

## FIAT

### Spider 2000, 2000 Turbo

**NOTE:** Fiat X1/9 models use a Bosch starter.

### DESCRIPTION

Fiat starter is a 12-volt, brush-type, 4-pole unit with its field windings in series.

An integral solenoid is mounted on the starter housing, causing the starter pinion to engage the flywheel ring gear when the starter is energized. An overrunning clutch pinion drive is mounted directly on the drive end of the armature shaft.

### APPLICATION

Model	Fiat No.
Spider 2000 & 2000 Turbo .....	E 100-1.3/12

### TESTING

#### PERFORMANCE TESTS

1) Mount starter in test stand, and perform running test, no load test, and stall (lock) test. Starter should develop 31.7-35.1 INCH lbs. (3.6-4.0 N.m) torque while drawing 280 amps. and 9.5 volts at 1500-1700 RPM.

2) At 12 volts and 28 amps, under no load conditions, armature speed should be 4700-5700 RPM.

3) Stall torque test should produce 143-159 INCH. lbs. (16.15-18.05 N.m) torque at 12 volts and 28 or less amps.

### OVERHAUL

#### DISASSEMBLY

1) With metal band (dust cover) removed from commutator end frame, disconnect solenoid terminal lead. Remove nuts from solenoid mounting bolts. Remove solenoid. Remove nuts from through bolts. Slide off end frame, while holding brushes off of commutator.

2) Remove pinion end frame, while disengaging shifter fork from overrunning clutch. If pinion drive assembly is to be removed, slide stop ring back, and remove lock ring from armature shaft. Remove overrunning clutch/pinion drive assembly.

#### CLEANING

Use dry compressed air to blow dirt and worn brush dust from starter. Do not immerse starter components in solvent. Use brush, dipped in cleaning solvent, to clean drive unit. Blow dry with air.

#### PARTS REPLACEMENT

1) To replace field coils, mount starter frame in press-type screwdriver stand. Remove pole piece attaching screws. Remove pole pieces and field coils.

2) Heat replacement field coils to about 138°F (59°C) in order to obtain added flexibility and to ease in installation. Install pole shoes, and tighten screws.

3) Inner diameter of pole shoes should be 2.675-2.677" (67.95-68.00 mm) to assure proper air gap between armature and shoes.

### REASSEMBLY

Lubricate inner splined face of drive assembly with SAE 10 motor oil before installing drive on armature shaft. Reverse disassembly procedure to complete overhaul.

**Fig. 1: Disassembled View of Fiat Starter Motor**

