SEV MOTOROLA ALTERNATORS

Peugeot
604
Porsche
911SC
924
928
Volkswagen
Dasher
Jetta
Rabbit
Rabbit Pickup
Scirocco

DESCRIPTION

SEV Motorola alternators are conventional three-phase, self-rectifying type alternators. Six silicon diodes (three positive and three negative) are used to rectify AC current.

NOTE – *Either SEV Motorola or Bosch alternators may be used. Due to the wide variance in application and output for the various models, not all individual part numbers and ratings may be shown. Always check identification plate attached to housing.*

APPLICATION

Model	Amp Rating	①Part No.
Peugeot 604	55	5702.52
Porsche		
911SC	70	911 603 120 02
924	75	063 903 017
928	90	928 603 113 03
Volkswagen (Water Cooled Models)		
Diesel		
W/O Air Cond	55	175 903 017 BX
	65	175 903 017 X
W/Air Cond	65	175 903 017 AX
Gasoline		
W/O Air Cond	55	049 903 015 X
	65	055 903 017 X
W/Air Cond	65	175 903v017 EX

① – Vehicle manufacturer part number.

SPECIFICATIONS

Application	Amps/RPM	Voltage
Peugeot 604	55@4000	14
Porsche (All Models)	①	14
Volkswagen		
W/55 Amp Alt.	25@3000	12.5-14.5
W/65 Amp Alt.	44@3000	12.5-14.5

① — Information not provided by manufacturer.

TESTING

NOTE – *Some testing is described as part of Overhaul procedure in this article. The following testing is performed with alternator installed on vehicle.*

ON CAR TEST

1) Disconnect battery cables and install cutout switch, variable resistance, ammeter and voltmeter as shown. Connect ground cable and check that cutout switch is in closed position.

2) Start engine and run at test RPM. Adjust varible resistance to give the following amperage readings: Models with 65 amp alternators – 45 amps, with 55 amp alternators – 25 amps. Open battery cutout switch to separate battery from test circuit. Load current is now determined by variable resistance.

3) Readjust variable resistance to provide Test Output Amperage. Voltage should be as specified.

CAUTION – *Never run alternator without battery connected unless variable resistor is installed to provide load. Alternator or regulator or both could be severely damaged without providing current load.*

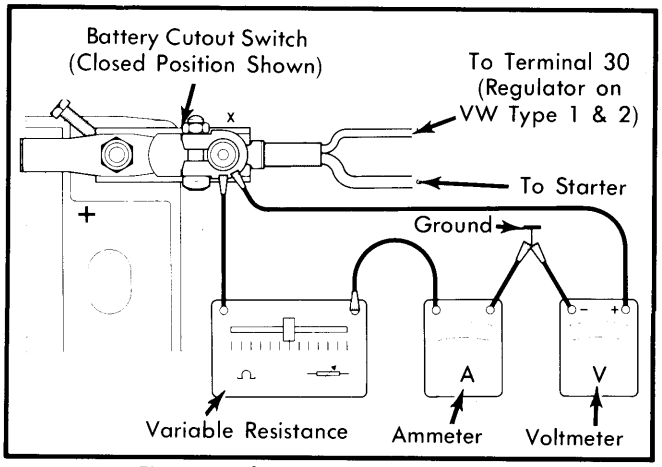

Fig. 1 Alternator Testing Set-Up

OVERHAUL

NOTE – *Since battery current reaches the alternator when the ignition is not on, battery ground strap should be disconnected when removing or installing alternator.*

DISASSEMBLY

1) Remove drive pulley and cooling fan. Remove regulator and brush assembly. Mark front and rear housing along with stator for proper orientation during reassembly.

2) Remove through bolts and carefully separate front housing with rotor from rear housing with stator. Rotor may be removed from housing after bearing retaining plate screws have been removed.

NOTE – *Bearings must be removed and installed using press with suitable adaptors. Never reinstall used bearings.*

3) Remove nuts holding diode assembly to rear housing and separate housing and stator. If diodes are faulty, complete assembly must be replaced rather than individual diodes. Use heat sink when making solder connections.

TESTING

Stator – Check stator for short circuits. If one or more coils are burned, stator shows evidence of shorts. Connect 12 volt,

SEV MOTOROLA ALTERNATORS (Cont.)

brush holder frame and "—" brush. Lamp should give steady light. If test results are not satisfactory or brush length is less than 3/16" (5 mm), replace brush holder.

CAUTION — *Use only specified test lamp. DO NOT use 110 or 220 volt test lamp on this or any other alternator test procedure.*

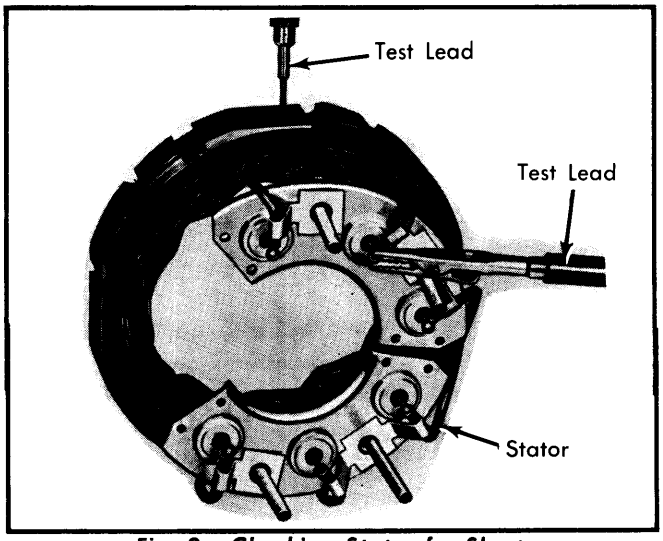

Fig. 2 Checking Stator for Shorts

Diodes — Check diodes with a diode tester for shorts or open circuits. If any diode is defective, entire diode holder with diodes installed must be replaced. If diode tester is not available, diode leads should be quickly and carefully unsoldered and tested with an ohmmeter. Diodes should show low resistance in flow direction and high resistance in reverse direction.

Rotor — Check that slip rings are not dirty or burned. Check winding for breakage or damaged isolation. Measure resistance between slip rings. Normal resistance should be approximately 4.5 ohms. If winding is faulty, rotor must be replaced.

NOTE — *It is recommended that bearings be replaced whenever alternator is disassembled.*

Brush Holder — Connect a test lamp between brushes. Lamp should NOT light. Connect test lamp between "DF" terminal and "+" brush. Lamp should give steady light even if brush and/or terminal cable is moved. Connect test lamp between 2-5 watt test lamp between stator plates and a terminal on stator. If lamp lights, isolation between stator winding and stator plates is defective and stator should be replaced.

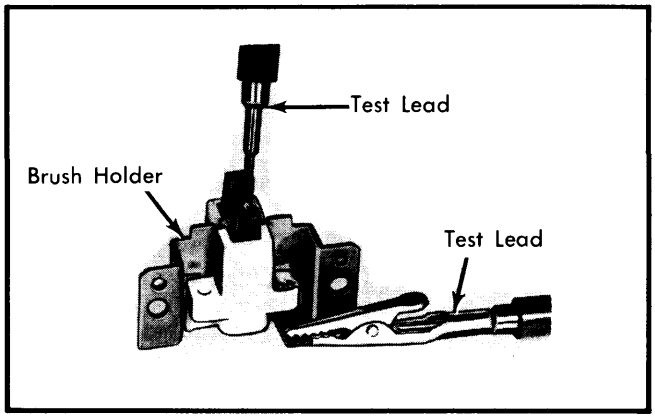

Fig. 3 Checking Brush Holder

NOTE — *Brush length is measured between brush contact surface and holder, with brush resting against spring.*

PARTS REPLACEMENT

Diodes — Mark leads connecting stator to diodes, then quickly and carefully unsolder leads. Place new diode holder in exact position of holder being replaced. Solder new leads while holding with pliers acting as a heat sink. Use minimum 100-watt, well heated soldering iron. Never change places of diode holders. Positive holder is isolated from frame by means of isolation washers and sleeves, and its diodes are marked in red. Negative holder is not isolated and its diodes are marked in black.

CAUTION — *Heat sink must be used during soldering to avoid damage to diodes from overheating.*

REASSEMBLY

Alternator is assembled by reversing disassembly procedures while noting the following: Rotor must be pressed into drive end shield. Connect test lamp between "B+" terminal and alternator frame, then reverse connections. Lamp should light only in one direction. After completion of assembly, test run alternator on bench using same procedure as described for On Car Testing.

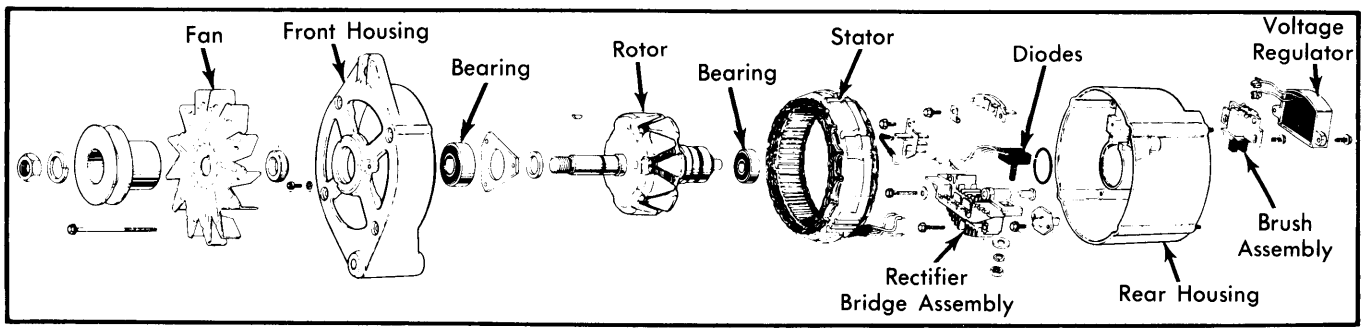

Fig. 4 Disassembled View of SEV Motorola Alternator (Volkswagen Shown)