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Replacing the Disc Shaft Pinion Gear

(Manual 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. Set the Coin Selector Knob to "C". Set the Coin Gauge Knob to the Nickel 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 Hopper 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 meter 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. Turn the machine 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.

14. The base should now lift off of the machine, leaving the rectangular metal Wrapper loose.

15. Remove the Crank Handle. To do this, hold the large plastic Drive Wheel with one hand, and turn the Crank Handle counter-clockwise. You may need to tap the handle lightly with a rubber mallet to loosen it. NEVER use a metal hammer, as this may damage the Crank Handle.

16. Once the handle is removed, you have to remove the Crank Collar as well. This is held on by a cotter pin on the inside of the machine, remove the cotter pin and the Collar should unscrew and come off the machine; set them aside.

17. Unscrew and remove the three Frame Stands from the machine, and set them aside.

18. The rectangular metal Wrapper that surrounds the machine should lift off. You'll need to work it off of the end of the Crank Handle screw. Turn the machine on its end, or on its side, so that you have easy access to the Disc shaft and the Disc Bracket.

19. 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.

20. 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 Hopper Pin you tapped out in step 8, and set it aside. Discard the old Disc Shaft Pinion Gear.

21. 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.

22. Once the pin is in place, slide the Wrapper back on. As in Step 17, you'll need to work it on over the end of the Crank Handle screw.

23. Screw the Crank Collar back onto the Crank Screw. The grooves on the Crank Collar should line up with the hole in the Crank Screw. The collar should be screwed down almost but not quite touching the side of the Wrapper. Re-insert the Cotter pin, making sure to bend over the ends of the cotter pin so it stays in place.

24. 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.

25. With the base secure, turn the machine right side up. Replace the Coin Guide 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.

26. 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.

27. 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.

28. 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, and tighten the Bevel Gear's 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.

29. 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.

30. Replace the Coin Gauge Assembly with its 2 screws (and seat it on the pins if applicable). Remember to attach the small 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. Once the screws are tight, turn the Coin Gauge knob and make sure the Guide Rail moves back and forth freely.

31. 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. 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.

32. Take the screw with the spring around it, and replace it. It goes through the small bracket on the Hopper, and screws into the Hopper 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. 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.