



REPLACEMENT INSTRUCTIONS

SELF-LOCKING MECHANISM (SLM) REBUILD KIT P/N 12-8061-69 FOR MOTOR P/Ns 20-2205-10, -12

PURPOSE

The purpose of these instructions is to provide a step-by-step method for rebuilding the Self-Locking Mechanism (SLM) of the 22-309/-409 motors utilizing rebuild kit no. 12-8061-69.

Before proceeding, determine the motor with which your actuator is equipped. This number is stamped on a tag riveted to the motor near the Handwheel.

REQUIRED TOOLS

- Hoist to lift 108 lb (49 kg) motor
- 15/16" wrench or socket
- 3/16" hex driver
- 9/64" hex driver
- Loctite® Threadlocker 222 or equivalent
- Mobilith™ SCH 007 or equivalent grease
- Feeler gauge
- Torque wrenches appropriate for:
 - 10 motor -- 19 lb-in (2 N•m), 150 lb-in (17 N•m), and 37 lb-ft (50 N•m)
 - 12 motor -- 49 lb-in (6 N•m), 150 lb-in , and 37 lb-ft (50 N•m)
- Scotch™ 847 Gasket Adhesive or equivalent
- Loctite® 454 Instant Adhesive or equivalent



WARNING
ELECTRICAL SHOCK HAZARD!
Disconnect power before proceeding.

PROCEDURE

Remove the motor:



WARNING
Secure the load on the actuator output shaft prior to removing the control motor. The actuator WILL NOT support the load once the control motor is removed.

1. Remove power from the actuator.
2. Remove and retain the cap plugs from the mounting holes (3) located in the top of the motor. Install the eyebolts (provided) in the mounting holes.

3. Support the motor's weight by suspending it from a suitable hoist using all (3) eyebolts. **Motor weight: 108 lbs (49 kg).**



CAUTION
To prevent damage to the rotor shaft, use the eyebolts supplied in the kit to support the weight of the motor while pulling it away from the actuator. Use the eyebolts to lift the motor only—do not lift the entire actuator with the eyebolts.

4. Remove the 1/2-13 hex nuts from the mounting studs and pull the motor straight out from the actuator body.

To disassemble and rebuild the SLM:

NOTE: Refer to Figure 2 for SLM part names and their location.

5. Stand the motor on end with the pinion up.
6. Loosen the 1/4-28 socket cap screw in the bearing clamp nut and unthread the nut from the end of the rotor shaft.
7. Remove the thrust bearing, pinion, spring, steel balls (12) and locking disc from the rotor shaft. Inspect all parts and replace if necessary.
8. Remove the six 8-32 x 3/4 (-12 motor) or two 8-32 x 7/8 (-10 motor) socket cap screws and lift the actuator collar from the motor.

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.

9. Remove the old friction material and clean the bonding surface. Glue the new friction material in place with Loctite® 454 Instant Adhesive or equivalent, taking care to keep the material flat and clean.

10. Lightly coat the threads of the new 8-32 x 3/4 (-12 motor) or 8-32 x 7/8 (-10 motor) socket cap screws with Loctite™ Threadlocker 222 or equivalent.
11. Install the new drive collar with the new screws and tighten the screws to 49 lb-in (6 N•m) (-12 motor) or 19 lb-in (2 N•m) (-10 motor) torque.
12. Brush a thin film of Mobilith SHC 007 grease or equivalent into the ball detents (24 places). Grease the thrust bearing and the ID of the locking disc. Ensure the friction material and locking disc flange are not contaminated with grease.
13. Place (6) steel balls in the conical drive collar detents and install the locking disc, seating the conical locking disc detents properly over the steel balls.
14. Place the remaining (6) steel balls in the conical locking disc detents, install the spring, then place the pinion over the steel balls and the spring.
15. Place the thrust bearing on the shaft with the larger ID facing the pinion.
16. With the shoulder side towards the bearing, screw the clamp nut onto the shaft while compressing the spring as far as the locking disc and pinion allow.
17. Adjust the SLM gap by backing off the clamp nut. Holding down on the pinion, the gap should be approximately 0.010 inch. Back the nut off sixty degrees or use a feeler gauge. Tighten the clamp nut 1/4-28 socket cap screw to 150 lb-in (17 N•m) torque.
18. Inspect the motor gasket and replace if necessary. If the gasket is in good condition, skip to Step 21.
19. Clean the mating face of the actuator body to remove any remaining gasket material and adhesive. Ensure that the mating surface is free of defects such as dents or gouges.
20. Apply a thin film of Scotch™ 847 Gasket Adhesive or equivalent to the body's mating face. Press the gasket firmly into place.
21. Using all (3) eyebolts, reinstall the motor. Turn the Handwheel as necessary to allow the pinion to slide into and mesh with the gearing. Screw the 1/2-13 hex nuts onto the mounting studs and tighten them to 37 lb-ft (50 N•m) torque in a crosswise pattern. Remove the eyebolts and replace the cap plugs.
22. Apply power and use the Handswitch to observe the motor and actuator for proper operation.

SLM Rebuild Kit

Description	Part Number
Friction Liner	14-9409-20
Eyebolt 5/16-18 x 1" (3)	30-0306-05
Bearing Clamp Nut	30-0319-21
Thrust Bearing	14-9400-17
Pinion	14-9944-20
Compression Spring	14-9980-27
Steel Ball (12)	14-9420-04
Locking Disc	14-9330-26
Drive Collar (-12 motor)	14-9340-22
Drive Collar (-10 motor)	14-9340-20
Screw 8-32 x 3/4 (6) (-12 motor)	30-0310-58
Screw 8-32 x 7/8 (2) (-10 motor)	30-0329-02
Motor Gasket	20-0660-90

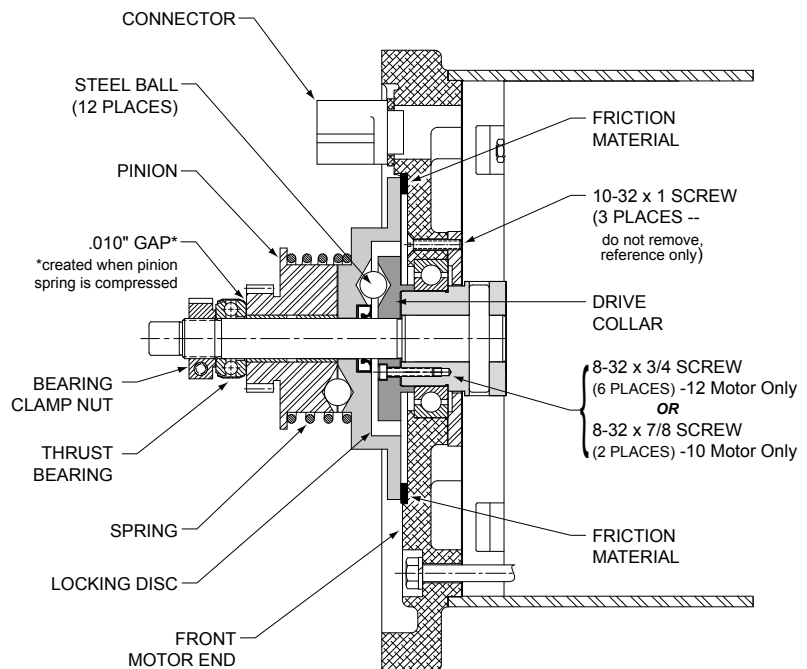


Figure 1

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