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Inspecting and Replacing Brushes in Bodine Type 24A Permanent Magnet DC (PMDC) Motors or Gearmotors

The permanent magnet DC (PMDC) motors and gearmotors manufactured by **Bodine Electric Company** are unique compared to other DC motors and gearmotors in many ways. This is because the primary objectives in the design of all Bodine products are ***long life***, ***quiet operation***, and ***no lubricant leakage***. The long life carbon brushes in your Bodine 24A motor or gearmotor are subject to routine wear and will need to be inspected and replaced periodically to provide continued optimal operation of the motor or gearmotor.

Installing bushes and springs correctly is critical. Incorrect installation can cause brushes to wear faster, or ultimately could damage the product.

By following these instructions when inspecting and replacing the brushes in a Bodine type 24A motor or gearmotor, the user can be assured of long brush life, and desired motor or gearmotor performance.

TOOLS NEEDED:



Medium size slotted tip screwdriver



Safety glasses

STEP #1 – Disconnect Power

Disconnect the motor wires from the power source before working on the motor. The motor or gearmotor should be cooled off to room temperature.

WARNING	Failure to disconnect the motor wires from the power source before inspecting or replacing brushes can result in personal injury.

STEP #2 – Remove Two Brush Caps

Refer to Figure 1 for the location of the two brush holders. The plastic brush caps are held in place with screw threads. Unscrew the brush caps as in Figure 2 using an appropriately sized slotted tip screwdriver and remove them.



Fig 1



Fig 2

CAUTION	The brush caps are made of plastic and are installed tightly. Using too small a screwdriver to remove them could damage the slot.

STEP #3 – Remove Brushes and Springs

After the brush caps are removed from each side of the motor, the brush springs will be plainly visible as in Figure 3. Simply grasp the spring and pull the brush and spring out of the motor. The spring will be attached to brush as seen in Figures 4 and 5.



Fig 3



Fig 4

STEP #4 – Inspect Brushes

Brush wear rate can vary, depending on the application duty cycle, load, speed and ambient environment. The brushes should be inspected at frequent intervals to determine an appropriate inspection schedule. Brushes should be replaced before the total length is less than **.125 inch (3.2 mm)**. See Figure 5.

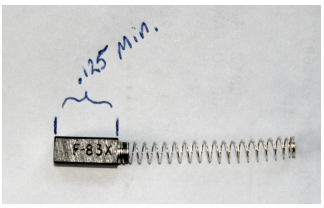


Fig 5

Repeat the inspection procedure for the other brush. If new brushes are required, record the motor type and serial number from the motor nameplate. Contact your supplier, any Authorized Bodine Distributor, or our Service Department. You will find more information on how to contact us on Bodine Electric's website at: **www.bodine-electric.com**

STEP #5 – Clean Out Brush Dust

Excessive carbon dust will accumulate inside the motor endshield over time and should be removed periodically to allow normal operation. Partial disassembly and cleaning is best. However, carefully applying compressed air alternately through each of the open brush cap holes may provide adequate cleaning. Do not use solvents as they may damage non-metallic parts and adversely affect subsequent brush commutation.

STEP #6 – Install New Brushes

Insert the new brush and spring into the brush holder as in Figure 6. Position the brush cap on the exposed end of the spring, fitting the spring end into the recess on the brush cap. Gently and carefully compress the brush spring beneath the brush cap. Screw the cap into place and tighten with screwdriver, Figure 7.



Fig 6



Fig 7

STEP #7 – Connect to Power

Reconnect the drive to the power source, and test for proper operation. New brushes may be seated by running the motor or gearmotor in at no load. Proper seating is required for lowest brush noise level.

All information and data contained in this document are subject to change without notice. Please contact our Technical Support staff in Chicago, or an Authorized Bodine Service Center, if you have any questions about these instructions.

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