VOLTS 24 ROTATION See Tabulation BRUSHES 4 POLES 4

DIAMETER 4"

LUBRICATION Soak absorbent bronze bearings in SAE 20 oil before assembly. Saturate the felt oiling pad in the commutator end head with SAE 20 oil. Allow excess oil to drain out before installing end head on motor. Lubricate the clutch shifting pins, fork shoes, armature shaft and splines with a film of light grease. MBP-4012T, 4018T and 4019T use a spring steel thrust washer between 2 flat steel thrust washers on the armature side of the intermediate bearing. Lubricate the contact side of the flat washers with a film of light grease.

BRUSH REPLACEMENT — Replace brushes when they have worn to a length of 5/16" or less.

BRUSH SPRING TENSION — 42 to 53 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.

BRUSH REPLACEMENT — The brushes must be replaced when they have worn down to a length of 1/4" or less.

TRANSMISSION — Bendix Drive on all except MBP-4007T, 4015T and 4013T. These three units use an overrunning clutch drive.

COMMUTATOR — Minimum diameter 1.500". Replace armature when commutator has worn to this dimension.

CLUTCH ADJUSTMENT — MBP-4007T. With the pinion in full mesh position, controlled by the shift lever, a distance of 1-1/8" from the face of the mounting flange to the outside edge of the pinion should be maintained. Adjust by turning the switch plunger in or out as required.
MBP-4015T. With the solenoid energized and the pinion pushed toward the commutator end, a clearance of 3/32" +1/32"-1/64 should be maintained between the pinion and the pinion stop. Adjust by turning the link screw in or out as required.
MBP-4013T. With the solenoid energized and the pinion pushed toward the commutator end, a clearance of 5/64" to 1/8" should be maintained between the pinion and pinion stop. Adjust with link screw.

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SERVICE
INFORMATION

END PLAY — .005" to .30" on over running clutch motors, .06" maximum on Bendix Drive motors. Adjust with thrust washers. Refer to Parts & Equipment List for thrust washer package.

TEST SPECIFICATIONS

No Load Test

*MBP-4015T	20.0 volts, 26.0 maximum amperes, 4500 minimum RPM.
**All Others	10.0 volts, 10.0 maximum amperes, 2700 minimum RPM.
Stall Torque (All)	9.0 volts, 110 maximum amperes, 6 minimum Ft. Lbs.

*Includes solenoid shunt winding current draw.
**Test at 10 volt to avoid excessive free running RPM.

Unit	Rotation	Pinion Positions+	Internal Wiring	Special Instructions
MBP-4007T	CWDE	45/64" to 55/64"	Fig. 1	Notes 1, 2
MBP-4008T	CCWDE	3/16" to 7/32"	Fig. 2	Notes 1, 2, 3
MBP-4009T	CCWDE	1-3/4" to 1-7/8"	Fig. 3	Notes 1, 2, 3
MBP-4012T	CCWDE	5/32" to 3/16"	Fig. 2	Notes 1, 2, 4
MBP-4013T	CCWDE	1-11/32" to 1-1/2"	Fig. 2	Notes 1, 2
MBP-4014T	CCWDE	1-7/32" to 1-11/32"	Fig. 2	Notes 1, 2, 3
MBP-4015T	CWDE	45/64" to 55/64"	Fig. 1	Notes 1, 2
MBP-4016T	CCWDE	3/16" to 7/32"	Fig. 2	Notes 1, 2, 3
MBP-4017T	CCWDE	1-7/32" to 1-3/8"	Fig. 2	Notes 1, 2, 3
MBP-4018T	CCWDE	3/16" to 11/32"	Fig. 2	Notes 1, 2, 4
MBP-4019T	CCWDE	3/16" to 11/32"	Fig. 2	Notes 1, 2, 4

+ This dimension is measured from the face of the mounting flange to the outside edge of the pinion while in the "At Rest" or "Retracted" position. Adjust with thrust washers. Refer to Parts & Equipment List thrust washer package.

Note 1 - After inspection of the various parts, paint terminal studs and brush holder insulation with red glyptol. Cover glyptol and all metal surfaces except pilots, head seats, threads, commutator and ring surfaces with air-drying, fungus-resistance insulating varnish. Allow varnish to soak into field coils and armature windings. Drain and dry thoroughly before assembling motor.

Note 2 - The intermediate bearing must be flush with the bearing bore on the side toward the armature.

Note 3 - The outer pinion housing bearing must be flush with the bearing bore on the inside of the housing.

Note 4 - The pinion housing bearing must be positioned so that when the oil seal is installed it will be flush with the bearing bore on the inside of the housing. Be sure to install the dust cap in the outside end of the housing.

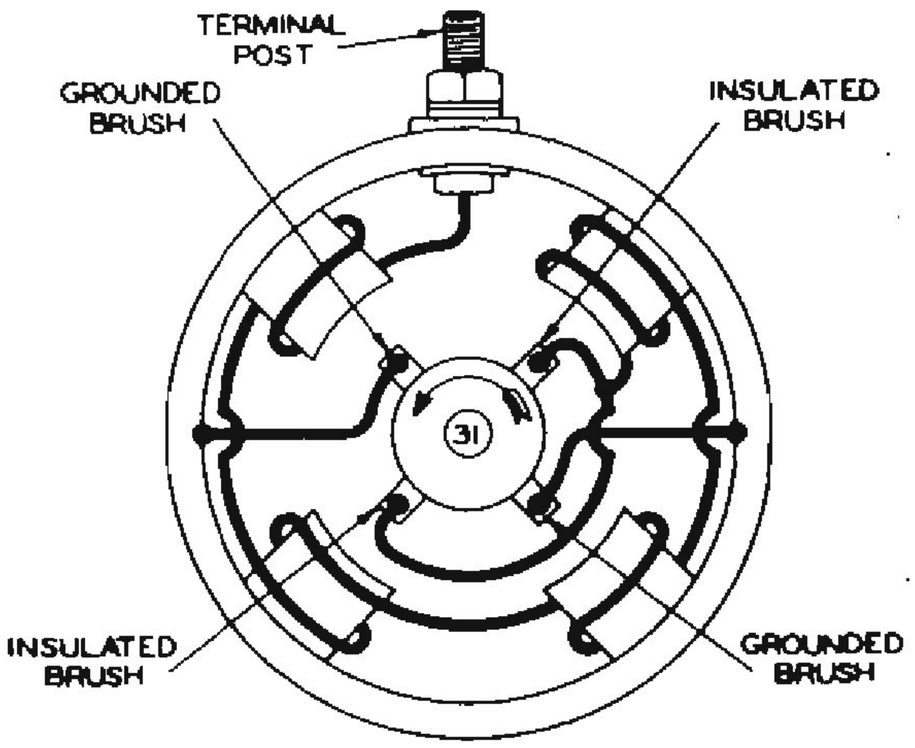


Figure 1

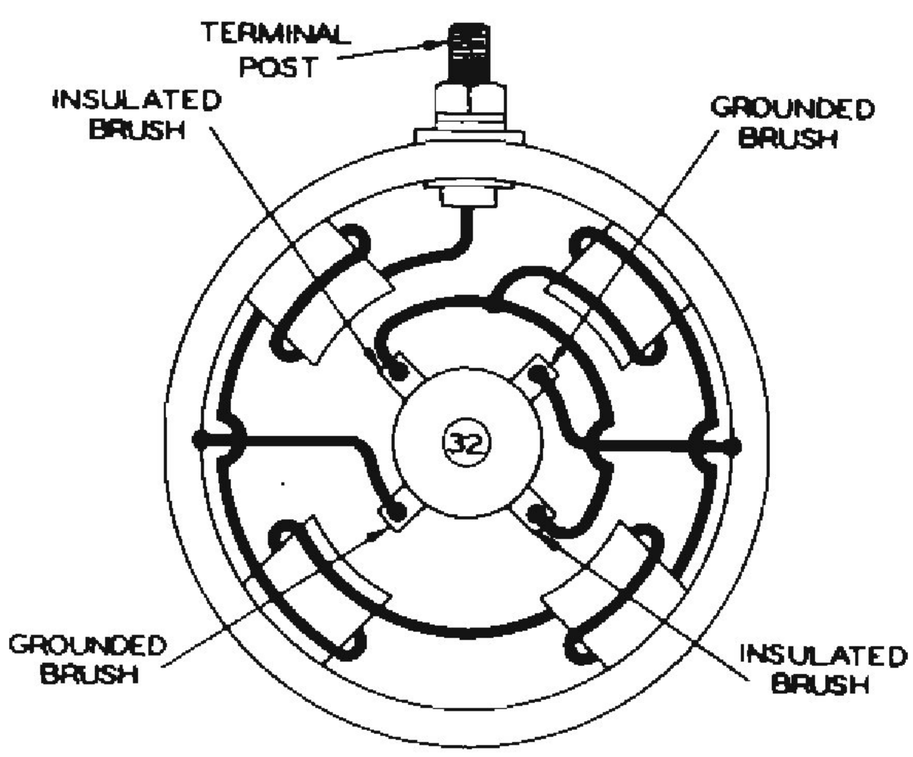


Figure 2

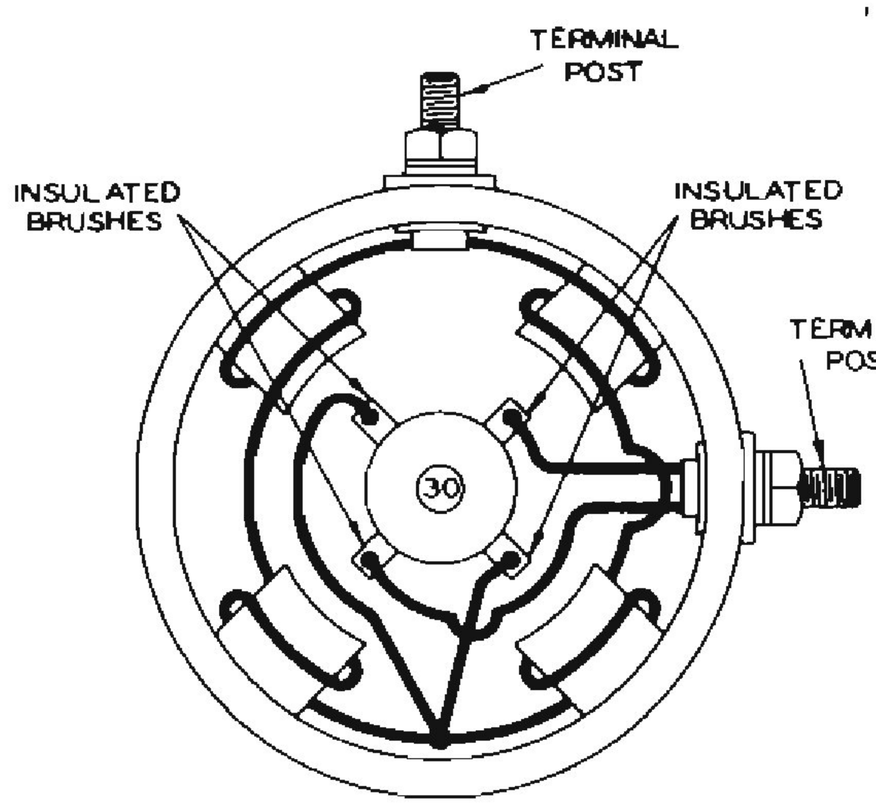


Figure 3