



REBUILD INSTRUCTIONS

SELF-LOCKING MECHANISM (SLM) REBUILD KIT P/N 12-8064-03 MOTOR P/Ns 20-2703-50, -51

PURPOSE

The purpose of these instructions is to provide a step-by-step method for rebuilding the Self-Locking Mechanism (SLM) of the Group 42 motors.

Maintenance should be performed in a clean working environment. If possible, the drive should be removed from its mounting point and taken to a maintenance room or workstation.

REQUIRED TOOLS

- 1/2" socket or wrench
- 3/16" hex driver
- 5/16" socket (1/4" drive)
- Loctite® Threadlocker 222 or equivalent
- Lubriplate GR-132 or equivalent
- Feeler gauge
- Scotch™ 847 gasket adhesive or equivalent
- Torque wrenches appropriate for 10 lb-ft and 23 lb-in

WARNING

Electrical shock hazard—disconnect power before proceeding. Remove the drive from line voltage and shut off any external power sources feeding the auxiliary switches.

PROCEDURE

Remove the old motor:

1. Remove power from the drive.
2. Remove the drive from its mounting position.
3. Remove the terminal enclosure cover by loosening the (6) 5/16-18 hex head captive screws (on Option 9 drives) or the (4) 5/16-18 hex head screws from the resistor cover (Option 7, 5, or 3 drives).
4. Remove the (4) 1/4-20 hex head screws from the capacitor cover and remove the cover.
5. Remove the (4) 5/16-18 hex head screws retaining the motor and carefully pull the motor away from the drive.
6. The motor wire connections can be accessed through the capacitor cover. There are three

wires leading from the motor to connections within the drive; one black, one red, and one green. Record the connections of each of the three wires for installation purposes.

7. Disconnect the motor wires.

To disassemble and rebuild the SLM:

Refer to Figure 1 for component identification.

8. Stand the motor on end with the pinion up.
9. Loosen the 1/4-28 socket cap screw in the bearing clamp nut and unthread the nut from the end of the rotor shaft.
10. Remove the thrust bearing, pinion, spring, and the (4) steel balls from the rotor shaft. Inspect all parts and replace, if necessary.
11. Remove the (4) #10-24 x 8.5" hex head screws and carefully lift the front motor shield from the motor.
12. Remove the locking disc.
13. Remove the additional (4) steel balls from the drive collar. **The drive collar is *not* field replaceable.**

NOTE: Do not further disassemble the motor, as it has no other user serviceable parts. Further disassembly will result in demagnetization of the motor and loss of the required torque.

14. Lightly sand the friction material and then clean the friction material and locking disc flange with alcohol and a lint-free cloth.
15. Brush a thin film of Lubriplate GR-132 lubricant (or equivalent) into the ball detents (8 places).
16. Install (4) new steel balls into the detents of the drive collar.
17. Grease the inside diameter of the locking disc. Ensure the friction material and locking disc flange are not contaminated with grease, and install the locking disc.
18. Install the front motor shield.

Continued

19. Lightly coat the threads of the (4) #10-24 x 8.5" hex head screws with Loctite™ Threadlocker 222 (or equivalent).
20. Install the four cap screws and torque the screws to 23 lb-in.

CAUTION

Do not exceed the required torque on screws or damage could result.

21. Brush a thin film of the Lubriplate GR-132 lubricant (or equivalent) into the ball detents (8 places).
22. Place the remaining (4) steel balls into the detents of the locking disc.
23. Install the compression spring and motor pinion.
24. Grease the thrust bearing and assemble with the larger bearing race diameter towards the motor pinion.

Set the SLM gap:

25. With the should side towards the bearing, screw the clamp nut onto the shaft while compressing the spring as far as the locking disc and pinion allow.
26. Adjust the SLM gap by backing off the clamp nut. Holding down on the pinion, set the gap to between 0.020" and 0.030". Back the nut off sixty degrees or use a feeler gauge.
27. Tighten the clamp nut 1/4"-28 socket head cap screw to 75 lb-in torque. Ensure that the clamp nut does not rotate during the tightening process.
28. Inspect the motor gasket, terminal enclosure cover (or resistor cover), and the capacitor cover and replace them if necessary. If the gaskets are in good condition, skip to step 33.
29. Clean the mating face on the drive body to remove all gasket material and adhesive. Ensure that the mating surface is free of defects such as dents or gouges.
30. Apply a thin film of gasket adhesive (Scotch™ 847 or equivalent) to the mating face of the drive body.
31. Firmly press the new gasket into place and allow time for the adhesive to set before continuing.
32. Repeat steps 29–31 to replace any additional gaskets, if necessary.
33. Reinstall the motor wire connections on the drive. Refer to the connections recorded in Step 6.
34. Reinstall the motor. Turn the Handwheel as necessary to allow the pinion to slide into and mesh with the gearing. Be careful not to pinch the motor wires between the drive body and the motor

during installation. Screw the (4) 5/16-18 hex head screws into the mounting holes and tighten them to 10 lb-ft torque in a crosswise pattern.

35. Reinstall the capacitor cover and torque the (4) 1/4-20 hex head screws to 72 lb-in.
36. Reinstall the terminal enclosure cover on Option 9 drives, or the resistor cover on Option 7, 5 or 3 drives, and torque the 5/16-18 hex head screws to 10 lb-ft.
37. If the drive has been removed from its mounting position, remount the drive.
38. Restore power to the drive.
39. Use the Handswitch to observe the motor and drive for proper operation.
40. If the drive responds correctly, restore the drive to service.

Table 1: SLM Rebuild Kit

Part Number	Description
30-0319-36	Bearing Clamp Nut
14-9400-15	Thrust Bearing
14-9980-26	Compression Spring
14-9940-50	Motor Pinion
14-9420-03	Steel Ball (8)
14-9330-50	Locking Disc
20-0660-76	Terminal Enclosure Gasket
20-0661-35	Motor Gasket
20-0661-36	Capacitor Compartment Gasket
20-0661-37	Resistor Cover Gasket

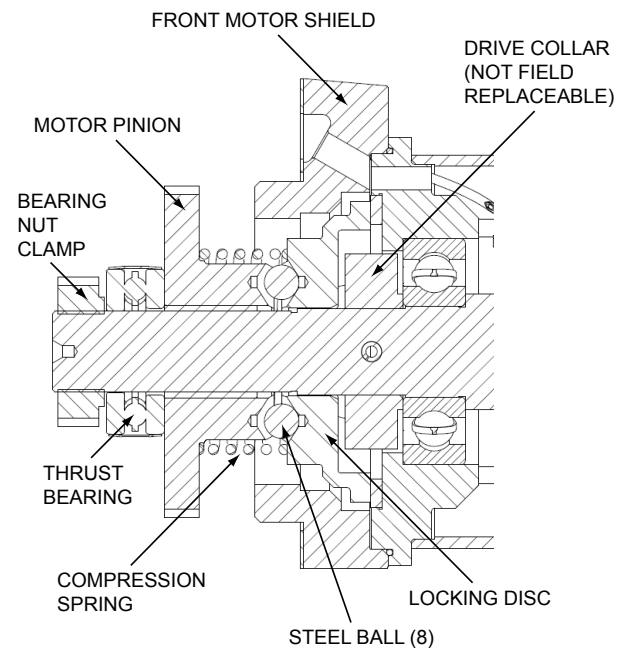


Figure 1