



REPLACEMENT INSTRUCTIONS

MOTOR KIT (P/N 12-8061-21) FOR MOTOR (P/N 20-2205-20)

PURPOSE

The purpose of these instructions is to provide a step-by-step method for replacing the Beck 22-809 motor utilizing replacement kit no. 12-8061-21.

NOTE: Do not disassemble the motor or Handcrank beyond what is indicated in these instructions, as they have no other user serviceable parts. Further disassembly will result in demagnetization of the motor and loss of the required torque.

REQUIRED TOOLS

The following tools are needed to install replacement kit no. 12-8061-21:

- Hoist (to lift 220 lb motor)
- 3/4" socket
- 1/4" hex driver
- 3/16" hex driver
- #2 Phillips head driver
- Loctite™ Threadlocker 242 & 222 or equivalent
- Feeler gauge .010"
- Scotch™ 847 gasket adhesive or equivalent
- Torque wrenches (appropriate for 150 lb-in and 50 lb-ft)
- Flat-tipped screwdriver

WARNING

Electrical shock hazard—disconnect power before proceeding.

PROCEDURE

Remove the old motor:

WARNING

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

1. Remove power from the drive.
2. Remove and retain the cap plugs from the holes (2) located in the top of the motor. Install the eyebolts and spacer (provided) in the holes (see Figure 1).

3. Support the motor's weight by suspending it from a suitable hoist using both eyebolts. **Motor weight: 220 lbs.**

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 drive. Use the eyebolts to lift the motor only—do not lift the entire drive with the eyebolts.

4. Remove one of the top 1/2-13 motor mounting bolts from the motor (see Figure 1), then remove the bottom opposite 1/2-13 bolt.
5. Using a flat-tipped screwdriver, install the alignment studs (provided) where the bolts were removed in step 4. This will aid in old motor removal and new motor mounting.
6. Remove the two remaining 1/2-13 motor mounting bolts and pull the motor straight out from the drive body.
7. Stand the motor on end with the pinion up.

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

8. Loosen the 1/4-28 screw in the bearing clamp nut and unthread the nut from the end of the rotor shaft.
9. Remove the thrust bearing, pinion, spring, Teflon and steel spacers, steel balls (12), locking disc, and drive collar from the rotor shaft. Inspect all parts and replace, if necessary.
10. Remove the (2) 8-32 x 3/8" and (2) 10-32 x 1/2" Phillips screws from the motor connector.
11. Remove the (6) 5/16-18 x 3" socket screws from the Handcrank housing.
12. Slide the Handcrank housing up over the rotor shaft while sliding the motor connector through the cast hole in the housing.
13. Lay the motor on its side.

14. Loosen the 5/16-18 captive hex screw in the center of the Handwheel assembly. Remove the Handwheel assembly from the old motor and install it on the new motor. Tighten the screw to 25 lb-ft torque.

NOTE: Support the Handwheel when loosening the screw; otherwise, when the screw is completely disengaged, the Handwheel may fall off the shaft.

15. Stand the new motor on end with the rotor shaft up.
16. Examine the motor gasket for damage (cuts, tears, missing sections, etc.). If the gasket is damaged, follow steps 17–19 below to replace the gasket; if the gasket does not need replacing, skip to step 20.
17. Clean the mating face of the motor to remove old gasket material and adhesive. Ensure that the mating surface is free of defects such as dents or gouges.
18. Apply a thin film of gasket adhesive (Scotch 847™ gasket adhesive or equivalent) to the motor's mating face.
19. Press the new gasket (supplied) into place. Ensure the gasket is flat against the mating surface (no bumps, bunching of the material, etc.). Allow time for the adhesive to set before continuing.
20. Replace the Handcrank housing by sliding it over the rotor shaft while sliding the motor connector through the cast hole in the housing.
21. Lightly coat the threads of the (6) 5/16-18 x 3" socket screws with the Loctite™ Threadlocker 242 (or equivalent).
22. Install the screws into the housing and tighten to 108 lb-in torque using a star pattern.
23. Inspect the motor connector mounting plate and replace, if necessary. Attach the plate to the motor connector with (2) 8-32 x 3/8" Phillips screws. Lightly coat the threads of the screws with Loctite™ Threadlocker 222 (or equivalent) and torque to 19 lb-in with a #2 Phillips screwdriver.
24. Rotate the motor connector so that the polarizing tabs are closest to the rotor shaft and attach the connector plate to the Handcrank housing with (2) 10-32 x 1/2" Phillips screws. Lightly coat the threads of the screws with Loctite™ Threadlocker 222 (or equivalent) and torque to 31 lb-in with a #2 Phillips screwdriver.
25. Lightly sand the friction material on the locking disc, then clean the friction material and driving disc flange with alcohol and a lint-free cloth.
26. Lightly coat the threads of the new 10-32 x 1 3/4 socket cap screws with Loctite™ Threadlocker 242 (or equivalent).
27. Install the drive collar and tighten the screws to 76 lb-in torque.
28. 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 driving disc flange are not contaminated with grease.
29. 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.
30. Place the remaining (6) steel balls in the conical locking disc detents. Install the teflon spacer, then the steel spacer. Install the spring, then place the pinion over the steel balls and the spring.
31. Place the thrust bearing on the shaft with the larger ID facing the pinion.
32. 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. If the pinion can rotate, the teflon spacer is pinched between the pinion and locking disc.
33. 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 fifty degrees or use a feeler gauge. Tighten the clamp nut 1/4-28 socket cap screw to 150 lb-in torque.
34. Inspect the Handcrank gasket and replace, if necessary. If the gasket is in good condition, skip Steps 35–36.
35. Clean the mating face of the drive body to remove any remaining gasket material and adhesive. Ensure that the mating surface is free of defects such as dents or gouges.
36. Apply a thin film of Scotch™ gasket adhesive or equivalent to the body's mating face. Press the gasket firmly into place and allow time for the adhesive to set before continuing.

37. Using both eyebolts and the spacer for lifting, install the new motor by aligning the motor mounting bolt holes with the corresponding installed alignment studs. Turn the Handwheel as necessary while mounting the motor to allow the pinion to slide into and mesh with the gearing.
38. Install two of the 1/2-13 motor mounting bolts into the assembly opposite the alignment studs and hand tighten to hold the motor in place.
39. Remove the two alignment studs and install the remaining two 1/2-13 motor mounting bolts and torque all four mounting bolts to 50 lb-ft in a cross-wise pattern.
40. Remove the eyebolts and spacer. Reinstall the cap plugs.
41. Apply power and use the Handswitch to operate the drive. Observe the motor and drive for proper operation.

Table 1: Motor Replacement Kit

Description	Part Number
Eyebolt 5/16-18 x 1" (2)	30-0306-05
Eyebolt Spacer	11-8510-40
Motor Assembly	20-2205-20
Motor Gasket	20-0661-20
Handcrank Gasket	20-0661-21
Socket Screw 5/16-18 x 3" (6)	30-0329-36
Socket Screw 10-32 x 1 3/4" (6)	30-0329-32
Phillips Screw 10-32 x 1/2" (2)	30-0329-45
Phillips Screw 8-32 x 3/8" (2)	30-0329-42
Motor Connector Mounting Plate	20-2224-03
Support Stud (2)	14-8415-02

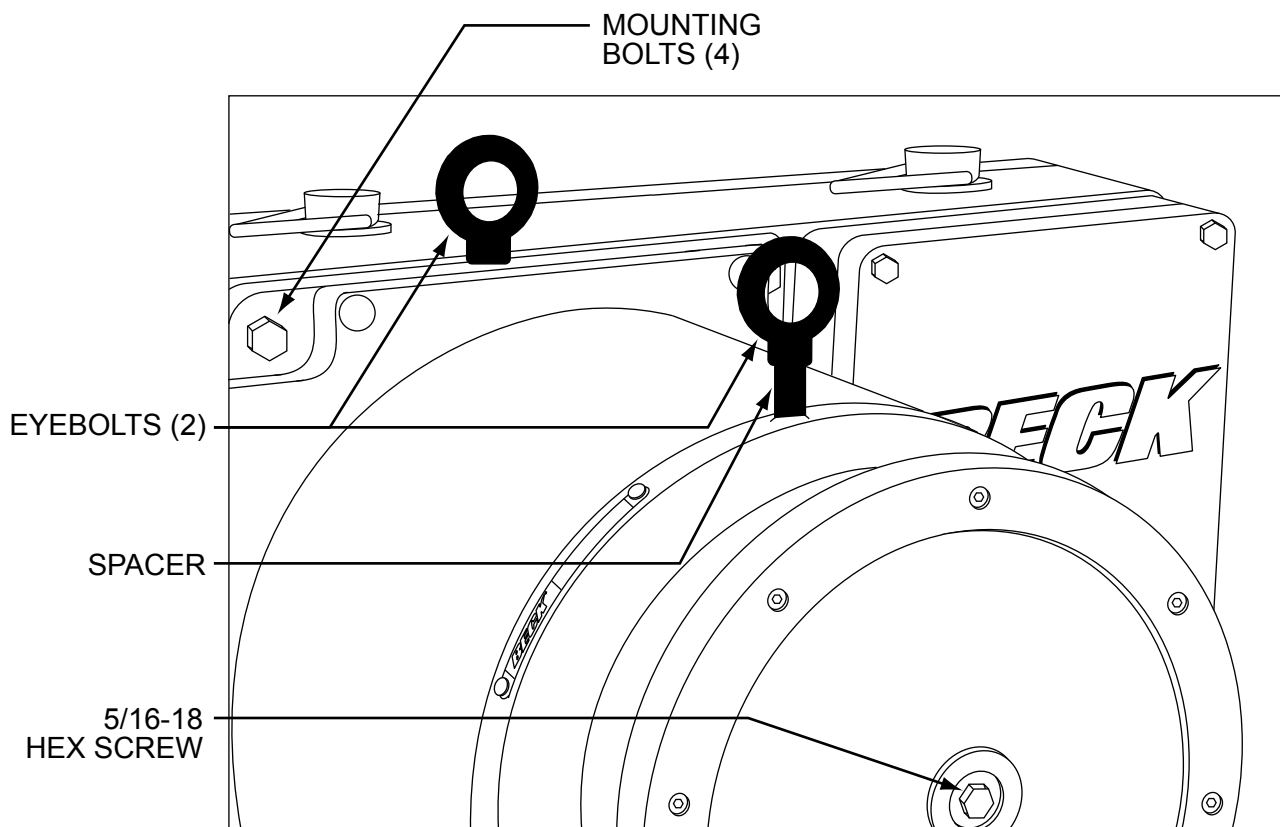


Figure 1

Use the (2) eyebolts to lift the motor only. Remove eyebolts when not servicing the drive. Do not attempt to lift the entire drive with the motor mounting eyebolts.

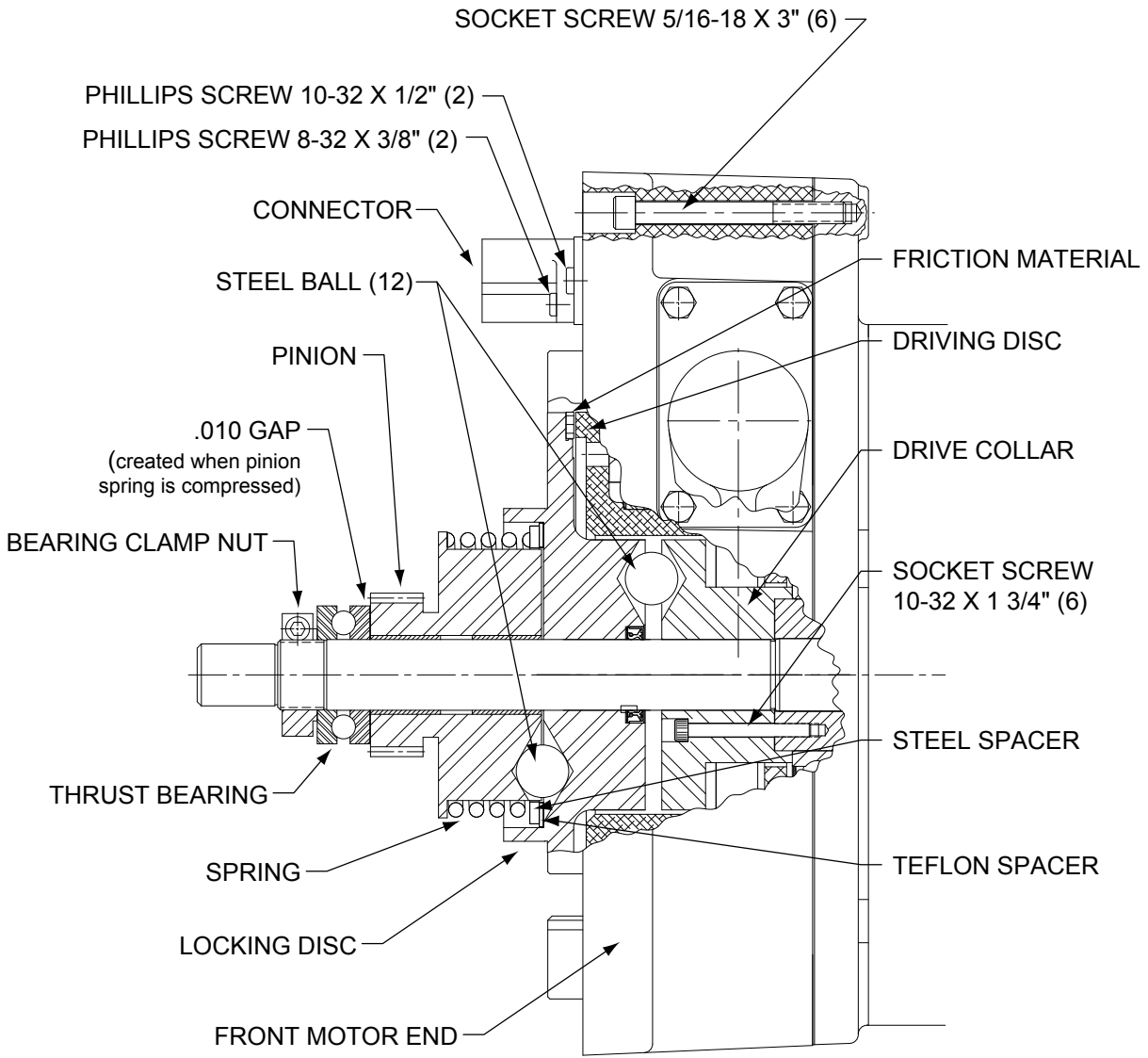


Figure 2

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