BOSCH

Volkswagen

DESCRIPTION

Bosch generators are two-pole, two-brush, shunt wound type. The field windings are wired in parallel with the armature windings and the unit is internally grounded.

APPLICATION

Application	Bosch No.
The Thing	0 101 302 111

TESTING

CAUTION — New or rebuilt generators must be polarized when installed, before running engine. See Polarizing Generator in this article.

Run generator as a motor for a short period. The mechanical connection between the test bench driving motor and generator must be disconnected. Connect lead from positive battery post to terminal D+ on generator. The generator must rotate in its normal direction (thus being polarized at same time).

NO-LOAD SPEED AT RATED VOLTAGE

Connect voltmeter across terminal D+ and ground, or D− if it is an insulated return system. Increase speed gradually. At no-load speed and at rated voltage (see specifications), generator voltage should be achieved (cold).

LOAD SETTING

Load setting corresponds to ⅔ maximum current. For this test, the bench test load resistor should be increased until load current is achieved; read the corresponding speed and compare with test specification. If the prescribed values are not achieved, check the various components of generator. See *Overhaul*.

OVERHAUL

DISASSEMBLY

NOTE — Due to various generator designs, the procedure for overhaul is a general outline rather than specific instructions for each type.

1) Remove commutator cover band and remove brushes from their holders. Remove positive brush holder screw (if equipped).

2) Remove both through bolts and carefully tap drive end frame, releasing it together with attached armature and pulley. Remove pulley retaining nut and pulley. Pull drive end frame with ball bearing off armature shaft.

3) Remove rear drive end bearing retaining screws and remove rear bearing with spacer rings and cover plate.

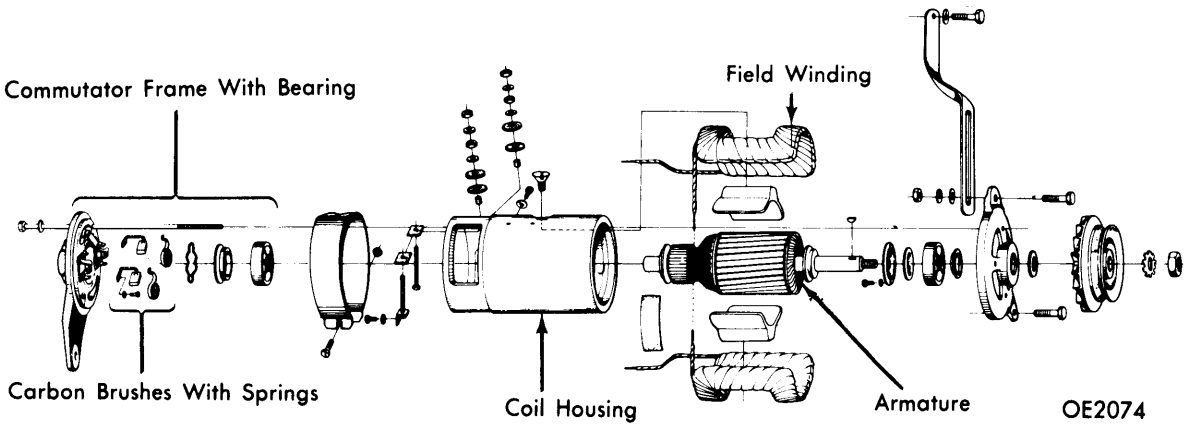
4) Clean all parts thoroughly with solvent and blow dry with compressed air. The armature windings and field cores should be blown clean and not washed with solvent.

PARTS REPLACEMENT & TESTING

Armature — Test for shorts between windings on a growler. Check armature for grounding using a test lamp. Check for open circuit on growler. Maximum commutator out-of-round must not exceed .015" and commutator mica must be undercut at least .012" throughout its entire length and width. Turn commutator with suitable lathe if necessary, and clean with a dry rag. Ensure that mica segments are clear of chips or foreign material. *NOTE — Do not use cloths soaked in oil, gasoline or solvents of any kind.*

Field Coils — Check field coils for ground using a test lamp. Check field coil winding resistance using an ohmmeter. If not within specifications, replace field coils as follows:

Mark location of pole shoes to avoid incorrect installation. Unsolder both winding ends from terminals. Unscrew pole shoe screws and remove pole shoes and windings. Install new windings on pole shoes. Align pole shoes carefully prior to final tightening of pole shoe screws. Solder red marked winding end to D− terminal and blue marked winding end to DF terminal.



BOSCH GENERATOR (TYPICAL)

BOSCH (Cont.)

Brushes & Springs – Check brush spring tension using a suitable spring scale. Spring tension should be 14-21 ozs. If not within specifications, replace springs. Check brushes for excessive wear and replace as necessary.

Bearings – Inspect end frame bearings for wear and roughness. Replace bearings as necessary. Lubricate end frame bearings with suitable high temperature grease.

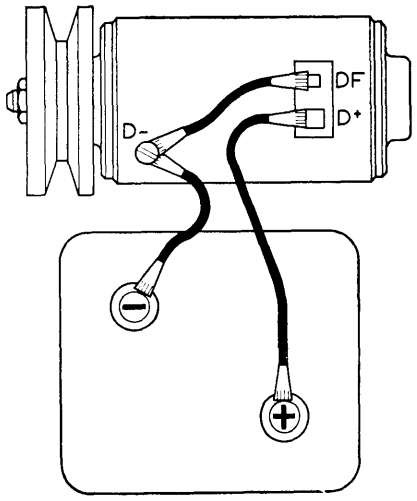
REASSEMBLY

To reassemble, reverse disassembly procedure. Test generator on test stand, if available. If test stand not available, install generator on vehicle, polarize generator and test.

POLARIZING GENERATOR

When installing a new or rebuilt generator or after overhaul of a unit, it must be polarized prior to starting the engine. This is done by letting the generator run briefly as a motor to give pole shoes the necessary residual magnetism of the correct polarity for excitation. Polarize the generator using one of the following methods (with fan belt removed): **1)** Connect lead from negative battery post to D– terminal on generator (see illustration). Momentarily contact lead from positive battery post to D+ terminal on generator. Generator is now polarized and ready for testing.

2) With regulator connected to generator, momentarily contact lead from positive battery post to D+ terminal on regulator. *NOTE – Never polarize by connecting B+ terminal on regulator to D+ terminal on regulator as damage may result to regulator and generator.* Generator is now polarized and ready for testing.



OE2073

POLARIZING GENERATOR

BOSCH GENERATOR SPECIFICATIONS

Bosch Part No.	Rating	No Load RPM For Voltage Rating	Output Test		Load Setting Amps.	Field Winding Ohms+10%
			Cold RPM	Hot RPM		
0 101 302 111	14V30A20	1450	1900	2100	20	3.5