

# Ledco 30" Automatic Cutter

## Troubleshooting Guide



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# Industrial Series 30" Cutter Repair Procedures

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## 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 power switch position. \*

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

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## 3. Check for engaged emergency stop switch. \*

- a. Locate two emergency stop switches, one on top of left and one on top of right housing.
- b. Press down to engage switch and turn switch cap clockwise to disengage switch.

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## 4. Check for open housing door. \*

The housing doors must be fully engaged for the machine to operate and power up.

- a. If a door is open or loose, use a phillips head screw driver to attach top of door to housing (Turn screw 1/4 turn counterclockwise to tighten).

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## 5. Check main fuse. \*\*

- a. Find external fuse holder located on the back of the left side housing (small black rectangular cover with FUSE written on face next to power cord receptacle).
- b. Grasp cover with thumb and forefinger. Press down and pull out to expose fuse.
- c. Using a multimeter set to continuity, place one probe on one end of the fuse and the other probe on the other end of the fuse.
- d. Replace with "250V 15 amp fuse" if there is no continuity.

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## 6. Open left and/or right housing door. \*\*

- a. **Disconnect the power cord.**
- b. On upper face of door, use phillips head screw driver and turn counter clock wise 1/4 turn two screws.
- c. The door is hinged at bottom.
- d. Swing top of door out and lower to bottom position.

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

- a. Open both right and left doors as described in procedure 6.
- b. Inside left housing, look to rear of machine and follow connections.
  - power cord receptacle to fuse holder and terminal block
  - fuse holder to terminal block
  - terminal block to main switches
  - terminal block to Smart Step Control
  - Smart Step Control to operator interface
- c. If a wire is disconnected, reconnect exactly as shown on the wiring diagram.

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## 8. Check main switch. \*\*\*

- a. Open the left housing door as described in procedure 6 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.
- d. If there is no continuity, replace the switch (Part #PRS003) and rewire exactly as shown on the wiring diagram.

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## 9. Check proximity switches. \*\*\*

- a. Open both right and left doors as described in procedure 6.
  - b. Glued on the door is a small black rectangular object. This object is the key to the proximity switch. When this object is within a certain distance of the proximity switch, it turns the switch on and there is continuity between both wires going into switch.
  - c. Make sure both doors have one of these small black rectangular objects glued to it.
  - d. If one of these small black rectangular objects is missing, it will need to be replaced (#PRS352).
  - e. The switches are located just behind the housing doors. On the right side housing, the switch is located on the rim in the upper right hand corner of the opening. On the left side housing, the switch is located on the rim in the upper left hand corner of the opening.
  - f. Mark and disconnect wires.
  - g. Use a # 1 bit size phillips head driver and a 1/4" open or box end wrench. Remove two 4-40 phillips flathead screws mounting each switch to housing.
  - h. Check continuity of the switch with a multimeter.
    - Place one probe on one wire and one probe on the other wire.
    - With probes in place, take switch and place the large edge of the switch beside large edge of small black rectangular object glued to door.
    - If there is no continuity, the switch will need replacing (#PRS351).
  - i. Reverse the procedure to complete reinstallation.
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## 10. Check main power relay. \*\*\*

- a. Open left door as described in procedure 6.
  - b. Find relay located in housing mounted to the left of center on the side panel.
  - c. Reconnect power cord.
  - d. You will need a small magnet or a #PRS352 proximity switch magnet. Tape magnet or proximity switch magnet on the proximity switch (proximity switch is located on the upper edge of the door opening).
  - e. Turn main power switch on.
  - f. Use multimeter to measure voltage coming into relay.
    - Set multimeter to measure ac voltage, at least 200.
    - On relay there should be two terminals numbered 0 & 1. Pull the wires halfway off these terminals without losing contact.
    - Place one probe on bare part of the 0 terminal and the other probe on the 1 terminal.
    - The reading on the multimeter should be between 108 and 125.
    - If there is no reading, the problem is in the circuit before the relay. If there is the proper reading, please continue.
  - g. Mark and disconnect wires from terminals 2 & 4.
  - h. Set multimeter to check continuity.
  - i. Place one probe on terminal 2 and place the other probe on terminal 4.
  - j. If there is continuity, the relay is good and you can reconnect wires. If there is no continuity, the relay will need to be replaced (#PRR150).
  - k. Remove magnet and close door to complete procedure.
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## 11. Check wire connection to clutch. \*\*

- a. Open right door as described in procedure 6.
  - b. Just to the right inside the door running from top to bottom is a wire bundle. Just a little over halfway up, there are two black wires breaking out of the bundle. These are the clutch actuating wires. Follow them to their connections and make sure they are tight.
  - c. Close door to complete procedure.
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## 12. Check wire connection to control. \*\*

- a. Open left door as described in procedure 6.
- b. Just inside the door to the right of the middle there is a blue box with "SmartStep" written on the front. On the front of this box are three green connectors. The bottom connector is for the clutch activation. Make sure the connections are tight and the plug is pushed solid up into the socket.
- c. Close door to complete procedure.

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## 13. Check for clutch slippage and removing clutch. \*\*\*

- a. Open right door as described in procedure 6.
- b. Remove web from cutter.
- c. Reconnect power cord.
- d. You will need a small magnet or a #PRS352 proximity switch magnet. Tape magnet or proximity switch magnet on the proximity switch (proximity switch is located on the upper edge of the door opening).
- e. Turn main power switch on.
- f. On operator interface, set MODE to FD and LENGTH to 1".
- g. Press the green start button.
- h. Observe clutch located in upper right of right side housing.
- i. On the clutch is a small solenoid. The solenoid activates a finger which releases and stops the clutch. The finger at this point should be activating and the machine should be making cuts. If the finger is activating, releasing spring clutch and the pulleys are turning without the cutter blade cycling up and down, the clutch is slipping and either needs replacing or adjusting.
- j. If the cut off blade is cycling up and down, the clutch is okay. Press the red stop button, remove the taped-on magnet and close the door. If the clutch appears to be slipping, proceed on for removal.
- k. Press the red stop button, remove taped on magnet, turn off power switch, and disconnect power cord.
- l. Open left door.
- m. Lift safety shield all the way open and rest on rear of machine.
- n. Use 3/16" hex wrench and remove two shoulder bolts from top cut off guide bars, located on each side 4 1/2" in from front of and 2 1/2" above feed table.
- o. Be careful and gently tilt top of upper cut off blade holder forward. Then gently pull and swing it out above rubber roll till it clears. Then swing holder up and over shaft, exposing blade holder mounting screws.
- p. Use 5/32" hex wrench and remove 4 flathead blade holder mounting screws. Set blade holder gently aside and note mounting position.
- q. Inside right side housing, use phillips head screw driver and remove 4 screws mounting clutch plate.
- r. Use 5/32" hex wrench and loosen motor mounting screws.
- s. Slide motor to right, loosening timing belt.
- t. Unplug wiring from clutch.
- u. Remove timing belt.
- v. Remove e-clip located at opposite end from clutch on clutch shaft.
- w. Remove e-clips from center of clutch shaft between actuating cams.
- x. Slide clutch and shaft assembly out through right side housing, noting positions and order of spacers, keys, bearings, and cams for reassembly.
- y. With clutch attached to shaft, it is highly recommended to send clutch and shaft assembly back to Ledco Inc. for clutch adjusting or replacing and timing.
- z. Upon receipt of newly adjusted or replaced clutch, follow preceding steps in reverse for reinstallation.

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## 14. Installing and using single side lamination cutting attachment. \*

- a. Locate two small rectangular aluminum parts 1/2" x 3/4" x 1 1/2" supplied with attachment kit.
- b. Mount the two small rectangular aluminum parts on exit table.
  - Find four 10-32 tapped holes on top edge of exit table side bars next to rear of machine, two on each bar.
  - Using four 10-32 x 1 1/4" flathead screws supplied with attachment kit, mount the two small rectangular aluminum parts.
- c. Locate long rectangular bar supplied with attachment kit.
- d. Mount the long rectangular bar to the exit table.
  - Find two 10-32 knob screws supplied with attachment kit.
  - At each end of the long rectangular bar is a mounting hole. On the two small rectangular aluminum blocks that you just mounted is one tapped hole each. The holes at each end of the long bar should line up with the tapped holes on the two small rectangular

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- blocks. Mount the long bar with the slots offset toward the front of the machine.
- e. There should be four aluminum rollers left. These fit into the slots in the long aluminum bar.
  - f. Using the single side lamination cutting attachment.
    - Lift the exit table to its uppermost position and tighten in place.
    - Feed and pull through some of the product to be cut.
    - Shift exit table belts into grooves centered under product to be cut (at least two belts).
    - In the long rectangular bar on the exit table, place an aluminum roller in a slot with an exit table belt running below it.
    - Turn on the cutter and set up the running parameters.
    - Turn on exit table.
    - For this attachment to run properly, the exit table belts have to run faster than the product being fed out of the cutter. Now adjust the speed of the belts (you can fine-tune the speed adjustment after you have it running).
    - At this point you should be ready to start running.
    - When running properly, the product will feed out of the cutter under the rollers between the belt and the roller, allowing the belt to pull the product tight while being cut.
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## 15. Repositioning or replacing cut off blades for new cutting edges. \*\*\*

- a. Unplug machine.
  - b. Lift safety shield all the way open and rest on rear of machine.
  - c. Use 3/16" hex wrench and remove two shoulder bolts from top cut off guide bars, located on each side 4 1/2" in from front of and 2 1/2" above feed table.
  - d. Be careful and gently tilt top of upper cut off blade holder forward. Then gently pull and swing it out above rubber roll till it clears. Then tilt holder bottom towards front and gently set it down on rubber roll and feed table exposing the cut off blade mounting screws.
  - e. Use 5/64" hex wrench (careful not to scratch or dig the rubber roll and feed table) and remove mounting screws from cut off blade.
  - f. Remove top cut off blade and check if both edges are worn and dull.
  - g. If one edge is unused, spin end for end and remount blade exposing new cutting edge. If both edges are dull, replace cutting blade (part #C30 400.4) and mount to top cut off blade mounting bar.
  - h. With top cut off holder still disengaged from bottom cut off blade, drop exit table to its lowest position.
  - i. Use 5/64" long T handle hex wrench and remove bottom cut off blade mounting screws.
  - j. Remove bottom cut off blade and check if both cutting edges are worn and dull.
  - k. If one edge is unused, spin end for end and remount blade exposing new cutting edge. If both edges are dull, replace cutting blade (part #C30 400.4) and mount to bottom cut off blade mounting bar.
  - l. Reengage top and bottom cut off blades.
    - Lift top cut off blade and holder off feed table and rubber roll.
    - Tilt bottom of top cut off holder towards rear of machine.
    - Gently swing and slip top cut off holder "blade first" just above rubber roll and back into position (careful not to scratch or dig the rubber roll and feed table).
    - Make sure the top blade is down and behind bottom blade.
    - Use 3/16" hex wrench and remount two top cut off guide bars (make sure shoulder bolts are completely screwed in tight there should be no side to side movement of bearing on shoulder bolt).
  - m. Put safety shield back in its forward or closed position.
  - n. Plug in machine.
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## 16. Adjusting feed side guides. \*

- a. Position cutter behind laminator so that lamination is square and runs through the center of cutter.
- b. A single knurled plastic screw is used for side to side adjustment.
- c. Adjust side guides to web width leaving just a slight clearance (approximately 1/32" or 1mm) on each side.

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## 17. Adjust speed on cutter. \*

- a. Changing speed while machine is stopped.
  - Press the SPEED button.
  - On the number pad, key in your speed.
  - Press the ENTER button to accept your keyed entry.
- b. Increasing speed while machine is running.
  - Press the SPEED + button.
  - The machine will increase in speed incrementally by 2 feet per minute or .3848 meters per minute.
  - The speed will continue to increase with every cut.
  - When you are satisfied with the current speed, press the enter button to accept and stop the increments.
- c. Decreasing speed while machine is running.
  - Press the SPEED - button.
  - The machine will decrease in speed incrementally by 2 feet per minute or .3848 meters per minute.
  - The speed will continue to decrease with every cut.
  - When you are satisfied with the current speed, press the enter button to accept and stop the increments.
- d. Optimizing your speed setting.
  - The perfect setting would be having the web between the laminator and the cutter never touch the floor or raise the dancer bar and pause the cutter during a job. We don't live in a perfect world. The next best thing would be to adjust the speed to cause the cutter to pause every once in awhile rather than having the web drag on the floor. Use caution when setting speed. If you set the speed too fast, it will approach and raise the dancer so fast it will not have time to pause before the web pulls tight. When the web pulls tight, the rolls will lose traction and accuracy. If you set the speed too slow, the web will drag on the floor and pick up dust and dirt. This will collect on the rolls and cause them to lose traction and accuracy. This is where you use the increase and decrease while the machine is running to fine tune the speed. Always remember to push the enter button to stop the speed from incrementally changing when using the speed change while machine is running.

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## 18. Clean rubber rolls. \*

- a. Disconnect power to machine.
- b. Lift the top safety hood up from behind and set it down on exit table.
- c. Use a clean rag and spray the rag until damp with a cleaning solution.
- d. Starting on left side with damp rag in left hand, place rag on rubber roll across four or five rubber roll segments at a time, turning the roll with your right hand for several revolutions. Do this progressively down the roll till past halfway and switch hands to finish the rest of the roll.
- e. Return top safety hood to closed position.

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## 19. Checking, adjusting, and replacing rubber roll drive belt (PRB108). \*\*

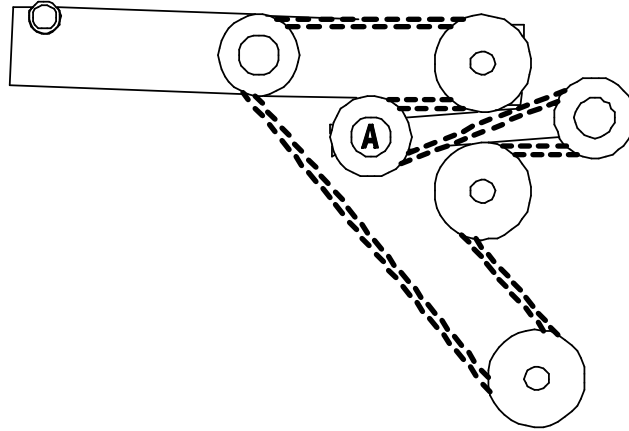
- a. Open left housing door as described in procedure 4.
- b. Inspect belt for excessive wear.
  - Look for teeth missing from belt (Pulley wear marks from sitting and spinning in place).
  - If belt looks good proceed to next line. If belt is bad, proceed to line 19.g. and replace belt (PRB108).
- c. Remove any slack in the belt trapped in between the rest of the pulleys.
  - Pinch together the belt above the motor pulley while lifting and lowering the top rubber roll-lifting lever in the back of the machine.
- d. On the longest stretch, pinch the belt between your thumb and forefinger and move side to side. For accuracy, this belt should be just a little tight.
- e. If the tension seems good, close the access door. If it doesn't feel right, proceed on.
- f. Adjust Belt tension.
  - Using a 5/32" hex wrench, loosen the four motor mounting screws and let the weight of the motor tighten the belt until desired tension is attained.
  - Tighten the mounting screws.
  - Close the access door.

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- g. Replacing worn belt.
- Using a 5/32" hex wrench, loosen the four motor mounting screws and pull up on motor pulley to loosen belt and retighten one of the motor mounting screws to leave the belt loose.
  - Using 3/16" hex wrench remove shoulder bolt on idler pulley labeled A on drive belt threading diagram.
  - Remove worn belt and replace with new one (PRB108) referring to threading diagram.
  - Replace shoulder bolt and tighten.
  - Refer to line 19. f. on page 8 for adjusting belt tension.

## DRIVE BELT THREADING DIAGRAM



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## 20. Adjusting the fiber optic sensor. \*\*



- a. Leave power connected
- b. Open left side door.
  - On upper face of door use phillips head screw driver and turn counterclockwise 1/4 turn two screws.
  - The door is hinged at bottom.
  - Swing top of door out and lower to bottom position.
- c. Remove the cover from the photoelectric switch.
- d. Open top safety cover on machine.
- e. Between the sheets to be cut off, there are clear or transparent gaps of plastic. Make sure the fiber optic sensors are lined up between one of these clear transparent gaps.
- f. Close top safety cover.
- g. In lower left of photoelectric switch face is a small switch. Slide switch up to the SET position.
  - Refer to Fig. 1 page 10.
- h. Power up machine with key switch.
- i. Place a small screwdriver in screw slot located in the front of the photoelectric switch.
  - Refer to Fig. 2 on page 10.
- j. Turn the adjusting screw counterclockwise until you hear small clicking sounds and the little green light is the only light on.
- k. Turn the screw slowly clockwise.
  - First, the green light will go out.
  - Second, the red light will come on.

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- Third, keep turning slowly and the green light will start pulsating dimly. Keep turning until the green light becomes bright and stable. Then turn it 1/4 turn more.

Fig. 1

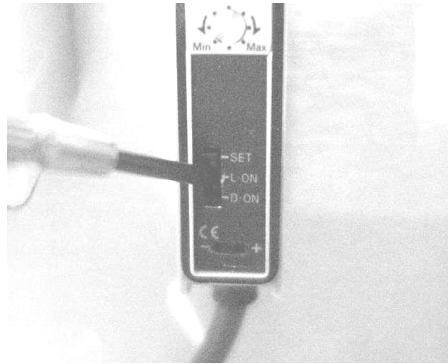
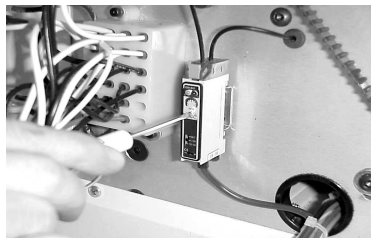


Fig. 2



- I. In lower left of photoelectric switch face, slide small switch down to L ON position.



- m. The sensor should be adjusted properly.
- n. Replace the front cover on the switch.
- o. Return left side housing cover to closed upright position.
- p. Remove sample from in between fiber optic sensors and you're ready to go.