



**LEDKO XL-44 110V
POUCH SERIES
LAMINATOR
TROUBLESHOOTING
GUIDE**

XL-44 110V POUCH SERIES LAMINATOR PROBLEM DIAGNOSTIC CHARTS

Problem	Possible Cause	Repair Procedure	Procedure Number	Skill Level
Laminator will not heat up.	No power	Check power cord	1	*
		Check power switch position	2	*
		Check heat control fuse	6	*
		Check for heating wires that are disconnected, broken or shorting out	7	**
		Check main switch	9	**
	Heat cartridge, Heat sensor, or Slip ring failure	Check heat cartridge, heat sensor, and slip ring	8	***
	Heat control board transformer failure	Check heat control board transformer	10	***
Heat control board relay coil failure	Check heat control board relay coil	11	***	
Laminator heat cannot be controlled	Heat control knob installed improperly	Check heat control knob	12	*
	Heat sensor or slip ring failure	Check heat cartridge, heat sensor, and slip ring	8	***
	Heat control board relay failure	Check heat control board relay	13	***
Bottom roll doesn't turn and feed material through machine	No power	Check power cord	1	*
		Check power switch position	2	*
		Check motor fuse	14	*
		Check for drive motor wires that are disconnected, broken, or shorting out	16	**
		Check main switch	9	**
	Drive failure	Check bottom rubber roll engagement to direct drive motor	17	***
		Check motor and capacitor	18	***
The film does not adhere to the document	Machine is not up to temperature	Allow for the ready light to go out before you start lamination		
	Thicker films and substrates absorb heat	Turn up the temperature		
	Inkjet print is still wet	Allow inkjet print to dry at least 2 hours		
	Incompatible Inkjet print media and inks.	Test samples before laminating many pieces.		
Bubbles in lamination	Not enough roll pressure	Check for proper roll height adjustment.	15	*
	Too much roll pressure	Check for proper roll height adjustment.	15	*

Skill Level Index: * Basic, End-User ** Intermediate or Dealer *** Advanced or Servicing Dealer/Technician

XL-44 110V POUCH SERIES LAMINATOR PROBLEM DIAGNOSTIC CHARTS

Problem	Possible Cause	Repair Procedure	Procedure Number	Skill Level
Line across width of mounting board or pouch	Adhesive on the top roll	Clean top and bottom rubber roll	19	*
	Machine was stopped during lamination			
Indents in foam core	Rough handling	The foam in the foam board does not have good memory. Once it has been crushed even slightly, it will not fully restore to its original height. Be careful not to set heavy items or grip the board too tightly, leaving finger indents.		
	Top roll is dirty and or has something stuck to it.	Clean Top and bottom roller	19	*
The lamination has wrinkles	Item being laminated has been folded, rolled, bent, or wrinkled.	Smooth item out as best you can before laminating.		
		If mounting or mounting & laminating, try tacking the front two edges of the item to the board with a heat seal iron or glue stick before laminating.		
	Trying to straighten the lamination after it has already started through the laminator.	Once material has started, do not try to smooth or straighten. It most generally will make it worse. Do all your smoothing and straightening before you introduce it to the laminator.		
	Laminating two pieces of unequal thickness side by side	Only laminate items of same thickness side by side		
Foam core comes out thinner than when it went in	Excessive roll pressure	Check for proper roll height adjustment	15	*
	Excessive heat	turn down temperature		
	Heat control knob installed improperly	Check heat control knob	12	*
	Heat sensor or slip ring failure	Check heat cartridge, heat sensor, and slip ring	8	***
	Heat control board relay failure	Check heat control board relay	13	***

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XL-44 110V POUCH SERIES LAMINATOR PROBLEM DIAGNOSTIC CHARTS

Problem	Possible Cause	Repair Procedure	Procedure Number	Skill Level
General haziness or cloudiness in film after lamination	Not enough heat	Wait for machine to heat up indicated by the ready light going out		
		Increase the temperature		
Laminated item has pitted, irregular surface.	Adhesive build-up or dirt on rollers.	Clean top and bottom rubber roll.	19	*
	Dirt or particles on item or in between pouch before laminating.	Keep items to be laminated, mounting boards, and pouches clean		
	Cuts or other damage to the rubber rollers	Replace rubber rolls.	20,21	***
Adhesive on rolls	Not using release sheet over entire surface when mounting.	Clean top and bottom rubber roll	19	*
		Place a release sheet over entire surface when mounting (silicon side down) this will prevent adhesive from adhering to the rubber roll		
	When pouch laminating the adhesive runs out around the edges.	Clean top rubber roll after each pouch.	19	*

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XL-44 110V POUCH SERIES LAMINATOR REPAIR PROCEDURES

1. Check power cord. *

- a. Power cord must be securely inserted into the wall outlet (110v AC).
 - b. Power cord must be securely inserted into the receptacle on the back of the laminator.
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2. Check main switch position. *

Main switch must be in the "ON" or "I" position as denoted by the markings on the switch rocker.

3. Remove right plastic housing. **

- a. **Disconnect the power cord.**
 - b. Remove phillips head screw from middle end of handle
 - c. Remove 4 phillips flathead screws from around outside of handle and slide handle off.
 - d. Remove 4 phillips flathead screws from inside right side panel: 2 in front, 1 on top, and 1 in rear.
 - e. Unplug mini fan when pulling off housing
 - f. Remove the plastic housing.
-

4. Remove left plastic housing. **

- a. **Disconnect the power cord.**
 - b. Remove 4 phillips flathead screws from inside left side panel: 2 in front, 1 on top, and 1 in rear.
 - c. Remove the plastic housing.
-

5. Remove exit table. **

- a. Remove the right and left plastic housing as described in procedures 3 and 4 above.
 - b. In rear of machine remove 3 phillips truss head self tapping screws from just below top of exit table.
 - c. Loosen 1 turn 12 screws holding on right side panel.
 - d. Remove 2 phillips round head screws holding exit table on right side panel.
 - e. Remove 2 phillips round head screws holding exit table on left side panel.
 - f. Be careful and you should be able to remove exit table at this time.
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6. Check heat control fuse. *

- a. Find external fuse holder located under exit table beside right side housing (small black rectangular cover with FUSE written on face next to small white label with type and value of fuse).
 - b. Grasp cover with thumb and forefinger. Press down and pull out to expose fuse.
 - c. Replace with "250V 1/2 amp fast acting fuse" if discolored or center element is broken.
-

7. Check for heating wires that are disconnected, broken, or shorting out. **

- a. Remove the exit table, right and left plastic housing as described in procedures 3, 4, and 5 above.
- b. Examine all wires and connectors for the heat system. Use the wiring diagram included for reference.
 - power cord receptacle to main switch
 - main switch to terminal block
 - left side terminal block to right side terminal block
 - right side terminal block to right side fuse holder
 - right side fuse holder to terminal block near heat control
 - right side terminal block to terminal block near heat control board
 - terminal block near heat control to heat control board
 - heat control board to right side terminal block and relay
 - relay to slip ring and slip ring to heat control
 - slip ring to top rubber roll
- c. If a wire is disconnected, reconnect exactly as shown in the wiring diagram.

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- 8. Check heat cartridge, heat sensor, and slip ring. *****
 - a. Remove the right plastic housing as described in procedure 3 above.
 - b. Disconnect wires from outside of slip ring
 - c. First we will check the heat cartridge through the slip ring.
 - Set multimeter to 200 ohms.
 - Place one probe on one of the large terminals and the other probe on the other large terminal.
 - The resistance reading should be between 12.0-12.6.
 - If the reading is outside this range make a note and it will be explained later.
 - d. Next we will check the sensor through the slip ring.
 - Set multimeter to 2k ohms.
 - Place one probe on one of the small terminals and the other probe on the other small terminal.
 - The resistance reading should be between 1.080-1.095 at room temperature.
 - If the reading is outside this range make a note and it will be explained later.
 - e. If the readings were within the limits everything is fine and you are through. Rewire exactly as shown in the wiring diagram. If the readings are not within the limits, please continue on.
 - f. Next we will check the continuity of the slip ring.
 - Remove 2 phillips round head screws from clamp around slip ring.
 - Disconnect wires from slip ring.
 - Set multimeter to continuity.
 - At one end of the slip ring place a probe on one of the large terminals.
 - At the other end of the slip ring place the other probe on one of the large terminals then the other large terminal. There should be continuity between one large terminal at one end and one large terminal at other end and the other large terminal at one end and the other large terminal at the other end.
 - Now use the same method to check the small terminals.
 - Each terminal on one end should have continuity with only one terminal on the other end. If this is not true the slip ring needs to be replaced (#PRS001 procedure 22).
 - g. If the slip ring is okay, we will have to recheck the cartridge heater and the sensor resistance without the slip ring.
 - h. There should be 4 wires left coming out of the rubber roll journal. Check each wire to make sure there are no broken or bad connections.
 - i. Check cartridge heater without slip ring.
 - Set multimeter to 200 ohms.
 - Place one probe on one of the large flag wire terminals and the other probe on the other large flag wire terminal.
 - The resistance reading should be between 12.0-12.6.
 - If the reading is outside this range the heat cartridge will have to be replaced (#PRH181 procedure 23).
 - j. Check heat sensor without slip ring.
 - Set multimeter to 2k ohms.
 - Place one probe on one of the small wire terminals and the other probe on the other small wire terminal.
 - The resistance reading should be between 1.080-1.095 at room temperature.
 - If the reading is outside this range the heat sensor will have to be replaced (#PRC212S procedure 24).
 - k. With everything in working order rewire exactly as shown in the wiring diagram.

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9. Check main switch. **

- a. Remove the left plastic housing as described in procedure 4 above.
 - b. Engage the switch.
 - c. Check continuity of the switch with a multimeter.
 - Disconnect wires from the switch terminals.
 - Place one probe on top terminal and one probe on terminal directly below.
 - Do the same for the second set of terminals.
 - d. If there is no continuity, replace the switch (Part #PRS291 procedure25) and rewire exactly as shown in the schematic.
-

10. Check the heat control board transformer. ***

- a. Remove the right plastic housing as described in procedure 3 above.
 - b. Remove the black and gray wires from terminals T2 and T3 respectively.
 - c. Check the resistance of the transformer with a multimeter by placing a probe on terminals T2 and T3. The resistance should read 1.342 ohms.
 - d. If the reading shows an open circuit, replace the heat control board.
-

11. Check the heat control board relay coil. ***

- a. Remove the right plastic housing as described in procedure 3 above.
 - b. Remove one of the heat sensor wires (yellow wires) from terminals T4 or T5.
 - c. Check the resistance of the relay coil with a multimeter by placing a probe on terminals T4 and T5. The resistance should read 42.4 ohms.
 - d. If the reading shows an open or closed circuit, replace the heat control board.
-

12. Check heat control Knob. *

- a. Turn knob clockwise till stopped.
 - b. White line on knob should line up with black line just clockwise of the 200 degree mark.
 - c. With knob turned clockwise till stopped use a 3mm or 1/8" wide blade screwdriver, loosen knob and align with black mark just clockwise of 200 degree mark and retighten screw.
-

13. Check heat control board relay. ***

- a. Remove the right plastic housing as described in procedure 3 above.
 - b. Remove brown and orange wires from terminals T6 and T7.
 - c. Set multimeter to test for continuity.
 - d. Check the resistance of the relay with a multimeter by placing one probe on T6 and one probe on T7.
 - e. With power disconnected there should be no continuity.
 - f. If there is continuity, the relay is bad and the heat control board needs replacing (#PRC212 procedure 26).
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14. Check drive motor fuse. *

- a. Find external fuse holder located under exit table beside left side housing and power cord receptacle (small black rectangular cover with FUSE written on face next to small white label with type and value of fuse).
- b. Grasp cover with thumb and forefinger. Press down and pull out to expose fuse.
- c. Replace with "250V 1/2 amp fast acting fuse" if discolored or center element is broken.

XL-44 110V POUCH SERIES LAMINATOR REPAIR PROCEDURES

15. Adjusting for proper roll height. *

- a. If mounting or mounting and laminating, please either measure the board or look on the box for the thickness of the board. If pouch laminating, either measure the sled or look on the box for the thickness
 - b. After you know the thickness of the board or sled, to the right side of the machine locate the "Gap Knob" and pull out and turn to proper height (pull out to set and push in to hold).
-

16. Check for drive motor wires that are disconnected, broken or shorted out. **

- a. Remove the exit table, right and left plastic housing as described in procedures 3, 4, and 5 above.
 - b. Examine all wires and connectors for the drive system. Use the wiring diagram included for reference.
 - o -- power cord receptacle to main switch
 - o -- main switch to terminal block
 - o -- left side terminal block to left side fuse holder
 - o -- Right side fuse holder to direct drive motor
 - o -- Check capacitor connections
 - c. If a wire is disconnected, reconnect exactly as shown in the wiring diagram.
-

17. Check bottom rubber roll engagement to direct drive motor. ***

- a. Remove the left plastic housing as described in procedure 4 above.
- b. Raise top rubber roll to top position.
- c. Standing in front of machine, with right hand reach in machine and place on top of bottom rubber roll. Gently try to turn bottom rubber roll while observing motor.
- d. The roll should not turn. If the roll turns, locate the set screw on the outside end of rubber roll journal.
- e. Insert a 3/32 hex wrench into the set screw and check for tightness. If the screw is tight and the rubber roll turns, the motor may have a stripped gear or broken shaft and will need replacing (#PRM232A procedure 27).
- f. If the set screw is loose, you will have to line it up with the flat on the motor and retighten.
 - Using a 3/8 open end wrench and a 5/32 hex wrench. Remove socket head screw to the right of the motor.
 - Pull motor shaft out of the rubber roll journal and look for flat on the shaft.
 - Turn roll to line set screw in rubber roll journal up with the flat on the motor shaft.
 - Reinsert motor shaft leaving approximately 1/32" clearance between motor and rubber roll journal end.
 - Tighten set screw making sure it is lined up with flat.
 - Replace socket head cap screw leaving 1/32" gap between head and slotted plate to allow motor to float freely and tighten lock nut.
- g. This should insure proper rubber roll and direct drive motor engagement.

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18. Check motor and capacitor. ***

- a. Remove the left plastic housing as described in procedure 4 above.
 - b. Unplug double blue wire from terminal block.
 - c. Unplug red wire with capacitor lead from blue wire.
 - d. Set multimeter to 2k.
 - e. On capacitor place one probe on one side and place the other probe on the other side of the capacitor (pull insulation back on leads coming out of capacitor to acquire good connection).
 - f. The reading should be between 2.3 and 2.5 ohms resistance. If the reading is correct, reconnect wires and you are done.
 - g. If there is no reading or continuity make sure your connections are good. If there is still no continuity or reading, the motor has failed and needs replacing (#PRM232A procedure 27).
 - h. If there is continuity and no resistance there is a direct short in the motor or the capacitor.
 - i. Cut one connection between capacitor and motor lead.
 - j. Test capacitor by putting probe on one side and put other probe on opposite side. If the capacitor is good there will be no continuity. The capacitor is bad if there is continuity and will need replacing.
 - k. Retest the motor by putting one probe on the black wire coming out of the motor and the other probe on the red wire coming out of the motor. The resistance reading should be between 2.3 and 2.5. If it is outside these parameters the motor will need to be replaced (#PRM232A procedure 27).
 - l. Reconnect exactly as shown in wiring diagram.
-

19. Clean top and bottom rubber roll. *

- a. Disconnect power to machine
- b. Lift the top front cover
- c. Lift the heat shield off top rubber roll
- d. Top rubber roll
 - To the right side of the machine locate the "Gap Knob" and pull out and turn to 1 1/2" height (pull out to set and push in to hold).
 - Use safety glasses with side shields to protect eyes and use neoprene, nitrile, or rubber gloves to protect skin.
 - Use a clean rag and spray the rag until damp with a cleaning solution (The cleaning solution we recommend is X-241 rubber roll cleaner available through Graphic Laminating 800-345-5300).
 - Use one hand to wipe and the other to turn roll, proceed until clean
- e. Bottom rubber roll
 - Reconnect power and turn on main switch.
 - The bottom rubber roll will be turning very slowly.
 - To the right side of the machine locate the "Gap Knob" and pull out and turn to 1 1/2" height (pull out to set and push in to hold).
 - Use safety glasses with side shields to protect eyes and use neoprene, nitrile, or rubber gloves to protect skin.
 - Use a clean rag and spray the rag until damp with a cleaning solution (The cleaning solution we recommend is X-241 rubber roll cleaner available through Graphic Laminating 800-345-5300).
 - Wipe damp cloth across surface until clean.

XL-44 110V POUCH SERIES LAMINATOR REPAIR PROCEDURES

20. Replace top heated rubber roll. ***

- a. To the right side of the machine locate the "Gap Knob" and pull out and turn to 1/16" height (pull out to set and push in to hold).
- b. Remove the exit table, right and left plastic housing as described in 3, 4, and 5 above.
- c. Remove feed table
 - In front of machine remove 3 phillips truss head self tapping screws from just below top of feed table.
 - Remove 2 phillips round head screws holding feed table on right side panel.
 - Remove 2 phillips round head screws holding feed table on left side panel.
 - Be careful and you should be able to remove feed table at this time.
- d. Remove slip ring
 - Disconnect wires running to slip ring.
 - Remove 2 phillips round head screws from clamp around slip ring.
 - Disconnect wires from slip ring to rubber roll.
- e. Use external snap ring pliers and remove snap rings from top rubber roll journals.
- f. On trunions (lifting plates) mark right, left and side facing machine. Then slide right and left trunions to the right side of the machine locate the "Gap Knob" and pull out and turn to 1/16" height.
- g. Use external snap ring pliers and remove snap rings from left side upper gear shafts only.
- h. Slide small gears, large gears, and keys off left side of machine leaving gears on right side of machine meshed and timed.
- i. Lift one end at a time and remove bronze bearings from rubber roll journals.
- j. Be careful and lift rubber roll up and slide through large hole in left side panel.
- k. Be very careful not to cut or nick new rubber roll and slide new roll wire end first back in through hole in left side panel.
- l. From this point reverse procedures to complete installation.

XL-44 110V POUCH SERIES LAMINATOR REPAIR PROCEDURES

21. Replace bottom rubber roll. ***

- a. Follow procedure 20, a - j.
 - b. Remove drive motor
 - On left side of machine locate the set screw on the outside end of rubber roll journal.
 - Use 3/32" hex wrench and loosen set screw.
 - Unplug motor wires.
 - Using a 3/8 open end wrench and a 5/32 hex wrench. Remove socket head screw to the right of the motor.
 - Pull motor shaft out of the rubber roll journal.
 - c. On left side of machine remove three phillips truss head screws from around bottom rubber roll bearing.
 - d. Slide bottom rubber roll to the left until left side rubber roll bearing clears left side panel and remove bearing from left side rubber roll journal.
 - e. Lift bottom rubber roll up until you can slide it out through large hole in left side panel.
 - f. Remove bearing from right side rubber roll journal.
 - g. Remove snap ring spacer from rubber roll journal with external snap ring pliers.
 - h. Put snap ring spacer and bearing on right journal of new bottom rubber roll.
 - i. Slide bottom rubber roll back into machine through large hole in left side panel making sure set screw is on the left side rubber roll journal and you do not cut or nick rubber roll surface.
 - j. Slide bottom rubber roll bearing on left rubber roll journal.
 - k. Replace three truss head screws in left side panel to retain left side rubber roll bearing.
 - l. Turn roll to line set screw in rubber roll journal up with the flat on the motor shaft.
 - m. Reinsert motor shaft leaving approximately 1/32" clearance between motor and rubber roll journal end.
 - n. Tighten set screw making sure it is lined up with flat.
 - o. Replace socket head cap screw leaving 1/32" gap between head and slotted plate to allow motor to float freely and tighten lock nut.
 - p. Reconnect motor wires exactly as shown in wiring diagram.
 - q. Be very careful not to cut or nick top rubber roll and slide top roll wire end first back in through hole in left side panel.
 - r. From this point reverse procedure 20, a - j to complete installation.
-

22. Replace slip ring. ***

- a. Remove the right plastic housing as described in procedure 3.
- b. Disconnect wires from outside of slip ring.
- c. Remove 2 phillips round head screws from clamp around slip ring.
- d. Disconnect wires from inside of slip ring to rubber roll journal. Try to mark which wire went to what terminal. This way you will be able to replace wires in the same position.
- e. Before you remove clamps from slip ring take new slip ring and lay them side by side.
- f. Note positions of the clamps in relation to the terminals.
- g. Use 5/32" hex wrench and loosen and remove large clamp from slip ring body.
- h. Install clamp on new slip ring in the same position as it was on old slip ring. Be careful not to over tighten clamp and crush housing.
- i. Use 9/64" hex wrench and loosen and remove small clamp from old slip ring.
- j. Install small clamp on new slip ring in the same position as it was on old slip ring. Leave 1/32" clearance between screw head on small clamp and body of slip ring to prevent binding while small clamp is rotating. Be careful not to over tighten clamp and crush housing.
- k. Reconnect wires from rubber roll to slip ring in same terminals as were on old ring.
- l. Align drive screw in small clamp with slot in drive plate on end of rubber roll journal.
- m. Install 2 phillips head screws through large clamp on slip ring and slide on spacers.
- n. Tighten slip ring to trunion (lifting plate).
- o. Reconnect wires to outside of slip ring exactly as shown on wiring diagram.
- p. Install the right plastic housing by reversing procedure 3 above.

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23. Replace heat cartridge. ***

- a. Remove top rubber roll as described in procedure 20.
 - b. It is recommended that the heat cartridge be replaced by the factory (Ledco Inc.).
 - c. The Phone number is (716)367-2392 and ask for service.
-

24. Replace heat sensor. ***

- a. Remove top rubber roll as described in procedure 20.
 - b. It is recommended that the heat sensor be replaced by the factory (Ledco Inc.).
 - c. The Phone number is (716)367-2392 and ask for service.
-

25. Replace main switch. **

- a. Remove the left plastic housing as described in procedure 4.
 - b. Mark and disconnect wires from rear of switch.
 - c. Remove switch from switch bracket.
 - d. Install new switch into switch bracket.
 - e. Reconnect wiring exactly as shown in wiring diagram.
 - f. Install the left side housing by reversing procedure 4.
-

26. Replace heat control board. **

- a. Remove the right plastic housing as described in procedure 3.
 - b. Pull knob out from front of mounting plate leaving white plastic shaft attached.
 - c. Leave wired while you remove 4 small phillips flat head screws located near the four corners just above standoffs releasing board from mounting plate.
 - d. Mount new board exactly the same orientation as old board.
 - e. Disconnect one wire at a time from old board and reconnect into same terminal in new board.
 - f. Reinstall knob in front of mounting plate and turn clockwise until it stops.
 - g. White line should line up with line on mounting plate just clockwise of the 200 mark. If not, pull knob out and plug it back in at line just clockwise of 200 mark. If it still doesn't line up, follow procedure 12.
 - h. Install the right housing by reversing procedure 4.
-

27. Replace Drive motor. ***

- a. Remove the left plastic housing as described in procedure 4.
- b. On left side of machine, locate the set screw on the outside end of rubber roll journal.
- c. Use 3/32" hex wrench and loosen set screw.
- d. Unplug motor wires.
- e. Using a 3/8 open end wrench and a 5/32 hex wrench. Remove socket head screw to the right of the motor.
- f. Pull motor shaft out of the rubber roll journal.
- g. Turn roll to line set screw in rubber roll journal up with the flat on the new drive motor shaft.
- h. Reinsert motor shaft leaving approximately 1/32" clearance between motor and rubber roll journal end.
- i. Tighten set screw making sure it is lined up with flat.
- j. Replace socket head cap screw leaving 1/32" gap between head and slotted plate to allow motor to float freely and tighten lock nut.
- k. Connect new motor wires exactly as shown in wiring diagram.
- l. Install the left side housing by reversing procedure 4.

XL44 POUCH LAMINATOR 110V WIRING DIAGRAM

LEGEND

- A INDICATOR LIGHT
- B HEAT CONTROL
- C TERMINAL BLOCK
- D SLIP RING
- E POWER RELAY
- F MAIN POWER RECEPTACLE
- G CAPACITOR
- H SYNCHRONOUS MOTOR
- J MAIN POWER SWITCH
- K FUSE HOLDER & 1/2 AMP FUSE
- L 47K 1/4W RESISTOR

