

## Replacing the Disc Inserts (Electric Machine)

**This is a very complicated procedure that requires dismantling the machine. It is recommended that this procedure be done at our repair facility.**

**Please Note: Take care not to lose screws or other small parts you may encounter**

1. Make sure the machine is turned off and unplugged. Set the Coin Selector Knob to "C". Set the Coin Gauge Knob to the Dime setting.
2. Open the top Tray and remove the two screws holding the Tray/Spout assembly onto the machine. Set the Tray/Spout assembly and the screws aside.
3. On the upper right side of the machine are the Coin Gauge and the Coin Gauge Cover. Remove the Coin Gauge Cover from the machine, exposing the Coin Gauge. Set the Cover and its screws aside.
4. You will see a vertical screw with a spring around it located between the Coin Gauge Assembly and the Silver Hopper ring. Remove this screw and spring and set them aside.
5. The Coin Gauge Assembly is held on by 2 screws, one in front and one behind. The Coin Gauge may also be seated on pins. Remove these two screws and the Coin Gauge Assembly. Please Note: There is a small metal plate that is also attached to the rear screw; set it aside with the screws.
6. Under the Coin Gauge Assembly, there is a T-shaped bar called the Guide Rail. The small tab on the top of the Guide Rail fits into the groove on the underside of the Coin Gauge Assembly. Make note of the position of the Guide Rail, as you will need to make sure it's in the same place when you put everything back together.
7. On the top left of the machine is the Meter. Remove the 4 screws that hold the Meter and remove the Meter. Set the Meter and its screws aside.
8. There is a large metal ring on the top of the machine called the Hopper. It is held on by 2 pins, one on either side of the machine. You will need to remove the pin on the left side of the machine (the side where the power switch is). The best way to do this is to turn the machine on its side, and take a punch and tap the pin through the hole. The pin will end up inside the machine, and you will need to retrieve it later on once the Disc is removed from the machine.
9. Once the pin is tapped out, turn the machine right side up again, and pull up on the left-hand side of the Hopper, and it should lift out of the machine. You may need to work it out a bit, off of the other pin on the right side. Set the Hopper aside.
10. Once the Hopper is removed, locate the star-shaped gear on the top front of the machine. There is also a plastic gear mounted above the Star gear. Remove the plastic gear using a 1/16" Allen wrench to loosen the set screws. Do not remove the set screws from the gear, just loosen them. Pull the gear off of the shaft.
11. There is a nut holding the Star gear onto the machine. Use a pair of needle-nose pliers to hold the Star gear in place so it does not turn. Use a 5/16" wrench to loosen the nut and remove it and the Star gear from the shaft. There may also be a metal washer under the nut. Set the Star, nut and washer aside.

12. Locate the Coin Guide Finger, which is directly under where the Star was. The Finger sticks out over the Disc. Remove the 2 screws that hold the Finger on, and remove the Finger. Set it and its screws aside. There is a washer made of felt that is under the Finger. Pull the Felt Washer out and set it aside with the Finger.

13. The cover over the motor is attached with 4 screws, two on each side. Remove the screws and set them aside. Pull the motor cover off and set it aside. NOTE: For Models CECR1 & CECR4, there is a metal plate around the crimper. You need to remove this plate in order to remove the motor cover.

14. Turn the machine upside down. Locate the Power Switch. There is a nut on the outside of the Switch that holds it on. Remove the nut and the On/Off Plate and slide the Switch out of its hole. Set the nut and Plate aside for later.

15. With the machine still upside down, you can see the 3 screws that hold the base of the machine onto the rest of it. These screws run through the base and into 3 metal rods. Remove these 3 screws and set them aside.

16. The base (which includes the motor) should now lift off of the machine, and the Motor Belt should come loose. The rectangular metal Wrapper that surrounds the machine should lift off as well. Set the Base, Belt and Wrapper aside. Turn the machine on its end, or on its side, so that you have easy access to the Disc shaft and the Disc Bracket.

17. You should see the Disc shaft and the bracket it's mounted into, as well as the Disc Shaft Pinion Gear. The Gear is pinned to the shaft. Make sure the Disc Shaft is seated all the way down in the bracket. Use a punch to tap the pin out of the gear, and set it aside. Be careful, as sometimes the pin can be stuck in the hole very tightly, and it may take some effort to remove it. Take care not to damage the bracket, or the disc shaft. **NOTE: Some Pinion Gears have more than one pin-hole. If yours does, make sure you note which hole in your gear was used.**

18. You should be able to push the Disc up out of the machine from the bottom side. Hold the gear while you do so and it will slide off the end of the shaft. Set the gear aside. Don't forget to locate the pin you tapped out in step 8, and set it aside.

19. With the Disc removed, use a small screwdriver to push the Inserts out of their holes. Take care not to damage the Disc. Once the Inserts are removed, clean the Disc surfaces, both top and bottom, and remove any excess material in the holes.

20. Push the new Inserts into the holes, so that the bottoms of the Inserts are flush with the bottom side of the Disc. Do not allow the Inserts to extend down below the bottom surface of the Disc.

21. Set the Disc down on a flat surface with the shaft sticking up in the air, so that the bottom side of the Disc faces up. You may need to place something under the Disc so it lays flat. Place a dab of glue onto each insert, overlapping onto the Disc. The dab should be about twice the diameter of the insert. We use DAP Weldwood Contact Cement. Let the glue set for 24 hours.

22. Once the glue is set, you need to form the top side of the Inserts. The top of the Inserts should be ground down into a dome shape. The Inserts should stick up approximately 1 millimeter above the top surface of the Disc. Take care not to damage the surface of the Disc. A dremel tool can be used to remove most of the material, and then fine-grain sandpaper to finish.

23. Once the Inserts are formed, the Disc can be placed back into the machine. Take the gear you removed earlier and hold it in place at the bottom of the bracket, with the gear teeth properly meshed with the larger gear. Slide the shaft back into the bracket, and down into the gear, all the way. Line up the holes on the end of the shaft with the holes in the gear, and replace the pin that you removed earlier. **Remember to use the same hole that you took the pin out of originally.** As before, the pin may take some effort to get back in, and you need to make sure all the holes line up while you're doing it.

24. Once the pin is in place, slide the Wrapper back on, and loop the Motor Belt around the large Pulley.

25. Take the Base, and loop the Motor Belt around the small pulley on the Motor. The Belt should be seated in the grooves on both the Large Pulley and the Small Pulley. Put the base back on. Snug down the screws, but don't tighten them. The Wrapper fits into a groove around the perimeter of the machine. You'll need to make sure the Wrapper is properly seated in the groove all the way around, before you tighten the screws. You may need to work it in a bit at a time as you tighten the screws.
26. With the base secure, turn the machine right side up. Reattach the motor cover. NOTE: For models CECR1 & CECR4, reattach the metal plate around the crimper.
27. Replace the Felt Washer and the Raking Finger with its 2 screws. Slide the Drive Star over the shaft (and the metal washer if applicable) and screw on the nut partway. Take the needle-nose pliers and hold the Star gear so that one of the points is pointing directly to the back of the machine. Tighten the Nut. When you release the pliers, the Star gear should remain oriented with 1 point pointing directly toward the back of the machine. You may need to loosen and tighten it a few times to get it right. Once tightened, flip the gear with your finger a couple times to make sure it turns properly.
28. Slide the small gear back onto the shaft and tighten the set screws. We recommend giving the first one a couple turns, and then flipping the Star gear until you see the other set screw, and giving it a couple turns, and so on until they are both firm. **DO NOT OVERTIGHTEN!** You need them firmly set, but too much may strip the threads.
29. Put the Hopper back on by sliding the right-hand side down between the Disc and the side wall, and hooking the hole in the Hopper over the pin on that side. Push the left side down as well, and tap the pin back into place. Take care as the pin starts to contact the Hopper that you get the pin into the hole. Don't tap it into the side of the Hopper. Once the pin is in place, the Hopper should slightly rotate on the pins front-to-back.
30. Replace the Coin Gauge Assembly with its 2 screws (and seat it on the pins if applicable). There is a little horn that sticks out of the front of the Hopper. This underside of the Horn will rest flat on the cam at the end of the Coin Gauge. Remember to attach the small Hopper Plate that goes under the rear screw, and the Guide Rail that goes under the Coin Gauge. The Guide Rail can be a little tricky, as you want to make sure it stays seated in the groove while you attach Coin Gauge Assembly. Tighten the front screw, but leave the rear screw slightly loose for now. Turn the Coin Gauge knob and make sure the Guide Rail moves back and forth freely.
31. Replace the screw with the spring around it. It goes through the small bracket on the Hopper, and screws into the Hopper Plate that is attached to the rear screw of the Coin Gauge. It can sometimes be difficult to hold it in place and push it down enough to get the screw to go in, so be patient. Once in, it should be screwed down all the way, but **DO NOT OVERTIGHTEN IT.** It can easily strip out. Once in place, tighten the rear screw on the Coin Gauge. Turn the Coin Gauge knob back and forth and you will see the Hopper move up and down.
32. Pick up the Meter and loosen the 2 set screws on the Meter Bevel Gear, and slide it along the shaft toward the Meter housing. Re-attach the Meter to the machine with its 4 screws. In general, simply center the Meter on the platform, and tighten the screws firmly, taking care not to overtighten them, as you may damage the Meter's base.
33. Next, you need to mesh the 2 gears. You don't want them to be very tight, or very loose. They should be close enough not to slip, yet still have just a tiny bit of play. Slide the Meter Bevel Gear toward the Drive Star Shaft Pinion Gear until they are meshed. It may be necessary to loosen and re-tighten the smaller gear again to get the mesh correct. Once you have them meshed, tighten the set screws. As before, we recommend giving the first one a couple turns, and then flipping the Star gear until you see the other set screw, and giving it a couple turns, and so on until they are both firm. **DO NOT OVERTIGHTEN!** You need them firmly set, but too much may strip the threads. Test your Gears and Meter by resetting the meter to zero, and then flipping the Star gear with your finger, while watching the gears for good mesh, and checking the Meter for proper counting.
34. Replace the Tray/Spout assembly with its 2 screws. If all went well, the machine should be ready to test. Take a few (5-10) coins of your choice and set the Coin Gauge accordingly. Run the machine to verify operation. If you have any problems, we'll be happy to help, just give us a call.