

 **BETTER  
PACKAGES<sup>®</sup>, Inc.**  
A WHOLLY OWNED SUBSIDIARY OF 

**SERVICE MANUAL  
555e**



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# This manual is a non-controlled document

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## Proprietary notice

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This manual contains part numbers for the 555es and 555esa model machines only. If you have a different model machine please contact *Better Packages* Machinery Support at **(877) 447-4832 Option 4** or [machsupp@itape.com](mailto:machsupp@itape.com).

If you or your service team choose, machines may be sent in through your preferred distributor for maintenance by an authorized *Better Packages* service technician.

A list of all current distributors may be found on our website [www.betterpackages.com](http://www.betterpackages.com).

## **Better Packages**

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# Safety Precautions

*Must read before servicing equipment.*



**CAUTION: ALWAYS DISCONNECT YOUR MACHINE FROM ALL ENERGY SOURCES AND WEAR ALL PROPER PERSONAL PROTECTIVE EQUIPMENT (PPE) PRIOR TO CONDUCTING ANY MAINTENANCE.**

- This machine is designed for sealing cartons with water activated tape. Any other use will void all warranties and any responsibility or liability of Better Packages, Inc.
- Read all Safety Precautions and Operating Instructions before powering on and using the machine.
- Any operator of this machine must be fully trained in the operation and safety.
- In the event of a malfunction or breakdown, grounding provides a low resistance path for electric current to reduce the risk of electric shock. This machine is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.
- Before connecting the machine to the power mains verify that the electrical ratings of the machine match the electrical supply intended for connection, otherwise do not connect. If the correct power is not available contact the reseller.
- Before maintenance or repair, disconnect the power cords from the electrical supply and protect the cables from any possible accidental connection carried out by unauthorized personnel.
- Keep the machine away from children and from personnel who are not authorized or adequately instructed in the use of it.

# Technical Data

<b>Size:</b>	20”Lx12.5”Wx12”H (51 x 32 x 30 cm)
<b>Dispensing Speed:</b>	Up to 45” (114 cm) per second
<b>Water Bottle Capacity:</b>	2 pints 2 oz. (1 liter)
<b>Shipping Weight:</b>	32 lbs. (15 kg)
<b>Power Requirements:</b>	555es, eSA, eL, eLA – 115 volts, 60 Hz, 4 Amps 555eMA, eFA – 220/240v, 50 Hz, 2 Amps 555eJA – 100V, 50/60 Hz, 4 Amps
<b>Tape Width:</b>	1-1/2” to 3” (3.8 to 7.7 cm) wide
<b>Maximum Roll Size:</b>	Up to 1000 ft. of tape Up to 10” diameter roll(25 cm)

All specifications subject to change without notice

Model	Length, Unit of Measure	Voltage	Country Continent Used
BP555e S	Short, Inch	115V 60Hz	US/Canada (1)
BP555e SA	Short, Inch	115V 60Hz	US/Canada (1)
BP555e L	Long, Inch	115V 60Hz	US/Canada (1)
BP555e LA	Long, Inch	115V 60Hz	US/Canada (1)
BP555e M	Metric	230V 50Hz	Europe (2)
BP555e MA	Metric	230V 50Hz	Europe (2)
BP555e J	Metric	100V 50/60Hz	Japan (1)
BP555e JA	Metric	100V 50/60Hz	Japan (1)
BP555e F	Short, Inch	230V 50Hz	Far East (1)
BP555e FA	Short, Inch	230V 50Hz	Far East (1)

1) Tape gummed side in, (2) Tape gummed side out

- **Interference when Tape in Motion**
  - ◊ Operator grabs the tape before it stops dispensing
  - ◊ Tape hits box or other object while dispensing.
- **Tape Path Dirty**
  - ◊ Tape path must be free of dirt, glue and tape. Keep in mind that the feed wheel is pushing tape forward after leaving it. Therefore, a tape piece or other obstruction will divert the tape from its normal path and will cause a jam.
- **Tape Pieces Stuck in Machine**
  - ◊ After a tape jam or at the end of a roll a tape a small piece of tape may be left in the machine tape path. Verify that any piece of tape, however small, has been removed from the machine after clearing a tape jam.
- **Brushes Positioned Incorrectly**
  - ◊ The brush ferule must be snapped under retaining clip.
  - ◊ Long bristle edge must face towards the front of machine
- **Moistening Brushes Worn**
  - ◊ Hole or depression worn into surface of bristles causing tape to catch
  - ◊ Clumps of glue interfering with tape motion
  - ◊ This issue may be worse when the brushes are dry, and may be fine after fully moistened.
- **Lower Heater Plate**
  - ◊ Not snapped up and together with heater plate
  - ◊ Bent – Lower plate should not be curved so as to create a pinch point with the heater plate
  - ◊ Dirty – glue or tape stuck to top of plate
- **Roll Guide Mis-adjusted**
  - ◊ Roll guides in wrong slot with too much side clearance which allows roll to wobble excessively.
  - ◊ Roll Guides too tight against sides of roll causing excessive drag.
- **Blade Height Needs Adjusting** (feed wheel adjustment too tight)
  - ◊ Tape hitting blade
  - ◊ Tape jumping over blade or left -hand corner of tape folded over
- **Tape issues** – damaged, frayed, excessive curl, extremely thin or thick, requiring feed wheel adjustment.
- **Upper Tape Plate** – missing, bent, or incorrect position
  - ◊ Tape must move freely under the plate, all the way up to the blade.
- **Poor Cutting**
  - ◊ If the blade is cutting poorly or incompletely
- **Heater Plate Bent**
- **Blade Oiler** - felt separating from holder and interfering with tape

The machine measures the tape length by counting the number of pulses from the length encoder. Each time one of the small cutouts in the encoder wheel passes in front of the optical switch a pulse is produced. When the programmed number of pulses is reached the machine turns off the motor and cuts the tape. The most likely cause for short lengths is the feed wheel slipping on the tape.

- Slippage

If the blade height is not adjusted correctly sufficient pressure may not be exerted on the tape by the feed wheel.

To test this:

1. Open the cover and insert a strip of tape under the Feed Wheel, as if you are loading tape.
2. To the right is a small lever, lift up on this lever. The Blade should rise when this happens.
3. Attempt to pull the tape out from under the Feed Wheel.
  - a. If it removes too easily the Feed Wheel will need to be tightened
  - b. If you cannot remove the tape the Feed Wheel is too tight and will need to be loosened.
  - c. If the tape can be removed with a constant pull force pull force, clean the feed wheel

Adjust blade height if needed.

Reference the section Feed Wheel / Blade Height Adjustment for instructions

A dirty or oily feed wheel may slip on the tape. Clean the surface of the feed wheel that contacts the tape with a mild cleaner and a clean cloth.

If left hand corner of tape is folded over the blade is not high enough for the tape to pass through unobstructed, adjust the blade height.



# Troubleshooting

## Tape Strips Too Long

If the controller board does not see all the encoder pulses the tape produced will be long.

- Encoder Problem
  - ◊ Verify the length encoder is plugged into the controller board and none of the wires are broken.
    - If a bad encoder sensor (optical switch) is suspected, swap in a known good one to confirm.
- Controller Board
  - ◊ If the encoder is good, then the controller board is suspect, swap in a know good controller board to confirm.

If there is a constant feed or extremely long tape pieces either the length encoder or controller board will need to be replaced.

## Tape Feeds Slowly

If the tape roll is free to turn and there is no tape jammed in the machine, the most likely reason is bad tape wetting brushes. Other issues could be

- Motor brushes worn
  - ◊ Brushes will supply years of use under normal conditions, but may wear out and need to be replaced.
- Motor defective
  - ◊ If motor brushes are good the motor may need to be replaced.
- CodeTaper
  - ◊ If a CodeTaper is being used, verify tape is not binding in it and that the tape can be pulled freely through it.
- Low line voltage
  - ◊ Low line voltage can slow the motor speed down as much as 20%, but it will still dispense quickly. Usually the solenoid will chatter or the machine will stop dispensing tape all together by the time the line voltage is low enough to cause the tape to feed extremely slow.

# Troubleshooting

# Not Feeding Tape

If the power indicator lamp is illuminated but the motor does not start check the following:

- Interlock Circuit
  - ◇ Top cover open
    - Verify the top cover is fully closed and seated properly
  - ◇ Magnet missing
    - Verify that the small magnet located in the top cover is present. It should be found opposite of the magnet reed switch (1/2" diameter circular disk, or 1"X1/4" black rectangular switch depending on production year) in the left side of the from when the cover is completely closed. Only one magnet will be in either location. (Figure 1)
  - ◇ Interlock switch circuit not plugged in
    - Verify that the interlock reed switch is plugged into the controller board at the connector marked "interlock."



Figure 1

# Maintenance & Repair

*Always unplug your machine when performing service.*



**CAUTION: ALWAYS DISCONNECT YOUR MACHINE FROM ALL ENERGY SOURCES AND WEAR ALL PROPER PERSONAL PROTECTIVE EQUIPMENT (PPE) PRIOR TO CONDUCTING ANY MAINTENANCE.**

# Maintenance & Repair

# Preventative Maintenance

Suggested preventative maintenance schedule:

## Weekly

- Wash water brushed with mild soap; rinse well.
- Clean any accumulated tape dust with a dry brush or blower.
- Wash water tank with mild soap; rinse well.

## Monthly

- Clean accumulated glue from blades using a scraper. (Don't scrape the cutting edge, the blade may dull and need replacement). Caution: The blade is sharp and can cut easily, be careful working around it.
- Apply light coating of light machine oil to back of blade.
- Add a few drops of light machine oil to felt pads.

## Annually

- Thoroughly clean all accumulated pieces of tape, tape dust and any other foreign material from inside the machine with dry brush or blower.
- Clean bottom of heaters and pressure plates of accumulated glue.
- Oil upper and lower blades lightly with light machine oil.
- Clean all covers with damp rag.

## Washing brushes

Water Brushes: Glue from the tape may accumulate and reduce the effectiveness of the moistening system. Wash brushes weekly with mild soap.

To remove any old dried adhesive, you will need to tilt the brushes to clear the retaining bracket. Be sure to replace the brushes in the tank correctly. See Figure 14-1. Facing the brushes in the wrong direction can result in poor moistening and tape jamming.

Place the brush into an empty water tank. The brush must be positioned with the longer bristles facing away from the machine. When unsecured the top of all bristles should be parallel with the top side edge of the water tank.

Firmly press the brush straight down. The brush base should be tightly pinched by the retaining bracket, keeping the brush secured in the tank. Bristles should remain parallel with side top edge of the water tank.

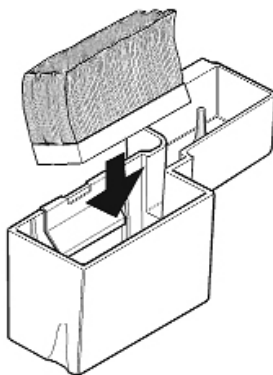


Figure 14-1

## Cleaning the shear blades

For the dispenser to cut the tape well, blades need to be free of adhesive, dust etc. These materials need to be cleaned from the blade.



**CAUTION: BE SURE THE DISPENSER IS OFF BEFORE PERFORMING ANY CLEANING OPERATIONS. BLADE IS SHARP.**

## Adjusting the amount of water applied to the tape:

- Adjust the height of the water bottle:
  - ◊ Higher to apply more water
  - ◊ Lower to apply less water
- Never use any dispenser for water-activated tape without a water bottle.
- Do not add water to the water bottle "whenever it looks low". This will always:
  - ◊ Cause over-wetting when the tank is first filled
  - ◊ Cause under-wetting when it needs to be refilled

# Maintenance & Repair

# Removal of Covers

This will act as the basic platform of how to remove the left and right covers from the machine safely they are the first steps in almost all of the procedures. Removing the covers is the first step in many maintenance procedures.

## Removal of the left cover

1. Unplug the machine
2. Remove water bottle, tank and brushes
3. Remove the 5 screws holding on the left side cover (Figure 15-1)
  - a. Be cautions as the keypad ribbons could tear
4. Remove the keypad ribbons (Figure 15-2)
5. Remove the switch connector from the controller board (Figure 15-3)



Figure 15-1

## Removal of the right cover

1. Unplug the machine
2. Remove water bottle, tank and brushes
3. Remove the 5 screws holding on the right side cover (Figure 15-4)

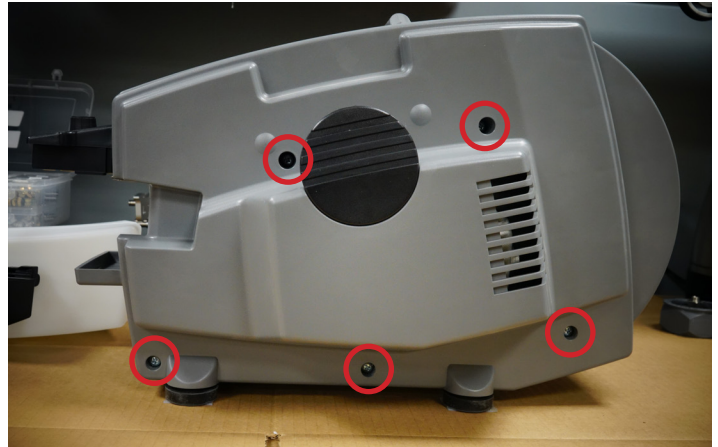


Figure 15-4

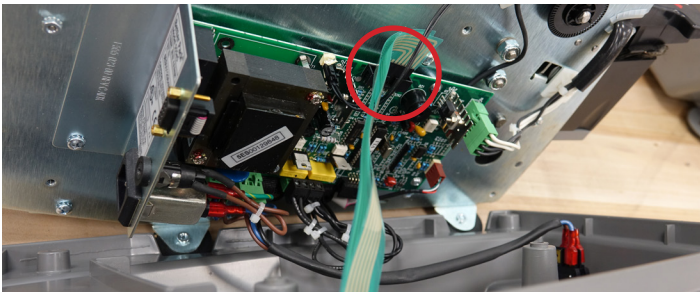


Figure 15-2

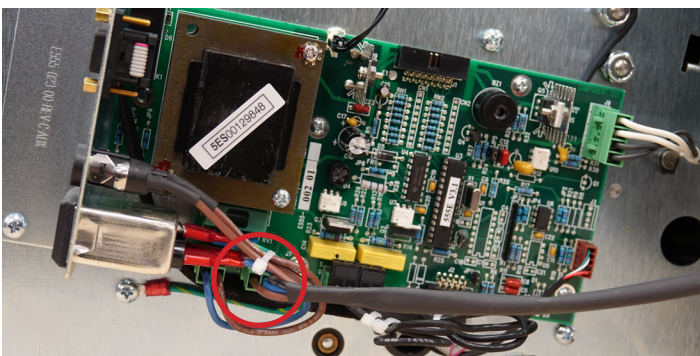


Figure 15-3

# Maintenance & Repair

## Fuses

There are two fuses located in the 555e series machine. One fuse is accessible and located on the connector plate, outside of the machine above the power connector. Another fuse is located on the controller board just after the power connector and below the transformer.

### Tools needed:

- Flat head screwdriver
- Phillips head screwdriver



### To change the fuse on the connector plate ([part number ST-2341K](#))

1. Unscrew the fuse holder (Figure 16-1) (flat head screwdriver)
2. Remove old fuse and discard
3. Replace fuse with new one

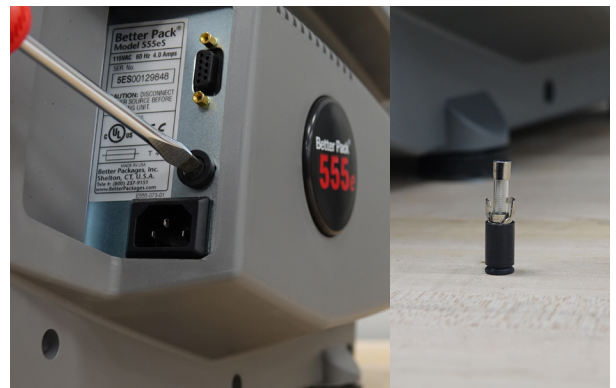


Figure 16-1

### To change the fuse on the controller board ([part number ST-2128](#))

1. Remove the left side cover (Philips head screwdriver) by removing 5 screws (Figure 16-2)
2. Unplug keypad ribbon (Figure 16-3)
3. Remove old fuse with flat head screwdriver and discard (Figure 16-4)
4. Replace fuse with new one
5. Plug keypad back in
6. Replace left side cover



Figure 16-2

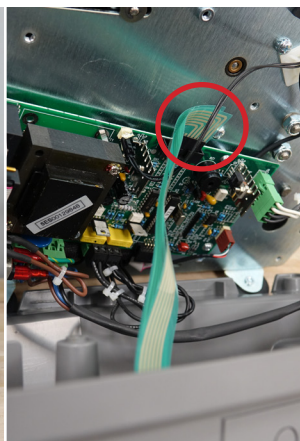


Figure 16-3

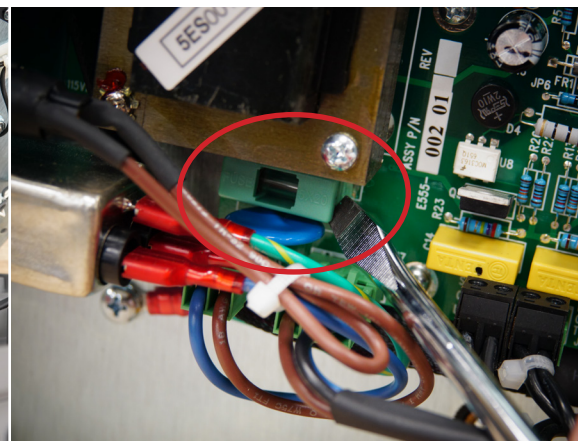


Figure 16-4

# Maintenance & Repair

# Control Board Replacement

## Part Numbers

- ES Model
  - ◊ [E55500201](#)
- ESA Model
  - ◊ [E55500101](#)

## Tools Needed

- Philips head screwdriver



## Procedure

1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
4. Lay machine on its right side
5. Disconnect all connectors (Figure 17-1)
  - a. Power in
  - b. Power Switch
  - c. Solenoid
  - d. Motor
  - e. Heater
  - f. Length Sensor
  - g. RS232
  - h. Tape Sensor (ESA Model Only)
6. Remove 5 Philips screws holding the board to the frame (Figure 17-2)
7. Remove board from machine
8. Place new board in machine
9. Screw in 5 Philips screws into the 5 open spots on the board
10. Plug in all corresponding connectors
  - a. Power in
  - b. Power Switch
  - c. Solenoid
  - d. Motor
  - e. Heater
  - f. Length Sensor
  - g. RS232
  - h. Tape Sensor (ESA Model Only)
11. On left cover plug keypad ribbons back into controller board
12. Be sure not to miss any pins as this will effect the length selected
13. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
14. Replace water tank, brushes, and water bottle

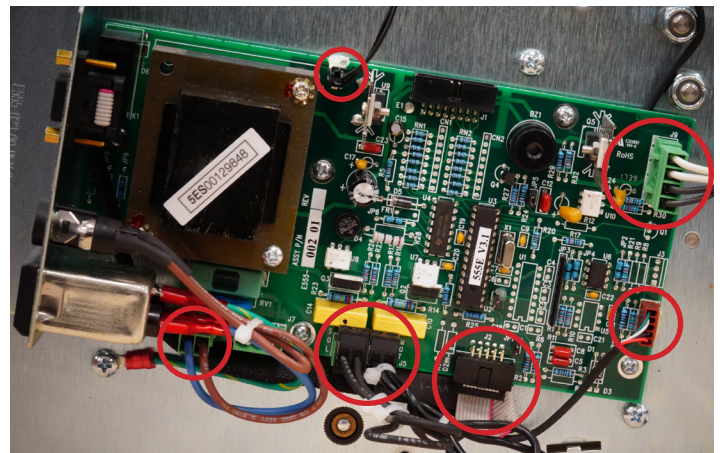


Figure 17-1

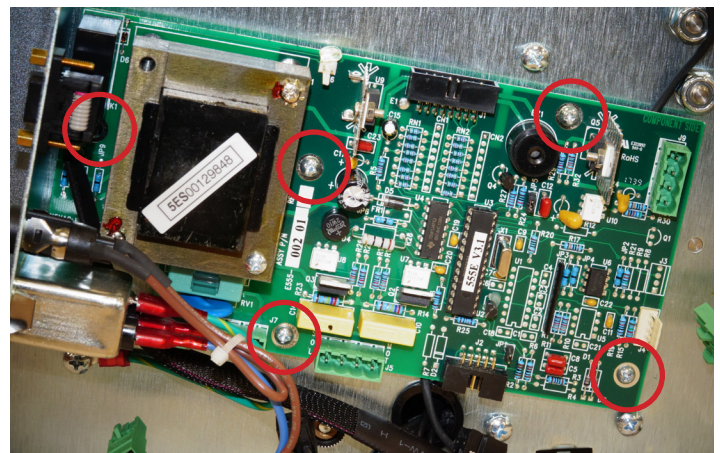


Figure 17-2

# Maintenance & Repair

## Feed Wheel/ Blade Height Adjustment

When a dispense key is pressed the tape cutter blade and the lower feed wheel lift up. The machine has an adjustment set screw that sets the height of the blade and lower feed wheel. The adjustment sets the amount of pinch force between the upper and lower feed wheels. If the feed wheel does not grip the tape sufficiently, the tape can slip. When the tape slips an inaccurate measurement of the tape length occurs, resulting in a shorter than normal tape piece. If short or erratic tape lengths occur, the adjustment described below may need to be performed to correct the problem.

### Tools needed

- 3/32" Allen wrench 4" long at minimum



### Procedure

1. Unplug the machine
2. Open the top cover
3. Install the tape fully
4. On the right side of the feed wheel, lift up on the lever (Figure 18-1)
5. Test the tension on the tape by pulling the tape out from the back of the feed wheel see Figure 18-2 for direction
  - a. If tape is removed easily with little to no resistance the feed wheel will need to be tightened (clockwise)
  - b. If tape is very difficult to remove the feed wheel will need to be loosened (counterclockwise)
6. Move the lever back to its home position and remove the tape from the machine
7. Turn the machine around so you are looking into the cavity where the tape roll sits
8. Locate the feed wheel adjustment access hole, it will be between the slide guides (Figure 18-3)
9. Use a 3/32" Allen wrench to make the needed adjustments from step 4
  - a. Tighten or loosen in half turn increments
10. Insert a strip of tape under the feed wheel and lift up on the lever
11. Pull the tape out from under the feed wheel.
  - a. If this is not how it feels repeat steps 8 through 10 until proper tension is achieved



Figure 18-1



Figure 18-2

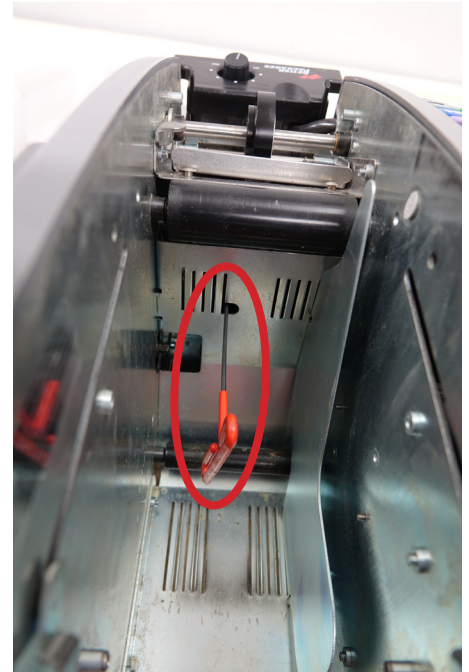


Figure 18-3



# Maintenance & Repair

# Keypad/Keypad Membrane Replacement

## Part Numbers

- ES Model
  - ◇ [E55500301 – Membrane and Keypad](#)
  - ◇ [E55500301PAD – Keypad Only](#)
  - ◇ [E55500301SW – Membrane Only](#)
- ESA/EFA Model
  - ◇ [E55500302 – Membrane and Keypad](#)
  - ◇ [E55500302PAD – Keypad Only](#)
  - ◇ [E55500301SW – Membrane Only](#)

## Tools Needed

- Philips head screwdriver
- Flat head screwdriver



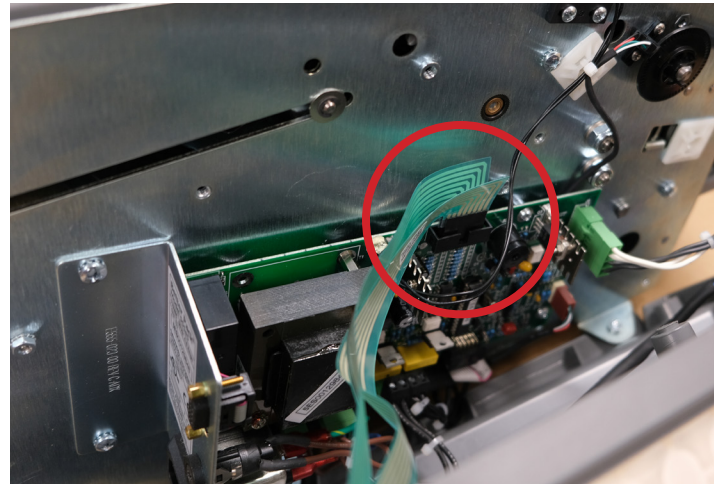
## Procedure

1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
4. Unplug keypad ribbons from controller board
5. Remove the keypad bezel by inserting a thin flathead screwdriver in-between the keypad bezel and cover

7. If membrane needs replacement remove it pulling the ribbon through
8. If membrane replacement is needed place new membrane feeding ribbon cable through cover



6. Remove keypad



9. Place new keypad
10. Snap the bezel cover back into place
11. On left cover plug keypad ribbons back into controller board
12. Be sure not to miss any pins as this will effect the length selected
13. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
14. Replace water tank, brushes, and water bottle

# Maintenance & Repair

# Feed Wheel Replacement

This is considered part of standard maintenance and typically is replaced along with the blade oiler (page XX) and/or heater assembly (page xx).

## Part Numbers

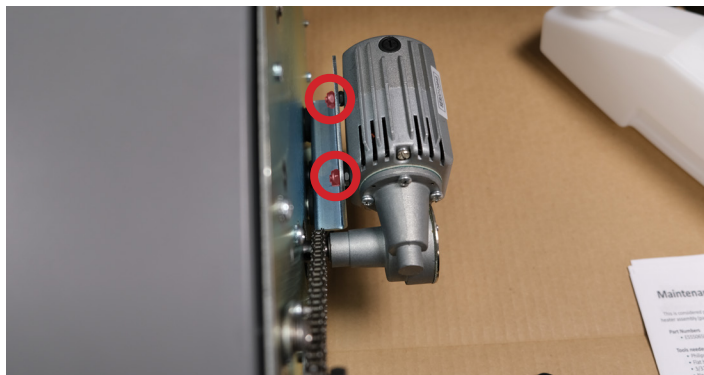
- [E55506500 – Feed Wheel](#)

## Tools needed

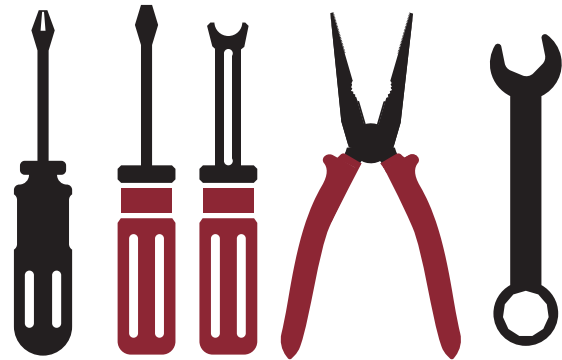
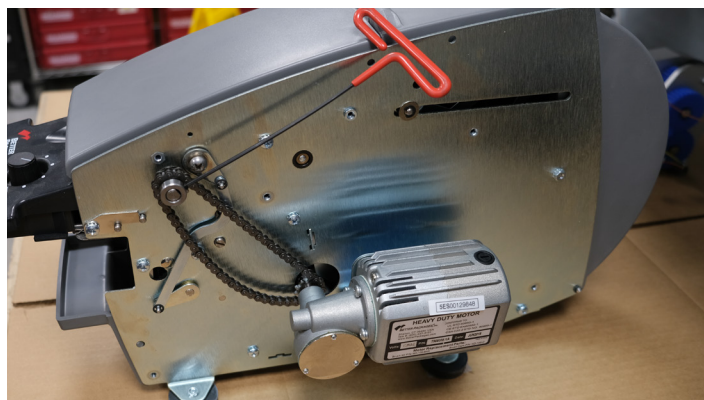
- Philips head screwdriver
- Flat head screwdriver
- 3/32" Allen wrench
- Needle-nose pliers or E-Clip Applicator
- 3/8" wrench

## Procedure

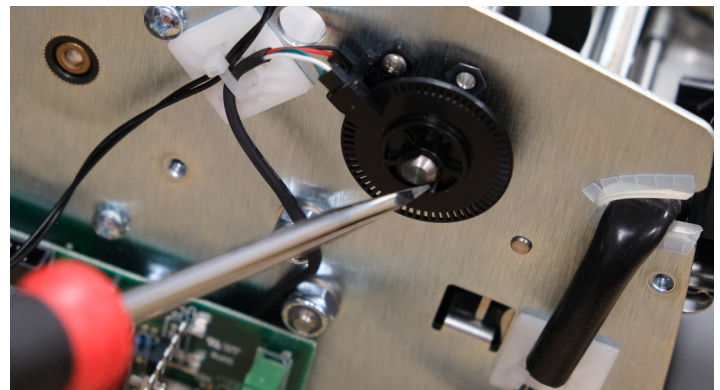
1. Unplug the machine
2. Remove water bottle, tank and brushes
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board
6. Loosen the 2 nuts holding the motor to the frame



7. Push the motor closer to the front of machine giving drive chain some slack
8. Loosen set screw holding drive sprocket onto feed wheel shaft



9. Remove the drive sprocket from the shaft
10. With the flat head screwdriver lift up on the retaining stop on the encoder wheel while pressing the shaft from the side



11. Using the flat head screwdriver remove the E-clip holding the washer in place, place your hand over and twist on the screwdriver. This will help if it flies off so you will not lose it.
12. Slide the washer and old feed wheel off the shaft. Be careful of the retaining pin as it may fall through the shaft.

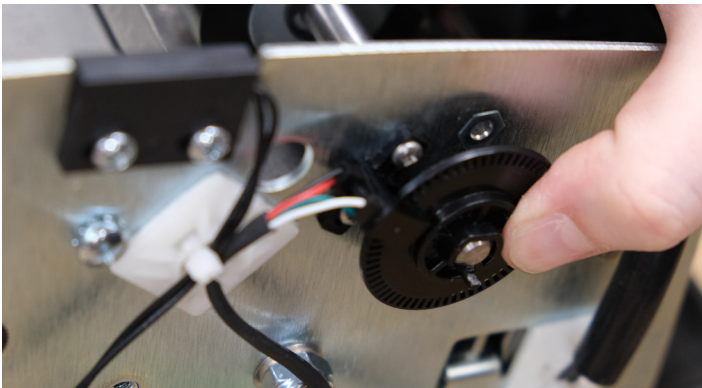


# Maintenance & Repair

13. Slide new feed wheel on, seat into retaining pin
14. Replace the washer
15. Using an E-clip applicator or needle-nose pliers replace the E-clip to hold washer and feed wheel in place.



16. Push shaft back through hole on left side while holding the encoder wheel in place
17. Align the flat side of the shaft with the corresponding flat in the encoder wheel and press into place until you hear the click of the retaining stop



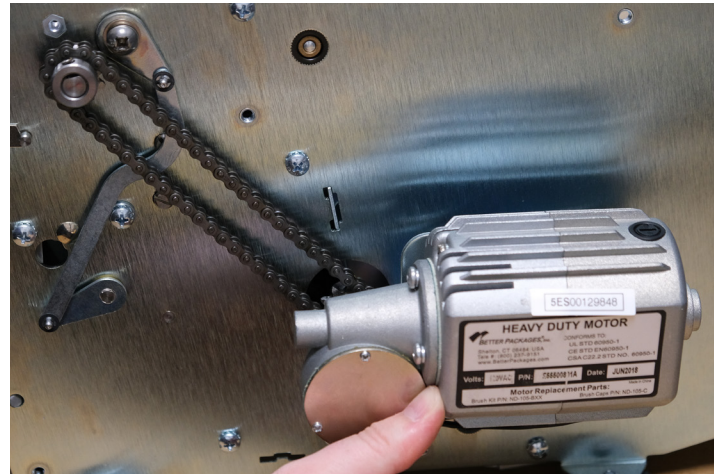
18. Place the drive sprocket back onto the shaft
  - a. End of shaft should sit at end of chamfer on the inner diameter of the sprocket



# Feed Wheel Replacement

*Continued*

19. Tighten set screw on sprocket
20. Push motor back until drive chain is tight



21. Tighten nuts holding motor in place
22. Replace the right cover (5 Philips screws)
23. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
24. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
25. Check feed wheel tension and make any adjustments needed. *See page 17*
26. Replace water tank, brushes, and water bottle

# Maintenance & Repair

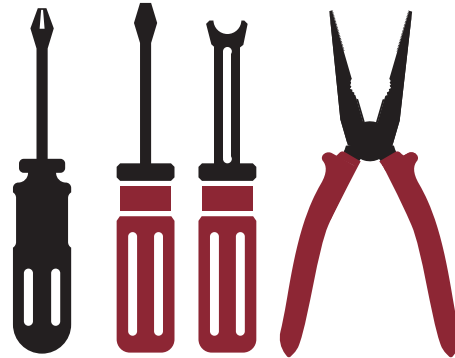
## Front and Rear Cover Assembly

### Part Numbers

- [E55509801 – Lift Roller Bracket Assembly](#)
- [E55503501 – Top Cover Assembly](#)
- [E55503401 – Rear Cover Assembly](#)
- [E55506000 – Rear Pivot Pin](#)
- [E55509000 – Extension Spring](#)

### Tools needed

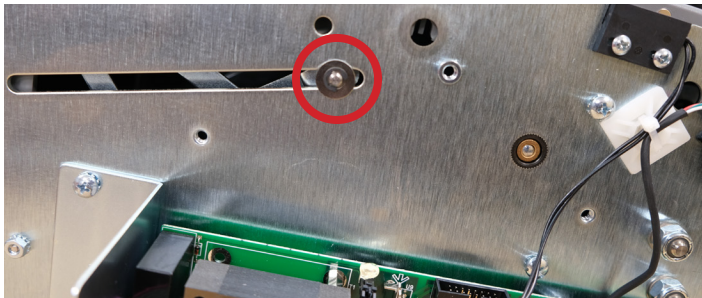
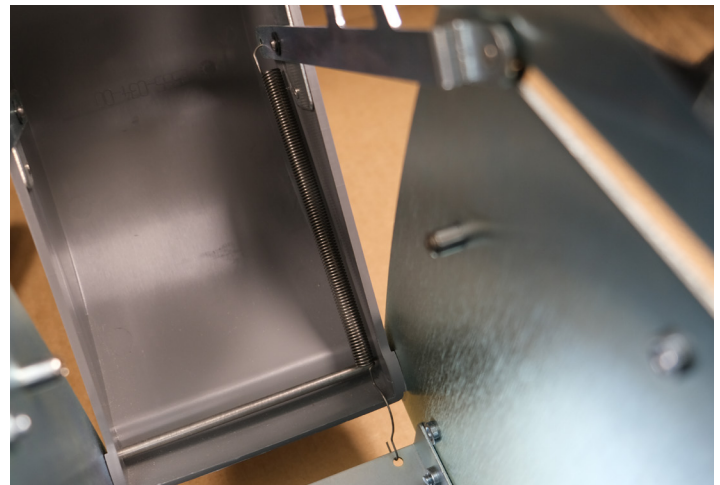
- Philips head screwdriver
- Flat head screwdriver
- E-clip applicator or needle nose pliers



### Procedure

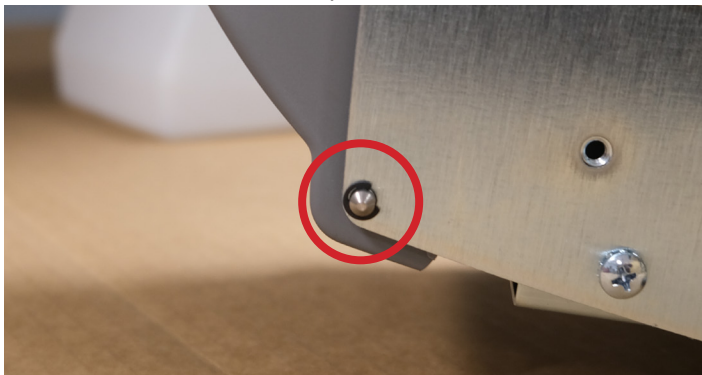
1. Unplug machine
2. Remove water bottle, tank, and brushes
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board
6. Using flat head screwdriver remove the 2 E-clip retaining rings holding the bracket assembly to the right and left side frame.
7. Keep rings and washers in a safe place
8. Using flat head screwdriver remove the 2 E-clip

10. Remove the spring from the rear cover, the assembly should now come free of the machine body
11. Align the new cover



retaining rings holding the rear pin in place from the right and left side frame.

9. Remove the rear pin



12. Press the rear pin back into place
13. Using an E-clip applicator or needle nose plier replace the clips on the pin
14. Replace the spring on the lower cover
15. Replace the washer on the bracket assembly
16. Using an E-clip applicator or needle nose plier replace the clip on the bracket assembly
17. Repeat step 13 & 14 for opposite side
18. Replace the right cover (5 Philips screws)
19. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
20. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
21. Replace water tank, brushes, and water bottle

# Maintenance & Repair

# Blade Oiler

Replacing the blade oiler is considered part of standard maintenance. Typically this is done at the same time as replacing the feed wheel and/or the heater assembly.

## Part Numbers

- [SA10XXK – Felt and Bracket Kit](#)

## Tools Needed

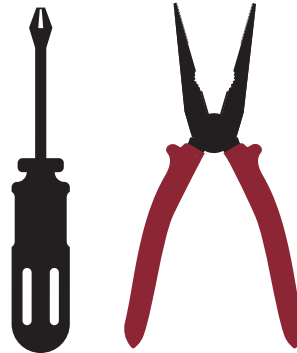
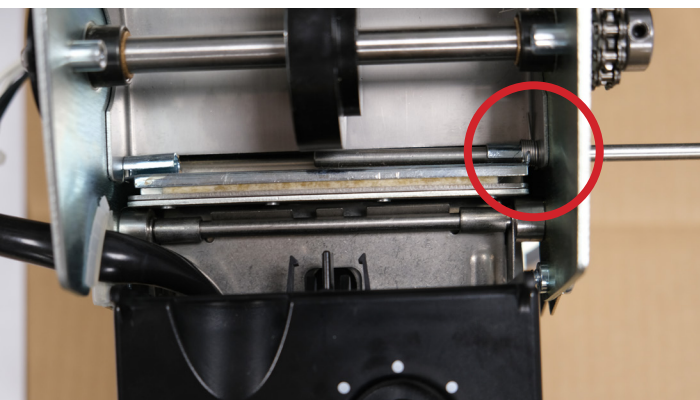
- Philips head screwdriver
- Needle nose pliers

## Procedure

1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board
6. Loosen screw on the upper right side of frame holding the retainer bracket



7. Lift the retainer bracket
8. Remove the 2nd shaft that holds the oiler
  - a. Use caution as there is a spring under tension



9. To install the new one, put the shaft in from the left side. As the shaft is being inserted place the new oiler in and be sure that the shaft is going through the oiler
10. Do not put shaft all the way through. Place the oiler spring at the right side holding it with a pair of needle nose pliers.
11. The spring has to lay flat on the lower tape plate. Then you can get the shaft to go through the spring.



12. Now take the upper part of the spring that is being held with the pliers and bring it to the left of the oiler bracket where the bracket has a bend on it. Let the spring go.
13. Replace the retainer bracket
14. Tighten the retainer screw locking the bracket into place
15. Replace the right cover (5 Philips screws)
16. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
17. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
18. Replace water tank, brushes, and water bottle

# Maintenance & Repair

# Solenoid Repair

If your machine is making an electronic grinding noise when the tape is dispensing from the machine more often than not it is the solenoid that controls the cutter yoke assembly having dirty contacts. This is a relatively simple procedure that can be accomplished within an hour for someone with no experience and the right tools. If this process is followed and the noise persists please contact *Better Packages Machinery Support* at (813) 345-3070

## Part Numbers

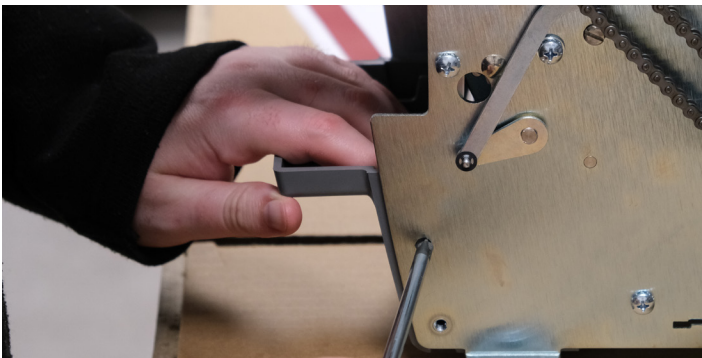
- [E55504801 – Solenoid Shelf Assembly](#)

## Tools Needed

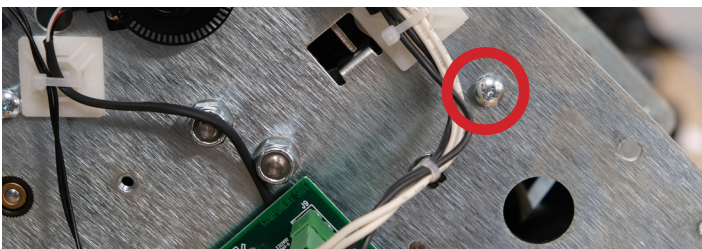
- Philips head screwdriver
- 80 Grit Sandpaper

## Procedure

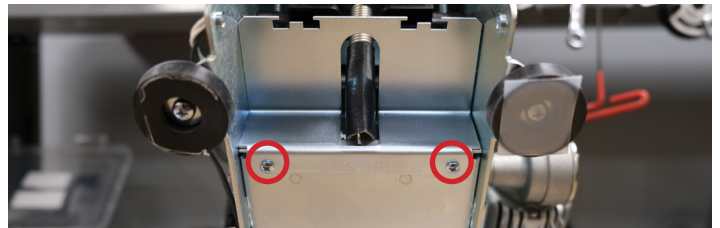
1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board
6. Remove the tank shelf (gray plastic housing bottom front of machine) by pulling down on the top while pressing in on the side retaining clips.



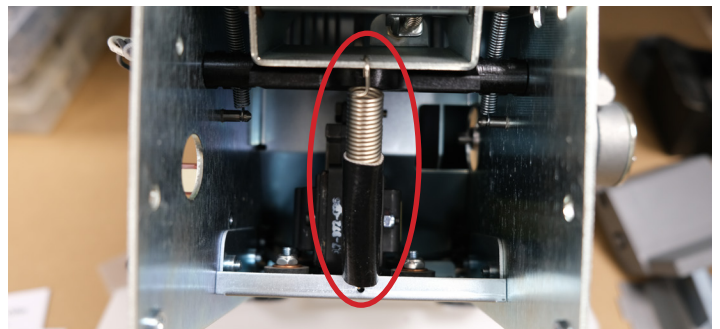
7. Remove the Baffle Safety (2 or 3 Philips screws depending on model)



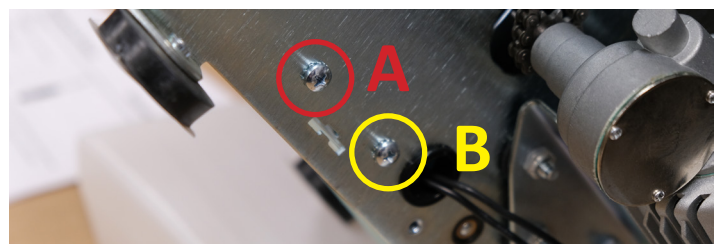
8. Remove the access plate (2 Philips screws)
  - a. Depending on the age of your machine the access plate and solenoid shelf might be a single piece



9. Remove the center spring
  - a. Clean out any tape debris

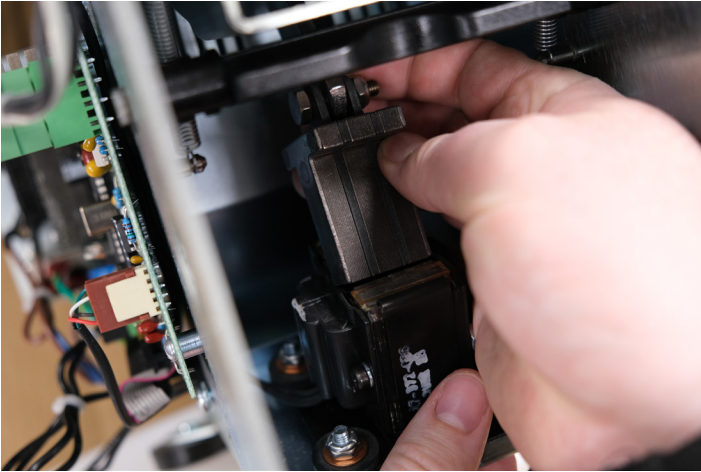


10. Remove front 2 screws (labeled A) from the solenoid shelf and loosen the back 2 screws (labeled B) allowing it to pivot

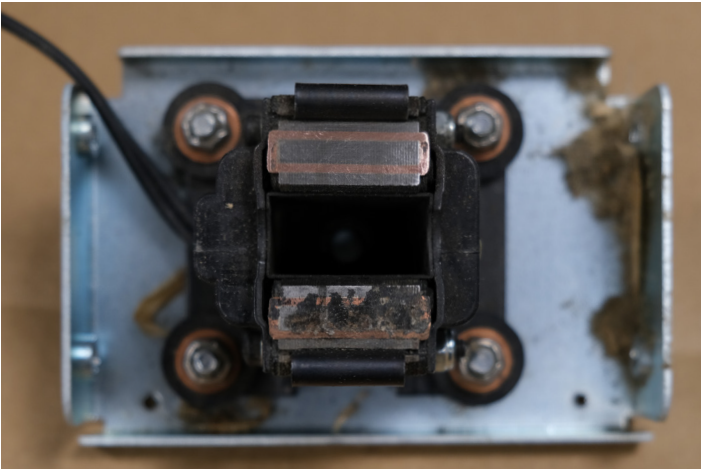


# Maintenance & Repair

11. Pull the plunger from the solenoid



12. Using 80 grit sandpaper or emery cloth clean the contacts on the solenoid until shiny
  - a. Your solenoid contact should look like the top of the below image, the lower one will need cleaning



13. Repeat this process on the corresponding contacts on the plunger
14. Reinsert the plunger into the solenoid body
15. Align the solenoid shelf and replace the 2 front screws
16. Tighten down all screws on the solenoid shelf
17. Reinstall the spring
18. Replace the access plate
19. Reinstall the baffle safety
20. Snap the tank shelf back into place
21. Replace the right cover (5 Philips screws)

# Solenoid Repair

*Continued*

22. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
23. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
24. Replace water tank, brushes, and water bottle

# Maintenance & Repair

# Solenoid Replacement

If your machine is making an electronic grinding noise when the tape is dispensing from the machine more often than not it is the solenoid that controls the cutter yoke assembly having dirty contacts. This is a relatively simple procedure that can be accomplished within an hour for someone with no experience and the right tools. If this process is followed and the noise persists please contact Better Packages Machinery Support at (813) 345-3070 for confirmation before replacing the solenoid. We recommend when replacing that whole Solenoid Shelf Assembly be purchased as the solenoid floats in the rubber feet. Depending on the age of your machine the access plate and solenoid shelf might be a single piece and you will need to purchase the access plate and corresponding screws as well see below for all part numbers.

## Part Numbers

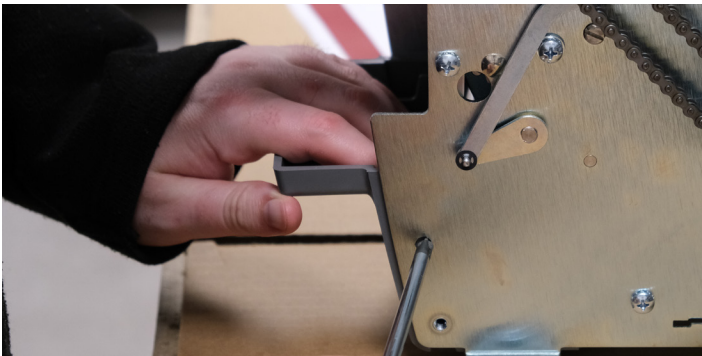
- [E55504801 – Solenoid Shelf Assembly](#)
- [\(Optional\) E5552350 - Access Plate](#)
- [\(Optional\) EA70 - Access Plate Screw QTY 2](#)

## Tools Needed

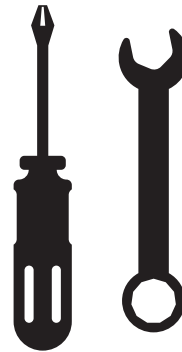
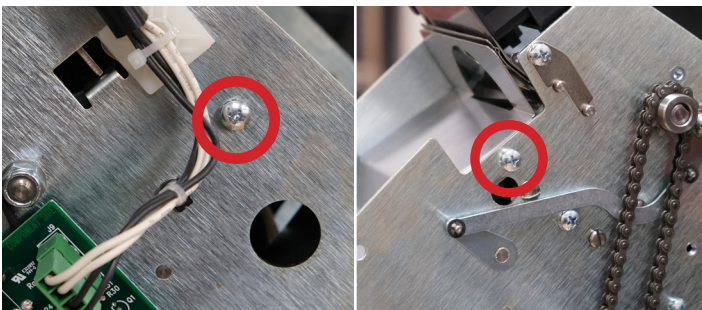
- Philips head screwdriver
- 3/8" wrench

## Procedure

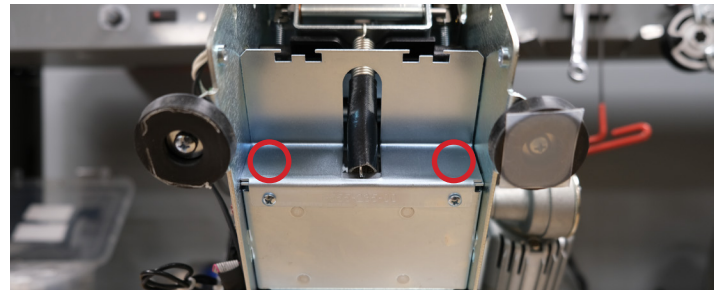
1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board
6. Remove the tank shelf (gray plastic housing bottom front of machine) by pulling down on the top while pressing in on the side retaining clips.



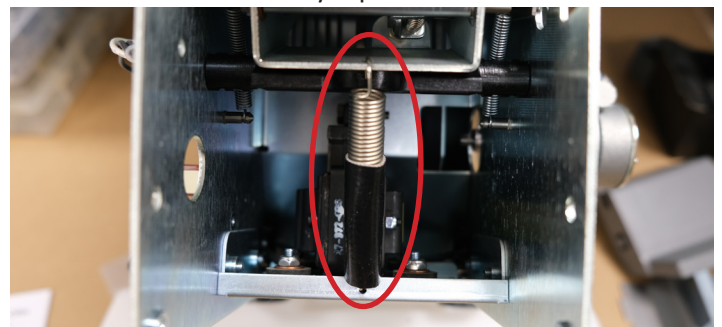
7. Remove the Baffle Safety (2 or 3 Philips screws depending on model)



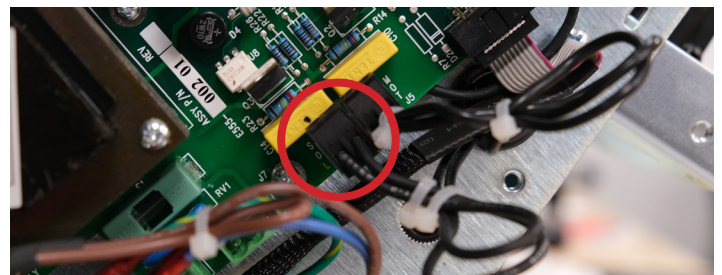
8. Remove the access plate (2 Philips screws)



9. Remove the spring  
a. Clean out any tape debris



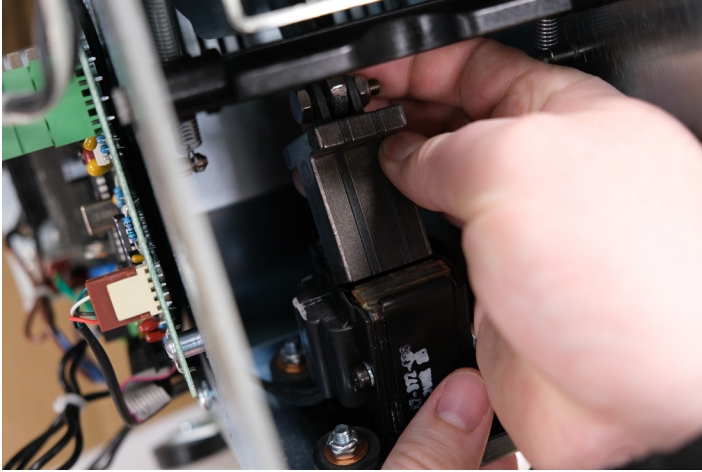
10. Unplug the solenoid from the controller board



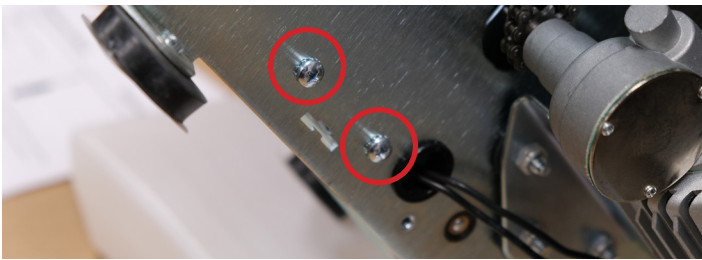


# Maintenance & Repair

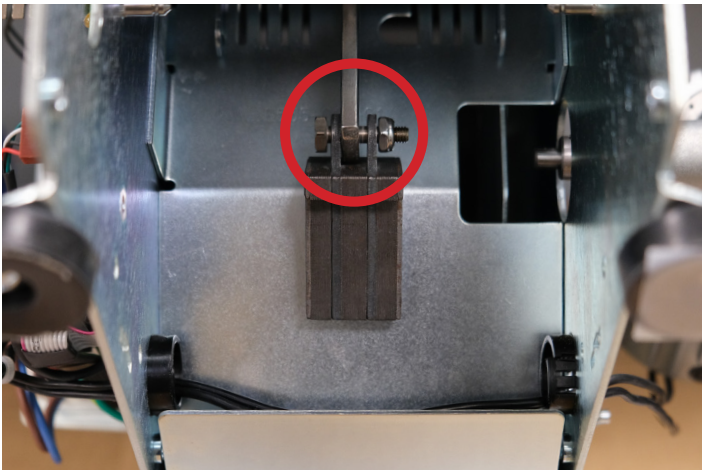
11. Pull the connector and wire through the frame of the machine
12. Pull the plunger from the solenoid



13. Remove 4 screws from the solenoid shelf



14. Remove the nut holding the solenoid plunger



15. On new solenoid shelf partially insert the back 2 screws so it can hang freely
16. Install the new plunger
17. Reinsert the plunger into the solenoid body
18. Align the solenoid shelf and replace the 2 front screws
19. Tighten down all screws on the solenoid shelf

# Solenoid Replacement

*Continued*

20. Reinstall the spring
21. Replace the access plate
22. Reinstall the baffle safety
23. Snap the tank shelf back into place
24. Replace the right cover (5 Philips screws)
25. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
26. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
27. Replace water tank, brushes, and water bottle

# Maintenance & Repair

# Thermostat Replacement

It is recommended that the heater parts be replaced with a Better Packages supplied heater parts to maintain safety compliance.

If the heater is no longer functioning and the heater plates are clean and well maintained replacing the thermostat will most likely fix any heating issues.

When replacing the heater it is customary to also replace the blade oiler and feed wheel as they are wear items and the machine will be disassembled enough to conduct those replacements at the same time.

## Part Numbers

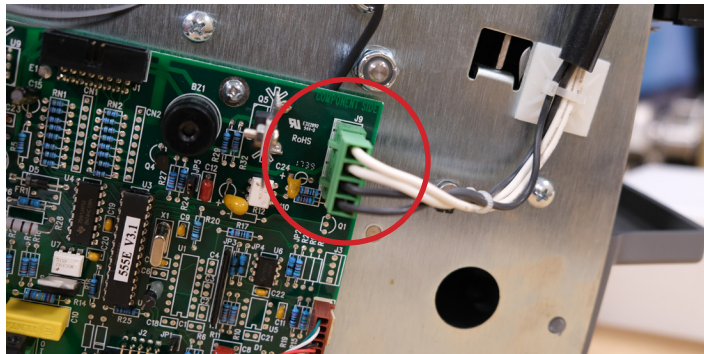
- [ST2313 – Thermostat](#)

## Tools needed

- Philips head screwdriver
- Flat head screwdriver
- 5/16" Nut Driver

## Procedure

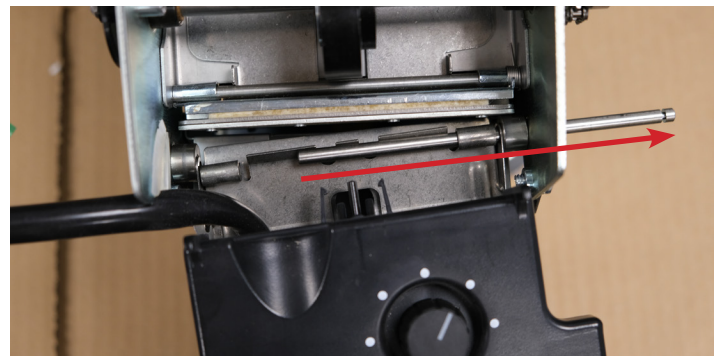
1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board



6. Unplug the heater from the controller board
7. Cut any ties that are holding down the wires for the heater
8. Loosen screw on the upper right side of frame holding the retainer bracket



9. From the right side remove the shaft holding the heater assembly in place



10. Remove the heater and lower heat plate
11. Place the heater on a flat surface and remove the cap on the control knob (using a flat head screwdriver or razer knife if needed)



# Maintenance & Repair

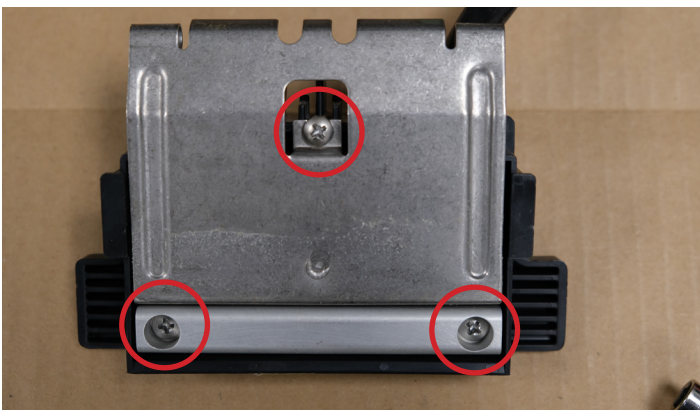
12. Remove the knob (5/16" nut driver)



13. Remove the brass washer
  - a. Do not lose it will be used again later



14. Flip the heater over
15. Remove the 3 Philips screws holding the heater together

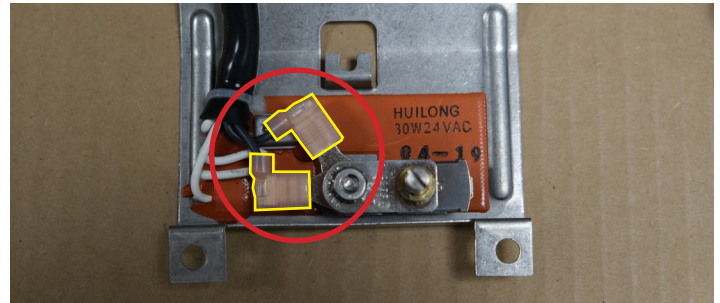


16. Remove the plastic washers
  - a. Do not lose they will be used again

# Thermostat Replacement

*Continued*

17. Remove the slip on electrical connectors from the thermostat
18. Remove the nut holding the thermostat on



19. Discard the old thermostat
20. Place new thermostat



21. Replace the nut
22. Replace the electrical connectors
23. Reinstall the black cover with the 3 plastic washers and screws
24. Flip the heater over
25. Replace the brass washer
26. Replace the heater knob (5/16" driver)
27. Replace the heater knob cover
28. Place the lower heater plate in place on the new heater assembly
29. Reinsert the heater retainer shaft making sure it passes through both heater and lower heater plate
30. Optional recommendation replace the blade oiler (page XX)
31. Replace the retainer bracket
32. Tighten the bracket locking the shaft in place
33. Plug the new heater into the corresponding spot on the controller board
34. Use wire ties to keep heater wires in place
35. Replace the right cover (5 Philips screws)
36. On left cover plug keypad ribbons back into controller board
37. Be sure not to miss any pins as this will effect the length selected
38. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
39. Replace water tank, brushes, and water bottle

# Maintenance & Repair

# Heater Replacement

It is recommended that the heater be replaced with a Better Packages supplied heater to maintain safety compliance.

When replacing the heater it is customary to also replace the blade oiler and feed wheel as they are wear items and the machine will be disassembled enough to conduct those replacements at the same time.

## Part Numbers

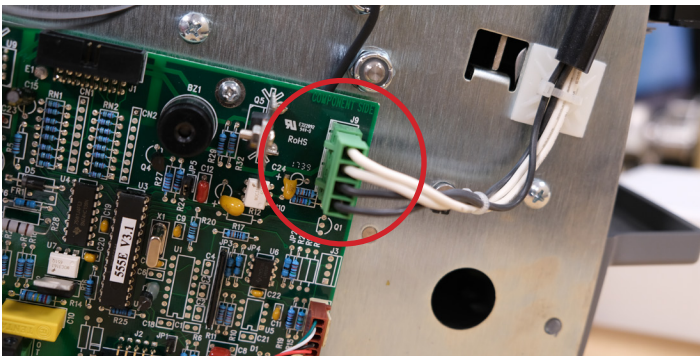
- [E55500701 – Top Heater Assembly](#)

## Tools needed

- Philips head screwdriver

## Procedure

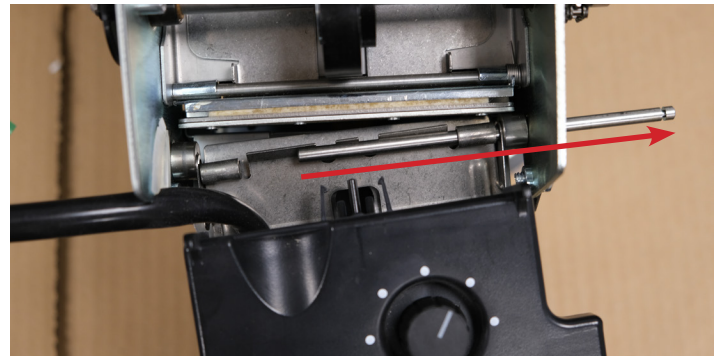
1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board
6. Unplug the heater from the controller board



7. Cut any ties that are holding down the wires for the heater
8. Loosen screw on the upper right side of frame holding the retainer bracket



9. From the right side remove the shaft holding the heater assembly in place
  - a. Remove old heater
  - b. Remove the lower heater plate (this will be reused)
10. Place the lower heater plate in place on the new heater assembly
11. Reinsert the heater retainer shaft making sure



it passes through both heater and lower heater plate

12. Optional recommendation replace the blade oiler (page XX)
13. Replace the retainer bracket
14. Tighten the bracket locking the shaft in place
15. Plug the new heater into the corresponding spot on the controller board
16. Use wire ties to keep heater wires in place
17. Replace the right cover (5 Philips screws)
18. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
19. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
20. Replace water tank, brushes, and water bottle

# Maintenance & Repair

## Part Numbers

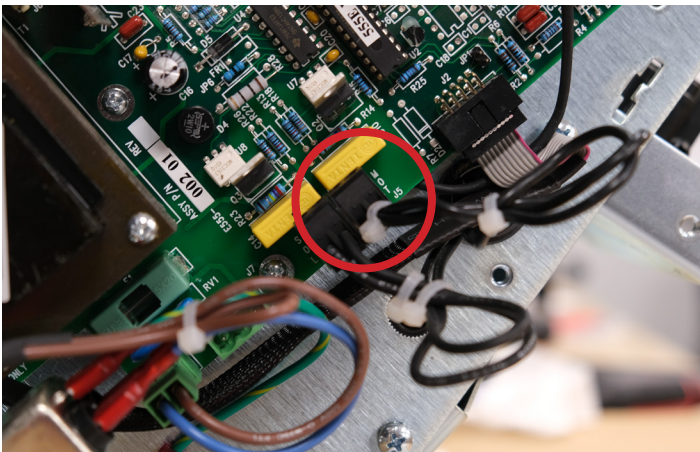
- [E55504401 – Motor Bracket Assembly](#)

## Tools Needed

- 3/8" Wrench
- Phillips head screwdriver

## Procedure

1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board
6. Remove the connector from the controller board marked "mot"

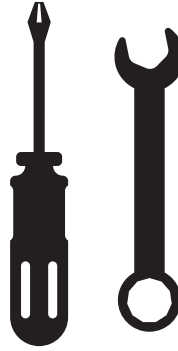


7. Remove the 3 3/8" nuts holding the motor in place



8. Remove the old motor pulling the wires through the machine

# Motor Replacement



9. Feed the new motor wire through and plug into connector on the controller board marked "mtr"
10. Place the drive chain on the new motor and bolt the bracket into place
11. The two 3/8" nuts holding motor to the bracket may need to be loosened for proper drive chain tensioning
12. Slide the motor back until drive chain is taught
13. Tighten 3/8" nuts locking motor in place
14. Replace the right cover (5 Philips screws)
15. On left cover plug keypad ribbons back into controller board
16. Be sure not to miss any pins as this will effect the length selected
17. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
18. Replace water tank, brushes, and water bottle

# Maintenance & Repair

# Motor Chain Adjustment

## Tools Needed

- 3/8" Wrench
- Philips head screwdriver

## Procedure

1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove right side cover (5 Philips screws)
4. Loosen the 2 3/8" nuts holding the motor to the bracket (**do not remove the nuts completely**) (Figure 1)
5. Slide the motor toward the back of the machine until there is no more slack in the chain (Figure 2)
6. Tighten the 2 3/8" nuts locking the motor in place
7. Replace the right cover (5 Philips screws)
8. Replace water tank, brushes, and water bottle

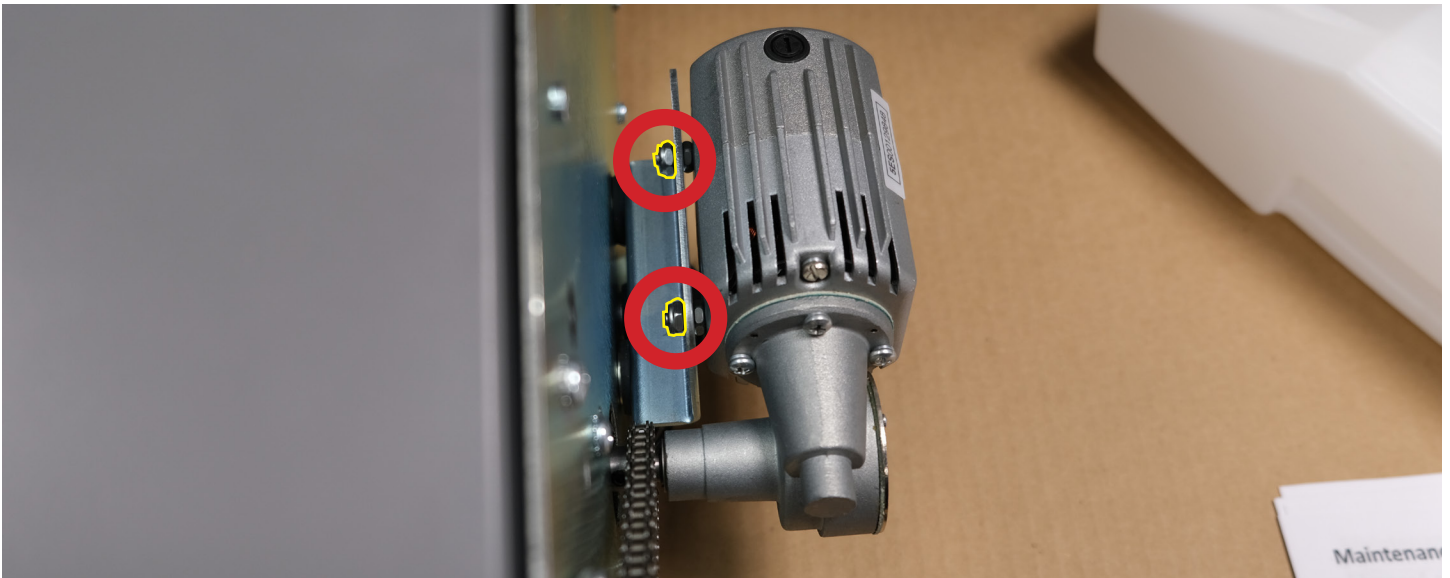
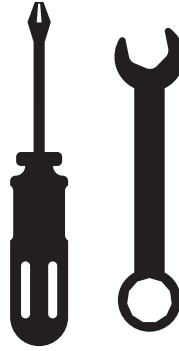


Figure 1



Figure 2

# Maintenance & Repair

# Connector Plate Assembly

## Part Numbers

- [E55502301](#)

## Tools Needed

- Philips head screwdriver

## Procedure

1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
4. Unplug keypad ribbons from controller board (Figure 1)
5. Unplug power and power switch connectors from the controller board
6. Remove 2 Philips screws holding connector plate to frame (Figure 2)
7. Remove the connector plate
8. Place new connector plate
9. Screw in 2 Philips screws connecting connector plate to frame
10. Plug the power and power switch into the controller board
  - a. Power on left, power switch on right
11. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
12. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
13. Replace water tank, brushes, and water bottle



Figure 1

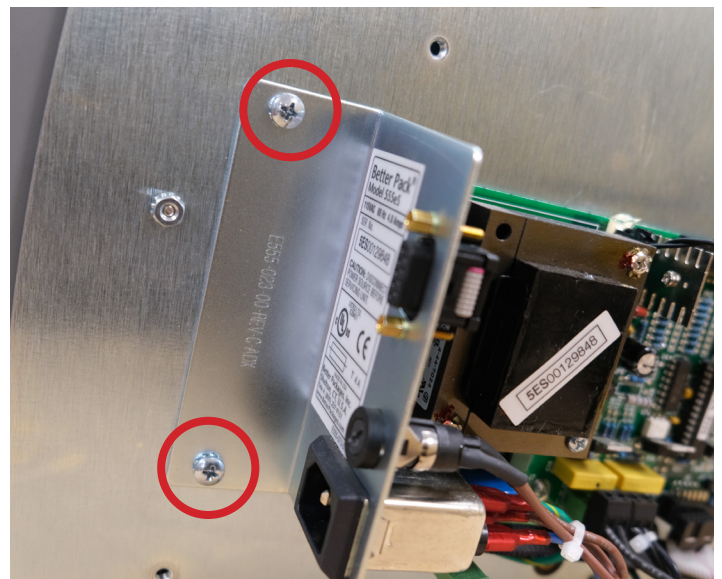


Figure 2

# Maintenance & Repair

## Part Numbers

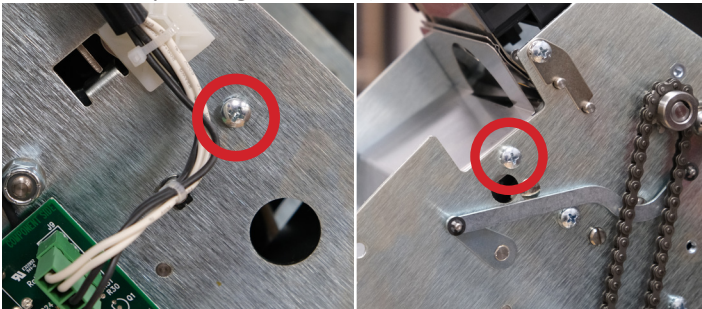
- [FM20BXK – Blade Kit](#)

## Tools Needed

- Philips head screwdriver
- Flat head screwdriver
- Vice grip pliers

## Procedure

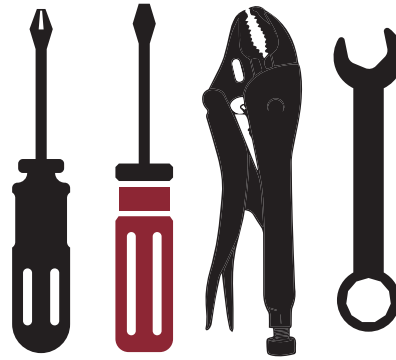
1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove right side cover (5 Philips screws)
4. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
5. Unplug keypad ribbons from controller board
6. Remove the tank shelf (gray plastic housing bottom front of machine) by pulling down on the top while pressing in on the side retaining clips.
7. Remove the Baffle Safety (2 or 3 Philips screws depending on model)



8. Loosen the screw on the upper right side of frame holding the retainer bracket
9. Lift the retainer bracket



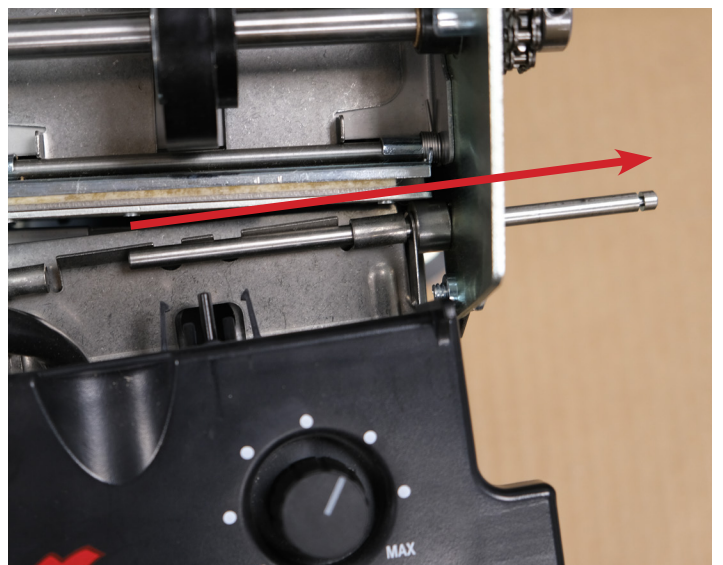
# Shear Blade Replacement



10. Remove the 2nd shaft that holds the oiler  
a. Use caution as there is a spring under tension



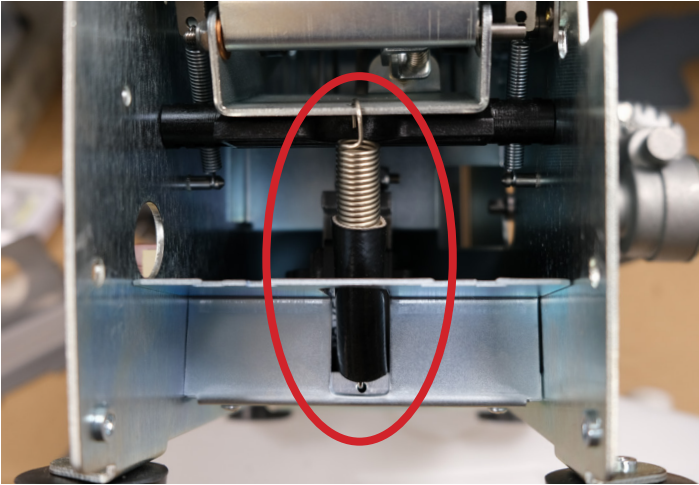
11. Remove the shaft holding the heater and heat plate in place  
a. The heater can remain plugged in, place to side of machine



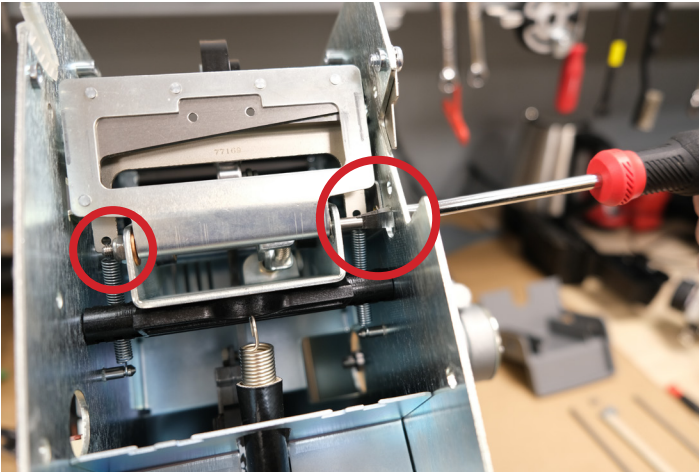


# Maintenance & Repair

12. Remove the spring that is fastened to the cutter yoke

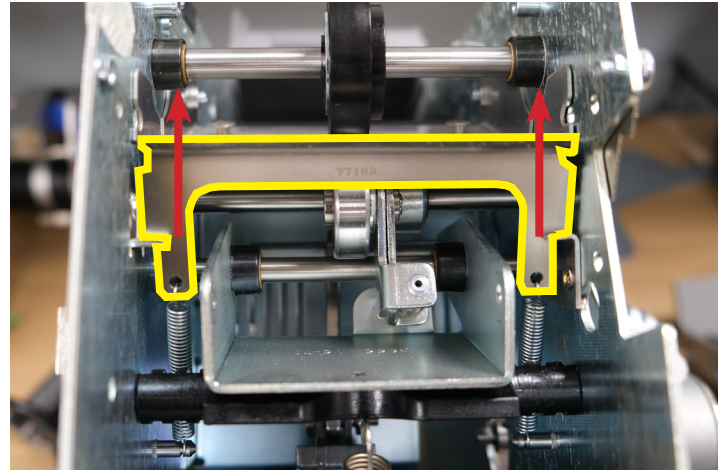


13. Loosen the pin that holds the blade in place by turning it counter clockwise with a flathead screwdriver. If the pin doesn't turn loosen the pin with a pair of vise grip pliers. You will also need a 3/8" wrench to hold the nut on the opposing side. Once the pin is loose remove it and remove the blade.

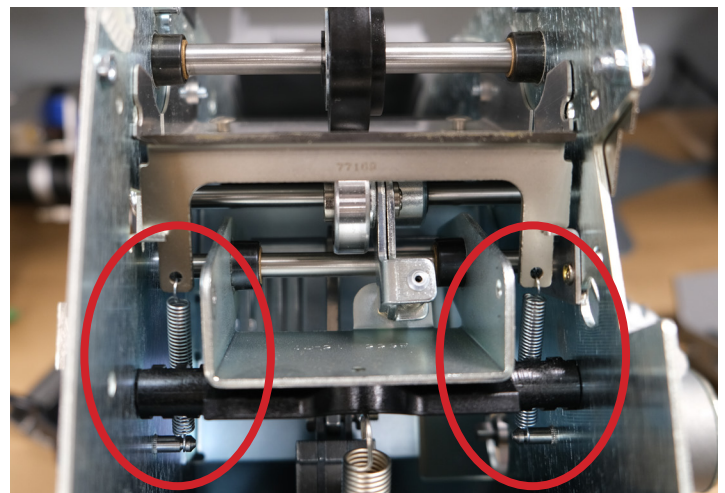


# Shear Blade Replacement

14. Lift the upper blade out from the two holders to reduce tension on the springs



15. Remove the spring from the upper blade by unhooking the springs from the pins. Remove the blade.



16. Remove the 2 springs
17. Replace the 2 springs with new ones
18. Replace the upper blade and hook the springs onto the pins
19. Replace the lower blade with the new shaft
20. Replace spring back onto yoke assembly.
21. Reinstall the baffle safety
22. Snap the tank shelf back into place
23. Replace the right cover (5 Philips screws)
24. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
25. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
26. Replace water tank, brushes, and water bottle

# Maintenance & Repair

# Length Sensor Replacement

## Part Numbers

- [E55506801 – Length Sensor Assembly](#)

## Tools Needed

- Philips head screwdriver
- Zip cable tie



## Procedure

1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
4. Unplug keypad ribbons from controller board
5. Remove 2 Philip screws holding sensor to frame (Figure 1)
6. Cut tie holding sensor wire in place
7. Unplug sensor from controller board (Figure 2)
8. Screw 2 Philips screws into sensor holding it to frame
9. Plug new sensor into the controller board
10. Use cable tie to secure wire to machine
11. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
12. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
13. Replace water tank, brushes, and water bottle

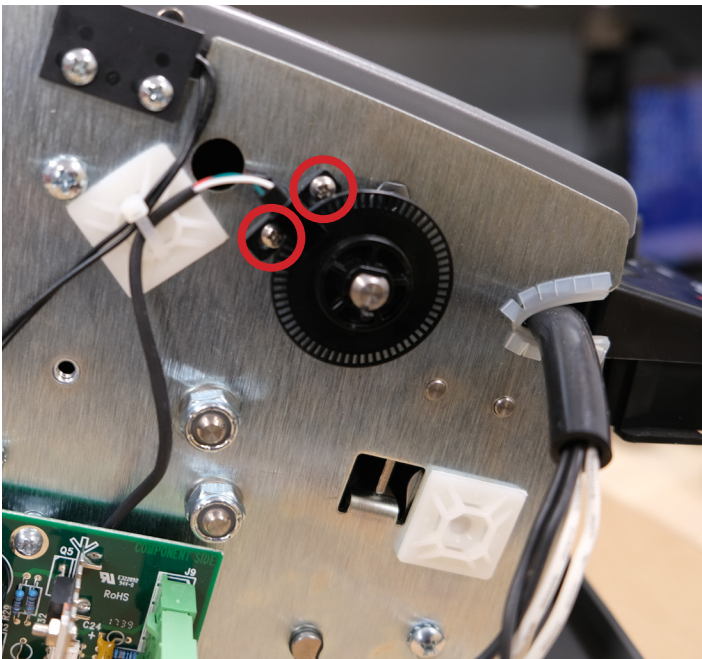


Figure 1

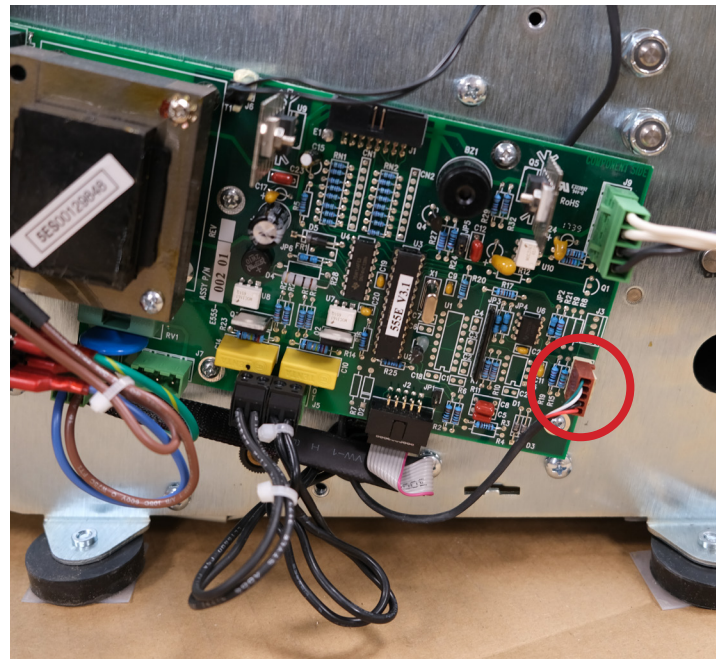


Figure 2

# Maintenance & Repair

# Tape Sensor (ESA Only)

## Part Numbers

- [E55506901](#)

## Tools Needed

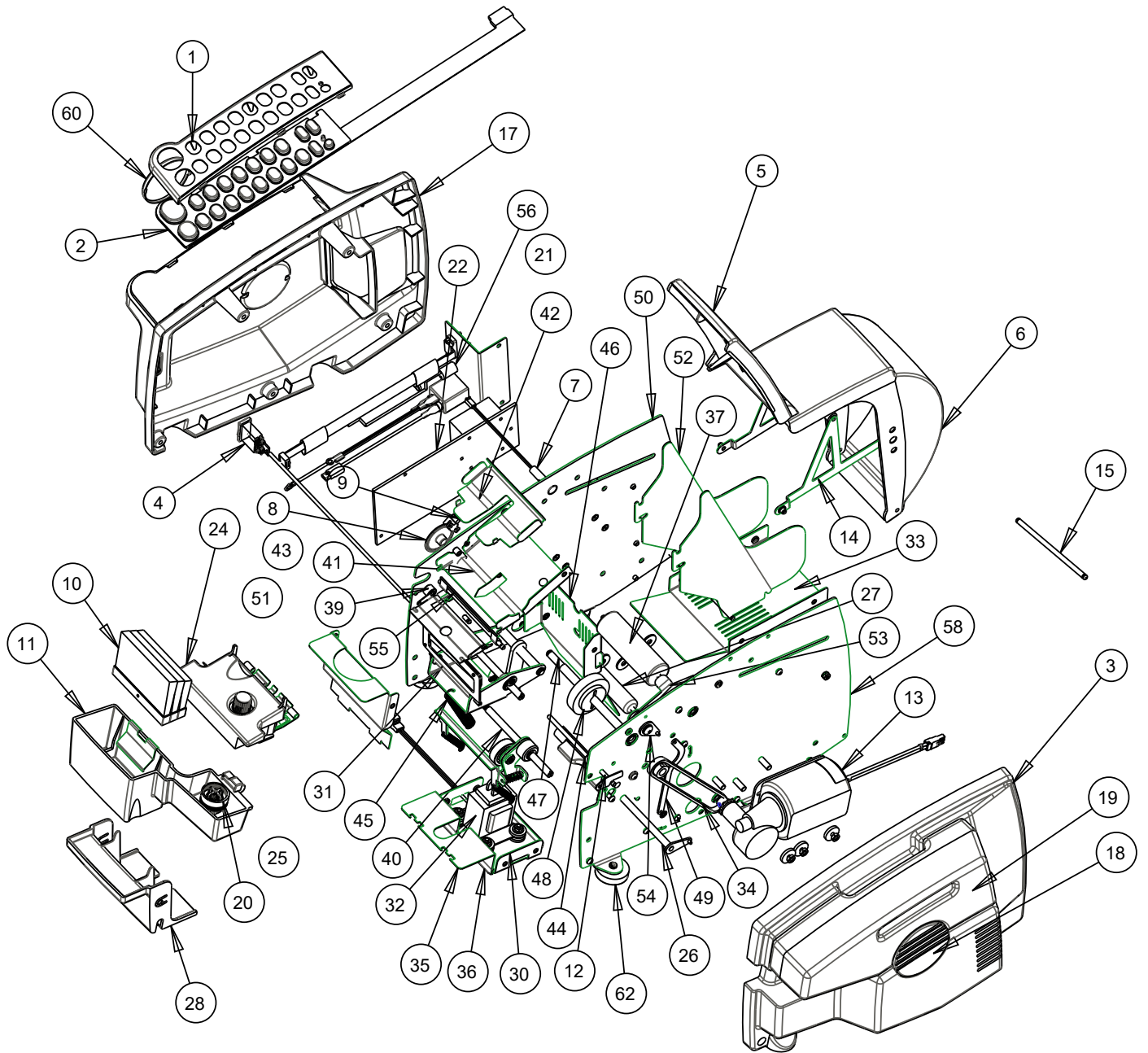
- Philips head screwdriver
- Zip cable tie

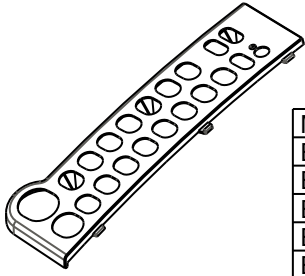


## Procedure

1. Unplug Machine
2. Remove the water bottle, and tank assembly
3. Remove left side cover (5 Philips screws) be careful as the ribbons connecting the keypad can be ripped easily.
4. Unplug keypad ribbons from controller board
5. Remove sensor from heater assemble it should twist and pull out
6. Remove connector from controller board
7. Cut cable tie
8. Remove old sensor
9. Snap new sensor into place on back of heater assembly
10. Run wire to controller board
11. Plug into controller board
12. Use cable tie to secure wire to machine
13. On left cover plug keypad ribbons back into controller board
  - a. Be sure not to miss any pins as this will effect the length selected
14. Reinstall left cover be sure not to pinch or drive a screw through the keypad ribbons.
15. Replace water tank, brushes, and water bottle

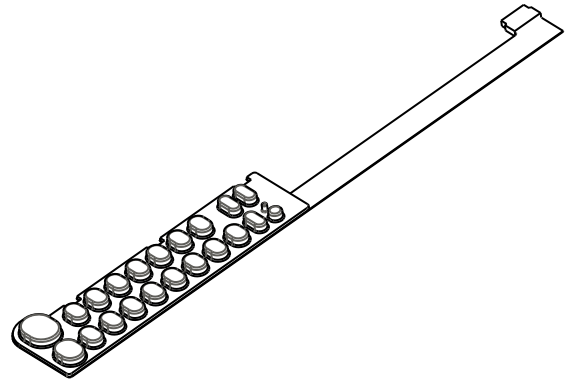
# Parts Listing





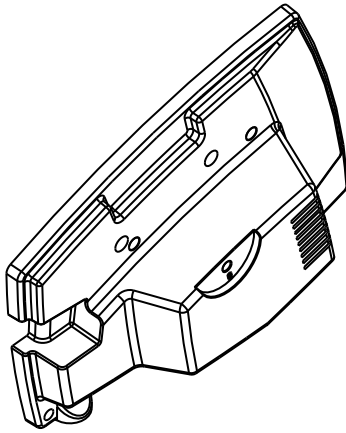
**ITEM 1 - BEZEL**

MODEL	PART NUMBER
ES	E555-039-01
ESA	E555-039-02
EL	E555-039-03
ELA	E555-039-04
EMA	E555-039-06
EJA	E555-039-08
EFA	E555-039-10

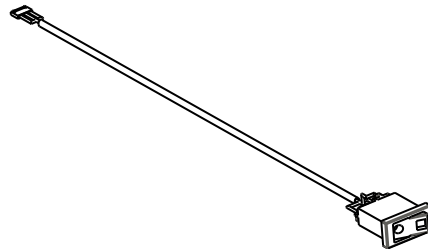


**ITEM 2 - MEMBRANE SWITCH PAD ASSY**

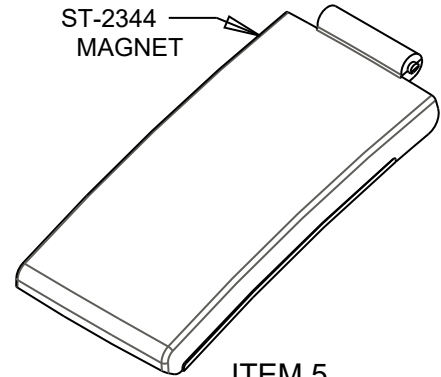
MODEL	PART NUMBER	PAD ONLY P/N	SWITCH ONLY P/N
ES	E555-003-01	E555-003-01-PAD	E555-003-01-SW
ESA / EFA	E555-003-02	E555-003-02-PAD	E555-003-01-SW
EL	E555-003-03	E555-003-03-PAD	E555-003-01-SW
ELA	E555-003-04	E555-003-04-PAD	E555-003-01-SW
EMA / EJA	E555-003-06	E555-003-06-PAD	E555-003-01-SW



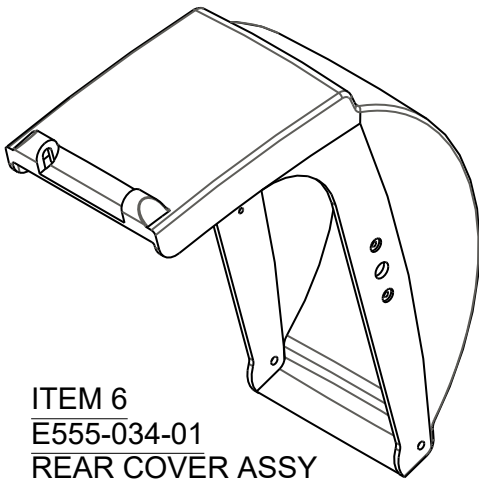
**ITEM 3**  
E555-031-00  
RIGHT COVER



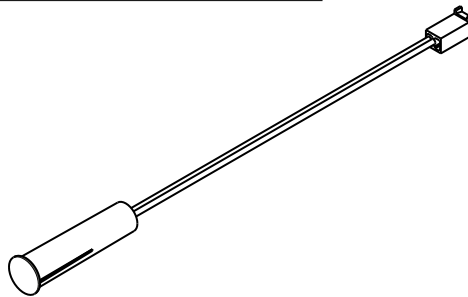
**ITEM 4**  
E555-071-01 - SWITCH ASSY



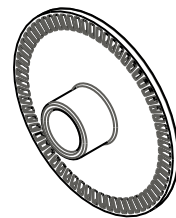
**ITEM 5**  
E555-035-01  
TOP COVER ASSY



**ITEM 6**  
E555-034-01  
REAR COVER ASSY



**ITEM 7**  
E555-075-01  
MAGNETIC PROXIMITY SWITCH ASSY  
E555-270-01  
BLACK MAGNETIC PROXIMITY SWITCH ASSY

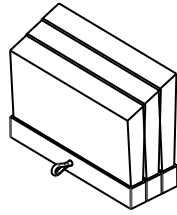


**ITEM 8**  
E555-150-00 -  
PLASTIC ENCODER DISK  
SEE NOTE BELOW

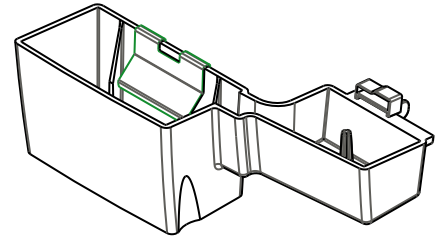
NOTE:  
METAL ENCODER DISK IS NO LONGER AVAILABLE  
REPLACE METAL ENCODER DISK WITH PLASTIC ENCODER DISK.  
CONVERTING TO PLASTIC DISK REQUIRES A COMPATIBLE  
FEED WHEEL ASSY (ITEM 47 - P/N E555-024-01 ) WHICH MUST  
BE ORDERED SEPARATELY



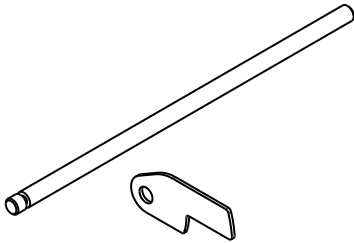
ITEM 9  
E555-068-01  
SENSOR LENGTH ASSY



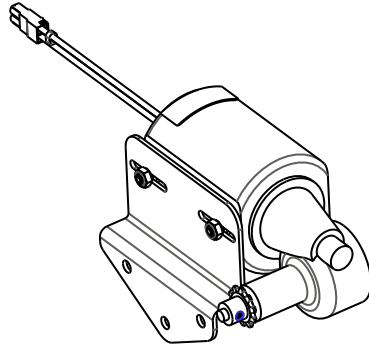
ITEM 10  
E555-132-01 - BRUSH ASSY



ITEM 11  
E555-033-01 - TANK ASSY

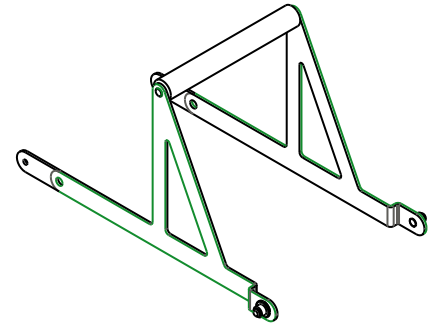


ITEM 12  
E580-SA, PIVOT ROD  
E580-RA, RETAINER

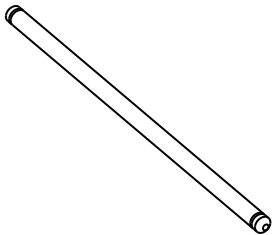


ITEM 13 - MOTOR BRACKET ASSY

MODEL	PART NUMBER
ESA / ELA	E555-044-01
EL / ES	E555-044-01
EFA / EMA	E555-044-02
EJA	E555-044-03



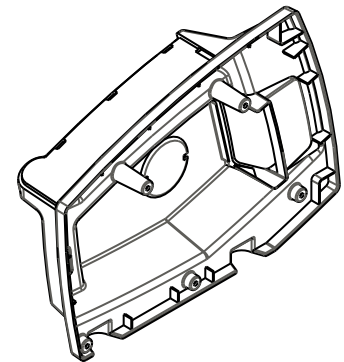
ITEM 14  
E555-098-01  
ASSY, LIFT ROLLER BRACKET



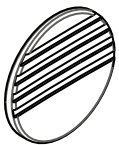
ITEM 15  
E555-060-00  
REAR PIVOT PIN



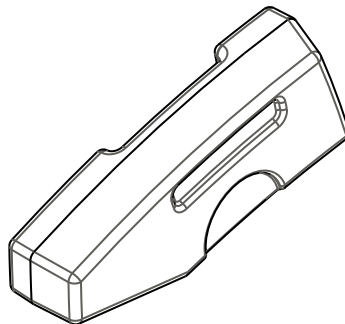
ITEM 16  
E555-090-00  
SPRING, EXTENSION-SWIVEL ENDS



ITEM 17  
E555-030-00 - LEFT COVER



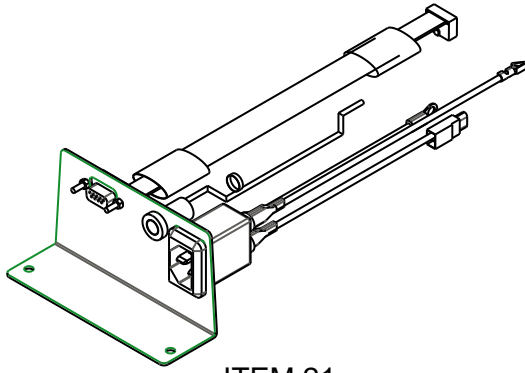
ITEM 18  
E555-037-00  
BOTTLE RETAINER



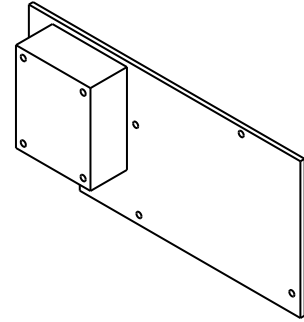
ITEM 19  
E555-036-00 - WATER BOTTLE



ITEM 20  
E555-160-01  
ASSY, BOTTLE CAP

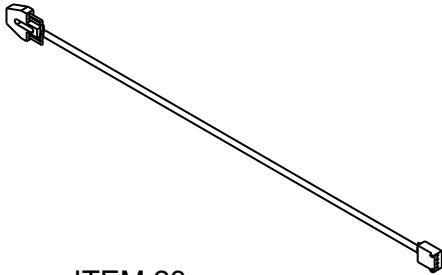


ITEM 21  
E555-023-01  
CONNECTOR PLATE ASSY

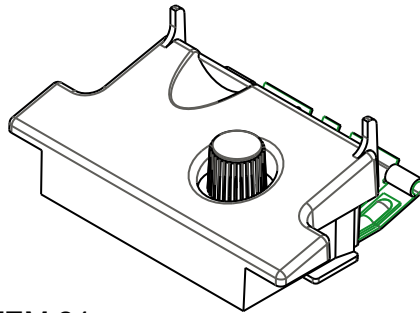


ITEM 22 - ASSY, E555 BOARD

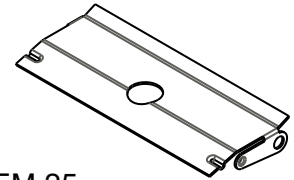
MODEL	PART NUMBER
ESA	E555-001-01
ELA	E555-001-02
EL	E555-002-02
ES	E555-002-01
EJA	E555-001-03
EFA / EMA	E555-001-06



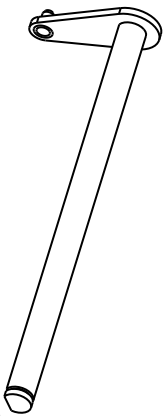
ITEM 23  
E555-069-01  
SENSOR ASSY



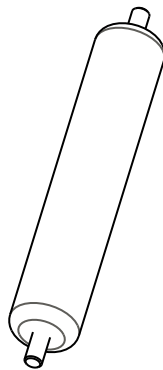
ITEM 24  
E555-007-01 - TOP HEATER ASSY



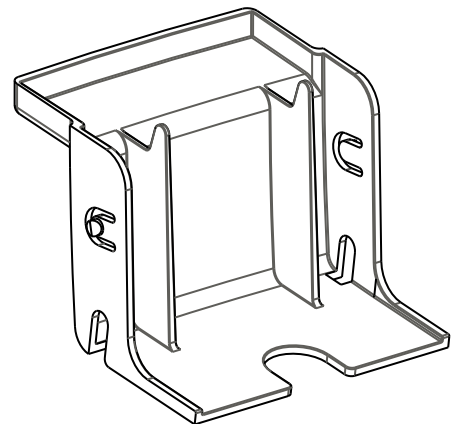
ITEM 25  
E555-136-00  
LOWER HEATER PLATE



ITEM 26  
E555-084-01  
LINK, CUTTER LIFT CAM

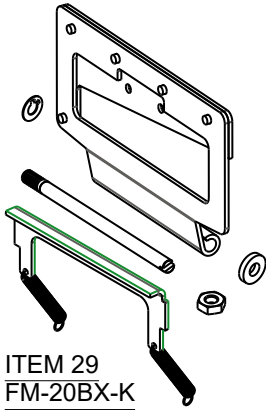


ITEM 27  
E555-051-01  
ROLLER ASSEMBLY

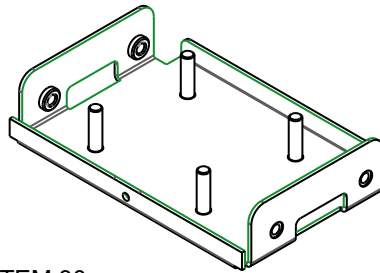


ITEM 28  
E555-032-00 - TANK SHEL

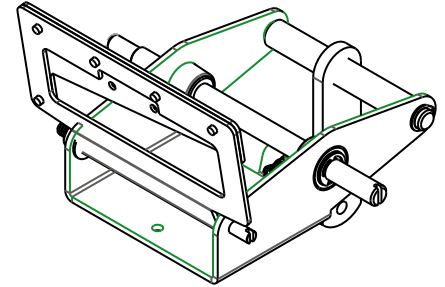




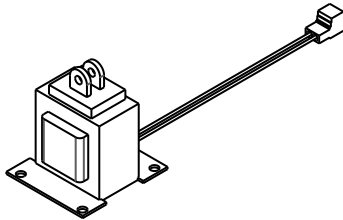
ITEM 29  
FM-20BX-K  
BLADE KIT



ITEM 30  
E555-014-01  
SOLENOID SHELF

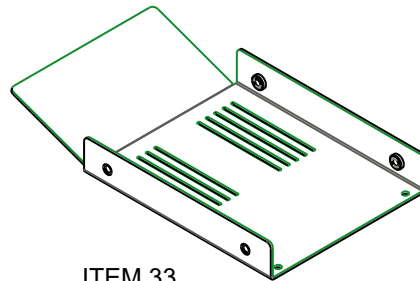


ITEM 31  
E555-049-01  
CUTTER YOKE ASSY

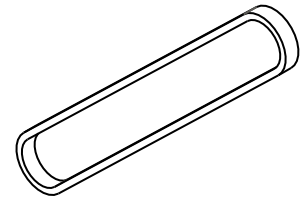


ITEM 32 - SOLENOID

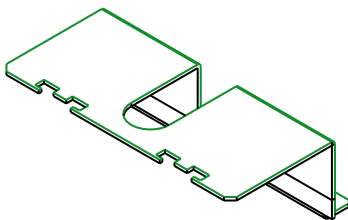
MODEL	PART NUMBER
ESA / ELA EL / ES	E555-005-01
EFA / EMA	E555-005-02
EJA	E555-005-03



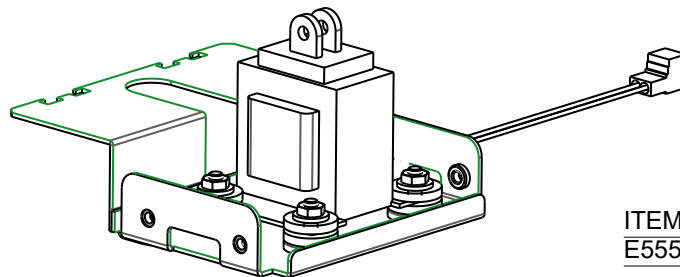
ITEM 33  
E555-050-01 - BASKET ASSY



ITEM 34  
ND116 - MOTOR CHAIN

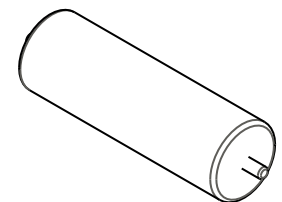


ITEM 35  
E555-235-0 - ACCESS PLATE

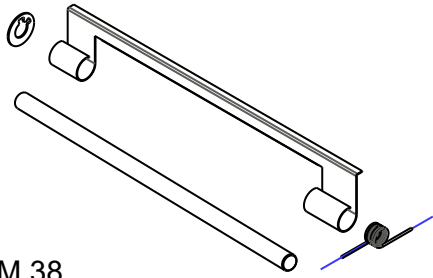


ITEM 36 - SOLENOID SHELF ASSY

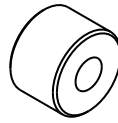
MODEL	PART NUMBER
ESA / ELA EL / ES	E555-048-01
EFA / EMA	E555-048-02
EJA	E555-048-03



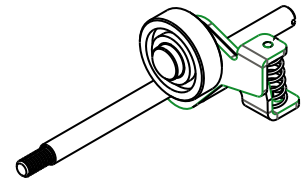
ITEM 37  
E555-241-01 - ASSY, ROLLER PLASTIC



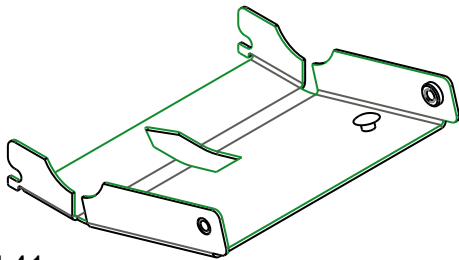
ITEM 38  
SA10XXK - FELT & BRACKET KIT



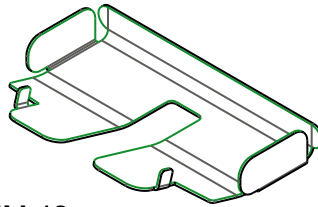
ITEM 39  
FM-18 - SHEAR GUIDE ROLLER



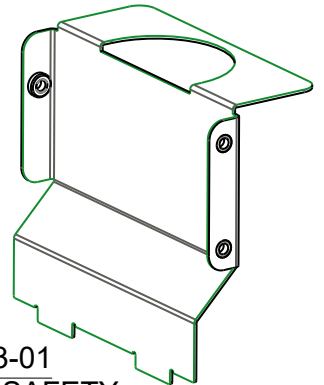
ITEM 40  
E555-053-01  
IDLER ASSY



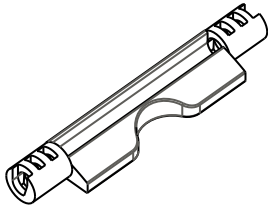
ITEM 41  
E555-137-01 - LOWER TAPE PLATE



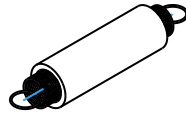
ITEM 42  
E555-018-00  
UPPER TAPE GUIDE



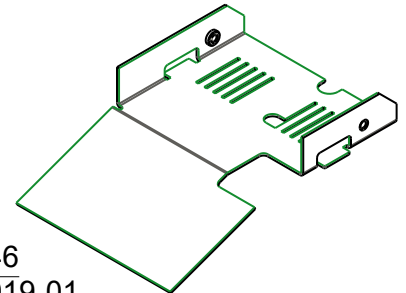
ITEM 43  
E555-083-01  
BAFFLE-SAFETY



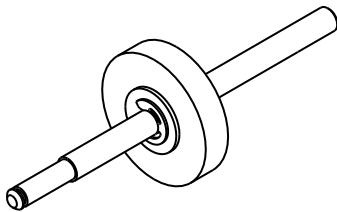
ITEM 44  
E555-077-00  
CAM, CUTTER LIFT



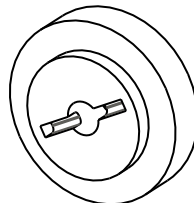
ITEM 45  
E555-074-01 - SPRING ASSY



ITEM 46  
E555-019-01  
VERTICAL TIE PLATE ASSY



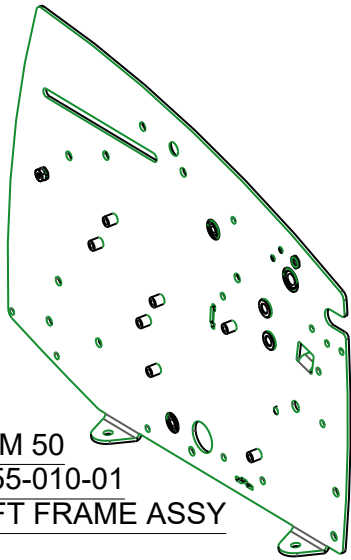
ITEM 47  
E555-024-01  
FEED WHEEL ASSY



ITEM 48  
E555-065-00  
FEED WHEEL



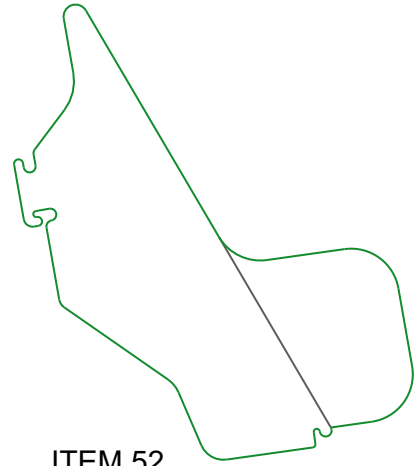
ITEM 49  
E555-078-00  
LINK, CUTTER LIFT CAM



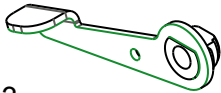
ITEM 50  
E555-010-01  
LEFT FRAME ASSY



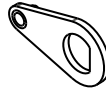
ITEM 51  
ST-2929-KIT -HEATER KNOB



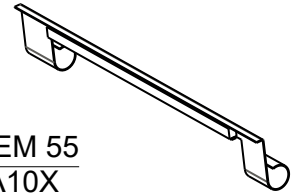
ITEM 52  
E555-064-00 - SIDE GUIDE



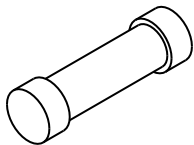
ITEM 53  
E555-079-01  
CUTTER LIFT LEVER



ITEM 54  
E555-085-01  
LINK, CUTTER LIFT

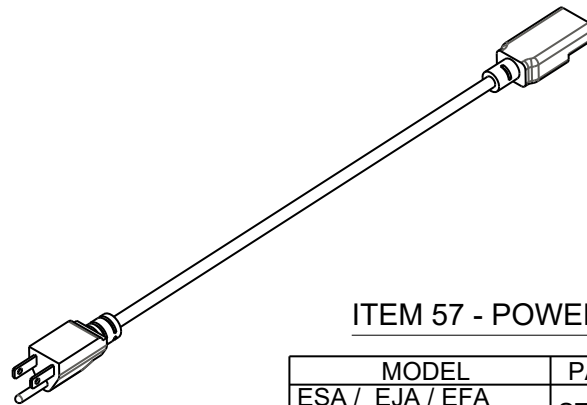


ITEM 55  
SA10X  
FELT/BRACKET ASSY  
SEE ITEM 38 FOR KIT



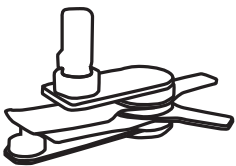
ITEM 56 - FUSE, CONNECTOR PLATE

MODEL	PART NUMBER
ESA / EJA / ELA	ST-2341
EL / ES	
EFA / EMA	ST-2490

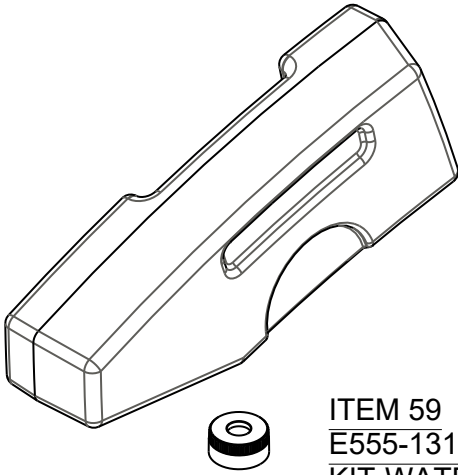


ITEM 57 - POWER CORD

MODEL	PART NUMBER
ESA / EJA / EFA	ST-484
ELA / EL / ES	
EMA	ST-2004



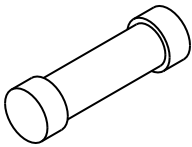
Thermostat  
ST 2313



ITEM 59  
E555-131-01  
KIT-WATER BOTTLE

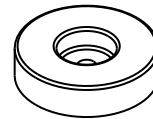


ITEM 60  
E555-055-01  
BADGE

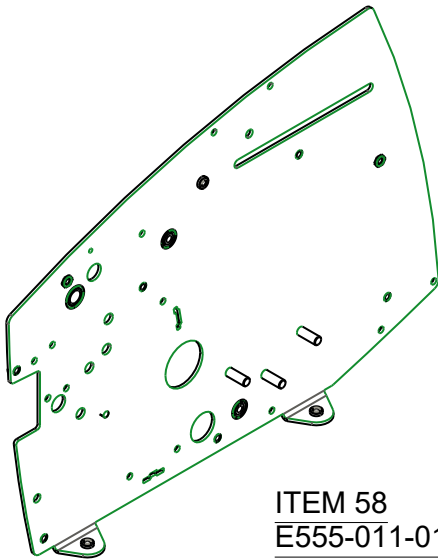


ITEM 61 - FUSE, FOR PC BOARD

MODEL	PART NUMBER
ESA / EJA / ELA EL / ES	ST-2128
EFA / EMA	ST-2484



ITEM 62  
E555-054-00 - FOOT



ITEM 58  
E555-011-01  
RIGHT FRAME ASSY

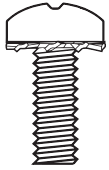
ASSORTED HARDWARE (QTY PER MACHINE)



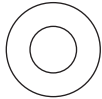
RETAINING RING	QTY
FM 101(3/8)	1
FM 94 (5/16)	2
ST 2337 (3/16)	4
0233760 (5/32)	2



RETAINING RING	QTY
WK2	1
E 623	2



MACHINE SCREW	QTY
ST 1949	26



BURR WASHER	QTY
BW1/4 THIN	4

