

BOSCH

APPLICATION (Cont.)

Alfa Romeo (1963-68)
 BMW (1963-67)
 Mercedes Benz (1963-67)
 Opel (1966-70)
 Porsche (1963-69)
 Renault (1963-67)
 Saab (1965-66)
 Volkswagen (1963-73)
 Volvo (1963-68)

Model	Part No.
Porsche	
356 (1963-65)	0 101 206 029
912 (1966-69)	0 101 302 067 or 0 101 206 113
Renault	
R-1094 (1963-66)	② LJ/GG 240/12/2400
R-1095, R-1130 (1963-67)	② LJ/GG 240/12/2400
R-1131 (1963-65)	② LJ/GG 240/12/2400
R-1132 (1965-66)	② LJ/GG 240/12/2400
R-1133 (1965-67)	② LJ/GG 240/12/2400
Saab	
All Models (1965-66)	0 101 206 099
Volkswagen	
Type 1	
1963-64	101 212 001 or 101 212 004
1965-66	③ 101 212 066
1967-68	101 302 067 or 101 302 068
	101 302 075
1969-71	101 302 086
1972	101 302 118
1973	
Except "The Thing"	101 302 117
"The Thing"	101 302 111
Type 2	
1963-65	101 212 001 or 101 212 004
1965	101 206 044 or 101 206 067
1966	101 302 061
1967-68	101 302 067 or 101 302 069
1969	101 302 083
1970-71	101 302 083 or 101 302 089
Type 3	
1966	101 206 044
1967-68	101 302 069
1969	101 302 089
1970-71	101 302 090
1972	101 302 114
1973	101 302 113
Volvo	
544 (1963-66)	0 101 302 028
122S (1967-68)	0 101 302 028

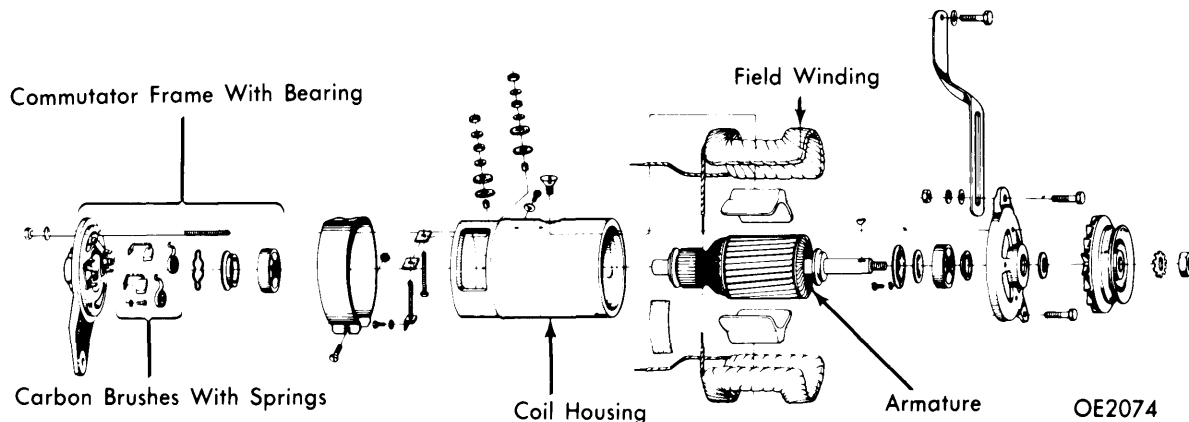
DESCRIPTION

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

Model	Part No.
Alfa Romeo	
Giulia 1600 (1963-68)	
Ti, Sprint, Spider	② LJ/GEG 200/12/27 R. 32 mr
All Others	② EG (R) 14V 25A 29
BMW	
1500, 1600, 1800 (1963-65)	0 101 206 060
1800 ti (1963-66)	① 0 120 400 523
1600, 1602 (Before 8/67)	0 101 206 096
Mercedes Benz	
190C, 190DC (1963-65)	0 101 302 023 or 0 101 402 071
220B, 220SB (1963-65)	0 101 302 023
220SEB (1963-65)	② G1 14V 30A 25
300SE (1963-65)	② K(R) 14V 38A 15
300SEB (1965-67)	② K(R) 14V 38A 15
300SEL (1966-67)	② K(R) 14V 50A 16
Opel	
All Models	
1100 Engine (1966-70)	0 101 206 120
1500 Engine (1968-70)	0 101 206 150

- ① - Part number is an alternator and is used with a generator regulator, part number 0 190 350 044.
- ② - Type number.
- ③ - Karmann Ghia uses generator part number 101 302 061.



BOSCH GENERATOR (TYPICAL)

BOSCH (Cont.)

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 $\frac{2}{3}$ 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.

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.

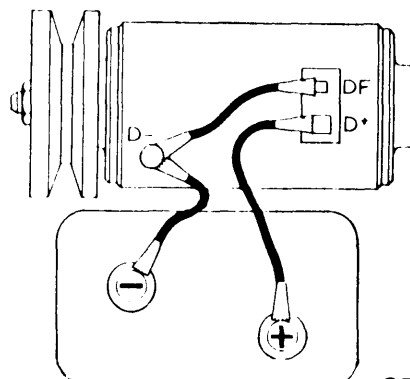
REASSEMBLY

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

Generators

BOSCH (Cont.)

EARLY BOSCH GENERATOR SPECIFICATIONS								
Former Designation	Type Incription Abbrev. Type Symbol	Rating	RPM Specifications for			Load Setting		Field Winding Ohms + 10%
			Rated Voltage at No-load RPM	Output Test cold RPM hot RPM		Amps.	Watts	
LJ/GE(M) LJ/GEF (M) LJ/GEG(M), (S) LJ/GEH RED REE LJ/RED LJ/REF LJ/REG LJ/REH	E	160/6/2500 7V 40 A 26	1450	2450	2600	.....	160	1.2
		180/6/2300	1500	2200	2300	.....	180	1.0
		180/6/2500 (F) ① 7V 45 A 27	1750 1850	2500 2600	2600 2800	..... 30	180	0.8 0.8
		200/6/2400 (F) ① 7V50 A 25	1550 1700	2300 2450	2400 2600	..... 33.5	200	0.8 0.8
		200/6/2600 7V 50 A 28	1750 1850	2550 2650	2650 2850	..... 33.5	200	1.0 1.0
		200/12/2400(F) ① 14V 25 A 25	1650 1850	2250 2400	2500 2600	..... 17	200	3.5 3.5
		200/12/2600(F) ① 14 V 25 A 27	1800 1890	2500 2500	2700 2750	..... 17.0	200	3.5 3.5
		200/12/2700 (F) ① 14 V 25 A 29	1850 2050	2600 2700	2750 2950	..... 17.0	200	3.5 3.5
		240/12/2800 (F) ① 14 V 25 A 31	2150 2050	2750 2900	2900 3150	..... 17.0	240	3.5 3.5
		450M12/3700 (F) ① 14 V38 A 32	2200 2300	2950 3050	3100 3250	..... 25.0	300	3.5 3.5
LJ/CGE LJ/GG(V) LJ/GGVR	G GV	200/12/2400	1700	2400	2500	.....	200	4.8
		240/12/2100	1450	2050	2200	.....	240	4.8
		240/12/2400 14V30 A 25	1700 1630	2300 2400	2500 2550	..... 20	240	4.8 4.8
RKC LJ/GK(M) LJ/GKW	KC K	300/12/1450 14 V 38 A 15	1100	1450	1500	.....	300	5.2
		400/12/1500 14 V 50 A 16	1100	1450	1550	.....	400	5.2
		450 M 12/2600 14V 38A 24	1950	2350	2400	.....	300	5.2

① - Low-ohmic field, use regulator with P.T.C. compensation resistor only (A-type).

LATE 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		
0101302084	14V38A19	1300	1850	1950	25	3.4
0101302086	14V30A20	1450	1900	2100	20	3.5
0101302090	14V30A20	1450	1900	2100	20	3.5
0101302103	14V30A25	1650	2450	2600	20	3.5
0101302111	14V30A20	1450	1900	2100	20	3.5
0101302113	14V30A20	1450	1900	2100	20	3.5
0101302117	14V30A20	1450	1900	2100	20	3.5