BENCH TEST

Light running

Secure the starter motor in a vice. Connect it in series with an ammeter and shunt of appropriate range, a starter switch and a fully charged 12 volt battery.

Use heavy duty starter motor cable to avoid excessive resistance, and bolt the earth cable to a starter fixing lug.

Operate the starter switch and note the ammeter reading when the motor is running at a steady, high speed. Compare the readings with those given in "General Data." If there is appreciable variation the starter motor should be dismantled and examined in detail.

If the speed is low and the current consumption is high, check the field winding insulation.

Lock torque test

If lock torque and current consumption do not conform with the figures given in "General Data" the starter motor should be dismantled and examined in detail.

If the torque is low and the current consumption is high, check the field winding insulation.

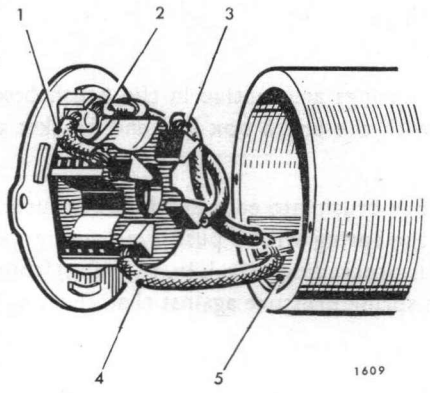
Commutator end bracket and brush gear inspection

The brushes, brush box, brush springs and commutator can be inspected by removing the commutator end bracket.

Remove the two screws securing the commutator end bracket and pull it gently away from the yoke. Disengage the field winding brushes from the brush box and completely remove the bracket. Remove the thrust washer.

Each brush should be free to move in the moulded brush box. Sticking brushes can usually be freed by cleaning the brushes and the moulding with a petrol moistened cloth.

Refer to "General Data" for the minimum serviceable length of the brushes. When worn to or approaching this length the brushes must be renewed as a set.



1. SHORT BRUSH-FLEXIBLE, END BRACKET
2. LONG BRUSH-FLEXIBLE, END BRACKET
3. LONG BRUSH-FLEXIBLE, FIELD WINDING
4. SHORT BRUSH-FLEXIBLE, FIELD WINDING
5. YOKE INSULATION PIECE

Fig. 55. *Brush gear arrangement*

Commutator end bracket brushes—to renew

Note the position of the long and short flexible leads.

Cut each brush flexible lead at the terminal post.

Use a file or hacksaw and make a groove in the head of the terminal deep enough to take the new flexible leads.

Solder the new leads into the groove.

Field winding brushes—to renew

Note the position of the long and short flexible leads.

Cut each brush flexible lead about $\frac{1}{4}$ in. (7 mm.) from the field winding joint.

Solder the new long and short flexible leads onto the correct cut ends. Ensure that the insulating sleeve provides adequate protection against short circuits when the motor is assembled and that the yoke insulation is in place.