

50MT™ BRUSH PLATE & BRUSH SERVICE KIT REPLACEMENT AND DUST CLEANING

These instructions include thorough brush dust cleaning procedures.

NOTE: It is beneficial and possibly necessary to obtain the commutator end (CE) service package, for reassembly of the brushes. It is preferable to use new, undamaged parts.

WARNING!!! ALWAYS USE PROPER EYE PROTECTION WHEN PERFORMING ANY MECHANICAL REPAIRS TO A VEHICLE – INCLUDING, BUT NOT LIMITED TO, ANY INSTALLATION AND OR REPAIRS TO THE DELCO REMY STARTING MOTORS. FAILURE TO USE PROPER EYE PROTECTION CAN LEAD TO SERIOUS AND PERMANENT EYE DAMAGE.

Only perform the mechanical functions that you are properly qualified to perform. Mechanical repairs that are beyond your technical capabilities should be handled by a professional installation specialist.

FOLLOW ENGINE AND/OR VEHICLE MANUFACTURER'S INSTRUCTIONS CAREFULLY WHEN REMOVING AND INSTALLING THE STARTER.

DISASSEMBLY PROCEDURES FOR REPLACING BRUSH/BRUSH PLATE SERVICE KIT

DANGER!!! ALWAYS DISCONNECT BATTERY GROUND BEFORE REMOVING OR REPLACING CABLES AT THE STARTER. FAILURE TO DISCONNECT THE BATTERY GROUND CABLE CAN LEAD TO SERIOUS INJURY.

1. Remove vehicle leads connected to the starter, noting their positions for reinstallation of starter, and remove starter.
2. Remove the solenoid lead from the ground stud in the CE housing, noting position of the ground stud or mark the CE housing & frame for reassembly.
3. Remove the six (6) CE screws.
4. Remove the 3 plugs from the frame to allow removing the three (3) field leads to positive brushes attaching screws for 12V, 24V & 32V models or two (2) field leads to positive brushes attaching screws for 64V models.
5. Remove the CE housing and armature assembly as a unit. It's best to remove them together to keep the brushes contained.
6. If only replacing the brushes, remove the remaining brush screws and contain in that position with the brush springs to release the armature. Go to step 5 in reassembly procedures.
7. From the insulated/ground terminal, carefully noting orientation for reassembly, remove all remaining hardware. Check the condition of insulators and sealing features and consider replacing them if they are damaged or excessively worn.
8. Remove the three (3) brush plate to CE housing attaching screws and remove brush plate.

BRUSH DUST CLEANING PROCEDURES (See graphics, page 2)

1. It is strongly recommended that the brush plate assembly and CE frame be separated for a thorough cleaning, being very careful not to damage the aramid paper (white) insulator or grommet for the insulated/ground terminal.
2. **Note: Do not use air pressure to remove dust from inside the frame.**
3. Using a low pressure source of air, blow the brush dust out of the CE frame and the brush assembly. It may be necessary to use a screw driver or similar device to remove all of the carbon (hardened brush dust).
4. It may also be necessary to scrape the hardened dust from the four recessed holes that are on the back side of the brush holder assembly. These recessed holes are for the threaded ends of the ground brush holders.
5. Thoroughly examine the brush plate for chunks of hardened brush dust that could become grounded and carefully remove. The fiber insulators at the base of the insulated brush holders is an area that may need some cleaning. Remove the hardened brush dust all around the outside edge of these insulators.
6. Any cleaning inside the frame should be done with a nylon brush or cloth.

REASSEMBLY PROCEDURES FOR BRUSH/BRUSH-PLATE SERVICE KIT

1. Place the insulator paper in between brush-plate assembly and the CE housing.
2. Place the two (2) insulator washers and rubber bushing on the ground stud at the brush-plate.
3. Attach the brush-plate assembly to the insulator paper on the CE with the three (3) attaching screws. Torque the screws to **1.92-3.95 Nm (17-35 lb in)**.
4. Place the plastic insulator, flat washer, lock-washer and nut on the ground stud. Torque the nut to **27.12 Nm (240 lb in)**.
5. Replace the brushes and contain them in the upward position with the brush springs. Place the armature inside the brush holder cavity and release the brushes onto it. If only replacing the brushes, another option is to replace the brushes one at a

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time on the brush plate and CE assembly by pulling the spring to allow them to get into the holder, assuring the same position as removed and the armature is in place. Torque the brush screws to **2.26-4.52 Nm (20-40 lb in)** for punched holes or **3.62-5.20 Nm (32-46 lb in)** for extruded holes.

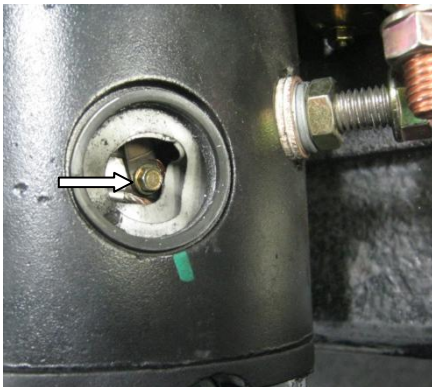
6. Apply bearing type grease onto CE housing's outer diameter where the o'ring is seated and apply a small amount of SAE20 oil into the bushing area.
7. Install the CE housing, brush-plate and armature on the starter with the screws, assuring the same position as removed.
8. Attach the three (3) field leads to positive brushes with attaching screws for 12V, 24V & 32V models or two (2) field leads to positive brushes with attaching screws for 64V models over the plug holes. Torque screws to **2.26-4.52 Nm (20-40 lb in)** for punched holes or **3.62-5.20 Nm (32-46 lb in)** for extruded holes.
9. Install the three (3) plugs to the frame and torque to **8.13 Nm (72 lb in)**.

NOTICE! After repair and reassembly it is necessary, before installation on the engine, to check and adjust pinion clearance. It is recommended the solenoid replacement instruction sheet, 10500262, be obtained from our website, www.delcoremy.com.

10. Reinstall starter and connect cables and other leads, as removed.
11. Reconnect the negative (-) cable at the battery.

50MT 64VOLT GRAPHICS: Refer back to the "disassembly and brush cleaning procedures on page one (1) for assistance.

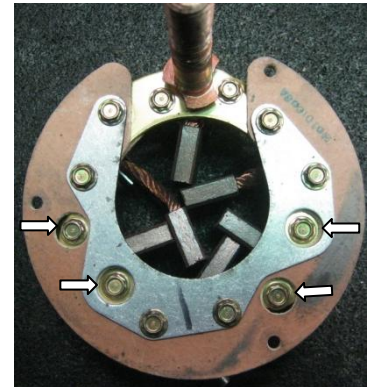
Note: Cleaning procedures, page 1, should be reviewed along with the graphics for clarity.



One of three (3) positive Brush access holes



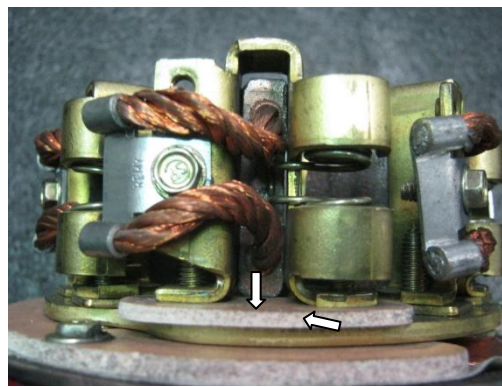
Remove armature to clean brush dust from frame with a nylon brush



Scrape hardened brush dust from recessed screws in the brush plate



Remove three (3) screws to separate brush holder assembly from the CE frame



Scrape hardened chunks of brush dust from the positive brush insulators



Scrape hardened brush dust from inside the CE frame, but do not scrape through the black CE frame paint coating the frame

Technical support: USA 800 854 0076, Mexico 01 800 000 7378, Brazil 0800 703 3526, South America 55 11 2106 6510 or visit delcoremy.com

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