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# INSTALLATION & MAINTENANCE MANUAL

# B5 BRAKE

**CAUTION:** This product contains rotating parts which could cause injury at time of installation. Appropriate protective guards should be installed by the user according to his use of this product.



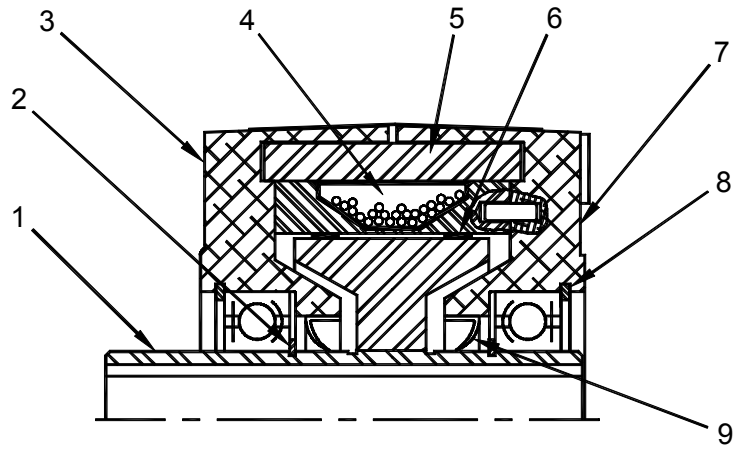
Periodically there will be updates to this manual. The latest version is available at www.magpowr.com or by calling 1-800-MAGPOWR (624-7697).

## THEORY OF OPERATION

The brake consists of a stator, rotor, coil, stator ring, shaft, magnetic powder and bearings which support and align the rotor in the stator.

The magnetic powder occupies the space between the rotor and the coil. This magnetic powder is the key element in the brake in that it functions as the variable bond or link between the rotor and the stationary coil. The coil is secured to the stator and the stator is connected to ground (machine frame) through a torque arm.

A current in the coil creates a magnetic field (flux) which passes through the rotor, the coil housing, and the magnetic powder. The flux aligns the powder forming links or bonds between the rotor and the coil. The degree of bond action is directly proportional to the amount of current in the coil.




## PARTS LIST

| | | | |
|---|---|---|---|
| 1 | Rotor | 6 | Magnetic Powder |
| 2 | Inner Snap Rings (2) | 7 | Right Stator |
| 3 | Left Stator | 8 | Outer Snap Rings (2) |
| 4 | Coil | 9 | Seals (2) |
| 5 | Stator Ring | | |

## MECHANICAL INSTALLATION

Install the brake as follows:

1. Refer to catalog sheet for mounting dimensions.
2. Prior to installation, check the rotation by hand and observe that it is smooth and free of binding or scraping.
3. The rotor shaft centerline must be mounted within 30° of the horizontal plane.
4. Mount the brake on the shaft and tighten the two set screws.
5. Attach a torque arm to the tapped holes and the machine frame with a “loose” or “floating” mount to prevent binding forces on the brake bearings.

## ELECTRICAL INSTALLATION

1. Connect the two wires in the junction box to the 90 vdc power source.
2. For fan cooled brakes, connect the fan to the AC input and provide protective circuitry that will ensure the fan is on while the brake is in operation.
3. Refer to catalog sheet for electrical specifications.

## MAINTENANCE

Due to its small number of moving components and it’s basic design, maintenance of the brake is generally necessary only after extended service. Once a system problem is determined and the brake is found to be the cause, disassembly of the brake and replacement of the Repair Kit parts will generally recondition the brake to the “as new” condition.

When a problem appears in the system, ensure that all couplings, belts, etc., are functioning properly. In addition, check that the electrical system is working properly and that any control device is functioning as indicated by a voltmeter applied across the dc power supply output. When it is determined that the brake is at fault, it will be necessary to overhaul the brake. Prior to overhaul, troubleshoot the brake per the following instructions and be sure that a repair parts kit is available.

**NOTE:** When ordering parts not contained in the kit, provide the model number, serial number and parts list item number.

Fan lubrication instructions are on the fan nameplate.

## TROUBLESHOOTING

Use the troubleshooting chart as a guide for solving system and brake problems.

| PROBLEM | POSSIBLE CAUSE | ACTION |
|---|---|---|
| Load is not controlled by brake. | Power supply voltage output low. | Replace or repair control. |
| | Magnetic powder has deteriorated or is partially lost. | Overhaul brake using repair kit. |
| | Coil is open. | Replace coil. |
| Load operates in an intermittent manner with proper 90vdc. | Coil is intermittently open. | Replace coil. |
| Brake is noisy and has some vibration. | Bearings are worn. | Overhaul brake using repair kit. |

**DISASSEMBLY**

1. Remove set screws from shaft.
2. Remove conduit box cover and four through bolts.
3. Remove snap rings and shims. Observe location and number of shims on right stator. These must be replaced in same position at assembly.
4. Remove right stator and bearing by tapping lightly on shaft with a soft mallet. The inner snap ring will prevent the seal from coming off with the right stator.
5. Lift out coil and stator ring. (Do not remove stator ring from coil unless coil is to be replaced. Coil can only be pressed out in direction of lead slot).
6. Remove rotor assembly from left stator by tapping lightly on shaft with a soft mallet.
7. Remove inner snap rings and seals from the shaft.
8. Remove bearings from left and right stator by tapping out with a soft mallet.
9. Clean gasket compound from sides of coil and insides of stator halves. Do not immerse coil in solvent.

**RE-ASSEMBLY**

**IMPORTANT:** Re-assembly of the brake must be performed in a clean area. The brake components must be cleaned with solvent and be totally free of any grease or oil. Discard all bearings, seals, and magnetic powder from disassembled brake as these are kit parts and will be replaced at overhaul. Any oil or grease on parts will cause failure when the unit is rebuilt.

1. Press new seals into left and right stator with seal lips facing to the inside of the brake.
2. Support rotor on bench with the set-screw end up. Wrap a 6" x 6" piece of paper or thin plastic around the shaft to allow seal to slide over the snap ring groove.
3. Slide left stator and seal down over the shaft until it bottoms; then pull the paper tube out from under the seal lip.
4. Install inner snap ring, then slide bearing over shaft into the housing bore with the seal facing down. Install outer snap ring. Now turn this assembly over.
5. If coil and stator ring are separated, heat stator ring in oven or with torch until hot to the touch, then slide coil into place from side with slot. Center coil in ring.
6. Set coil assembly into the stator ring, aligning the leads with the groove.
7. Install right stator frame and seal assembly using paper tube as in Step 3. (Align pin in stator with hole in coil.)
8. Install inner snap ring, bearing, shims and outer snap ring.
9. Install four through bolts and nuts, and junction box cover.
10. Turn shaft by hand to insure a smooth rotation of rotating assembly.
11. To fill the brake with magnetic powder, perform the fill operation on a clean piece of paper. Any spillage is retained to be poured into the brake. Place the brake on a 45 degree angle with the powder fill hole at the 3 o'clock position. Fill the brake with all the powder in the repair parts kit. While filling, slowly rotate the shaft to evenly distribute the powder. Install the sealing washer and powder fill screw.
12. Replace the two set screws.