

USI Your Source For Lamination®
Inc. Since 1975



**CSL Series III
Classroom**

Operation And Maintenance Manual

**Digital ARL
Series**



IMPORTANT INFORMATION

PLEASE DO NOT DESTROY THE SHIPPING CARTON!

USI urges you to store the original carton in which your laminator was shipped. Should you ever need to return your laminator to our repair and service center, it is best repacked in the original carton to avoid damage during transport. Our special foam filled carton ensures the laminator's safe transit to our service facility. Failure to use original packaging will result in a repacking fee. If you have any service inquiries, please contact USI's Technical Support Hotline, M-F 8am-6pm EST, at 800-752-9131.



Warranty: A Full Two Year Warranty will be issued upon receipt of your warranty registration card. Please supply the model and serial numbers on all correspondence concerning your laminator.

EQUIPMENT WARRANTY

We warrant to the original purchaser the equipment manufactured to be free from defects in material and workmanship under normal use and service. Our obligation under this warranty shall be limited to the repair or exchange of any part or parts which may prove defective under normal use and service within two years from the date of shipment and which our examination shall disclose to our satisfaction to be defective. Warranty does not include damage due to operator error or general maintenance. When necessary, purchaser shall properly pack and return the unit to the nearest USI Service Center, freight and insurance prepaid.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING THE WARRANTIES OF MERCHANT ABILITY AND FITNESS FOR USE AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON OUR PART, AND WE NEITHER ASSUME NOR AUTHORIZE ANY OTHER PERSON TO ASSUME FOR US, ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THIS LAMINATING MACHINE OR ANY PART THEREOF WHICH HAS BEEN SUBJECT TO ACCIDENT, NEGLIGENCE, ALTERATION, ABUSE OR MISUSE. WE MAKE NO WARRANTY WHATSOEVER IN RESPECT TO ACCESSORIES OR PARTS NOT SUPPLIED BY US. THE TERM "ORIGINAL PURCHASER," AS USED IN THIS WARRANTY, SHALL BE DEEMED TO THE PERSON OR COMPANY WHO FIRST PUTS THE EQUIPMENT INTO SERVICE. THIS WARRANTY SHALL APPLY ONLY WITHIN THE BOUNDARIES OF THE CONTINENTAL UNITED STATES.

Note: You will be charged for the replacement of any parts which are damaged as a result of improper packaging.

READ ME FIRST!

About this manual:

This manual contains all the information you need to properly unpack, operate and maintain your USI Laminator. Before unpacking your laminator we suggest you read and follow the manual step by step. It contains essential information about each and every facet of your laminator. Pay special attention to the work environment and safety precautions necessary for your laminating unit.

The manual is organized in the following way:

- There are seven major chapters, each covers a different subject heading.
- Each chapter is further broken down into parts.
Each part contains a detailed discussion, including photographs and figures, covering either an operation or maintenance procedure for your laminator.
- Photographs and Figures are numbered on each page for quick reference.
- Please pay special attention to particular notes and caution statements.
These comments alert you to information the we feel essential to operator safety and damage prevention to the laminator.

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SAFETY PRECAUTIONS

WARNING: Please review the following safety precautions before unpacking your new laminator.

- **Use care in unpacking and lifting the laminator.** Keep laminator level when lifting or moving. Larger models weigh 60 pounds or more.
- **Consider work area.** A cluttered work space can lead to accidents. The laminator should be placed on a level sturdy surface. Do not attempt to operate the laminator in damp or wet environments. Do not operate electrical devices in the presence of flammable liquids, solvents or in gaseous/explosive atmospheres. Keep work area well lit. Allow sufficient access to front and back of machine. See the manual for additional work space requirements.
- **Respect feed rollers.** Keep hands away from feed rollers and any other moving parts. Turn drive switch OFF before attempting to clear film wrap-arounds or jams. Use manual reverse (or automatic if equipped) to clear film. Do not wear any loose clothing, ties, jewelry, etc., which can be caught by feed rollers and draw any body part into the machine.
- **Respect heat shoes.** Operating temperatures are hot enough to burn skin. If clearing a film wrap-around or jam on or near heat shoes, first turn the heat switch OFF and allow laminator to cool to room temperature. If your laminator is equipped with a heat shoe guard, do not operate without this guard in place.
- **Watch out for cutter blade at rear of laminator.** Blade is extremely sharp.
- **Do not operate laminator with any panels or guards removed.** Panels and guards protect operators from such moving parts as the drive chain and sprockets, roller ends, etc.
- **Turn the drive switch OFF** before walking away or leaving the laminator unattended.
- **Before lifting or moving laminator,** turn drive switch OFF, turn heat switch OFF, unplug unit and allow to cool to room temperature. Remove film rolls before lifting or moving machine. Film is easy to rethread, see the section in this manual.
- **Keep children away.** Make sure visitors are kept well back from an operating laminator.
- **Do not abuse electrical cord.** Never pull cord to disconnect it from a receptacle. Do not allow cord to contact heat, oil or sharp edges. Do not cut off or otherwise bypass the grounding prong on the plug.
- **If an extension cord is necessary** be sure it is properly rated and of the same wire gauge or smaller as the laminator cord. Capacity of the cord must prevent loss of power and overheating. Before using, inspect extension cord for any damage, including loose or exposed wires, broken fittings, damaged insulation, etc.
- **If you service the laminator yourself,** call USI's Technical Assistance department (1-800-752-9131) for additional safety recommendations. Use only USI parts for service or replacement. Failure to use USI parts could void manufacturer's warranty. Note: Always turn laminator off and unplug before servicing.
- **Use common sense.** Be cautious when operating your laminator. Do not operate laminator when you are tired or your reactions are impaired in any way.
- **Do not allow anyone to operate the laminator** who has not received proper instruction and has not read the safety instructions.

LAMINATOR INTRODUCTION

USI roll laminators are uniquely designed and engineered to be user friendly, reliable and virtually trouble free. USI's modular construction makes them easy to maintain and repair. All equipment controls are basic in design, functional and positioned for easy access.

Feature Location:

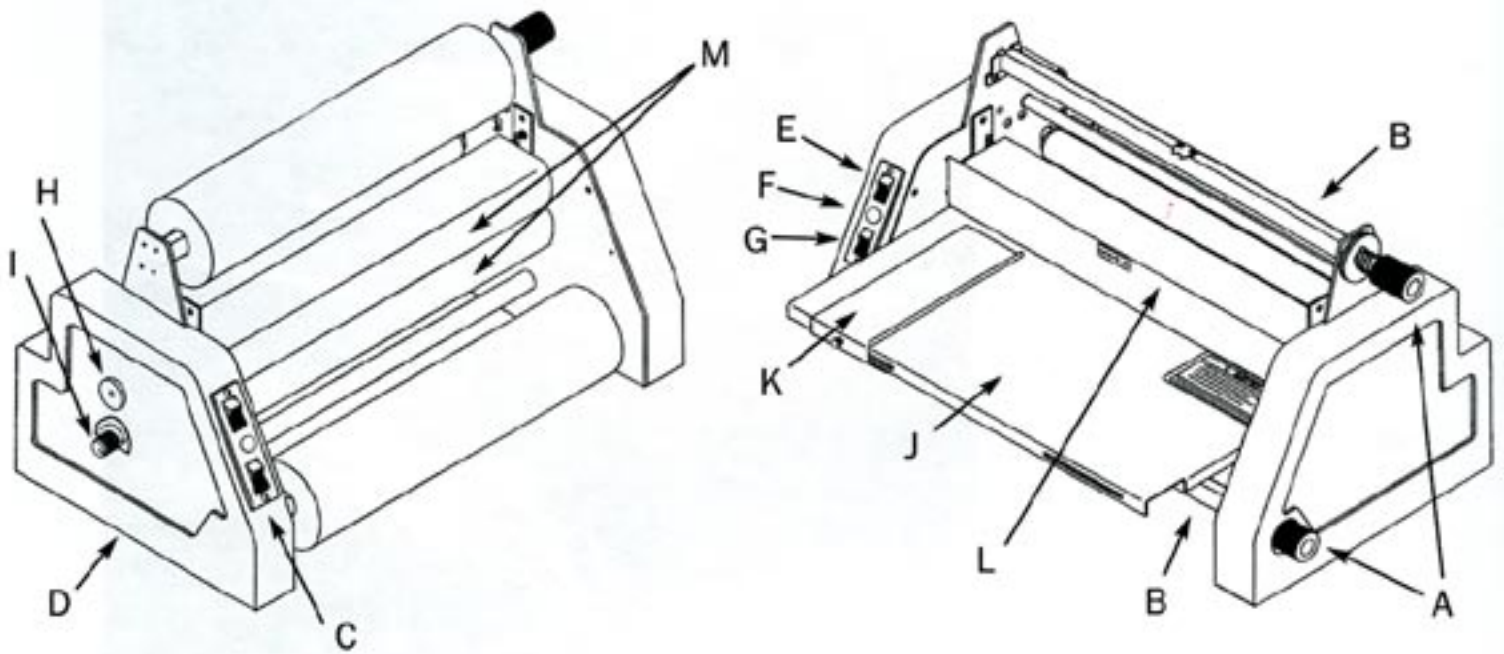
Tension adjusting knobs (A) are located at the right end of the supply mandrel (B) for easy access. The control panel (C) is located on the left side housing (D). The control panel (C) contains a heater switch with an indicator light (Digital ARL) (E), a speed control knob (indicator light on Series III Classroom) (F), and a three position motor drive switch (G) for forward, off and reverse.

Thermometer access hole (Series III Classroom) (H) on the left side housing (D) allows for easy temperature checks of the heaters using the removable thermometer provided (Series III Classroom). The Series III Classroom has a convenient external adjusting knob (I lower) to adjust the temperature, while the Digital ARL has an exclusive digital temperature display/adjustment (N) on the right side housing. The feed tray (J) and paper guide (K) provide a smooth surface for feeding the machine and the heat guard (L) helps protect hands from hot surfaces. Teflon coated heatshoes (M) heat the laminating film to activate the adhesive. Your laminator can accommodate a variety of thickness' and types of laminating film: 1.3, 1.5, and 3 mil for the Series III Classroom, in addition, the Digital ARL will accommodate 5 mil. Any width of film can be used, up to the maximum machine capacity. For film types and applications, consult your current catalog.

- A** Tension Adjusting Knobs
- B** Supply Mandrel
- C** Control Panel
- D** Left Side Housing
- E** Heater Switch
- F** Speed Control Knob (Digital ARL), Indicator Lamp (Classroom III)
- G** Motor Drive Switch
- H** Thermometer
- I** Classroom III Heat Adjusting Knob
- J** Feed Tray
- K** Paper Guide
- L** Heat Guard
- M** Heat Shoes
- N** Digital Heat Control
- O** Keylock (Engages/Disables Motor - Digital ARL)

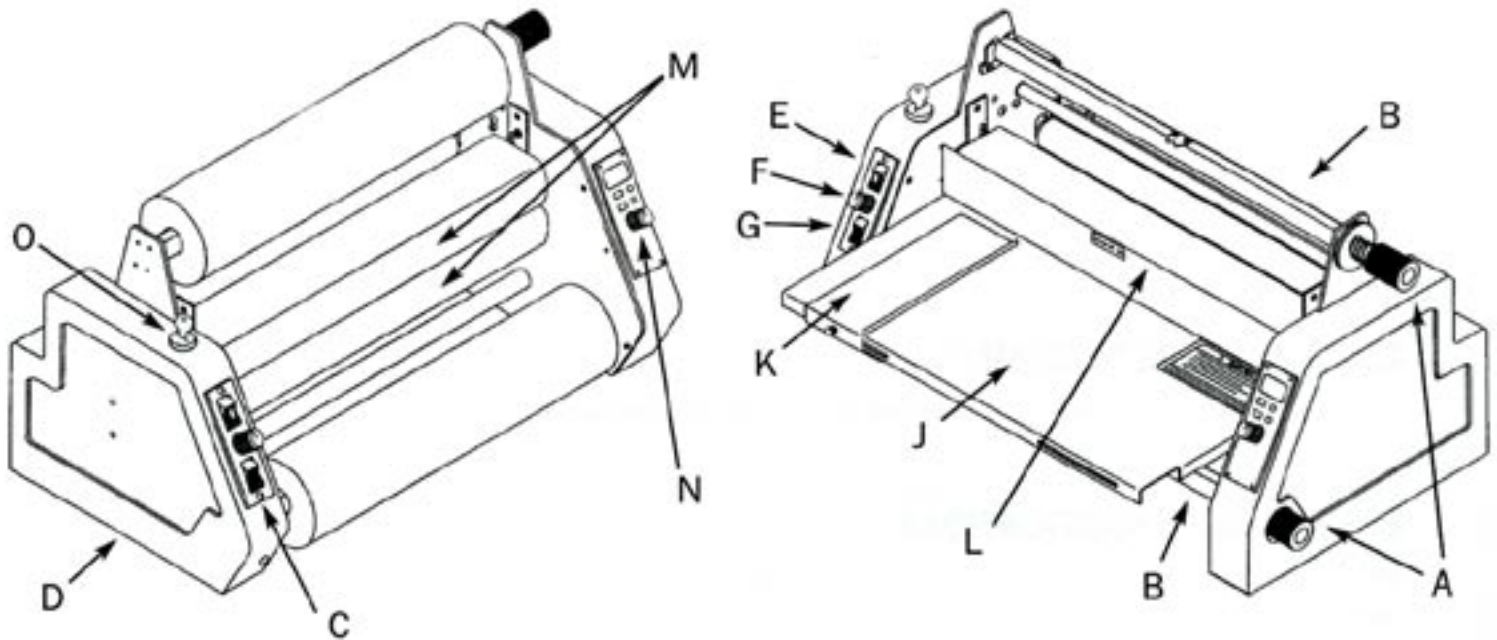
CSL Series III Classroom

Figure 7-1



Digital ARL Series

Figure 7-2



FIND A WORK AREA

A separate work station is required to house your USI laminator. Ample room is necessary to access the laminator from all 4 sides. If the laminator is back against a wall, the laminating film may back up and jam the equipment. A USI laminator cabinet is an excellent choice for a work area. It can easily be moved and provide sufficient storage for film in the cabinet below.

WARNING: Do not place the laminator where the heat shoes will be in the direct path of a room cooling fan, air conditioner or similar forced draft.

Tools necessary to set up your laminator include cutting shears and any adhesive tape. For future service or maintenance, an assortment of Allen wrenches, a flat head screwdriver and a Phillips head screwdriver are necessary.



Photo 8-1

ELECTRICAL REQUIREMENTS

All USI laminators are powered by a standard 115 volt, three prong outlet.

ELECTRICAL SPECIFICATIONS

Digital ARL12	12.5 amp / 1200 watts
Digital ARL18	14 amp / 1700 watts
Digital ARL25 & CSL25 Series III	12.8 amp / 1536 watts
Digital ARL27 & CSL27 Series III	20 amp / 2300 watts

UNPACKING YOUR LAMINATOR



Photo 9-1

Your laminator comes packed in one carton. It contains (1) laminator, (1) heat guard, (1) top supply mandrel, (1) bottom supply mandrel, (1) threading board, (1) feed table with guide, (1) set of keys if equipped with a key lock, and this operation and maintenance manual. (See diagram page 7)

First, open the box. Using two people, carefully lift the laminator from the carton by grasping the side housings and lifting. Do not lift by the upper idler bar or supply mandrel. These are not weight bearing parts and can cause damage to the machine.

For shipping purposes, white plastic tie straps are used to hold the power cord, heat shoes, and accessories in place. These straps are approximately 1/8" wide and should be carefully cut and removed prior to set up.

Be sure to save the shipping carton...

Should your laminator ever need to be returned for service, this carton ensures safe transit.

Your new laminator comes pre-loaded and ready to run. Install the feed table and heat guard as shown in photos 15-4 and 15-5. Plug the machine in and turn the heat switch to the "on" position and allow to heat for approximately 15 minutes. Check the heat setting and adjust if necessary.



Photo 9-2

LOADING FILM

Color-coded laminators: (For more information on this revolutionary system see the back cover) Select the two rolls of laminating film that you wish to use. Both rolls of film should be of the same size, type and thickness. Next, take the bottom supply mandrel (marked with the blue Color-Code) and insert it into the roll of film so the blue end of the mandrel matches the blue end of the film roll. While inserting the mandrel, rotate it in the opposite direction of which the "gripper dog" points while pressing into the roll of film and center on the mandrel. Place the loaded mandrel on the machine by matching the blue end with the blue friction stud (Photo 11-1). To load the top, do the same as the lower, only match the red ends (Photo 11-2).

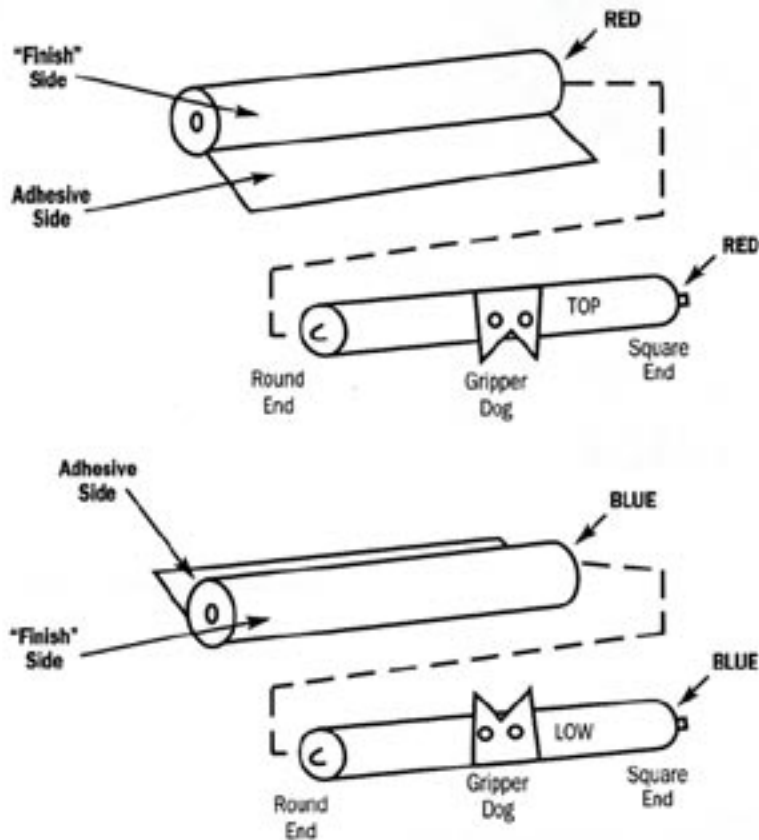


Figure 10-1

For non-Color-Coded laminators:

Select the two rolls of laminating film that you wish to use. Both rolls of film should be of the same size, type and thickness. Next, take the bottom supply mandrel (labeled "Low") and insert it into the roll of film until the "gripper dog" meets the film's cardboard core. Rotate the mandrel in the opposite direction from which the "gripper dog" points. As you rotate, apply pressure to force the mandrel into the roll of film and proceed to center it on the mandrel. See Figure 10-1.

Place the loaded lower mandrel on the laminator. Insert the right side first and then lower the left side into the roll bracket. Photo 11-1.

Take the top supply mandrel (labeled "Top"), insert it into the roll of laminating film, and place it in the top position as with the lower. Photo 11-2.

Note: 1" core laminating film is rolled adhesive side in ("poly in"). When loading film on mandrel, be sure roll is positioned correctly to unroll as shown in figure 10-1. If the roll is loaded in reverse, the film could adhere to the laminator when heated.

Note: When loading your laminating film, check for film splices. These rolls will be clearly marked. Splices are not common, but are unavoidable. If you find a spliced roll, place it in the top position on the laminator so that the splice can be monitored carefully. When the splice is ready to come through the laminator, turn the drive and heat off, allow the machine to cool, and rotate the roll of film by hand so the film tension is very loose. Turn the drive switch on again and allow the splice to run through. If necessary, keep turning the roll of film by hand to keep it slack until the splice has passed through.

Caution: Do not apply excessive force to the ends of the mandrel (i.e. with a hammer, etc.). Excessive force will damage the mandrel. When loading the laminator, be sure the heat is turned off and the machine is cool to avoid chance of burns.

Note: Film rolls must be centered on supply mandrels. If the rolls are not aligned, hot adhesive will be deposited on the heatshoes and rubber rollers, necessitating a cleaning operation.

Caution: When loading the laminator, be sure that the heat is turned off and the machine is cool.



Photo 11-1



Photo 11-2

THREADING DIAGRAM

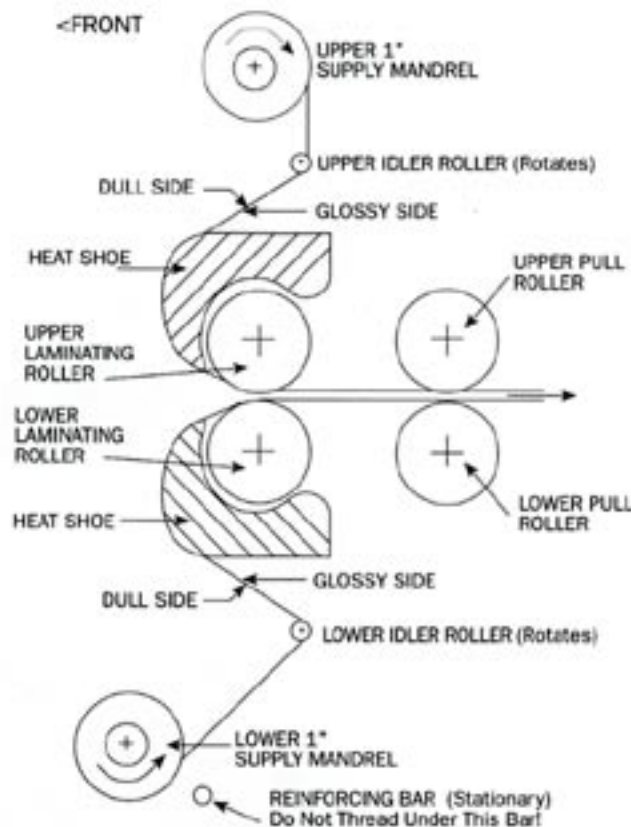


Figure 11-3

Thread the top roll of film under the idler roller as shown in the threading diagram on previous page (see Figure 11-3). Pull the film down so that the films lead edge is below the lower heat shoe. Next thread the bottom roll of film under the lower idler bar pulling film upward until it is even with the top heat shoe (the film will overlap). Tape it to the top film edge. This creates a film "Web" (Photo 12-1 & 12-2).

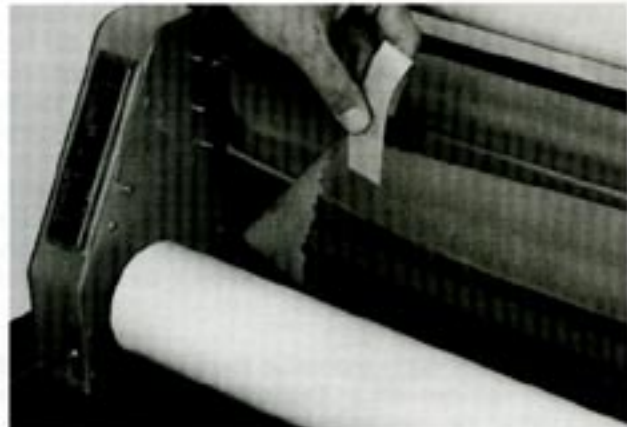


Photo 12-1

Using Tension Adjustment knobs, loosen tension on both rolls of laminating film. Turn the speed control knob to a slow speed (Digital ARL only). Turn on the "Drive" switch and using the threading board—push the film web into the laminating rollers. This process will push the web into the pull rollers and exit. Ensure that the threading board and film exit between the rear pull rollers (Photo 12-3 & 12-4).



Photo 12-2: Creating Film Web

NOTE: If you loose your threading board or if it becomes damaged, you can make your own with a piece of poster board. Cut poster board 6" wide by the length of the laminator.



Photo 12-3: Threading board and film web entering.

Your laminator is now loaded and ready to be heated. Remove the threading board and save for your next use.

NOTE: Laminators with variable speed motors require slower speed to run thicker films.

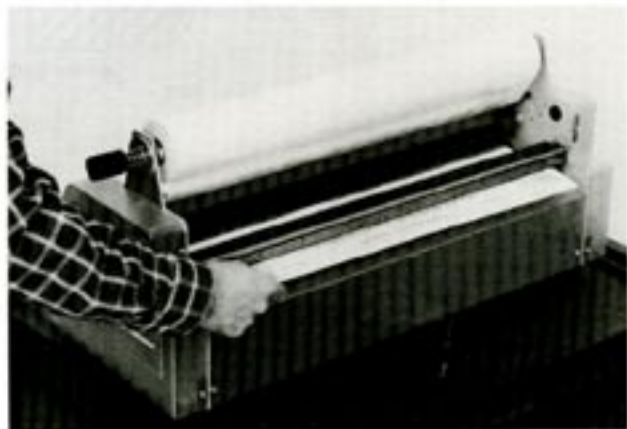


Photo 12-4: Threading board and film web exiting pull rollers.

HEAT SETTINGS

Turn the heat switch to the "ON" position. The red indicator light will illuminate and remain lit while the heat switch is in this position. Prior to laminating, allow the machine to pre-heat at least 15 minutes in order to stabilize the temperature. Temperature settings depend on the film type being used. The temperature is preset at the factory, but may require adjustment depending on what type of film you are using.



Photo 13-1 CSL Series III Classroom

CLASSROOM SERIES III

Rotate the heat control knob located on the left side panel. Turn clockwise to increase heat. Adjust in small increments until desired temperature is indicated on thermometer (Photo 13-2).



Photo 13-2

Each Classroom Series III laminator comes equipped with a removable thermometer to display the operating temperature of the heaters.

Set the heat range of the laminator accordingly (See chart below).

NOTE: Lighter paper stock should run in the lower part of the heat range, and thicker stock in the upper heat range.

TYPE	HEAT RANGE
Standard/SF	260-290°F
Opti Clear	210-245°F
Photo Plus/LM	220-250°F
DigiSeal	180-220°F

HEAT SETTINGS

DIGITAL ARL

Turn the heat on by depressing the main heat power switch on the left side panel (Photo 14-1). The display board on the right side panel will now illuminate and show the current set temperature. To set the temperature, rotate the control knob located below the display (Photo 14-2). The new temperature will be displayed immediately. The heat indicator lamp will be illuminated while the machine is heating, and will turn off when set temperature is reached. To see the laminator's actual running temperature, depress the ACT button on the display board.

Note: When setting the heat to a temperature below 200°F, first rotate the heat control knob fully clockwise and then proceed to set to desired temperature.

The display can easily be toggled between Fahrenheit and Centigrade by depressing the C/F button.

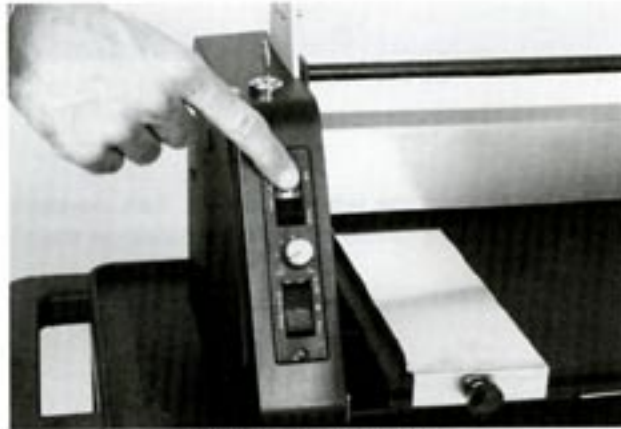


Photo 14-1 Digital ARL Series



Photo 14-2 Digital ARL Series

SEE TEMPERATURE CHART ON PAGE 13

TENSION

To adjust tension for upper and lower rollers, the laminator must be loaded and heated.

Remove the heat guard and feed tray. Loosen both tension control knobs by turning counterclockwise until there is no tension on upper or lower film rolls. Photos 15-1, 15-2.

Film should pull freely.

Turn the drive switch "On."

As film runs through it will appear wrinkled and bubbly, as pictured in photo 15-3.

Gradually increase tension on both rolls, by turning knobs clockwise, until film is smooth on heat shoes. Once film is smooth, stop tightening knobs.

NOTE: For best results, reset tension with EACH new pair of film rolls.

NOTE: As the film roll supply becomes low it is necessary to decrease tension on the rolls.

NOTE: Too little tension on the top or bottom roll causes vertical or diagonal streaks in the film as it passes over the heating shoe.

WARNING: Excessive tension will lead to increased wear and tear on the laminator.

Once the laminator is loaded, heated, tension adjusted—install the Feed Tray and Heat Guard, as shown below in Photos 15-4 and 15-5.



Photo 15-1



Photo 15-2



Photo 15-3



Feed Tray Photo 15-4



Heat Shoe Guard Photo 15-5

RELOADING A NEW ROLL OF FILM ON A HOT LAMINATOR

Allow the old film to run to a point just before it pulls off the cardboard cores.
Turn the drive switch to "OFF."

Cut the film web with a blade so that approximately 5" of film extends beyond the idler bar. Photo 16-1.

CAUTION: When using a sharp object to cut film (blade or shears), avoid contact with heat shoes or rubber rollers.



Photo 16-1

Remove the old cardboard cores and replace with new rolls of film. Photo 16-2.

Loosen the tension on the top film roll.
Thread the new web of film around the idler bar and tape it to the remaining segment of the expended roll.
Photo 16-3.

Repeat this procedure for the bottom film roll. Use caution when threading film near hot heat shoe.

Run film through the laminator until the new web of film clears the pull rollers.
Photo 16-4.

Readjust tension.



Photo 16-2



Photo 16-3



Photo 16-4

CLEANING THE HEAT SHOES



Photo 17-1

With continuous use the heat shoes and rubber rollers may accumulate adhesive and dirt. It is recommended that you periodically inspect them for adhesive build-up. Use USI's Laminator Cleaning Kit, which contains poly-off cleaning fluid, a coarse scrubbing pad and a mesh covered sponge, for removal of any adhesive build up.

Moisten the sponge pad with poly-off cleaning fluid and wipe down the heat shoes.

NOTE: Be sure to clean the heat shoes *only* when the laminator is cool.

CAUTION: Teflon coated heat shoes are scratchable.

Periodically inspect the rubber laminating and pull rollers for adhesive build-up.

Remove the upper heat shoe to gain access to the laminating rollers for cleaning..



Photo 17-2

CLEANING THE RUBBER ROLLERS



Photo 17-3

NOTE: If indentations begin to appear on the surface of finished laminations, this may indicate that cleaning of the rollers is necessary.

Before cleaning be sure the laminator is cool.

Use a dry Scotch Brite[®] pad to remove excess adhesive from the rollers. Photo 17-3.

Turn the drive switch on and off to advance the rollers and clean each section at a time.

Wipe clean with the sponge pad and Poly-off solution from USI's Laminator Cleaning Kit. Photo 17-4.

NOTE: Use Poly-off sparingly. Do not allow to "run" onto wiring or into "ends" of laminator.

WARNING: Do not use any sharp metallic objects or steel wool to clean the rubber rollers.

Use of such abrasive objects can damage the rubber surface of the rollers. USI strongly recommends the Laminator Cleaning Kit for all of your cleaning needs.

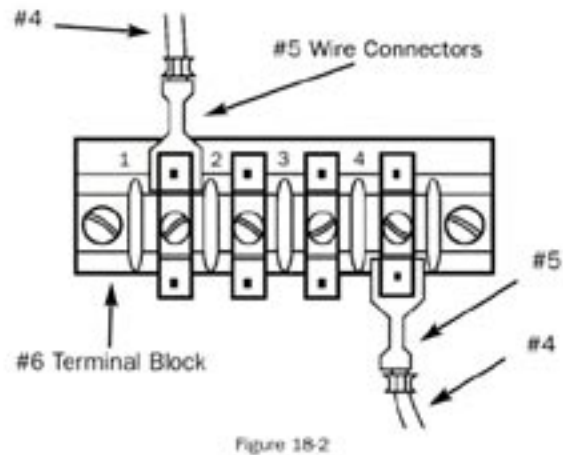
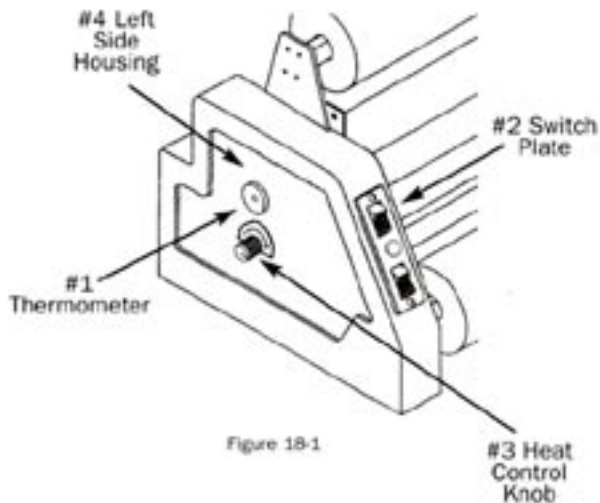


Photo 17-4

UPPER HEAT SHOE REMOVAL INSTRUCTIONS

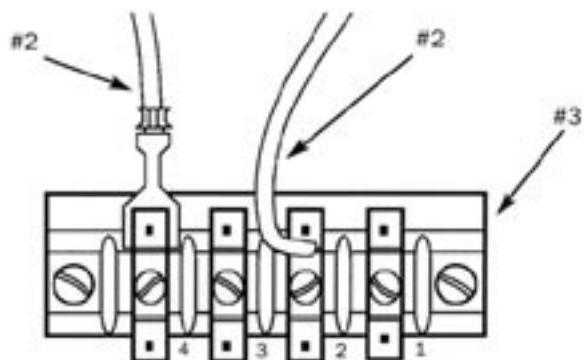
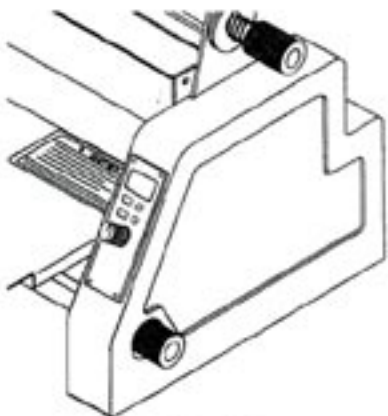
CSL Series III Classroom

1. Unplug laminator and allow it to cool to room temperature.
2. Remove the thermometer, see #1, figure 18-1.
3. Remove the switch plate by unfastening two Allen screws. Remove the heat control knob.
4. Remove left housing by unfastening three Phillips head screws, see #4.
5. Wiring from the heat shoe will now be exposed, see #4 on figure 18-1.
6. Unplug the wire connectors, see #5, from the terminal block, #6 on figure 18-1.
7. Gently lift the heat shoe and pull forward being careful not to damage the wires.



Digital ARL Series

1. Unplug laminator and allow it to cool to room temperature.
2. Remove the right side housing (Figure 18-3) by unscrewing four Phillips head screws. Gently pull housing away from laminator and unplug the four-wire wiring harness from the digital control board. Very carefully, unplug the small thermistor harness from the digital control board. This harness is fragile, use care. Set housing assembly aside.
3. Unscrew wiring retainer. Note its orientation and location of wires for reassembly. It is very important that wires are routed correctly or damage to machine may occur.
4. Unplug upper heat shoe wires (#2 in Figure 18-4) from the terminal block (#3 in Figure 18-4).
5. Gently lift the heat shoe and pull forward, being careful not to damage the wires. Lift from the left first.



TO REINSTALL THE HEAT SHOES CSL Series III Classroom

- Ensure laminator is unplugged.
- Guide heat shoe wires exiting from left end of heat shoe through the slot in the left side of frame.
- Lower the left end of the heat shoe onto it's bracket first. Next, lower the right end.
- Plug wires into terminal block.
- Install the left side housing, switch plate, thermometer, and heat control knob.

Digital ARL Series

- Be sure laminator is unplugged.
- Guide heat shoe wires exiting from the right end of the heat shoe through the slot in the right side of frame.
- Lower the right end of the heat shoe onto its bracket first, then lower the left end and lock in place.
- Plug the heat shoe wires into the terminal block as shown in Figure 18-2.
- Plug the thermistor harness into the digital control board. Use care, be sure the connector is oriented properly-DO NOT FORCE. Plug the four-wire harness into the digital control board.
- Re-mount the wiring retainer. Be sure it is in its proper location and the correct wires are retained.
- Check to make sure that no components are loose and in the path of the drive chain or sprockets.
- Carefully install the right side housing and four Phillips head screws.

REMOVING THE RUBBER ROLLERS

NOTE: Only remove rollers if they are cut or in poor condition.

NOTE: The following procedure removes all 4 rollers. In certain instances, it is not necessary to remove all 4 rollers, therefore, remove as required.

STEP 1:

Remove all film from laminator. Photo 20-1.



Photo 20-1

STEP 2:

Unplug laminator.

STEP 3:

Remove the side housing on both sides of the laminator.

STEP 4:

Remove the top heat shoe. Photo 20-2.

Refer to diagram and instructions on page 18.

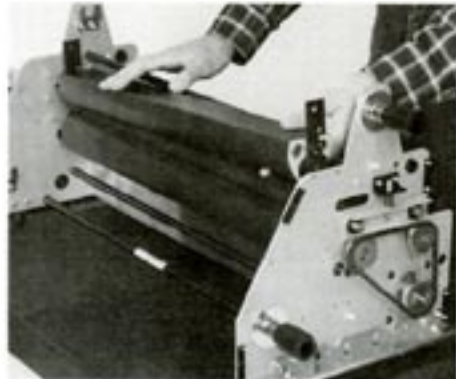


Photo 20-2

STEP 5:

Unfasten and remove the pressure adjusting screws on both sides of the laminator. Photos 20-3, 20-4.



Photo 20-3

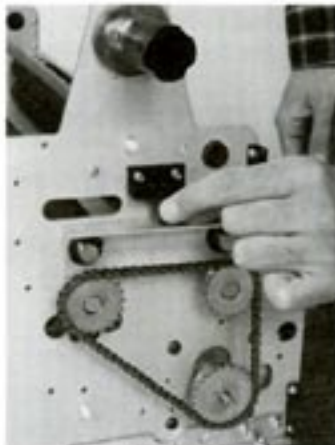


Photo 20-4



Photo 20-5

STEP 6:

Loosen the Allen head set screws on the left and right ends of the top rubber rollers. Photo 20-5.

STEP 7:

To remove the upper roller, slide the roll shaft out of the roller and then lift the top rubber rollers from the laminator (top laminating roller shown). Photos 20-6, 21-1.



Photo 20-6

STEP 8:

Loosen the set screws of the lower roller sprockets (laminating roller shown) Photo 21-2.

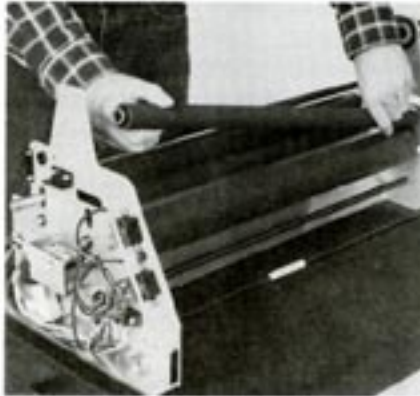


Photo 21-1

STEP 9:

Loosen the Allen head set screws on the left and right ends of the lower rubber rollers. (Lower laminating roller shown.) Photo 21-3.

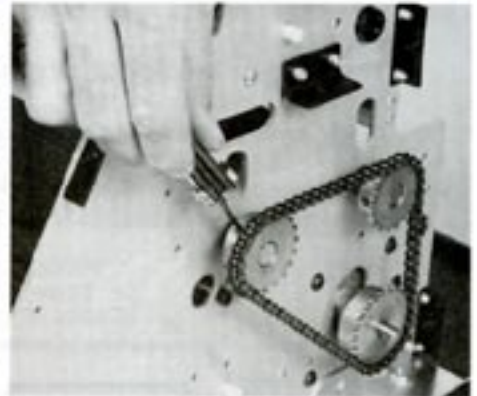


Photo 21-2

STEP 10:

Slide the roll shaft out of the rubber roller and the roll sprocket. (laminating roller shown.) Photo 21-4.

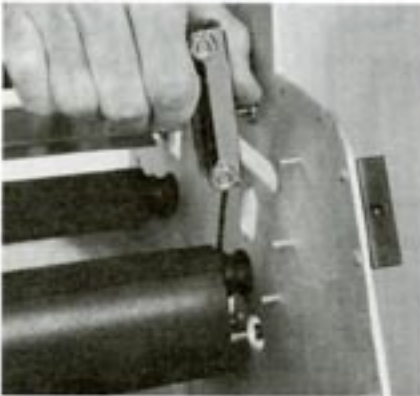


Photo 21-3

NOTE: The chain can now be removed without loosening the motor mounting screws. Photo 21-5.

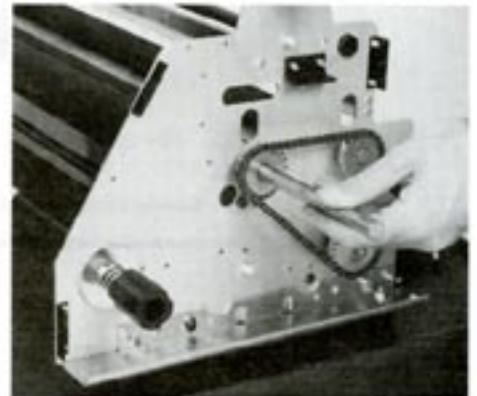


Photo 21-4

STEP 11:

To install a new roller or replace the original roller, reverse the removal procedure. Be sure to properly reposition the sprockets and align the chain. All three sprockets should be in line with each other. Since the motor sprocket was not removed, use it as a guide for alignment of the pull roll and laminating roll sprockets.

- The pull rollers on this laminator are interchangeable with the laminating rollers. If the laminating rollers have minor damage, each can be replaced by a pull rollers. If the laminating rollers are too badly damaged, they must be replaced. The condition of the laminating rollers is very important for a good lamination.
- If the chain feels too loose, it may be tightened as follows: Loosen the motor mounting screws. Push down on the motor sprocket and refasten the motor mounting screws. Photo 21-6.

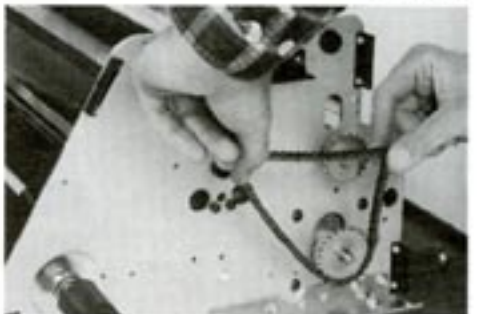


Photo 21-5

NOTE: Be sure to adjust the pressure on both pressure adjusting screws. 2-3 threads should show through the adjusting screw mounting bracket. See page 22.

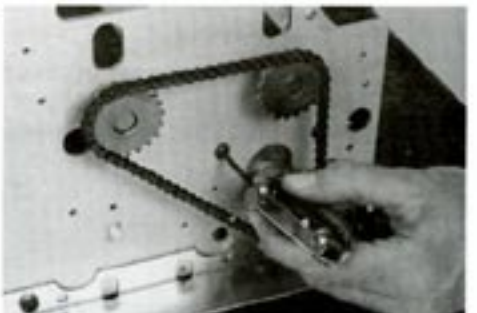
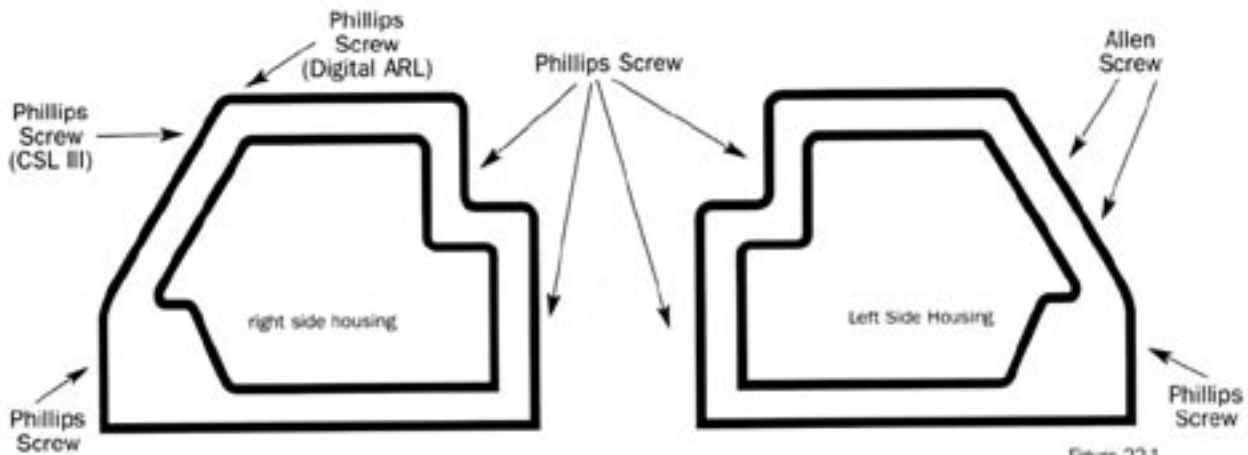


Photo 21-6

PRESSURE

The pressure settings for the rubber rollers on USI Laminators are preset at the factory and should not require adjusting. In most cases, it is necessary to adjust pressure after the rollers have been removed for service. (Generally this is the only time an adjustment is required.)

If an adjustment is necessary, disconnect electrical power and remove both the left and right housing. (See information under "Removing Upper Heatshoe" pgs 17-18.)



Locate the **Slotted Screw** holding **Compression Spring**. Slotted Screw and Compression Spring locations are identical on both sides of the laminator. Photo 22-2.

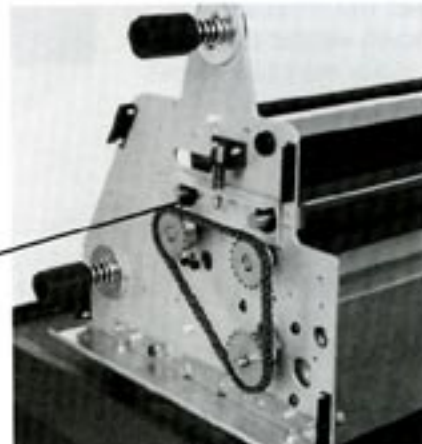
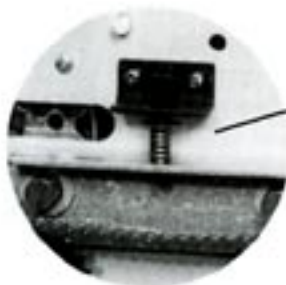


Photo 22-2

To increase pressure, turn the flat head screw clockwise. There should be 2-3 threads of the screw showing through the bottom of the bracket. Photo 22-3.

WARNING: It is extremely important that pressure adjustments are always made exactly the same on both sides maintain even pressure.



Photo 22-3

REPLACING THE THERMOSTAT CSL Series III

Step 1: Unplug the laminator.

Step 2: Remove the left side housing. See Upper Heat Shoe Removal Instructions (pg 18).

Step 3: Loosen, but do not remove the small setscrew on the bottom of the lower heatshoe (Photo 23-1).

Step 4: Unplug the two blue leads from the bottom of the thermostat. Mark where the leads went to ease reassembly.

Step 5: Remove the two screws retaining the thermostat bracket to the laminator. Note: The motor-run capacitor is also retained by one of these screws (the long one). When removing this screw and repositioning the capacitor to gain access to the thermostat use caution. **Do not** touch the terminals on the capacitor or allow them to contact any metal part of the laminator. Contact USI for any further information on servicing the capacitor (Photos 23-2 & 23-3).

Step 6: Gently pull the thermostat away from the laminator.

Step 7: Loosen, but do not remove the two screws retaining the left end of the lower heatshoe (Photo 23-4).

Step 8: Grasp the capillary tube and gently slide the heat-sensing bulb out of the heatshoe.

Step 9: To install the new part, remove the mounting bracket from the old thermostat and attach it to the new part. The bracket is held on with two screws on either side of the adjusting knob.

Step 10: Slide the heat-sensing bulb into the opening on the end of the lower heatshoe. Snug the small set screw on the bottom of the lower heatshoe. Do not over-tighten as this could cause damage to the bulb (Photo 23-1).

Step 11: Tighten the two screws retaining the lower heatshoe (Photo 23-4).

Step 12: Gently coil the capillary tube between the thermostat and the side frame. Use caution not to break or crimp the capillary tube (Photo 23-5).

Step 13: Re-fasten the thermostat bracket to the laminator. When doing so, use the long screw on the left-hand side of the thermostat to hold the motor-run capacitor. Position the capacitor so the top (terminal end) is angled toward the rear of the laminator. Use caution not to touch the terminals or allow them to contact any metal part of the laminator (Photo 23-6).

Step 14: Plug the two blue leads into the new thermostat.

Step 15: Reinstall the side housing, heat control knob, and switch plate.

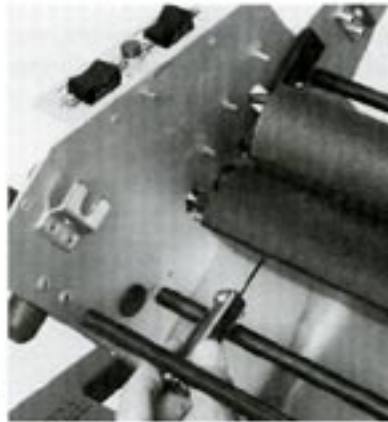


Photo 23-1



Photo 23-2

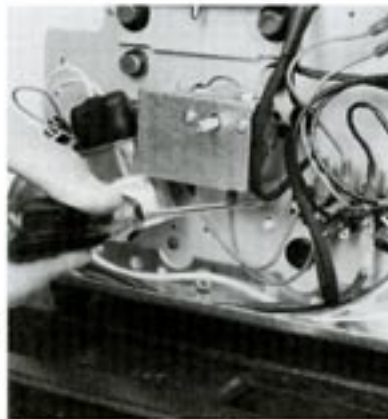


Photo 23-3



Photo 23-4



Photo 23-5



Photo 23-6

LAMINATOR LUBRICATION

Oil the drive chain once every six months with a light weight oil.

To avoid binding of the laminating and pull rollers, periodically oil the black plastic bushings. Bushings are located at the end of each roller. To gain access remove side housings. See important information under "Removing Upper Heat Shoe" pgs 17-18

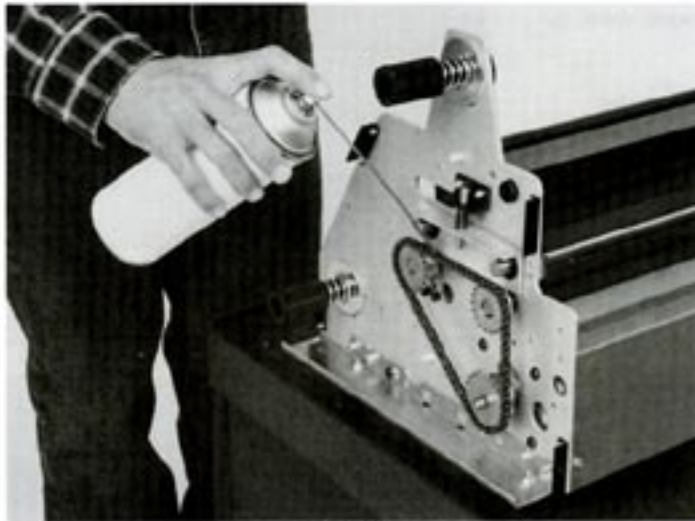


Photo 24-1

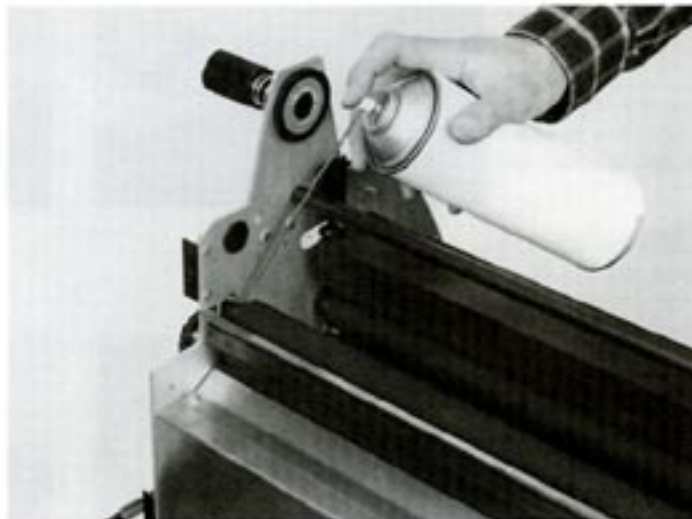


Photo 24-2

NOTE: Any type of light oil (i.e. WD40) can be used for the above purposes. Use sparingly.

CLEANING FRICTION STUDS

If film rolls begin to shudder or squeak, cleaning of tension assembly is required.

STEP 1:

Remove the film rolls.

STEP 2:

Remove the right side housing.

NOTE: For Digital ARL, see instructions for removing housing under "Upper Heat Shoe Removal."

STEP 3:

Disassemble the friction stud by unfastening and removing the knob. Photo 25-1.

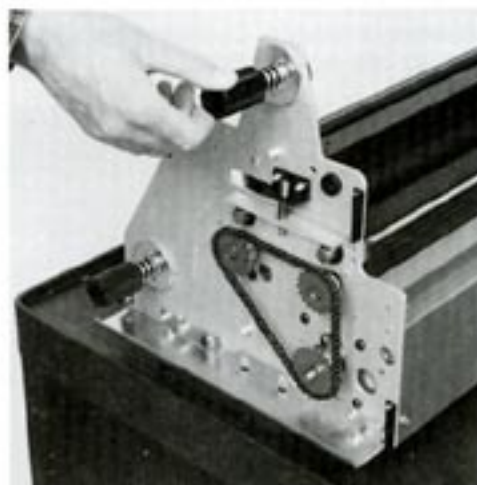


Photo 25-1

STEP 4:

Remove the spring, metal washer, leather washer and the friction stud. Photo 25-2.

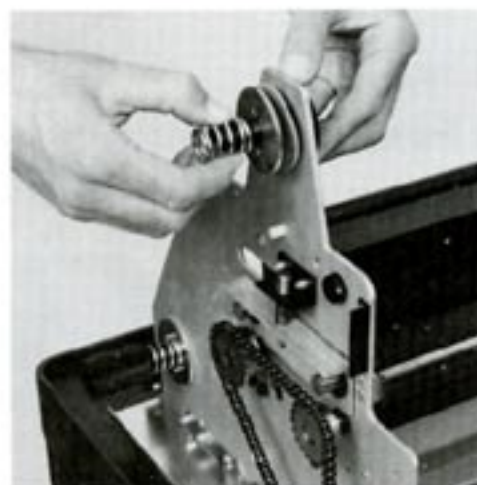


Photo 25-2

STEP 5:

To clean, wipe the mounting hole free of excess debris. Use rubbing alcohol. Photo 25-3.

STEP 6:

Clean the friction stud groove and leather washer. Use the Scotch Brite® pad from the Cleaning Kit.

STEP 7:

To reassemble, reverse the procedure as noted above. Reset the tension as in Chapter I page 15.

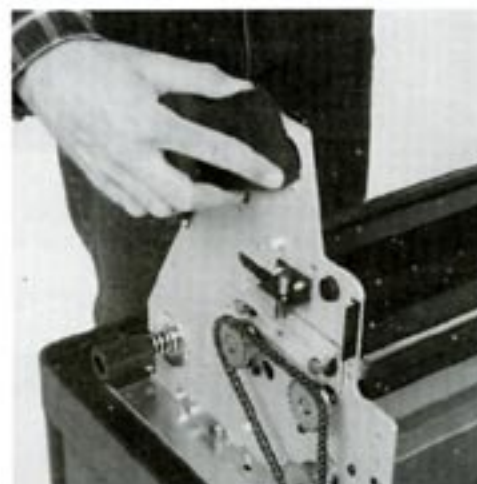


Photo 25-3

FOOT PEDAL CONTROL

For ARL27 only.

Foot pedal keeps both hands free to better control substrate and for continuous feeding. Customer installed, it plugs into jack provided.

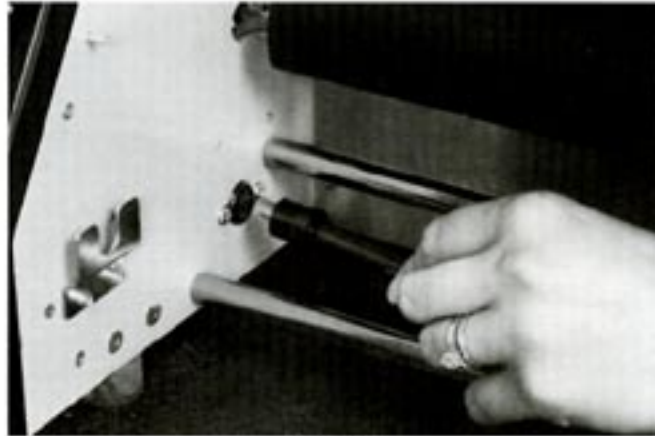


Photo 26-1

To install:

- a) Plug foot pedal into jack located below left end of the lower heatshoe. Photo 26-1.
- b) Turn drive switch "ON". (Now control forward drive with the foot pedal.)



Photo 26-2

NOTE: Do not plug foot pedal into jacks located above rubber rollers—these are for cooling fans only. Plugging foot pedal into jacks can damage foot pedal and laminator.

NOTE: The drive switch must be "ON" for foot pedal to work.

NOTE: If your laminator is equipped with automatic reverse, the laminator can only be reversed with the drive switch. The foot pedal will not reverse feed rollers.

FAN KIT

For ARL27 only.

When laminating with 5 mil film weight or heavier, USI strongly recommends a fan kit. The fan kit includes two fans for cooling film as it exits the laminator.

Easy Installation, simply plug into accessory jacks on laminator.

STEP 1

Install fan bracket on each side of laminator as shown. Use existing holes and screws.



Photo 27-1

STEP 2

Insert cross bars into brackets. Placement:
Short bar—top (upper) holes.
Long bar—bottom (lower) holes.



Photo 27-2

STEP 3

Mount fans on cross bars. Each fan has slots to fit over cross bars. Install fans so that power plug on each is closest to its corresponding jack on each of the laminator's end panels.



Photo 27-3

STEP 4

Plug cord into fan and jacks located on either end of the laminator.
Right jack—right fan.
Left jack—left fan.
Fans will activate when drive switch is on.



Photo 27-4

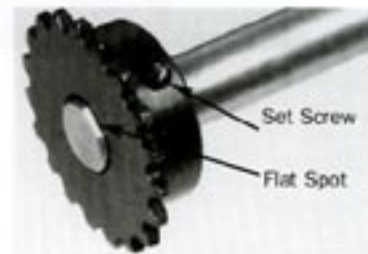
TIGHTENING SPROCKETS

STEP 1:

Remove the right side housing. Locate loose sprocket. Each sprocket has a $3/32$ " Allen set screw located along the outer edge. If the set screw loosens, it will allow the sprocket to spin on the roll shaft, causing the rollers to slip.

STEP 2:

Align the set screw with the flat spot on the roll shaft. This can be accomplished by either turning the drive on and off or by using the manual crank (if equipped). Each shaft has a flat spot, causing the shaft to be D shaped. The sprocket set screw must be lined up on top of the flat spot.

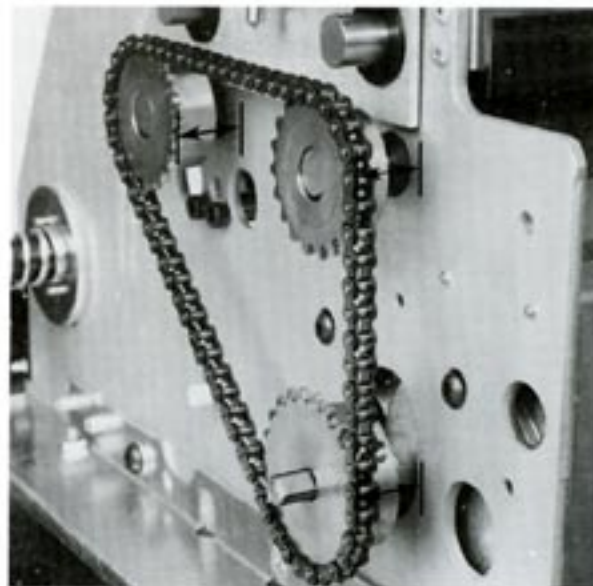


STEP 3:

Using a $3/32$ " Allen wrench, remove the set screw. Clean the set screw and apply a drop of Loctite® or similar compound to the threads. Insert set screw, but do not tighten. Align the teeth of the sprocket with the teeth (or outface) of the other two sprockets (the drive chain must travel in a straight line). Tighten the set screw.

STEP 4:

Reinstall the right side housing.



TROUBLE SHOOTING

COMMON EXAMPLES OF POOR LAMINATING . . . and their causes.

A. FILM NOT BONDING TO SUBJECT OR TO ITSELF AT SEALED EDGES

Causes:

1. The heat (on either or both heat shoes) is set too low.
2. Film tension is too tight.
3. Bottom roll of film is threaded incorrectly.
4. The pressure setting is not correct.

B. WRINKLES OR IRREGULAR WAVES RUNNING ACROSS THE LAMINATED WEB (PERPENDICULAR TO THE EDGE)

Causes:

1. The heat set is too high.
2. Not enough tension on the supply mandrels. (Large, irregular waves).
3. Too much tension on the supply mandrels. (Small, fine wrinkles - "orange peel" effect).
4. The rubber laminating rollers are not clean.
5. The pressure adjustment for the laminating and pull rollers is out of adjustment.

C. STRETCH LINES RUNNING WITH WEB (PARALLEL TO THE EDGE)

Causes:

1. Too much tension on the supply mandrels.
2. The heat is set too high on either or both heat shoes.
3. The heating shoes or rollers are not clean.

D. BLISTERS ON SURFACE OF SUBJECT OR ALONG EDGE OF SUBJECT

Causes:

1. The heat is set too high on either or both heat shoes.
2. Excessive moisture in the paper being laminated. (If inks are not dry, this may also cause blisters).
3. The rubber laminating rollers are not clean, or are damaged.

E. CURLING OF THE FINISHED LAMINATION

Causes:

1. Unbalanced tension on the supply rolls. Too much tension on the top supply roll will cause the web to curl up. Too much tension on the bottom roll will cause a downward curl in the web.
2. Bottom roll of film has been threaded incorrectly.
3. Heat is unbalanced in the top or bottom heat shoes. If the subject curls up, there is too much heat in the top shoe. If it curls down, there is too much heat on the bottom shoe.
4. Fans are required for 5 mil & thicker films to achieve a flat product.

F. WRINKLING AROUND EDGE OF LAMINATED ITEM

Causes:

1. Item to be laminated is too thick.
Possible Solutions:
 - a. Loosen tension
 - b. Use film with thicker adhesive layer
 - c. Flush cut item

TROUBLE SHOOTING

COMMON EXAMPLES OF POOR LAMINATING . . . and their causes.

G. HEAT DOES NOT WORK AND RED INDICATOR LIGHT DOES NOT ILLUMINATE

1. Check wiring of the laminator. Refer to wiring diagram on pages 32-34
2. Replace heat switch and switch wires. **NOTE:** Switch should not be replaced without also replacing switch wires.

H. BOTTOM RUBBER ROLLERS TURN BUT TOP RUBBER ROLLERS DO NOT

1. The tension is too tight.
2. Film has not been threaded correctly.
3. Film was loaded backwards. (adhesive against heaters)

I. BOTTOM ROLLERS DO NOT TURN (BOTH OR INDIVIDUAL)

1. Be sure drive chain has not fallen off.
2. Be sure sprocket set screws are securely fastened.
3. Be sure roller set screws are securely fastened.

J. DRIVE DOES NOT WORK - ROLLERS DO NOT WORK AND NO MOTOR SOUND

1. Check drive switch and wiring. Refer to wiring diagram on pages 32-34
2. On machines with variable speed motor, rotate speed knob clockwise.
If knob is turned down all the way counter-clockwise, drive may not work.

THREADING DIAGRAM FOR 1" MANDRELS

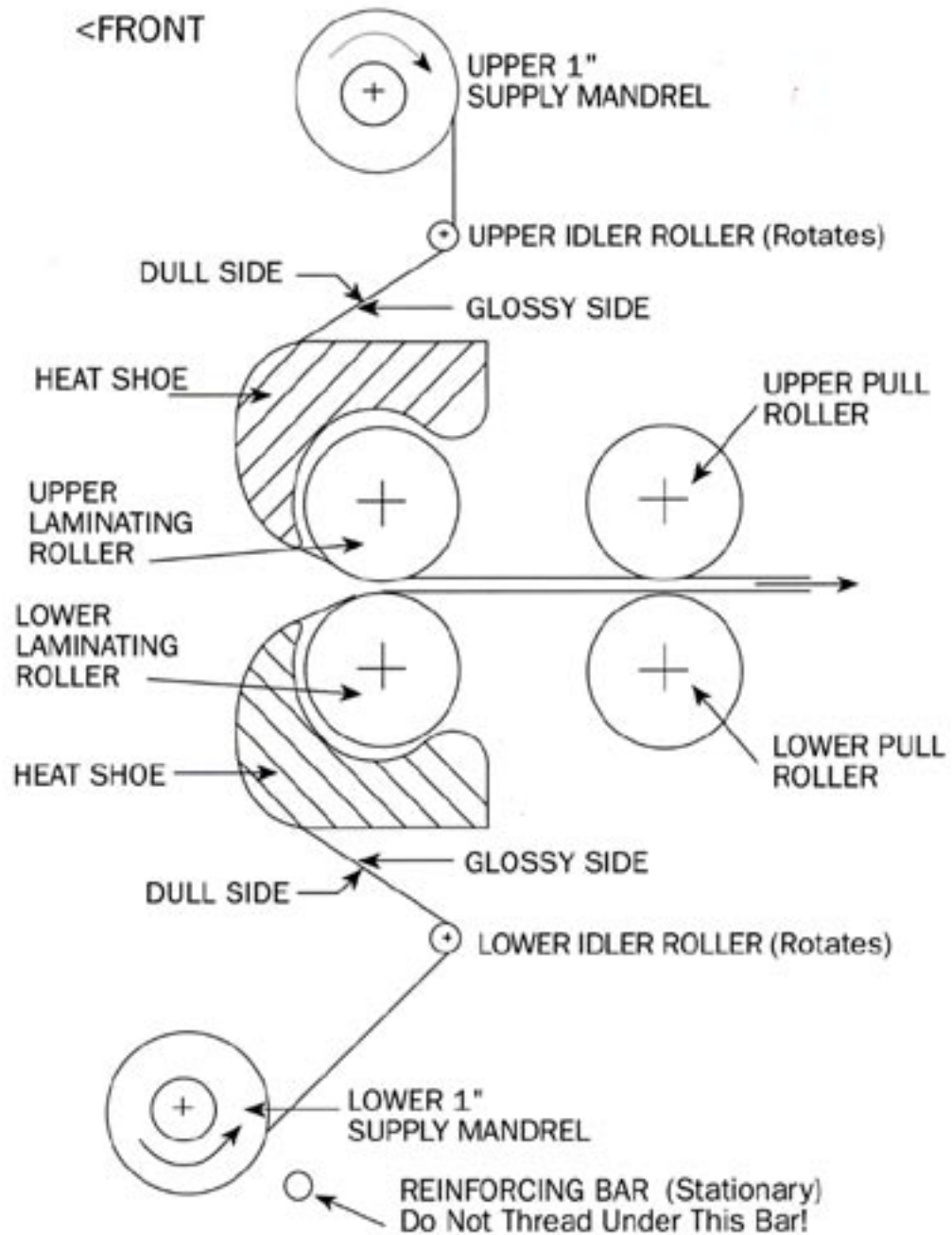
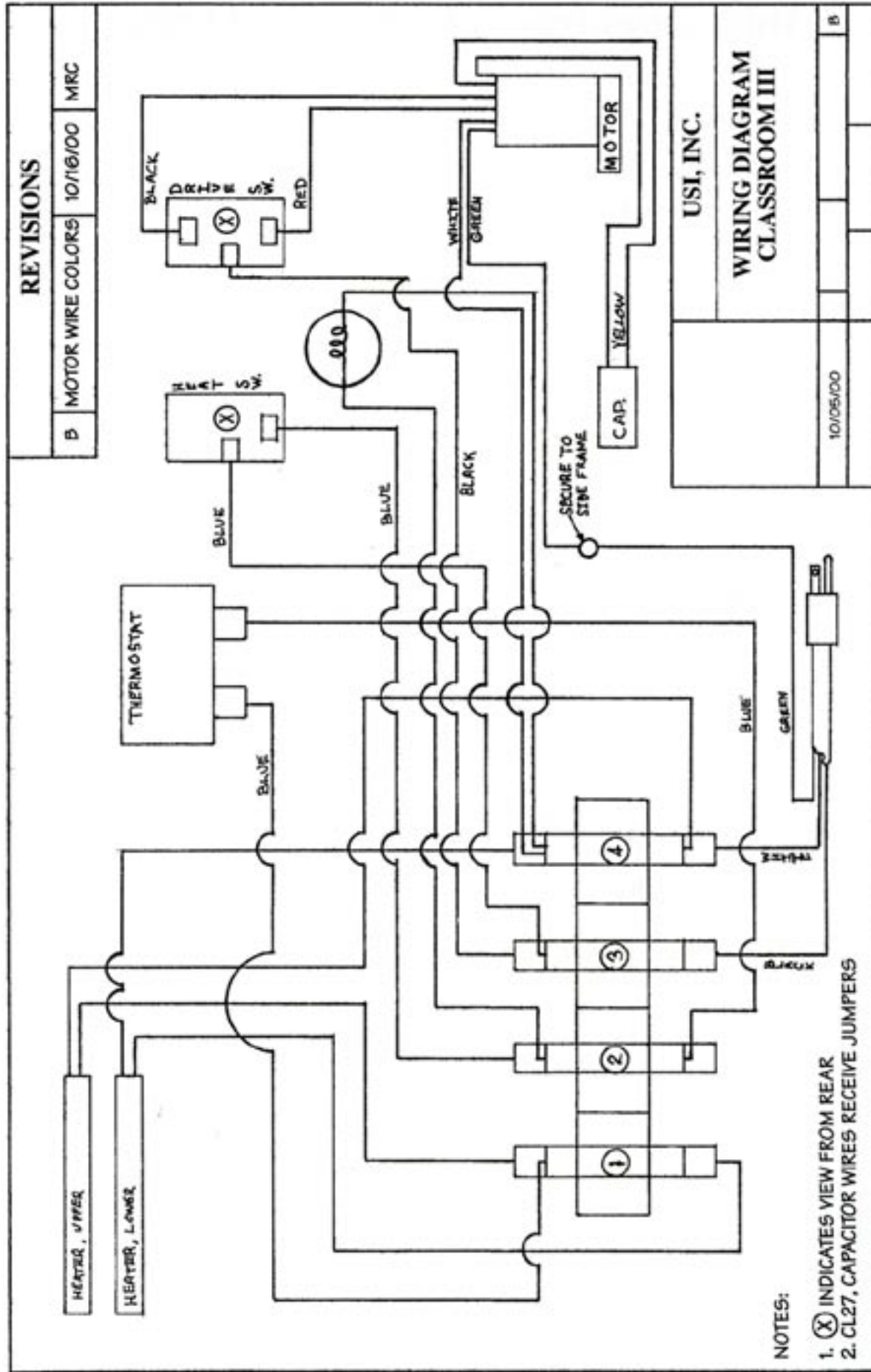
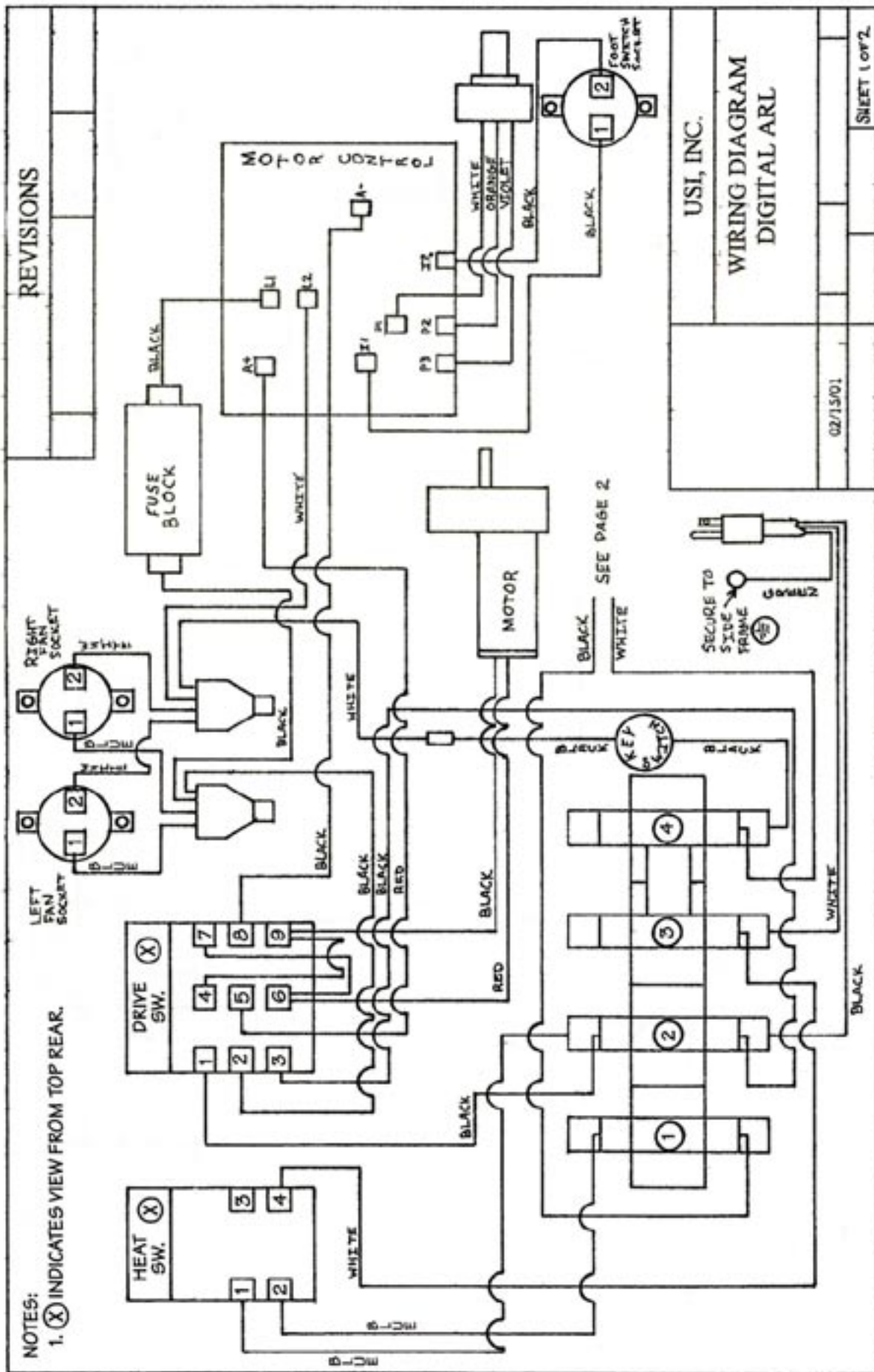


Figure 31-1

CSL Series III WIRING DIAGRAM



DIGITAL ARL WIRING DIAGRAM PART 1



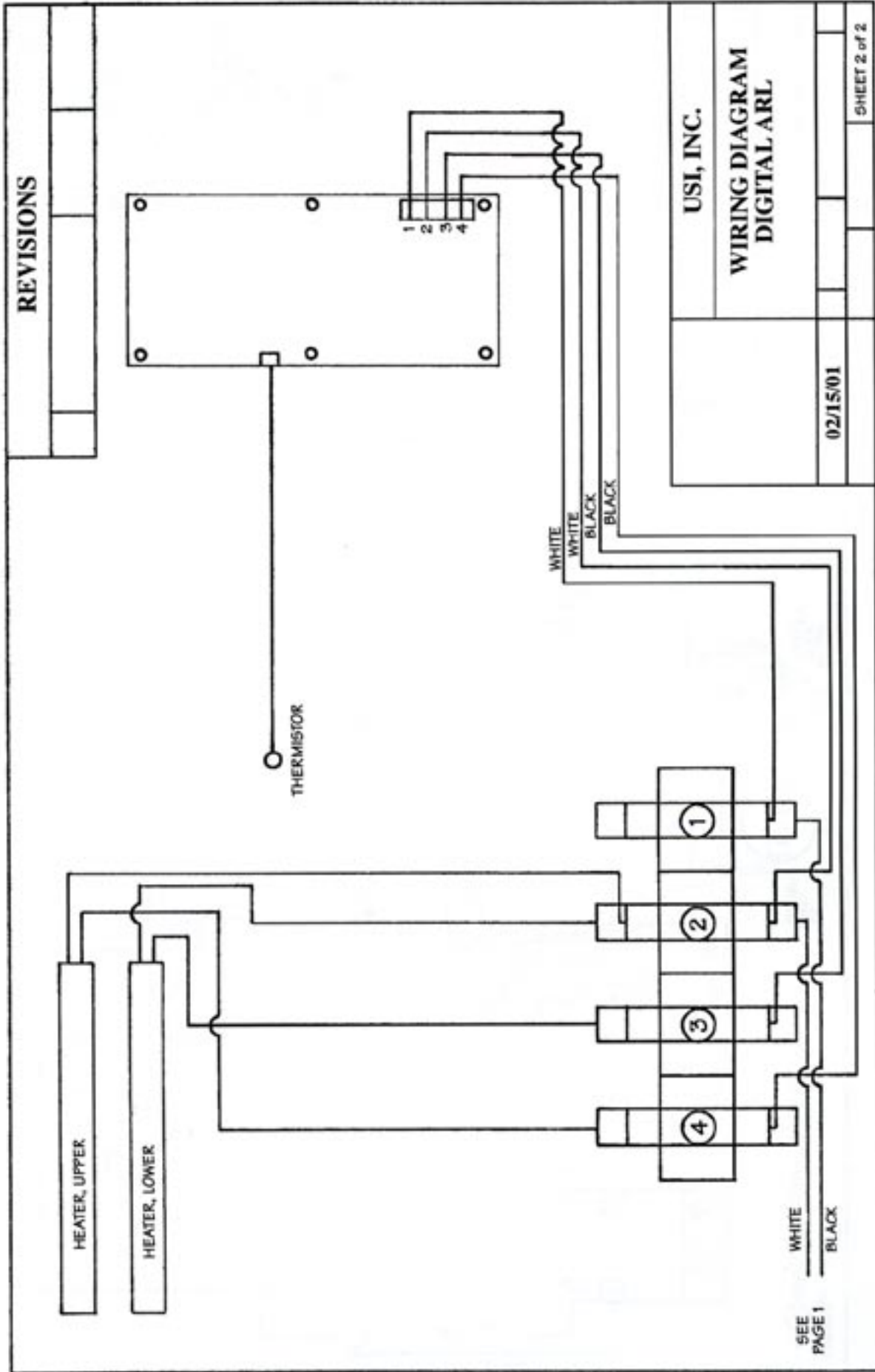
REVISIONS

USI, INC.
WIRING DIAGRAM
DIGITAL ARL

02/15/01

SHEET 1 OF 2

DIGITAL ARL WIRING DIAGRAM PART 2



EXPLODED VIEW

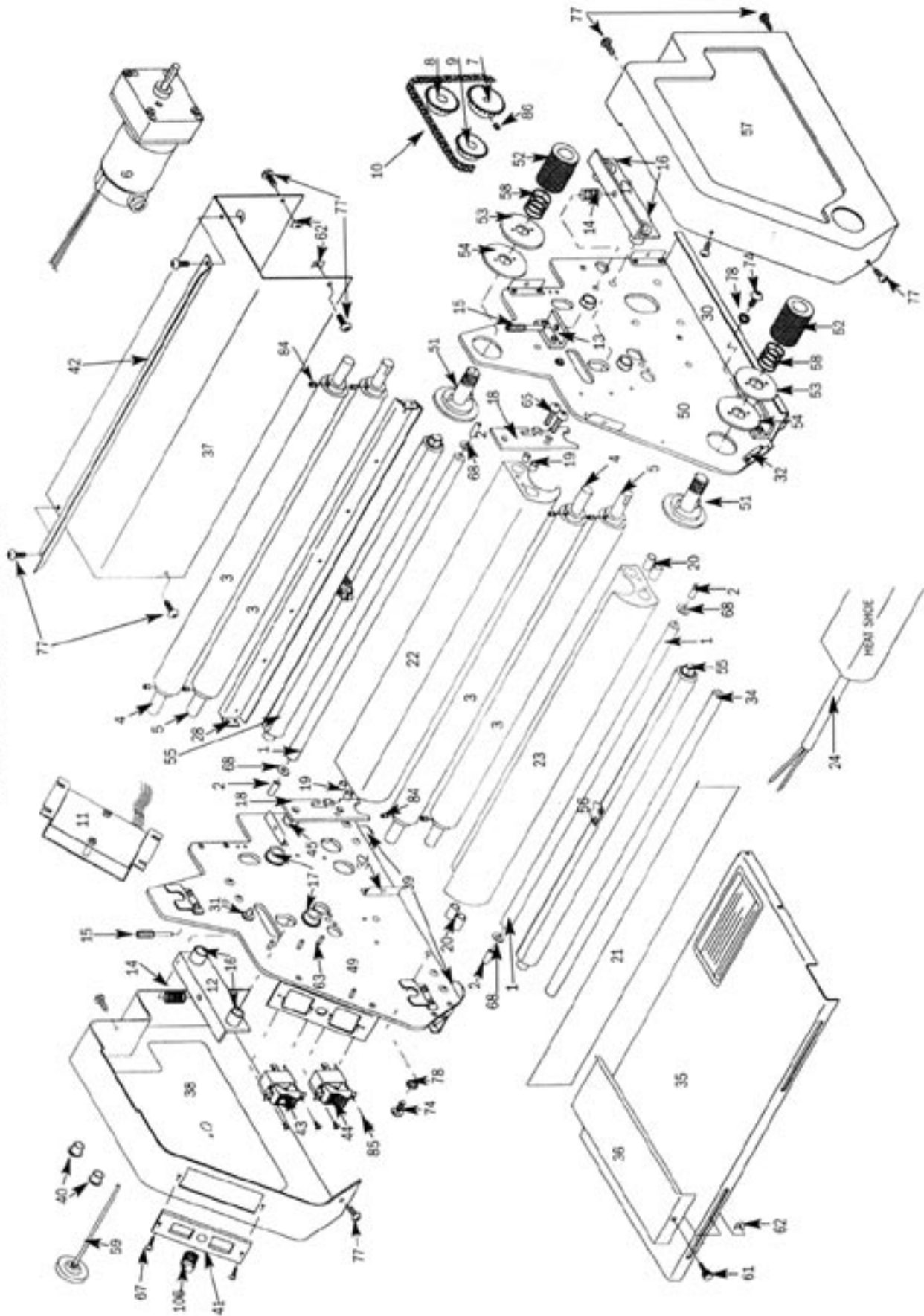


Figure 35-1

PARTS LIST

Part #	
1 013B	IDLER ROLLER
2 014	DOWEL PIN
3 100C	RUBBER ROLL AND TUBING
4 101B	UPPER ROLLER SHAFT
5 102B	LOWER ROLLER SHAFT
6 300P	DRIVE MOTOR (Specify Model)
7 301P	SPROCKET, MOTOR
8 303P	SPROCKET, PULL ROLL
9 302P	SPROCKET, LAMINATING ROLL
10 304PA	DRIVE CHAIN
11 N020	MOTOR CONTROL (Digital)
12 400B	PLATE, PRESSURE ADJUSTMENT
13 401B	BRACKET, PRESSURE ADJUSTMENT
14 402P	SPRING, PRESSURE ADJUSTMENT
15 403B	SCREW, PRESSURE ADJUSTMENT
16 404B	UPPER ROLLER BUSHING
17 405B	LOWER ROLLER BUSHING
18 505B	HEATSHOE MOUNTING BRACKET
19 507P	SPACER, UPPER HEATSHOE
20 506P	SPACER, LOWER HEATSHOE
21 512B	HEATGUARD
22 515C	UPPER HEATSHOE (Bare Heatshoe)
23 516C	LOWER HEATSHOE (Bare Heatshoe)
24 517P	HEATER
27 603B	LEFT SUPPLY ROLL SUPPORT
28 605B	CUT-OFF BRACKET WITH KNIFE
30 607C	BASE CHANNEL WITH BRACKET
31 608P	HEATSHOE HANGER
32 609P	TINNERMAN BRACKET
33 610C	SWITCH MOUNTING BRACKET
34 616B	REINFORCING BAR
35 900C	FEED TABLE WITH GUIDE
36 701C	FEED GUIDE
37 702C	MOTOR HOUSING
38 703B	LEFT SIDE HOUSING (Specify Color & Machine Model)
39 708P	RUBBER FEET
40 707P	PLASTIC PLUG

*Note - When calling for parts, please have complete machine model number and serial number. These are located on an ID tag on the rear of the machine

PARTS LIST

Part #	
41 711C	SWITCH PLATE (Specify Model)
42 715C	PLASTIC DEFLECTOR
43 800P	HEAT SWITCH (Specify Model)
44 800P	DRIVE SWITCH (Specify Model)
45 19F	WIRE PROTECTIVE BUSHING
49 900D	LEFT SIDE PANEL, COMPLETE ASSEMBLY (Specify Model)
50 901D	RIGHT SIDE PANEL, COMPLETE ASSEMBLY (Specify Model)
51 902B	FRICTION STUD
52 903B	TENSION ADJUSTING KNOB
53 906B	FRICTION DISK
54 905B	LEATHER WASHER
55 907B	SUPPLY ROLL SHAFT, 1" CORE, SPECIFY IF UPPER OR LOWER
56 911A	CORE GRIPPER DOG
57 908BAR	RIGHT SIDE HOUSING (Specify Color & Machine Model)
58 910P	SUPPLY ROLL SPRING
59 915P	THERMOMETER (CSL Only)
61 4647	8-32 X 3/8 SCREW FOR FEED GUIDE
62 9N	TINNERMAN NUT
63 7R	1/8 X 1/2 ROLL PIN
65 228S	10-32 X 3/4 BUTTON CAP SCREW
67 235S	6-32 X 1/2 BUTTON CAP SCREW
68 014AW	.26 X .56 X .02 NYLON WASHER
74 236S	1/4-20 X 3/8 BUTTON CAP SCREW
77 214S	10 X 1/2 TYPE B PHIL. PAN SCREW
78 N/A	1/4 WASHER FOR REINFORCING BAR
84 N010	10-32 X 1/4 ALLEN SCREW
85 N012	10-32 X 3/8 ALLEN SCREW
106 N021	SPEED CONTROL KNOB (Digital Only)

*Note - When calling for parts, please have complete machine model number and serial number. These are located on an ID tag on the rear of the machine

PARTS LIST

PARTS NOT SHOWN IN DIAGRAM

Part #	
805P	STRAIN RELIEF BUSHING
806P	POWER CORD
819P	TERMINAL BLOCK
819P	TERMINAL BLOCK MARKER
107S	8-32x3/16 ALLEN SET SCREW
16S	10-32x1/4 CAP SCREW
412S	8-32x5/8 PAN HEAD SCREW
4W	#8 STAR WASHER
1V	RIVET GSMD425
3V	RIVET GSMD435
29W	#6 WASHER
7V	RIVET GSMD445
14V	RIVET SD 64BS
11S	10-32x5/8 SOCKET CAP SCREW
408S	6-32x3/8 PAN HEAD SCREW
16V	RIVET SD 66BS
236S	8-32x1/4 PHILLIPS SCREW
225S	10-32x3/4 SCREW
D001	DECAL (HOT AREA)
D002	DECAL (TENSION)
N029	JONES SOCKET, FAN OR FOOTSWITCH

FILM

Standard Roll Film

Superb value for your dollar, USI's Standard Roll Film is the obvious choice for schools or anywhere cost is the deciding factor. Standard Roll Film offers strong bonding characteristics to paper and paper type products. This low density resin has a melting temperature of 275°-300°F and a bonding temperature 280°F. FDA Approved.



Opti Clear® Roll Film

The Clearest Film In The World

Opti Clear® Roll Film produces a permanent bond to paper and additional substrates including those with wax based ink, clay coated surfaces and heavy ink laydowns. Opti Clear® has a melting temperature of approximately 220°-250°F. Exceptionally clear results makes this film the optimum choice for library book jackets, poster boards, menus, educational aids and more.



Photo Plus® Roll Film

#1 Film For Photographic Purposes

USI's premium Photo Plus® Roll Film utilizes the highest quality and most aggressive adhesive to insure a superior bond to photographic surfaces. Adherence capabilities are numerous and include plastic, metal, vinyl, wax based ink, photographs and color copy bonding. Excellent resistance to extreme temperatures ensures a hard, solid product that will not crack, break or soften. The bonding temperature of Photo Plus® Roll Film is 235-250°F.



DigiSeal® Roll Film With UVI

USI's DigiSeal®, low temperature with Ultra Violet Inhibitors (UVI), Roll Film is the ideal choice for laminating sensitive mediums or latex based surfaces, such as wide format inkjet output. Designed with special inhibitors that block the damaging effects of ultraviolet radiation sunlight and fluorescent lighting. DigiSeal® has a melting temperature of approximately 185°-220°F.

Ultra Violet Roll Film

UV Roll Film was designed with UVA and UVB inhibitors that serve to block the sun's rays. This specially coated film eliminates the deterioration and breakdown caused by extreme exposure. Laminated projects can be produced well in advance and displayed indoors or outdoors without worry. UV Film has a melting temperature of approximately 220°-250°F.

Pressure Sensitive Roll Film

Pressure sensitive decals can be manufactured in minutes, saving budgeting dollars. Just remove the release liner on the back and stick to most any surface! Combine with medium weight, 5.0 mil Opti Clear Roll Film to produce the best results. Pressure Sensitive Film has a melting temperature of approximately 235°-275°F.

Ultra Matte Roll Film

Ultra Matte Roll Film easily accepts pen, pencil and marker, while resisting smudging. The frosted glare free finish provides exceptional indoor-outdoor application. Ultra Matte Roll Film offers firm adherence to paper, vinyl, plastic and some metal. Ultra Matte Film has a melting temperature of approximately 235°-250°F.

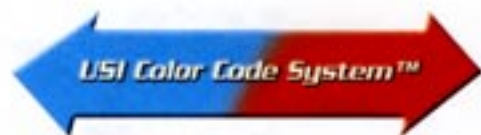
USI's New Color-Code Film System

USI is now Color Coding all of its Roll Film and Roll Laminators!

We are the only lamination company to offer this unique trouble-free system. That's right, we are making film loading even easier. We have completely removed the possibility of placing the adhesive side of the film down on the machine. This is a common problem for most laminator users. That problem will no longer be yours. When it comes to laminating, USI is here to make the job as easy and convenient as possible!

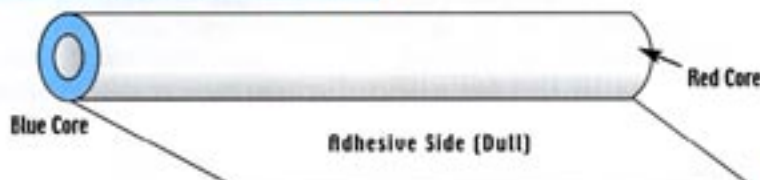
Here's how it works:

Your new roll laminator is color coded on the upper and lower film supply mandrels and machine side housings. All 1" and 2 1/4" roll films are also color coded as well. Simply match the red core of the film roll to the red end of the supply mandrel and machine side housing. For the bottom mandrel, simply match the blue core of the film roll to the blue end of the supply mandrel and machine side housing. Now simply thread the film as shown in the manual and you're ready to laminate with confidence!

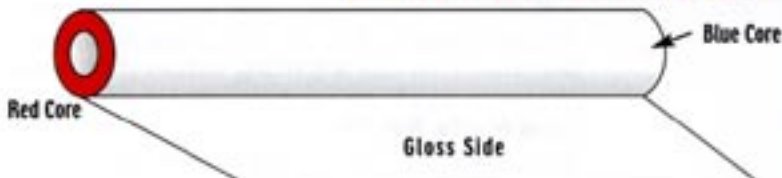


Color Code helps you easily match up the correct side of the roll when installing film onto your roll laminator.

Roll Film Rolled Adhesive Side In (1" core)



Roll Film Rolled Adhesive Side Out (2 1/4" core)



Please feel free to call our Technical Department if you should have any questions about this process.

800-752-9131

If it's not color code, it's too hard to load!

USI Corporate Headquarters:

98 Fort Path Road Madison, CT 06443-2264

(203) 245-8586 • (800) 243-4565 • Fax 24 Hour (203) 245-7337

East Coast Distribution Center: Madison, Connecticut

West Coast Distribution Center: Phoenix, Arizona