

## 4.0 OPERATING INSTRUCTIONS

### 4.1 CONTROLS AND INDICATORS

All controls and indicators used in operation of your Laminator are illustrated in figure 1.0.1.

### 4.2 LOADING LAMINATING FILM

A certain amount of care is required to initially load or to replenish the two rolls of film. Proceed as follows:

**WARNING:** If the Laminator has been in recent use, the top and bottom heaters will be very hot (up to +350°F (177°C)). Take care to avoid burns due to contact with heaters. Allow heaters to cool before proceeding.

**WARNING:** Slitter blades located between nip rollers and pull rollers are extremely sharp. To avoid contact and possible injury, move the slitters against the left and right side frames.

1. Loosen Feed Guide Lock (figure 1.0.1) and lift off Feed Guide; then lift out feed table.
2. Rotate film supply roll shafts until the slots in the right shaft holders are in a vertical position.
3. Raise the left end of the lower supply roll shaft, slide the shaft to the left until right end disengages from the shaft holder in the right hand side frame; then withdraw the shaft from the Laminator. If film is being replenished, remove the cardboard core from the supply roll shaft.
4. Holding a new roll with the glossy finish side as shown in figure 4.0.1, insert the supply roll shaft into the laminating film roll until square portion of shaft is centered in roll.

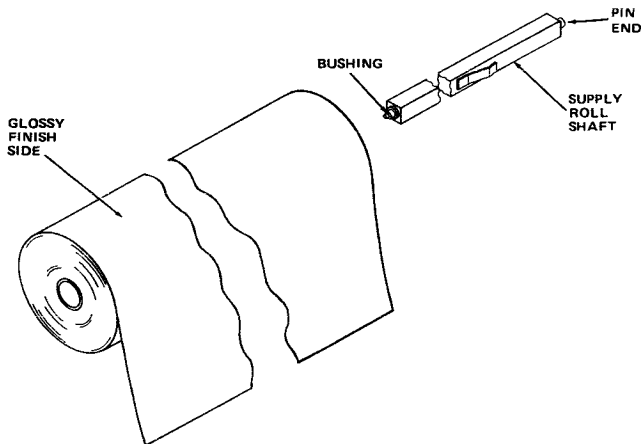


Figure 4.0.1 Inserting Lower Supply Roll Shaft Into Film Roll

5. Replace the lower supply roll shaft in the Laminator, allowing the pin end of the shaft to engage the holder in the right hand side frame and the bushing to engage the vertical slot in the left hand side frame.
6. Turn the roll to unreel about two feet of film; then pass the free end behind the lower film idler (figure 4.0.2) and bring it up over the bottom heater, top heater, and upper film idler, then downward between the nip rollers and pull rollers. Assure that dull side of film is as shown in figure 4.0.2.
7. Raise the left end of the upper supply roll shaft, slide shaft to the left until right end disengages from shaft holder in right hand side frame. Then withdraw the shaft from the Laminator. If film is being replenished, remove the cardboard core from the supply roll shaft.
8. Holding a new roll of film with the dull side (adhesive coated side) as shown in figure 4.0.3, insert the supply roll shaft into the film roll until square portion of shaft is centered in the roll.
9. Replace the upper supply roll shaft in the Laminator, allowing the pin end of the shaft to engage in the holder in the right side frame and the bushing to engage the vertical slot in the left hand side frame.
10. Turn the upper film supply roll to unreel about 18 inches of film. Drape the free end of the film over the previously placed lower film as shown in figure 4.0.4. Upper film should lie exactly on top of the lower film.
11. Rotate the Roller Pressure Release/Apply Knob (figure 1.0.1) counterclockwise as far as possible. This releases the roller pressure and provides a gap of approximately  $3/16$  inch (4.75 mm) between the two nip rollers and between the two pull rollers.

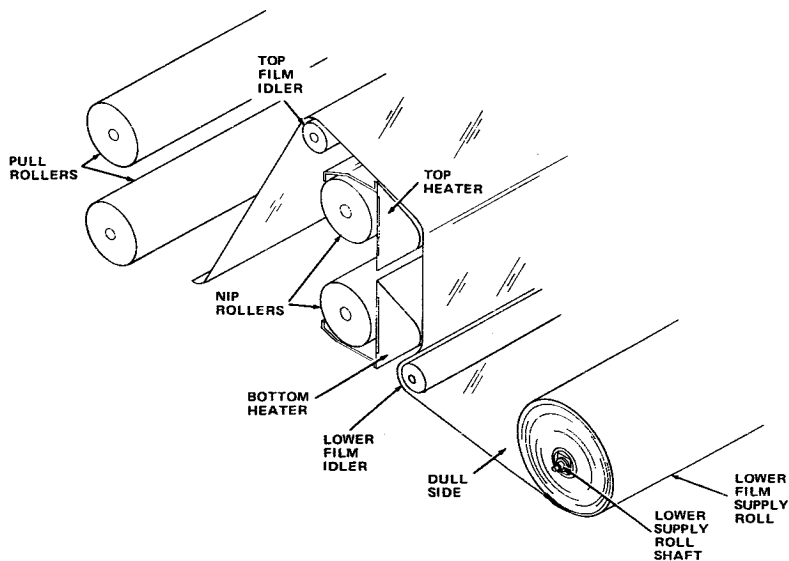


Figure 4.0.2 Initial Threading of Lower Film Supply

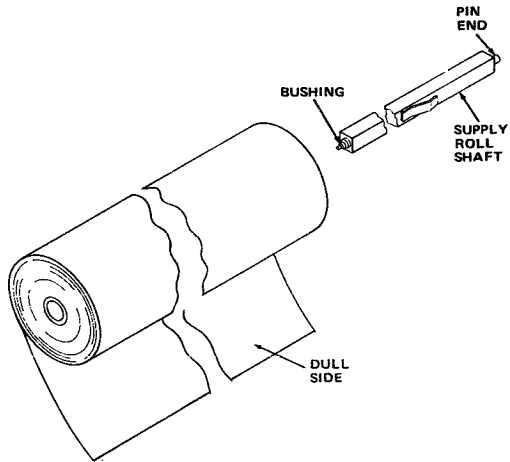


Figure 4.0.3 Inserting Upper Supply Roll Shaft Into Film Roll

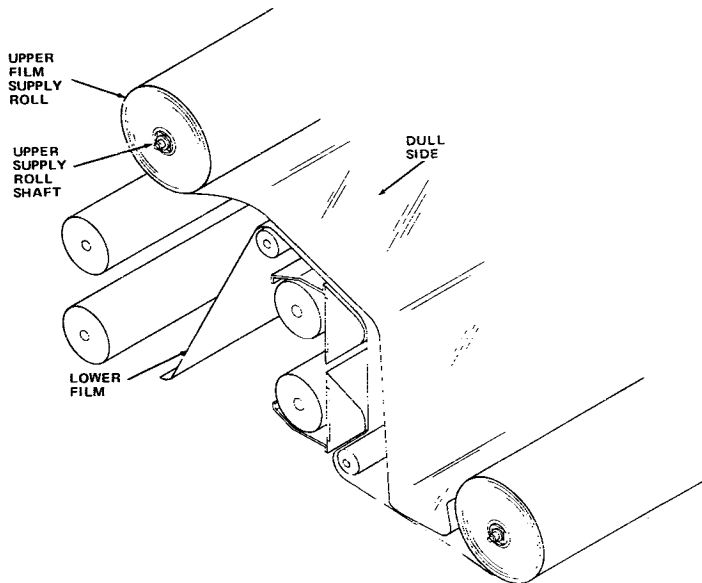


Figure 4.0.4 Initial Threading of Upper Film Supply

12. Use a piece of stiff cardboard approximately the same width as the film to complete the threading as shown in figure 4.0.5. While pushing the cardboard between the heaters and between the two sets of rollers, slowly rotate the upper and lower supply rolls to provide film slack. Continue to push the cardboard through and withdraw it from the back of the Laminator.
13. Grasp the ends of the films extending from the back of the Laminator and while holding them taut, rotate the Roller Pressure Release/Apply Knob (figure 1.0.1) clockwise as far as possible. This brings the upper and lower rollers of each roller set tightly in contact with the films. Using scissors, cut off any excess film extending from the back of the Laminator.
14. Turn the two Film Tension Knobs clockwise until a definite drag can be felt as the supply rolls are manually rotated. Rotate supply rolls to remove all slack between supply rolls and nip rollers. This a preliminary film adjustment; final film adjustment follows in step 7. of Laminating Procedures.
15. Now check to ensure that the two films are aligned at the point of entry between the nip rollers. If they are not, rethread the Laminator using the above procedure but with one of the films moved slightly to the right or left as required on its supply roll shaft. In the final position, neither film should extend beyond the edge of its respective heater at either side.
16. Replace the feed table between the two side frames and reinstall the Feed Guide on the paper guide bar.

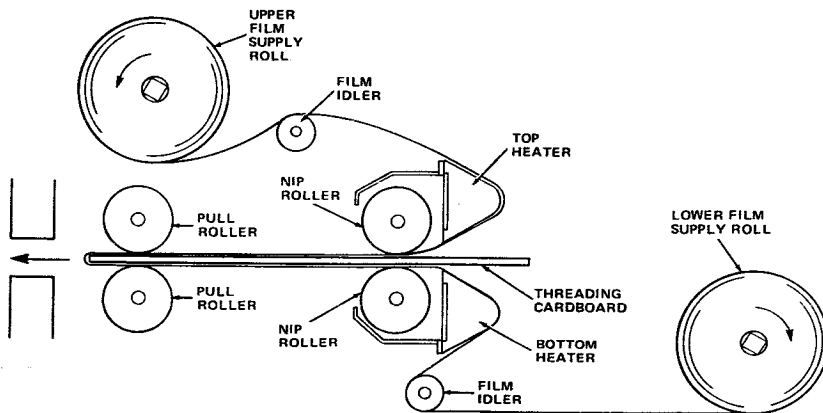


Figure 4.0.5 Completing the Threading

### 4.3 LAMINATING PROCEDURE

1. Operate the TOP HEATER and BOTTOM HEATER Switch/Indicators (figure 1.0.1) to the on positions. Red indicator lights on the switches will illuminate to indicate that switches are in the on positions.
2. Wait until red HEAT Neon Indicator Lights illuminate indicating that top and bottom heaters are up to set temperature. Refer to the temperature shown in Table 4.0.1 for thickness of film being used, and check the two heater Thermometers on the right side of the Laminator. If temperature of either heater is less than specified, adjust the corresponding Heater Control Calibration Knob on the left side of the Laminator in the INCREASE direction. The corresponding HEAT Neon Indicator Light should go off and remain off until the new set temperature has been reached. If the temperature of either heater is higher than specified in table 4.0.1, adjust the corresponding Heater Control Calibration Knob on the left side of the Laminator in the DECREASE direction, and wait a few minutes for temperature of heater to drop.

**NOTE** Graduations around the Heater Control Calibration Knobs represent approximately 20°F (70°C).

Table 4.0.1 Temperatures and Feed Speeds for Various Thickness of Film with 20 Pound Bond Paper

Film Gauge	Film Thickness		Heater Temperature		Feed S		Feed Speed	
	In.	mm	°F	°C	Model 522LM-I and 523LM-I		Model 568LM-I and 569LM-I	
					Feet/Minute	Meters/Minute	Feet/Minute	Meters/Minute
1.5 Mil	0.0015	0.038	325 to 350	163 to 177	14.5	4.42	10	3.05
3 Mil	0.003	0.076	300 to 325	149 to 163	13.5	4.11	8	2.44
5 Mil	0.005	0.127	275 to 300	135 to 149	12	3.66	5.5	1.68
10 Mil	0.010	0.254	270	132	5	1.52	3	0.91

3. Loosen the Feed Guide Lock and slide the Feed Guide left or right to locate the material where you want it; then tighten the lock. Use of the Feed Guide is not usually required unless the material to be laminated is nearly as wide as the film and thus must be fed straight and square to the rollers, or unless slitters are being used in which case the Feed Guide is necessary for positioning.
4. If you wish to slit the film on either or both sides of the material, loosen the lock(s) in the blade holder(s) and lower the blade(s) into the film in the desired position relative to the material. Lock the blade holder(s) in position by tightening the thumbscrew(s).
5. Operate the COOLING Fan(s) on/off switch to the on position. The light on the switch will illuminate and the fan(s) will operate.
6. Operate the Drive MOTOR on/off Switch to the on position. The light on the switch will illuminate and the motor will run. Laminating film will be drawn from the supply rolls, over the heaters and between the nip and pull rollers.
7. Film roll tension adjustment should be made whenever a new size or gauge of film is used. Proper roll tension adjustment allows relatively easy film roll unwinding and eliminates wrinkles in the finished lamination. Too little tension causes wrinkles. Too much tension causes film stretch, and unequal tension between the top and bottom rolls results in a curled lamination. (If the product curls up, there is greater tension on the top roll; a downward curl indicates greater tension on the bottom roll.)

To adjust roll tension, use the knurled Film Tension Knobs on the right end panel. Turn clockwise to increase tension; counterclockwise to decrease tension.

Proper tension is achieved when (with film moving and heat up to set temperature) there are no wrinkles observed in the film after it passes over the nose of the heater. Minimum possible tension should always be used to prevent motor overwork and film stretching.

**NOTE** After the MOTOR switch is turned on, wait until approximately one inch of film has passed through the rollers before inserting material to be laminated. After the Laminator is operating, material may be "stream fed" as close or as far apart as desired.

- Adjust the speed using the Feed SPEED Control Knob. Thinner materials (such as thin paper) may be run at a higher speed than thicker materials (card stock or cardboard). Use a speed that results in good, tight, smooth adhesion between the films and the material. Refer to Table 4.0.1 for recommended feed speeds for various thickness of film when laminating ordinary thickness materials. Also refer to Table 4.0.2 for approximate setting of SPEED control.

Table 4.0.2 SPEED Control Settings

SPEED Control Setting	Film Speed (See Note)	
	Feet/Minute	Meters/Minute
40	5	1.52
60	9	2.74
80	12	3.66
100	14	4.26

**Note:**  
Speeds may vary from one machine to another. Speeds shown are nominal using 1.5 mil film and 20 pound bond paper. For same settings, thicker films will run at slower speeds.

- Feed your material between the two films and into the nip rollers.

**NOTE** Do not attempt to retrieve material after it has entered the rollers. The pressure between the rollers is very high, making retrieval virtually impossible.

- To avoid marks across the surface of the lamination, do not stop motor until laminated material has exited from the back of the laminator.
- When laminated material exits from the back of the laminator, tear it off against the saw blade located above the chute.
- To avoid wasting film, operate the Drive MOTOR On/Off Switch to the off position after last of material has been discharged from the laminator.

**NOTE** During operation, one or both HEAT Neon Indicator Lights may go out for brief periods. This indicates that current is being supplied to the heaters to keep them at the proper operating temperature. Check the Thermometers occasionally when stream feeding materials to ensure that the temperature remains close to the required temperature. Adjust the Heat Control Calibration Knobs if the temperature exceeds or drops below the required point.

13. After completing your run, operate the Drive MOTOR On/Off Switch, COOLING Fan(s) On/Off Switch, TOP HEATER Switch/Indicator, and BOTTOM HEATER Switch/Indicator to the off position.

14. Trim the Laminating film to the edge of your materials using scissors, shears, or office-type paper cutter.

**NOTE** Roller pressure should be released during periods of non-use to prevent flat spots in the rubber.

#### 4.4 UNLOADING THE LAMINATOR

**NOTE** The film rolls are seldom equal in length. It is recommended that a roll end never be run through the Laminator. Doing so would contaminate the heater and rollers with adhesive.

1. Stop the Laminator motor when approximately 2 to 3 feet (0.6 to 0.9m) of film remains on the roll cores.
2. Tear off any laminated material that has exited the back of the laminator.
3. Operate the TOP HEATER and BOTTOM HEATER Switch/Indicators to off position.
4. Rotate the Roller Pressure Release/Apply Knob counterclockwise as far as possible.
5. Loosen Feed Guide Lock and lift off Feed Guide; then lift out feed table.
6. Using a sharp pointed instrument, carefully cut across with width of the upper and lower film webs as close to the film rolls as possible.
7. Grasp the upper film web that has been detached from the upper film roll, and pull toward you until the entire web assembly has exited the front of the Laminator.