VOLTAGE 12 ROTATION CCWDE BRUSHES 4 POLES 4

DIAMETER 4-1/2"

LUBRICATION Soak absorbent bronze bearings and felt oiling pad in SAE 20 oil. Allow oil to drain thoroughly before assembly.

Lubricate armature shaft with light film of grease before installing drive assembly.

BRUSH REPLACEMENT Replace brushes when they have worn to a length of 1/4" or less.

SPRING TENSION 32 to 40 ounces with new brushes. Measure with a spring scale hooked under the brush spring at the brush. Pull the scale on a line opposite the line of force exerted by the brush spring and take the reading just as the spring leaves the brush.

END PLAY Adjust to .060" with thrust washers at commutator end. See Parts & Equipment List for thrust washer package.

POLE SHOE INSTALLATION

If field coils are replaced, install pole shoes so that the long tip is pointing in the same direction as armature rotation.

TEST SPECIFICATIONS (77°F/25°C)

	Terminal Voltage	Maximum Amperes	RPM	Torque Ft. Lbs.
No Load Test	10.0	47	6,000	- 0 -
Stall Torque Test	4.0	325	- 0 -	9.0

Unit	*Pinion Position	Special Notes
MHN-4101UT	4-59/64" - 5-3/32"	Notes 1, 2

* Measure from face of mounting flange to outside edge of pinion in "at rest" position.

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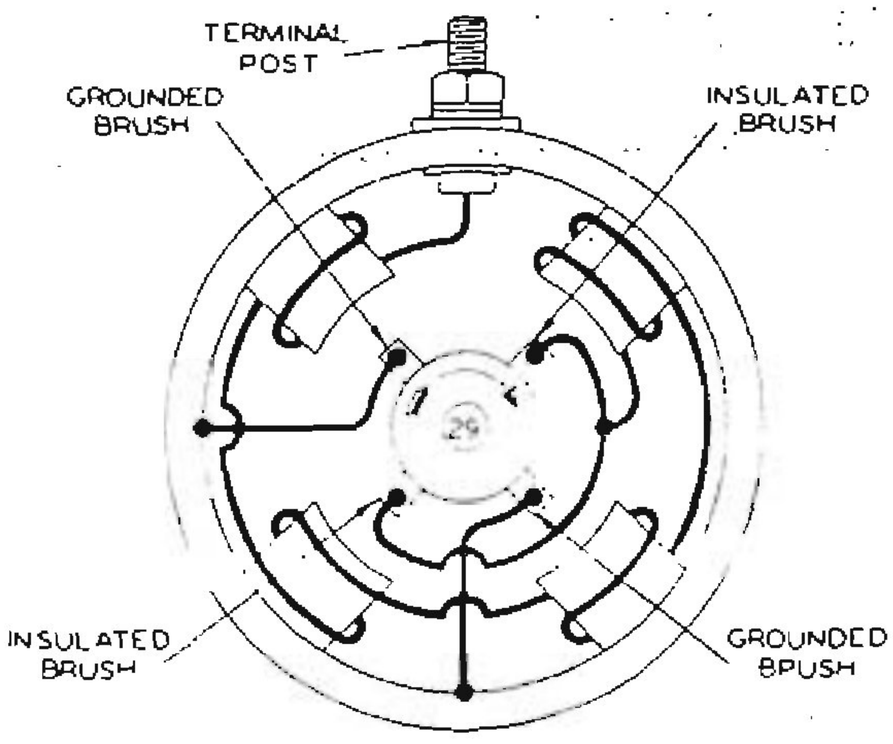
NOTE 1 - After inspection of various parts, paint terminal stud and brush holder insulation with red glyptol. Cover glypton and all metal surfaces with an air-drying, fungus-resistant insulating varnish. Allow varnish to soak into field coils and armature windings. Drain and dry thoroughly before assembling the motor.

NOTE 2 - Bearing in drive end must be flush with armature side of bearing bore.



VIEWED FROM COMMUTATOR END

VOLTAGE 12 ROTATION CCWDE BRUSHES 4 POLES 4

VENTILATED No FRAME DIAMETER 4-1/2"

BEARINGS

Absorbent bronze bearing used at commutator end. Sealed ball bearing used at drive end.

LUBRICATION

Soak absorbent bronze bearing and felt oiling pad with SAE 20 oil. Allow excess oil to drain out before assembling end head on motor. Ball bearing is prelubricated and sealed. No additional lubrication required.

BRUSH REPLACEMENT

The brushes must be replaced when they have worn to a length of - See Tabulation.

SPRING TENSION

32 to 40 ounces with new brushes. Measure with a spring scale hooked under the brush spring at the brush. Pull the scale on a line opposite the line of force exerted by the brush spring and take the reading just as the spring leaves the brush.

POLE SHOE INSTALLATION

When replacing field coils, install the pole shoes so that the long edge is pointing in the same direction as the armature rotation.

END PLAY

Adjust to .005" minimum with thrust washers at C.E. bearing. On the 4005, maintain a dimension of .427" to .463" from the drive end mounting face to the end of the armature shaft. Refer to Parts & Equipment List for thrust washer package.

TEST SPECIFICATIONS ($77^{o}F/25^{o}C$)

	Terminal Voltage	Maximum Amperes	RPM	Torque Ft. Lbs.
No Load Test	10	47	6000	- 0 -
Stall Torque Test	4	325	- 0 -	9.0

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Unit	Internal Wiring	Brush Replacement	Special Instructions
MHN-4001	Figure 1	Replace at 1/4" or less	
MHN-4002	Figure 2	Replace at 1/4" or less	
MHN-4005	Figure 1	Replace at 5/16" or less	
MHN-4006	Figure 1	Replace at 1/4" or less	See Note

*Note - MHN-4006 contains a thermal protector not illustrated in wiring diagram.

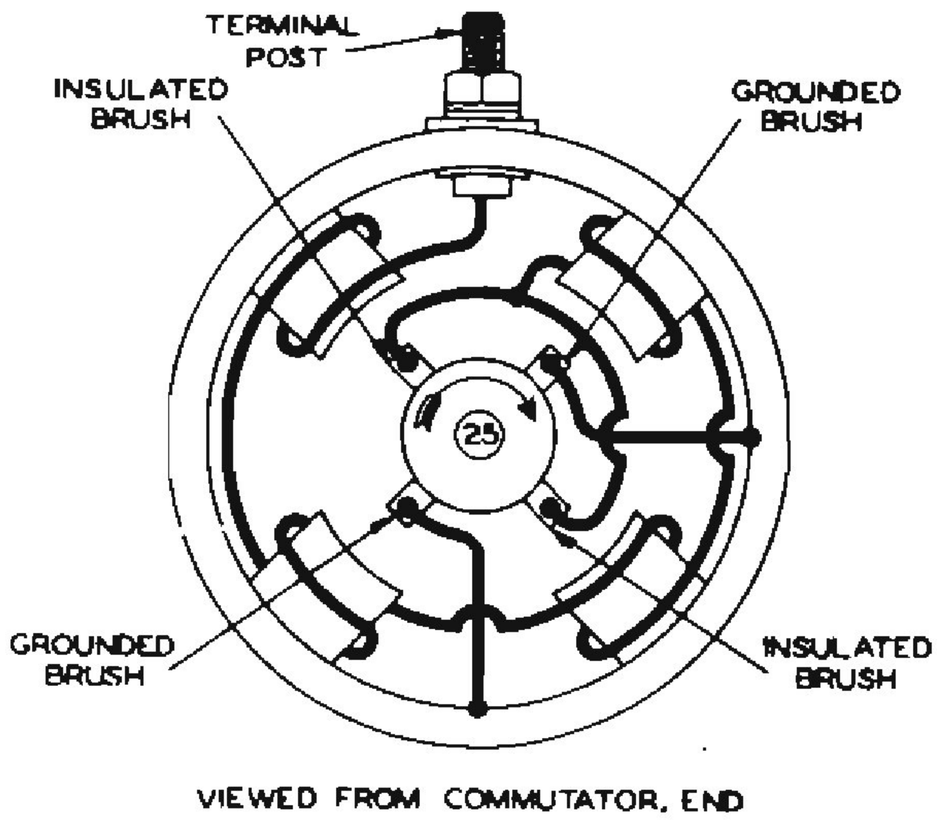

Figure 1

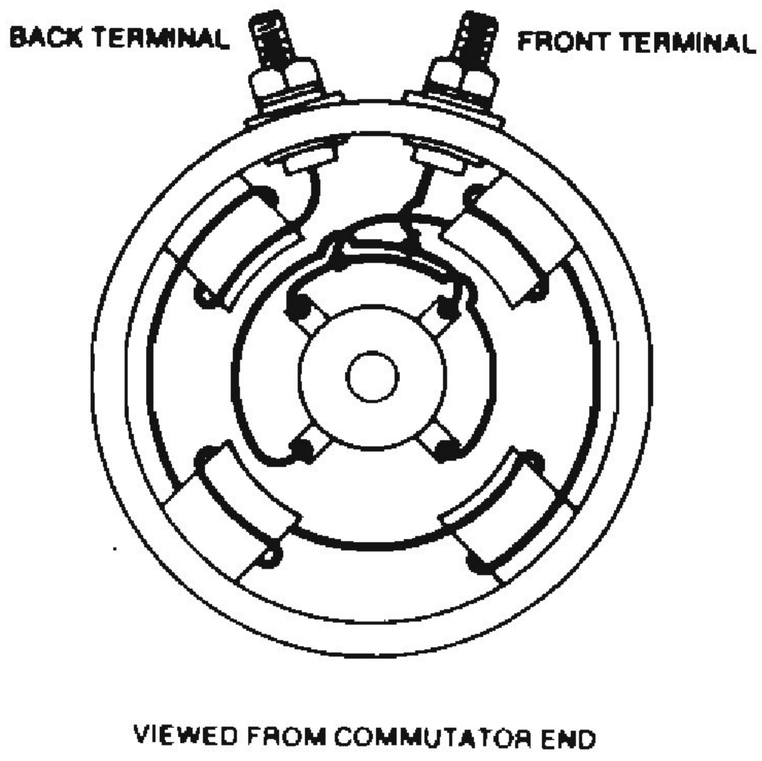

Figure 2