

STARTERS – Removal, Repair and Replacement

REMOVING - FIG. 7

1. Disconnect Battery
2. Remove Oil Filter (1)
3. Raise R.H. Rear of Vehicle
4. Remove the Three Bolts (2)
5. Tilt the Starter (3)
6. Disconnect the Wires
7. Remove Starter (3)
8. Remove Cover (4)

REFITTING - FIGS. 7 & 8

SPECIAL POINTS

1. Locate the Cover on the Clutch (5)
2. Reverse the Removal Procedure for Refitting

Lubricate the bearings sparingly with oil and the spiral splines of the armature shaft with Mobil 22 Anderol 761 grease.

DISMANTLING THE STARTER - FIG. 9

Having removed the starter from vehicle:

1. Remove the nut (1) and washer (2) which secures the Solenoid Terminal.
2. Remove the nuts (3) and washers (4) which secures the Solenoid to the starter.

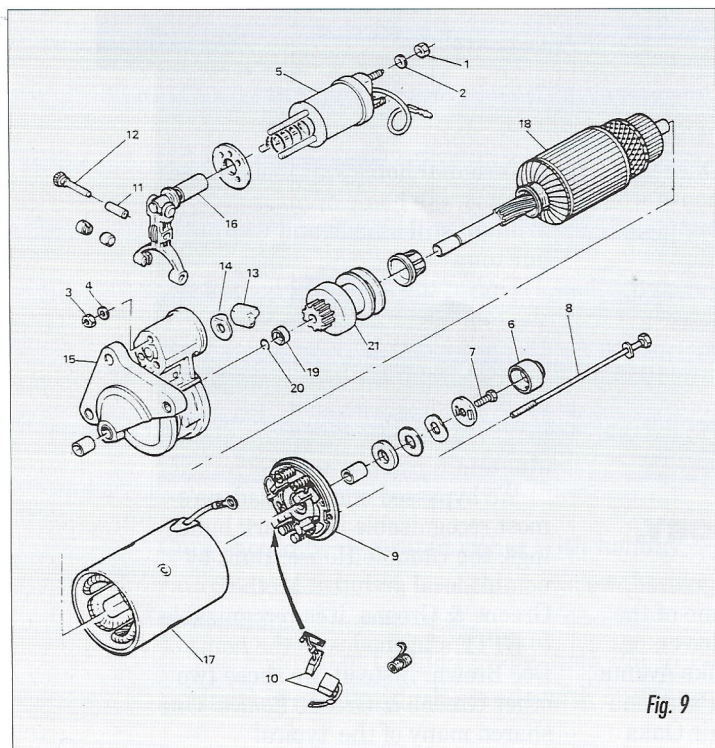


Fig. 9

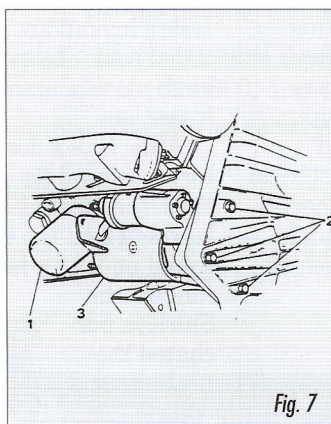


Fig. 7

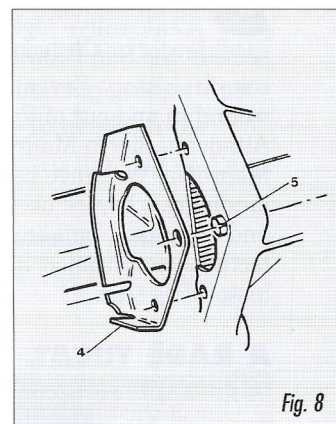


Fig. 8

3. Withdraw Solenoid (5) from Fixing Bracket (15).
4. Remove the Bearing Bosch Cap (6) off the End Plate (9).
5. Undo Screw (7) at the end of the Shaft with an impact driver in direction of rotation of the Armature.
6. Remove the Long Bolts (8).
7. Pull back End Plate (9).
8. Raise the Brushes (10) with a Hooked Tool.
9. Remove End Plate (9).
10. Remove the Cylindrical Pin (11) and Plastic Sleeve (12) which are between the Pivot Arm (16) and Fixing Bracket (15).
11. Remove Rubber Grommet (13) and Washer (14) from Fixing Bracket (15).
12. Withdraw the Pivot Arm (16), Fixing Bracket (15) and Field Coil Assembly (17) from Armature (28).

REMOVING THE ROLLER CLUTCH ASSEMBLY - FIG. 9

Removal of the Roller Clutch Assembly necessitates the withdrawal of the Collar (19). A tube of appropriate diameter may be used to drive this down the shaft.

1. Remove the Spring Ring (20).
2. Remove Collar (19) and Roller Clutch Assembly (21).

ADJUSTING THE SOLENOID - STARTER DRIVE FORK - FIG. 10 & 11

1. Activate the solenoid as shown.
2. Check in this position that clearance (A) between the pinion and stop is 1.5 mm (.059"). Fig. 11
3. Turn the fork eccentric pivot pin to adjust if necessary.

**REPAIR AND
REPLACEMENT**

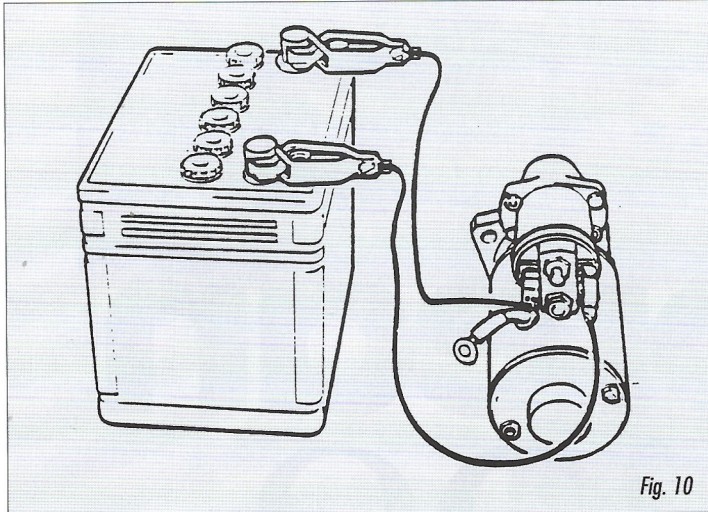


Fig. 10

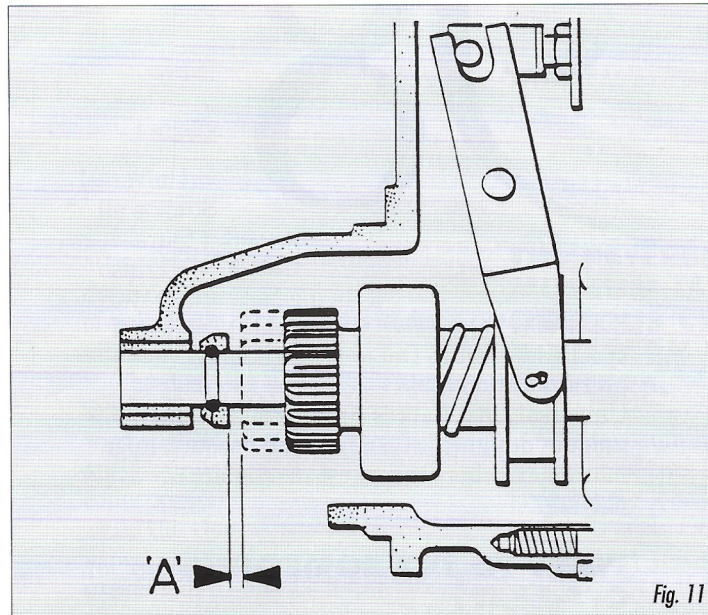


Fig. 11

FAULT DIAGNOSIS

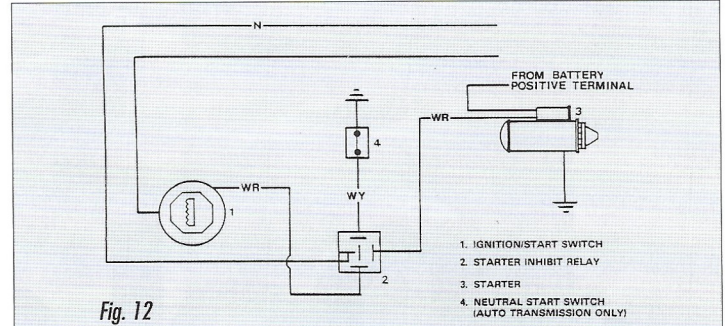
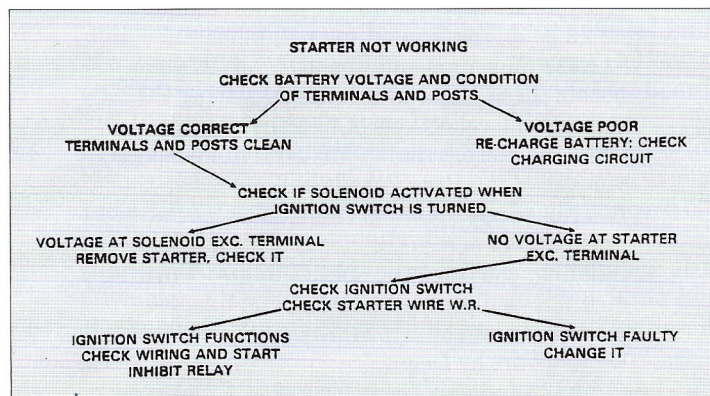


Fig. 12

STARTER SOLENOID

Inrush Current	:50 – 60 amps
Holding Current	: 8 – 10 amps
Pull in Voltage	: 8
Voltage Supply	:12

STARTER

Type	:Paris-Rhone D10E59
Battery Rates Voltage	:12 Volts
Locked Torque	:28 Nm (20.6 ft./lb.)
Current Draw	:540 amps
Voltage	:7 Volts
Maximum Output	:130 KW
Voltage	:9.4 Volts
Current Draw	:260 amps
Torque	:10 Nm (7.40 ft./lb.) 1300 rpm
Minimum No Load	:4000 rpm
Voltage	:11.5 Volts
Maximum Current Draw	:60 amps
Mounting on Motor	:By Flange (3 Holes)
Clockwise Running	:(pinion side)
Number of Teeth	:9
Diametral Pitch	:2.116/1.814
Spring Tension	
on New Brushes	:About 15.5 Newtons (3.3 lbs.) ±10%

FROM BATTERY POSITIVE TERMINAL

1. Ignition/Start Switch
2. Starter Inhibit Relay
3. Starter
4. Neutral Start Switch (Auto Transmission Only)

CIRCUIT OPERATION

On turning the ignition key (1) to the starting position, current flows through the start inhibit relay (2) and on to ground via the transmission wiring harness completing the circuit to the Solenoid (3). When the vehicle is equipped with an automatic transmission, the neutral start switch (4) must be in the "neutral" or "park" position to complete the circuit.

The Solenoid has a two-fold function, that of a relay and drive. When the Solenoid is activated, it establishes contact between positive cable from the battery and starter. 