Do not remove any more metal than is necessary. Finally polish with very fine glass paper

The insulators between the commutator segments MUST NOT BE UNDERCUT.

Armature

1. Check for lifting commutator segments and loose turns in the armature winding. These may be due to the starter motor having remained engaged while the engine is running, thus causing the armature to be rotated at excessive speed.

   A damaged armature must always be renewed—no attempt should be made to machine the armature core or to true a distorted armature shaft. An indication of a bent shaft or a loose pole shoe may be given by scored armature laminations.

2. An armature can be tested for open circuits, short circuits, and earthed circuits, by following the procedure described in earlier paragraphs for the generator.

Field coils

Continuity test (See Fig. 17)

1. Connect a battery and light bulb in series with two pointed probes.

2. If the lamp fails to light in the following test, an open circuit in the field coils is indicated and the defective coils must be renewed.

3. When the probes are placed on the brush tappings, the bulb should light.

4. Lighting of the lamp does not necessarily indicate that the field lighting coils are in order. It is possible that a field coil may be earthed to a pole shoe or to the yoke.

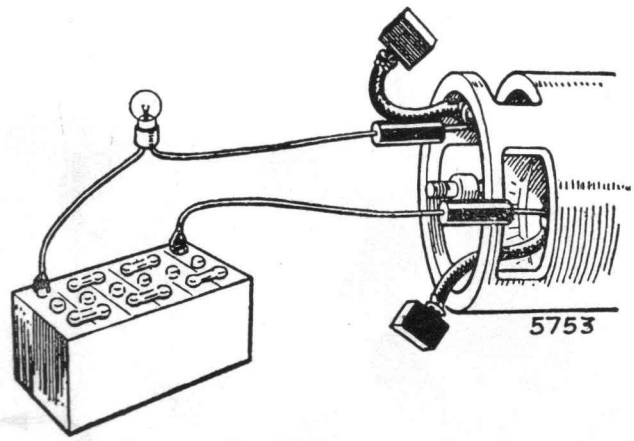

Fig. 17. *Checking field coils for open circuit*

Insulation tests (See Fig. 18)

1. Connect an ohm meter or a 110-volt A.C. test lamp between the terminal post and a clean part of the yoke. Lighting of the test lamp or a low ohmic reading indicates that the field coils are earthed to the yoke and must be renewed.

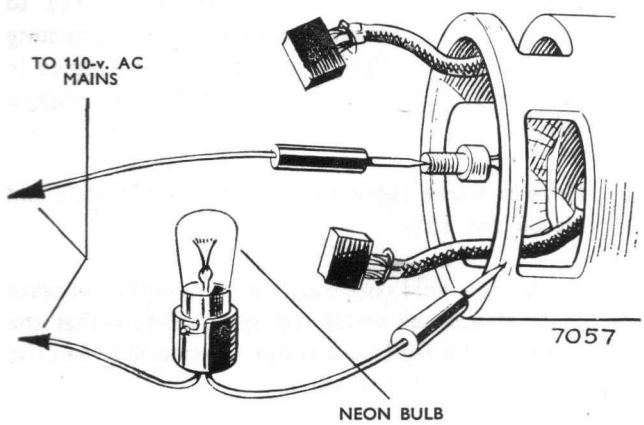

Fig. 18. *Field coil insulation test*

2. Again using the 110-v. test lamp, check the soundness of the insulation on the two insulated brush boxes. (See Fig. 19.)

3. Wipe clear from the boxes all dust and dirt before testing in this fashion.