is not indicated in Footswitch mode. Because the process is described from the front of the laminator, motor direction is FWD and the pull rolls are not required for this application.	

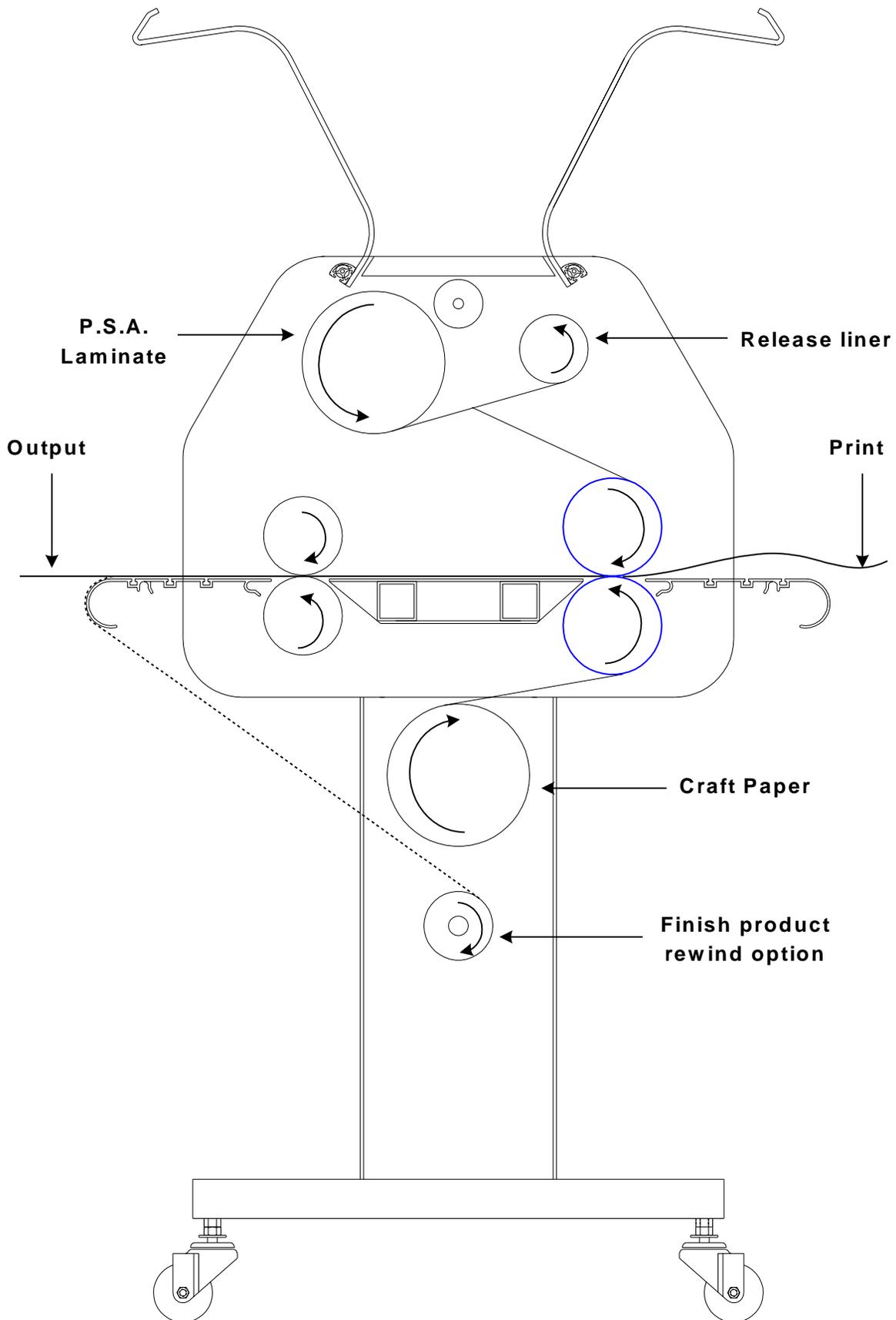
Web Diagram 3 - Single sided (Sled)



Parameter Chart 4 - Single sided (Craft paper)

MATERIALS	
UPPER UNWIND : Pro Gloss	SUBSTRATE : N / A
LOWER UNWIND : Craft Paper	PRINTS : Inkjet prints
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">68</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>	BOT. TEMP. <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">68</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">0</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>	PRESSURE <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> </div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">3 - 6</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div> SPEED	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>SOLID = Panel GO</p> </div> <div style="text-align: center;"> <p>FLASHING = Footswitch GO</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;"> <p>FWD ↑</p> <p>REV. ↓</p> </div> </div>
PULL ROLL SETTINGS	
	PRESSURE <ul style="list-style-type: none"> <input type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input checked="" type="checkbox"/> 3/4 Turn
NOTES	
<p>Upper unwind material can be of similar product. Print can be of any type. Pressure will vary slightly with regards to quality of the output. Speed will be determined by the operator. Pull roll pressure may vary between 1/2 turn and 3/4 turn. Because the process is described from the front of the laminator, motor direction is FWD.</p>	

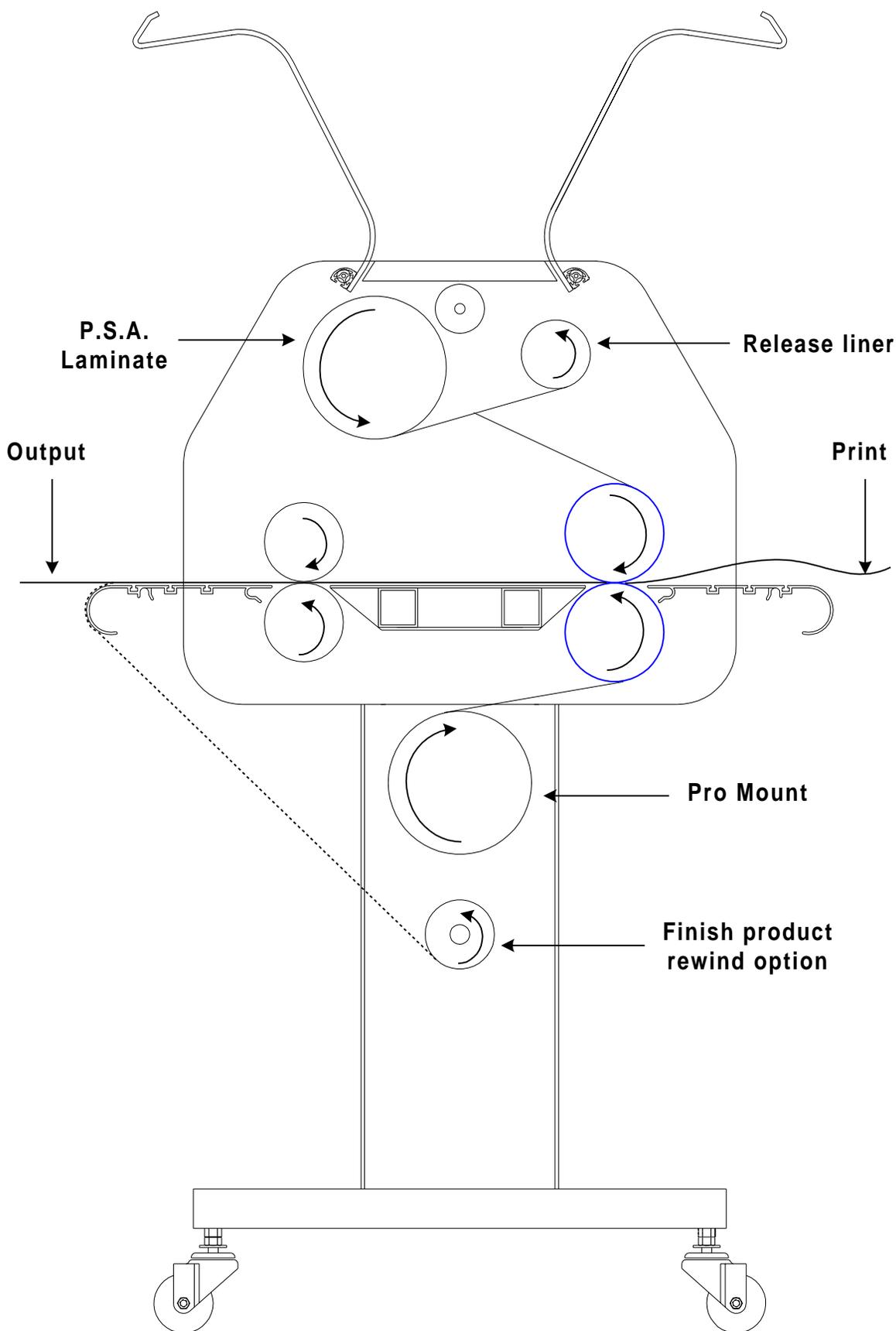
Web Diagram 4 - Single sided (Craft paper)



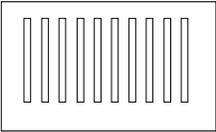
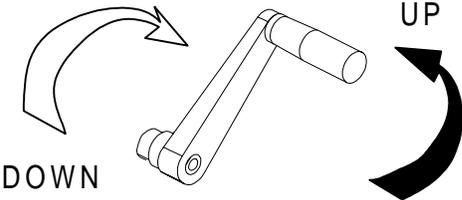
Parameter Chart 5 - Decal and mount (Decal)

MATERIALS	
UPPER UNWIND : Pro Gloss	SUBSTRATE : N / A
LOWER UNWIND : Pro Mount	PRINTS : Inkjet prints
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>	BOT. TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">0</div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>	PRESSURE <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;"> </div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">3 - 6</div> SPEED <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ ↓ </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> SOLID GO = Panel </div> <div style="text-align: center;"> FLASHING GO = Footswitch </div> </div> <div style="margin-top: 20px;"> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> ↑ FWD ↓ REV. </div> </div>
PULL ROLL SETTINGS	
	PRESSURE <ul style="list-style-type: none"> <input type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input checked="" type="checkbox"/> 3/4 Turn
NOTES	
Upper and lower unwind material can be of similar product. Print can be of any type. Pressure will vary slightly with regards to quality of the output. Speed will be determined by the operator. Pull roll pressure may vary between 1/2 turn and 3/4 turn. Because the process is described from the front of the laminator, motor direction is FWD.	

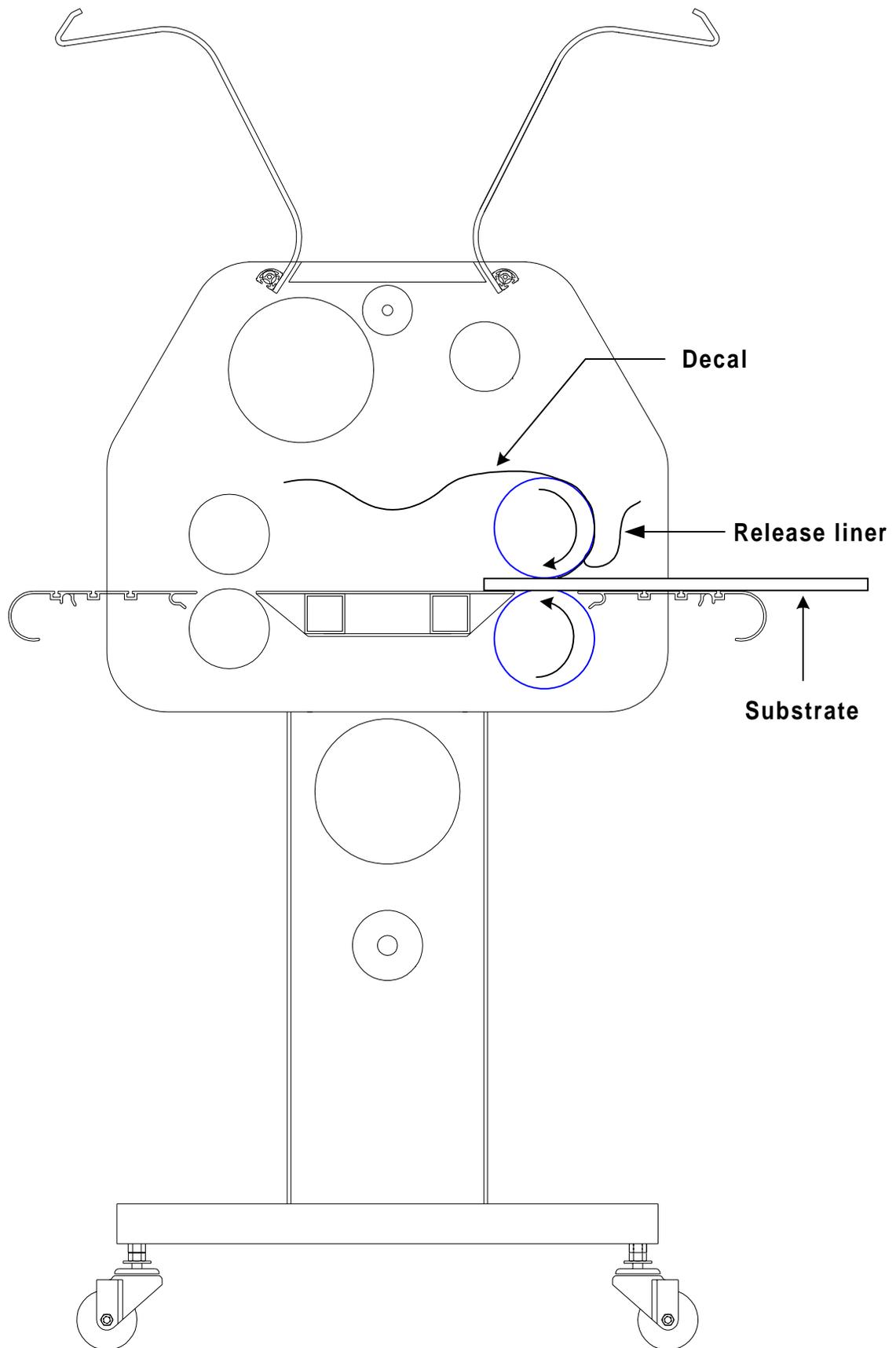
Web Diagram 5 - Decal and mount (Decal)



Parameter Chart 6 - Decal and mount (Mount)

MATERIALS	
UPPER UNWIND : N / A	SUBSTRATE : 1/4" Foam Core
LOWER UNWIND : N / A	PRINTS : Decals
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">68</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>	BOT. TEMP. <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">68</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1/4</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>	PRESSURE <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">  </div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">00.0</div> SPEED <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> SOLID GO = Panel </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> FLASHING GO = Footswitch </div> <div style="text-align: center;"> FWD ↑ REV. ↓ </div> </div>
PULL ROLL SETTINGS	
	PRESSURE <ul style="list-style-type: none"> <input checked="" type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input type="checkbox"/> 3/4 Turn
NOTES	
<p>Decal will come from the previous chart and diagram application. Substrate can vary. GAP will be dependent on the substrate thickness. Pressure will be determined by operator. Speed is not indicated in Footswitch mode. Because the process is described from the front of the laminator, motor direction is FWD and the pull rolls are not required for this application.</p>	

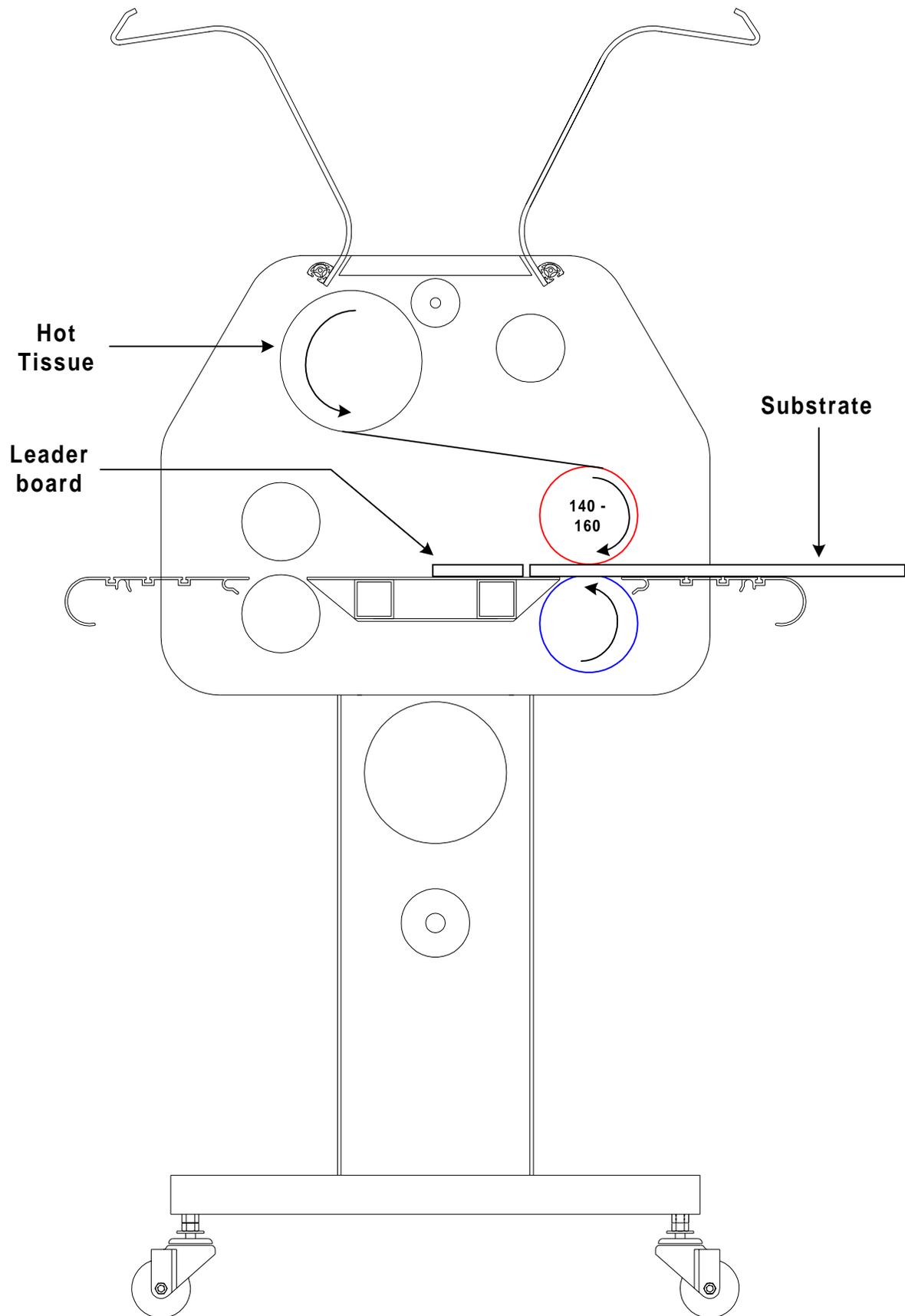
Web Diagram 6 - Decal and mount (Mount)



Parameter Chart 7 - Precoating substrates (Thermal)

MATERIALS	
UPPER UNWIND : Hot Tissue Mount	SUBSTRATE : 1/4" Foam Core
LOWER UNWIND : N / A	PRINTS : N / A
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">140</div>	BOT. TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">1/4</div>	PRESSURE
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">00.0</div> SPEED 	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> SOLID GO = Panel </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> FLASHING GO = Footswitch </div> <div style="text-align: center;"> FWD REV. </div> </div>
PULL ROLL SETTINGS	
	PRESSURE — <ul style="list-style-type: none"> <input checked="" type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input type="checkbox"/> 3/4 Turn
NOTES	
Upper unwind material may be substituted with similar product. Substrate can vary. Top temperature will vary slightly between 140 - 160 °F. Gap will be dependent on the substrate thickness. Pressure will be determined by the operator. Speed is not indicated in Footswitch mode. Because the process is described from the front of the laminator, motor direction is FWD and the pull rolls are not required for this application.	

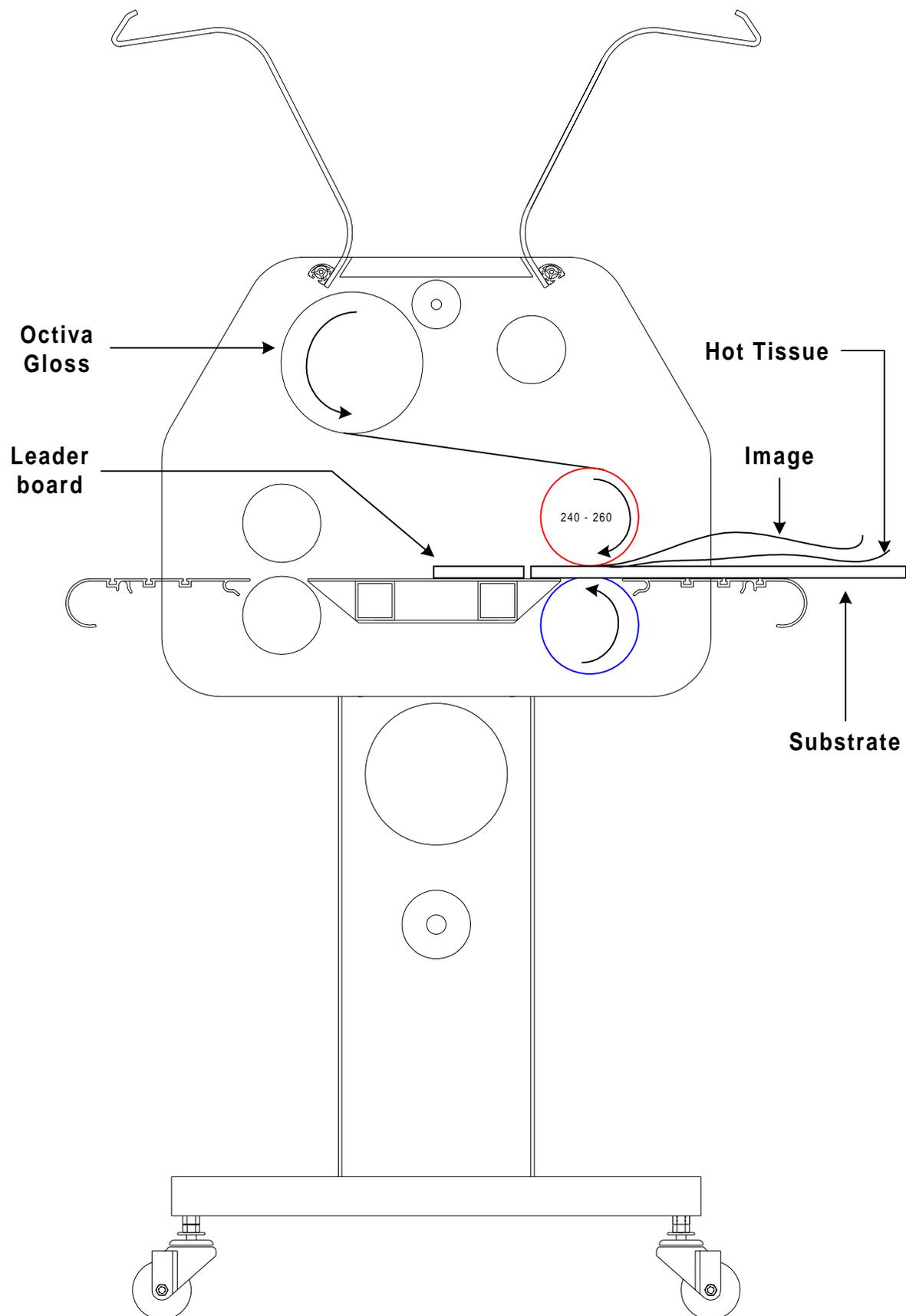
Web Diagram 7 - Precoating substrate (Thermal)



Parameter Chart 8 - One pass mount and laminate

MATERIALS	
UPPER UNWIND : 3 mil Octiva Gloss	SUBSTRATE : 1/4" Foam Core
LOWER UNWIND : N / A	PRINTS : Electrostatic images
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">240</div>	BOT. TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">1/4</div>	PRESSURE
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">00.0</div> SPEED 	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> SOLID GO = Panel </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> FLASHING GO = Footswitch </div> <div style="text-align: center;"> FWD REV. </div> </div>
PULL ROLL SETTINGS	
	PRESSURE <ul style="list-style-type: none"> <input checked="" type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input type="checkbox"/> 3/4 Turn
NOTES	
Upper unwind material may be substituted with similar product. Substrate can vary. Top temperature will vary slightly between 240 - 260 °F depending on laminate thickness. Gap will be dependent on the substrate thickness. Pressure will be determined by the operator. Speed is not indicated in Footswitch mode. Because the process is described from the front of the laminator, motor direction is FWD and the pull rolls are not required for this application.	

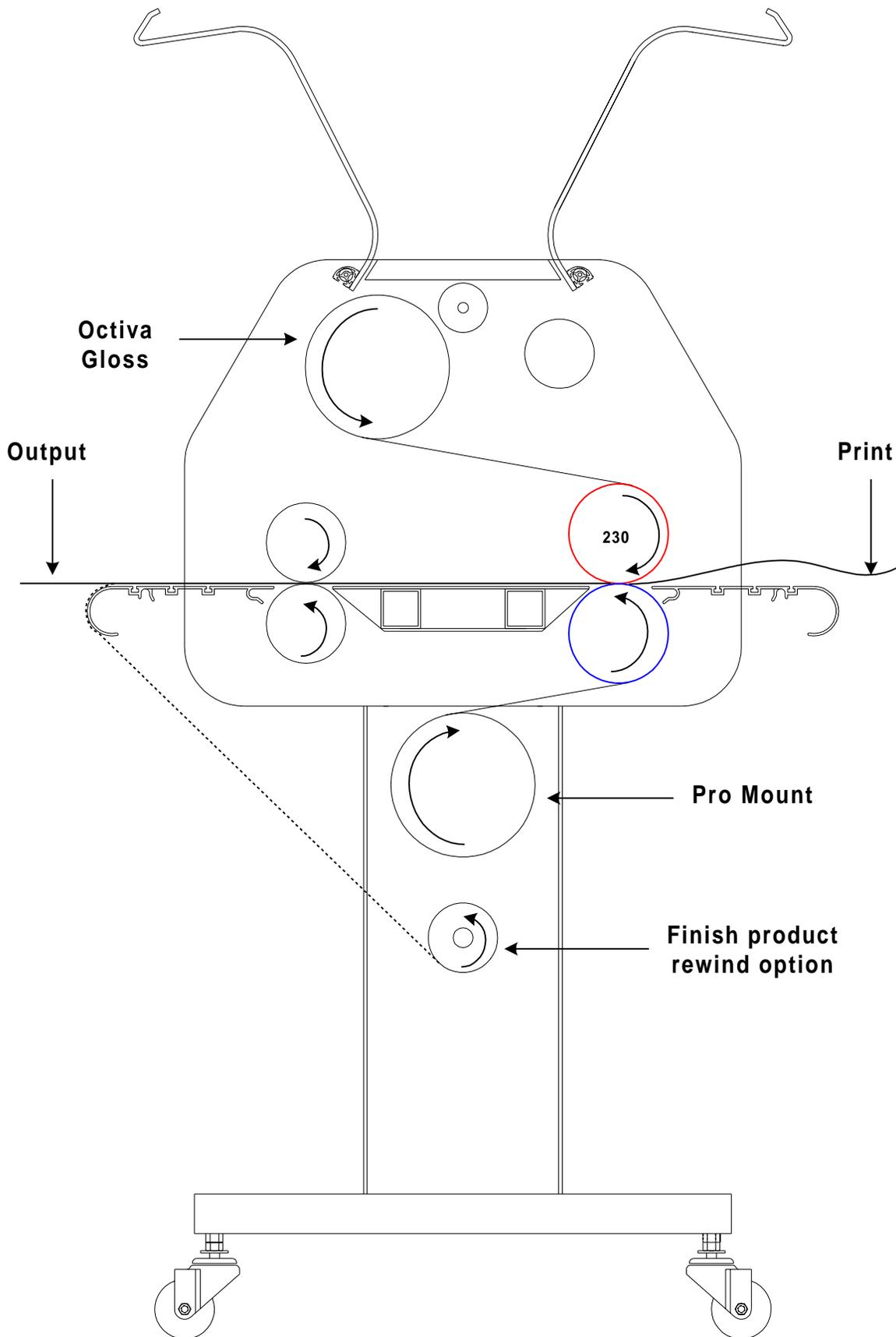
Web Diagram 8 - One pass mount and laminate



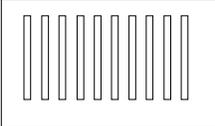
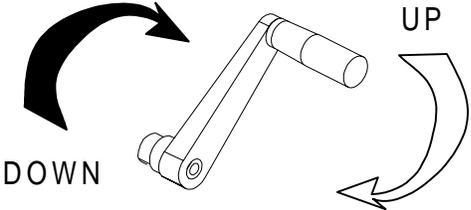
Parameter Chart 9 - Thermal decal and Mount (Decal)

MATERIALS	
UPPER UNWIND : 3 mil Octiva Gloss	SUBSTRATE : N / A
LOWER UNWIND : Pro Mount	PRINTS : Any type
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">230</div>	BOT. TEMP. <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">68</div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">0</div>	PRESSURE
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; padding: 5px; width: 60px; margin: 0 auto;">3 - 6</div> SPEED 	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>SOLID = Panel GO</p> </div> <div style="text-align: center;"> <p>FLASHING = Footswitch GO</p> </div> <div style="text-align: center;"> <p>FWD </p> <p>REV. </p> </div> </div>
PULL ROLL SETTINGS	
	PRESSURE — <ul style="list-style-type: none"> <input type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input checked="" type="checkbox"/> 3/4 Turn
NOTES	
Upper and lower unwind material can be of similar product. Print can be of any type. Pressure will vary slightly with regards to quality of the output. Speed will be determined by the operator. Pull roll pressure may vary between 1/2 turn and 3/4 turn. Because the process is described from the front of the laminator, motor direction is FWD.	

Web Diagram 9 - Thermal decal and mount (Decal)



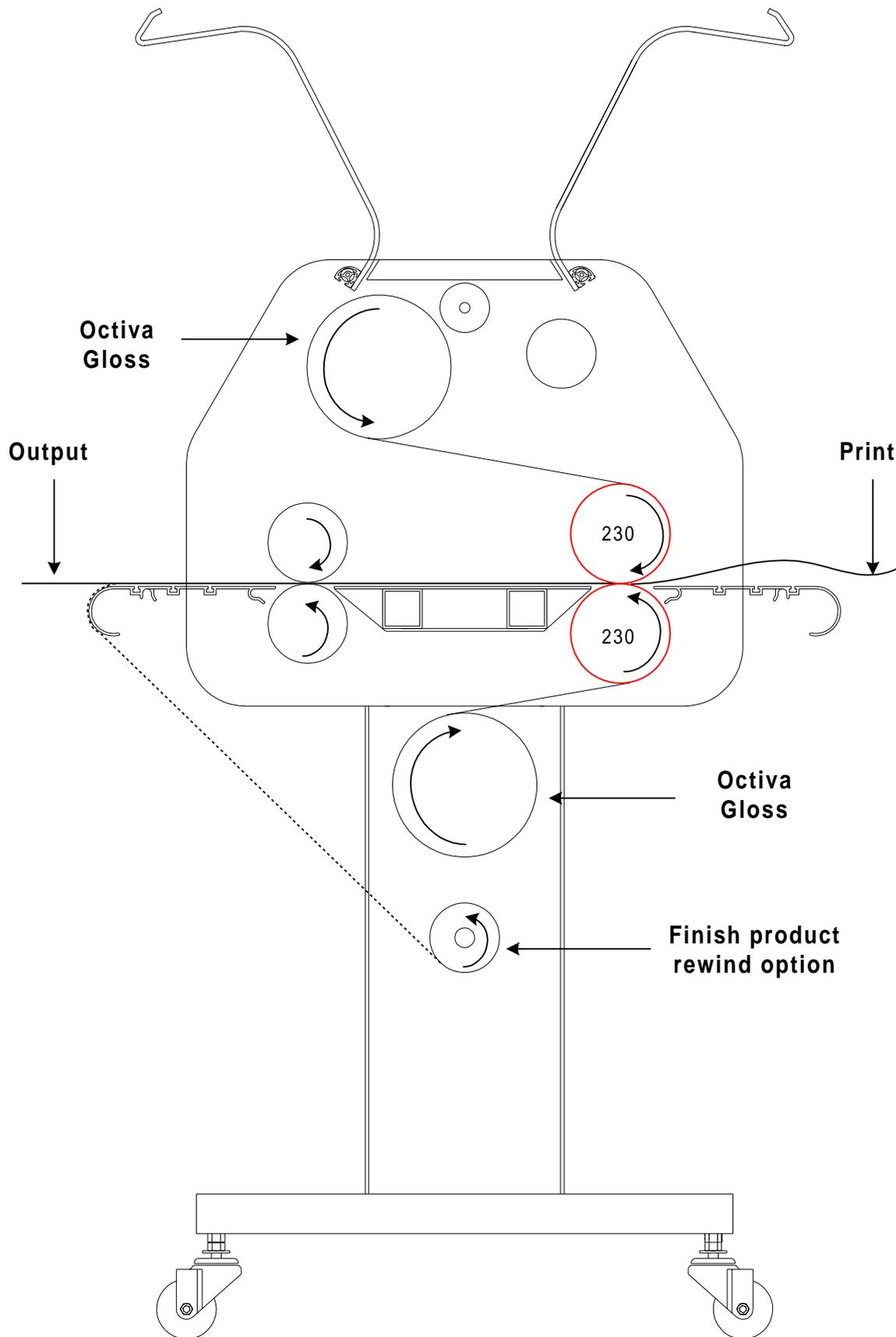
Parameter Chart 10 - Thermal decal and Mount (Mount)

MATERIALS	
UPPER UNWIND : N / A	SUBSTRATE : N / A
LOWER UNWIND : N / A	PRINTS : Decals
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">68</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>	BOT. TEMP. <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">68</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>	PRESSURE <div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">  </div> <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">0.00</div> SPEED <div style="display: flex; flex-direction: column; align-items: center; margin-top: 5px;"> ↑ ↓ </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> SOLID = Panel GO </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> FLASHING = Footswitch GO </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;"> FWD ↑ </div> <div style="text-align: center;"> REV. ↓ </div> </div>
PULL ROLL SETTINGS	
	PRESSURE <ul style="list-style-type: none"> <input type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input type="checkbox"/> 3/4 Turn
NOTES	
The mounting process is done from the rear position of the laminator to avoid the waiting period involved with cooling down the main rollers. The rollers may be left heated or turn them down 68 °F. Pull roller pressure will be dependent of the substrate. Apply the necessary pressure without crushing the board.	

Parameter Chart 11 - Encapsulation

MATERIALS	
UPPER UNWIND : 3 mil Octiva Gloss	SUBSTRATE : N / A
LOWER UNWIND : 3 mil Octiva Gloss	PRINTS : Any type
TEMPERATURE	
TOP TEMP. <div style="border: 1px solid black; padding: 10px; display: inline-block; margin: 5px;">240</div>	BOT. TEMP. <div style="border: 1px solid black; padding: 10px; display: inline-block; margin: 5px;">240</div>
GAP & PRESSURE	
GAP <div style="border: 1px solid black; padding: 10px; display: inline-block; margin: 5px;">0</div> 	PRESSURE
MOTOR DIRECTION & SPEED	
<div style="border: 1px solid black; padding: 10px; display: inline-block; margin: 5px;">0 - 7</div> SPEED	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <div style="margin-top: 5px;">SOLID = Panel GO</div> </div> <div style="text-align: center;"> <div style="margin-top: 5px;">FLASHING = Footswitch GO</div> </div> <div style="text-align: center;"> FWD REV. </div> </div>
PULL ROLL SETTINGS	
	PRESSURE — <ul style="list-style-type: none"> <input type="checkbox"/> N / A <input type="checkbox"/> 1/4 Turn <input type="checkbox"/> 1/2 Turn <input checked="" type="checkbox"/> 3/4 Turn
NOTES	
Upper and lower unwind material may be substituted with similar products. Top and bottom temperature will be dependent on film thickness . Pressure may vary according to the output. Speed will be dependent on image type. Pull roll pressure will vary between 1/2 turn and 3/4 turn, depending on the film output quality. Because the process is described from the front of the laminator, motor direction is FWD.	

Web Diagram 11 - Encapsulation



This page intentionally left blank.

Section 7 Troubleshooting

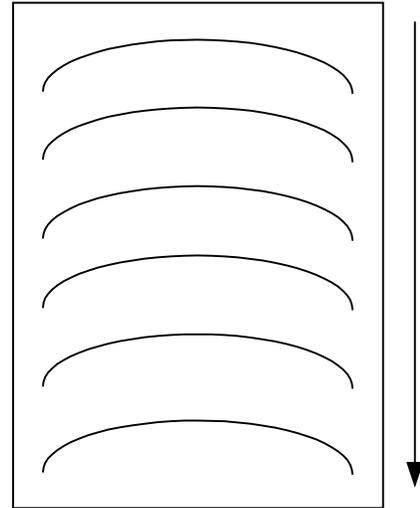
Problem: D waves in the image but not in the laminate



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.



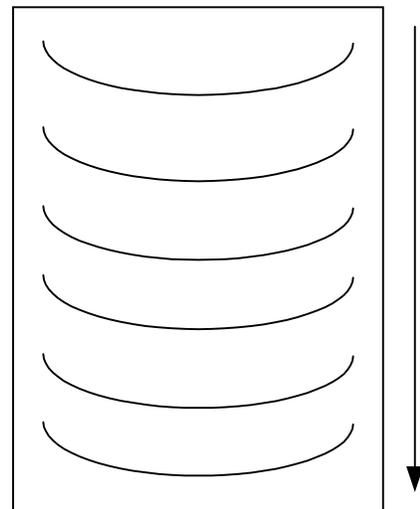
- Hints:**
- Check paper tension
 - Check relative moisture content of the paper

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).

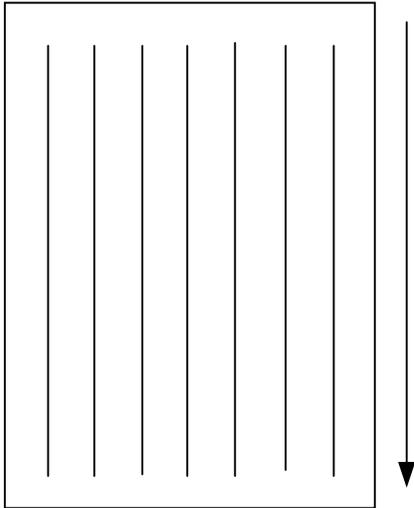


INFORMATION

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

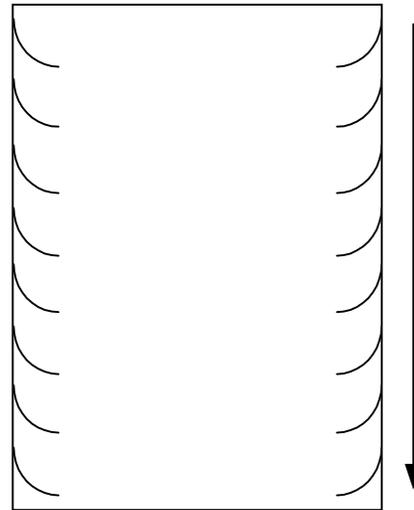
- Hints:**
- Check the roll pressure
 - Check the main roll nip settings
 - Check the pull roll nip settings

Problem: Straight waves in the output



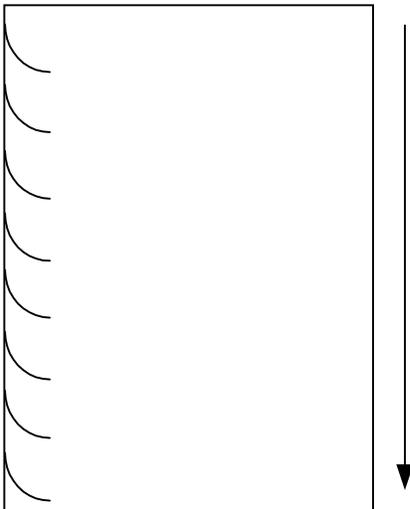
Hints: • Check operational settings for materials being used.

Problem: Angled waves in the output on both sides



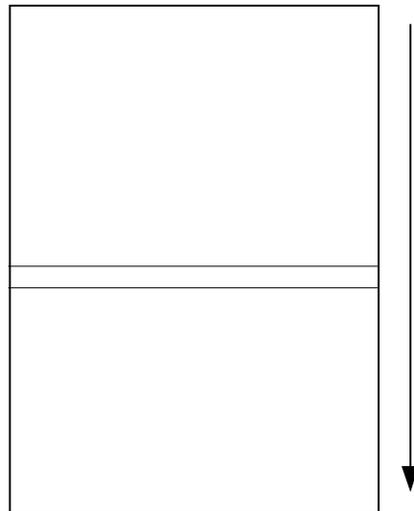
Hints: • Check for insufficient main roller pressure
 • Check for insufficient pull roller pressure
 • Check the main roller nip settings
 • Check the pull roller nip settings

Problem: Waves on only one side of the output



Hints: • Check the nip setting of main rolls
 • Check the nip setting of pull rolls
 • 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

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 rolls

Problem : Tunneling

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



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.

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 Falcon 160 CE Laminator serial # is :

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

Problem : No illumination to the control panel

- Hints :**
- Ensure an E-stop has not been pushed down
 - Press **RESET**.
 - Confirm that the **MAIN POWER** is to the on position.
 - Be sure power is supplied to the laminator

Problem : I can only operate in “Footswitch” mode.

- Hints :**
- Be sure the tables are properly seated in the table brackets.
 - Be sure the safety shields are in the down position.
 - If the **SAFETY** indicator is flashing, place a service call.

Problem : I press **GO**, it will always be flashing.

- Hints :**
- Be sure the tables are properly seated in the table brackets.
 - Be sure the safety shields are completely in the down position.

Problem : I press **GO**, and the rolls will not turn.

- Hints :**
- Be sure a speed has been entered.
 - Make sure a motion direction has been selected.
 - Make sure **GO** or **SEL** is not flashing.



CAUTION

Prolonged contact can form flat spots on the rollers.

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.

Rolls in the up position

Problem : The control panel is locked up

- Hints :**
- Push the blue reset button.
 - Press an E-stop, then unlatch the E-stop and push **RESET**.
 - Place a service call.

Rollers in the down position

Problem : The control panel is locked up

- Hints :**
- Press **RESET**.
 - Press an E-stop, then unlatch the E-stop and push **RESET**.
 - Disconnect power and then reconnect power.
 - Place a service call immediately and remove all power to the laminator.

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 overlaminator's adhesive and the printed media.

Pull rollers

These rolls provide for 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 Falcon 160 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 to the laminator or 2) the adhesive 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

Section 8 Maintenance

8.1 Maintenance Schedule

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.



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.



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.

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)

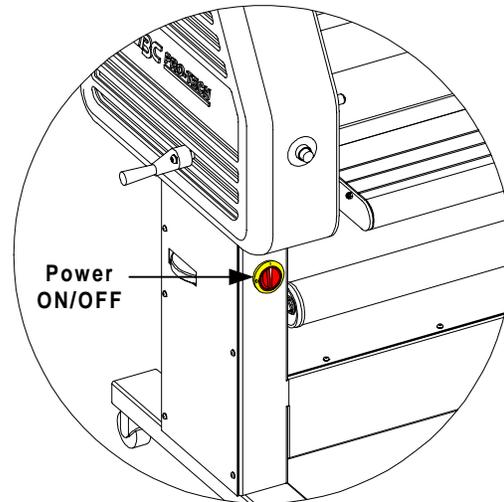


ELECTRICAL SHOCK

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

Preparation of the laminator

- a) Turn the **MAIN POWER** to the “I” position.

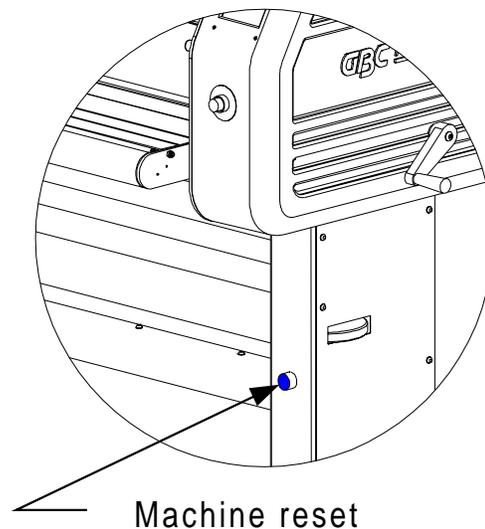


8.2 Cleaning the rollers

- b) Press machine **RESET**.

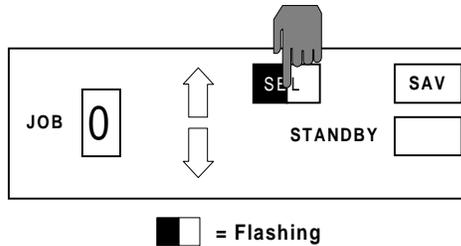
Tools required

- 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)



c) Press SEL.

Removing adhesive build up



a) For pressure sensitive adhesives: put on the rubber gloves and use isopropyl alcohol and a terry cloth towel.

b) For thermal adhesives: while the laminator is at normal operating temperature, put on the rubber gloves and use the rubber cement eraser. This allows the eraser to bead up the adhesive.



WARNING

Caution should always be exercised when using the laminator with the safety shields raised. You can be seriously HURT or INJURED!



CAUTION

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

d) Open the front and rear safety shields.

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

e) Remove the front feed table.



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.



INFORMATION

When cleaning the bottom main roller, switch the motion direction to reverse. When cleaning the bottom pull roller, switch the motion direction to forward. This will prevent anything from being pulled into the nip.

Cleaning the beads of adhesives, dust and dirt from the rolls

This can be done one of two different methods. Both are acceptable forms of cleaning the beads of adhesives, dust, and dirt from the rolls.

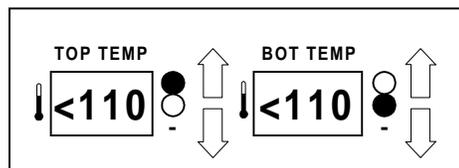


WARNING

When operating the laminator using the variable speed footswitch, keep hands and fingers away from the nip of the rollers. You may be **CRUSHED** or **BURNED**!

Method 1

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



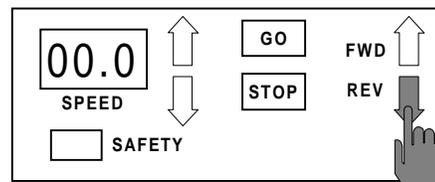
- d) Since the safety shields are raised and the tables removed, you must use the footswitch to rotate the bottom rollers after cleaning a section.

- b) Set the motion direction to **REV** ▼.

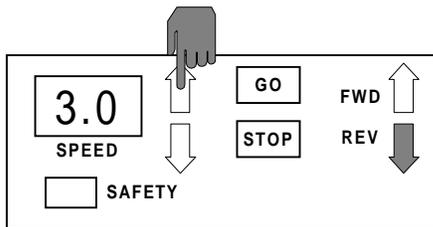


CAUTION

Speed is controlled through the variable speed footswitch when the safety shield is in the raised position.



c) Press **SPEED ▲** to enter a speed of 3.



WARNING

When operating the laminator using the variable speed footswitch, keep hands and fingers away from the nip of the rollers. You may be **CRUSHED** or **BURNED**!



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.

e) Since the safety shields are raised and the table removed, you must use the footswitch to rotate the bottom rollers after cleaning a section.



CAUTION

Speed is controlled through the variable speed footswitch when the safety shield is in the raised position.

d) With the rubber gloves on, clean the rolls using a moderate amount of 80% isopropyl alcohol on a cotton terry cloth.



CAUTION

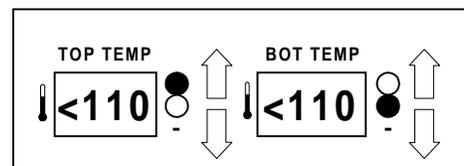
Exercise care when cleaning the laminating rollers with 80% isopropyl alcohol:

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

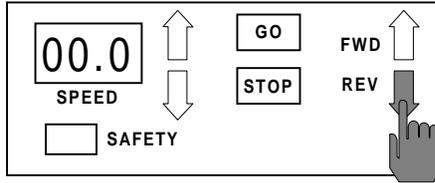
CLEANING HEATED ROLLERS CAN IGNITE THE FUMES!

Method 2

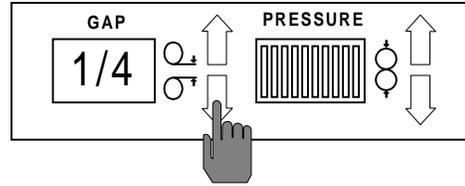
a) Allow the laminator to cool slightly to no higher than 110°F (43°C).



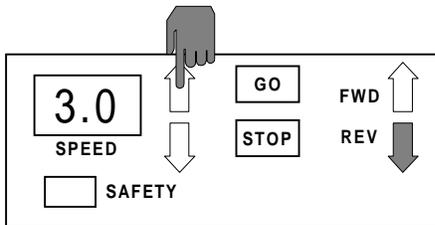
b) Set the motion direction to **REV** ▼.



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



c) Press **SPEED** ▲ to enter a speed of 3.



WARNING

Keep hands and fingers clear of the laminator roller nip when adjusting **PRESSURE**.
You can be **CRUSHED** or **BURNED**!



WARNING

Keep hands and fingers clear of the laminator roller nip when changing **GAP**.
You can be **CRUSHED** or **BURNED**!

f) Using the variable speed footswitch, run the adhesive coated boards through the rolls.

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

d) Position the center of the board between the rollers.

8.2.1 Clean the cabinets and covers



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.

8.2.2 Cleaning the touch screen



ELECTRICAL SHOCK

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

a) Use only a slightly damp (water only) non abrasive cloth.

b) The same type of cloth used to clean eye glasses may be used instead.



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.

This page intentionally left blank.