

Starter

Job No.

15—0

The two types of starter used in the vehicle are:

- Bosch, Type EED 0,8 / 12 R 30 for left-hand drive models and
- Bosch, Type EED 0,8 / 12 R 32 for right-hand drive models.

These types are fitted with an electromagnetic meshing device; they have a rated output of 0.8 PS, a rated voltage of 12 v, and an armature housing diameter of 90 mm. The starter current flows via the contacts of the solenoid switch, so that only the control current flows via the starter switch on the instrument panel and through the windings of the solenoid switch.

The electric starter is, in principle, a series-wound motor fitted with a drive pinion and a meshing device. The series-wound motor develops the torque necessary to overcome inertia, to accelerate the mechanism and overcome the resistance of the first compression stroke. It then turns the engine at the necessary crankshaft speed until the engine starts. In order to develop the necessary torque to crank the engine, while still keeping the size of both battery and starter within reasonable limits, the starter is fitted with a small drive pinion which engages with the starter ring gear fixed to the engine flywheel. Owing to the high tooth ratio existing between the starter ring gear and the drive pinion, the pinion must not remain constantly engaged with the ring gear, as this would cause both pinion and starter armature to revolve at speeds beyond the permitted limits. It is therefore necessary, once the engine has started, to arrange for this positive coupling between starter armature and engine flywheel to be automatically released. This is done by arranging for the pinion meshing not to be rigid but to be coupled to the armature shaft via a roller bearing free-wheel coupling, and this free-wheel coupling releases the force-lock existing until then as soon as the pinion has ceased actually to drive the flywheel.

The starter leads must be of specified quality and section and must make good contact in order to avoid voltage drop and power-absorbing transient resistances. The voltage drop must not be more than 4 % of the rated voltage, i. e. it must not exceed 0.5 v.

If faults should develop in the starter, the cause may lie not in the starter itself but in the battery, the switches, leads, connections or in a defective ground lead.

Removal and Installation of Starter

Job No.

15—1

Removal:

1. Open the hood and disconnect the ground lead at the negative terminal of the battery.
2. Take off the control cable (2) of the solenoid switch, terminal 50, after removing the slotted screw (see Fig. 15—1/2).
3. Remove battery cable 30 and cable 51 (charging cable from generator to battery)

at the contact terminal (2) of the solenoid switch by unscrewing the hexagon nut (Fig. 15—1/1).

The rubber cover cap must be pushed back beforehand.

4. Unscrew the nuts of the fixing screws (5) for the starter. Remove the ground cable (3) of the battery and the ground cable (4) to the front panel.