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Replacing the Disc Shaft Pinion Gear

(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.

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 Assembly 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. Carefully remove the screw and spring and set them aside. The spring can cause the screw to pop up as you unscrew it, so make sure to hold it.

5. The Coin Gauge Assembly is held on by 2 screws, one in front and one behind. 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. There may also be small pins that the Coin Gauge Assembly rests on. These may come off with the Coin Gauge Assembly or stay in their holes. Keep track of them so you can replace them later. If you don't have pins, then don't worry about it.

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, take a 3/32" punch, and tap the pin through the hole. The pin usually ends up inside the machine, and you will need to retrieve it later once the Disc is removed from the machine. Sometimes, the pin may fall out of the machine onto your work surface as you move the machine around, so keep watch for it.

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 Drive Star Pinion Gear mounted above the Star gear. Remove the Pinion 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. (Newer machines require a 3/8" wrench for the nut)

12. Locate the Raking 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 and an On/Off Plate on the outside of the Switch that holds it on. Remove the nut and 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, called the Frame Stands. 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 discard it. 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.

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. Don't forget to locate the pin you tapped out in step 8, and set it aside.

19. The new Disc Shaft Pinion Gear has two sets of pin holes. Take the new Disc Shaft Pinion Gear and compare the pin holes to the old Gear to determine which ones you should use. Take the new Disc Shaft Pinion Gear and hold it in place at the bottom of the bracket, with the teeth properly meshed with the larger gear. Slide the Disc shaft back into the bracket, and down into the gear. Make sure the Disc Shaft is seated all the way down in the bracket. Line up the holes on the end of the shaft with the holes in the gear, and install the new pin. 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. A punch tool with a large flat end works well to tap the pin in.

20. Once the pin is in place, set the machine upside down, loop the Motor Belt around the Large Pulley, and slide the Wrapper back on.

21. Take the Base and loop the Motor Belt around the small pulley on the Motor, while also sliding the Base back onto the Frame Stands. The Belt should be seated in the grooves on both the Large Pulley and the Small Pulley. 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.

22. With the base secure, turn the machine right side up. Check the tension on the Belt. If it seems too loose, you can loosen the screws the hold the motor and re-tension the Belt. You want the Belt to have about 1/4” of up-and-down play. Reattach the motor cover. NOTE: For models CECR1 & CECR4, reattach the metal plate around the crimper.

23. 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. Use needle-nose pliers to 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.

24. Slide the Drive Star Pinion Gear back onto the shaft, but don't tighten the set screws yet.

25. 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.

26. 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 Gears toward each other until you are satisfied with the mesh, then tighten the Pinion Gear's set screws. We recommend giving the first set screw a couple turns, then flipping the Star 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. Double check the Meter Bevel Gear's position and tighten its set screws the same way.

27. 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.

28. 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

29. FOR THOSE WHO HAD PINS UNDER THE COIN GAUGE: Place the pins in the holes if not already. Fit the Guide Rail under the Coin Gauge Assembly and hold it in place while you slide the Coin Gauge Assembly over the pins. There is a little horn that sticks out of the front of the Hopper. This underside of the Horn should rest flat on the cam at the end of the Coin Gauge. Install the front screw until snug, but don't tighten yet. Install the rear screw through the square end of the small plate that goes under the rear screw, and leave the rear screw slightly loose so the plate moves back and forth slightly.

30. Take the long screw with the spring around it and pass it through the bracket on the Hopper, and screw it into the round end of the plate. 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. Tighten the rear screw, and then the front screw. Go to Step 34

31. FOR THOSE WHO DID NOT HAVE PINS UNDER THE COIN GAUGE: Fit the Guide Rail under the Coin Gauge Assembly and hold it in place while you place the Coin Gauge Assembly on the Counter Top. There is a little horn that sticks out of the front of the Hopper. This underside of the Horn should rest flat on the cam at the end of the Coin Gauge. Line up the screw holes, and install the front screw until snug, but don't tighten yet. Install the rear screw through the square end of the small plate that goes under the rear screw, and leave the rear screw slightly loose so the plate moves back and forth slightly.

32. Take the long screw with the spring around it and pass it through the bracket on the Hopper, and screw it into the round end of the plate. 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.

33. The Coin Gauge will now have a little play in it, so push inward on the end of the Coin Gauge Knob, and hold it in place while you tighten the rear screw, and then the front screw.

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.