

Alternators & Regulators

DELCO-REMY WITH INTEGRAL REGULATOR

DESCRIPTION

Delcotron integral alternator-regulator features a solid state regulator mounted inside generator slip ring end frame. Regulator components mounted inside generator are enclosed into a solid mold which, along with brush holder assembly, is attached to slip ring end frame. Stator windings are assembled on inside of laminated core form part of generator frame. Rectifier bridge connected to stator windings contains six diodes which change stator a.c. voltage to d.c. at generator output terminal. A "diode trio" connected to stator windings supplies generator field current while capacitor mounted in end frame protects rectifier bridge and diode trio from high voltages.

Periodic Adjustments

No periodic adjustments or maintenance of any kind are required on entire generator assembly. Regulator voltage setting needs no adjustment and none is provided.

CAUTION: Do not polarize generator, short or ground any terminals in the circuit except as specifically instructed. Never operate generator with output terminal open circuited. Generator and battery must share same ground polarity.

Regulator Output Test

Undercharged Battery Check - 1) Turn ignition on, connect voltmeter from generator "BAT" terminal to ground. Zero reading indicates an open between voltmeter connection and battery.

2) Disconnect wiring harness at No. 1 and No. 2 generator terminals and connect voltmeter from No. 1 harness terminal to ground. Zero reading indicates an open between voltmeter connection and battery.

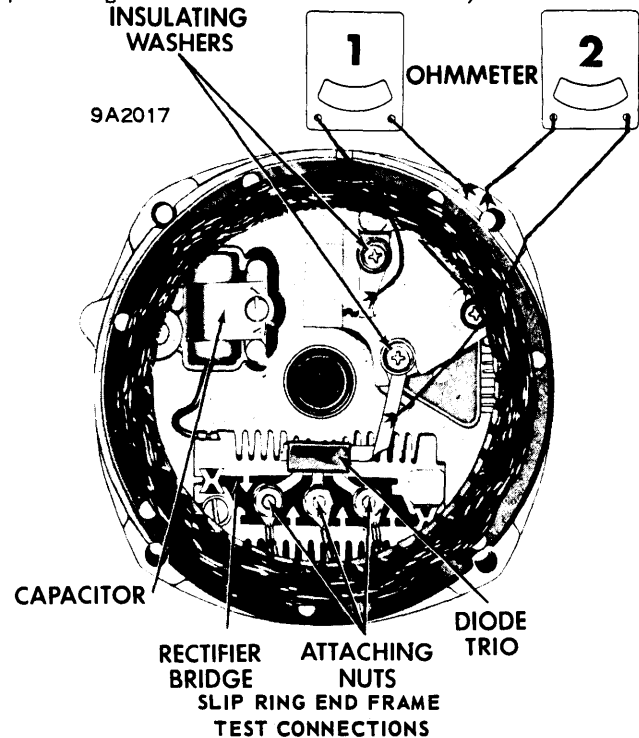
3) Connect voltmeter in circuit at generator "BAT" terminal. Run engine at 1500-2000 RPM, turn on electrical loads (high beam, windshield wiper, heater, blower, radio, etc.) and observe voltmeter readings. If reading is 12.8 volts or more, generator is O.K. If reading is less than 12.8 volts, ground field winding by inserting screwdriver into end frame test hole. Ground protruding tab to end frame. If voltage increases (13 volts or more), regulator is defective. If voltage does not increase significantly, generator is defective. If voltage regulator is replaced, repeat this test procedure.

CAUTION: Tab is within 3/4" of casting surface. Do not force screwdriver deeper than one inch into end frame.

Overcharged Battery Check - 1) Connect voltmeter from generator No. 2 terminal to ground. If reading is zero, No. 2 lead circuit is open.

2) Separate end frames. Connect ohmmeter using lowest range scale from brush lead clip to end frame as shown in

figure, then reverse test connections. If both readings are zero, either brush lead clip is grounded or regulator is defective. Grounded brush lead clip can result from omission of insulating washer, or insulating sleeve over screw, or damaged sleeve. Remove screw to inspect sleeve, replace regulator if trouble not caused by these factors.



Generator Output Test

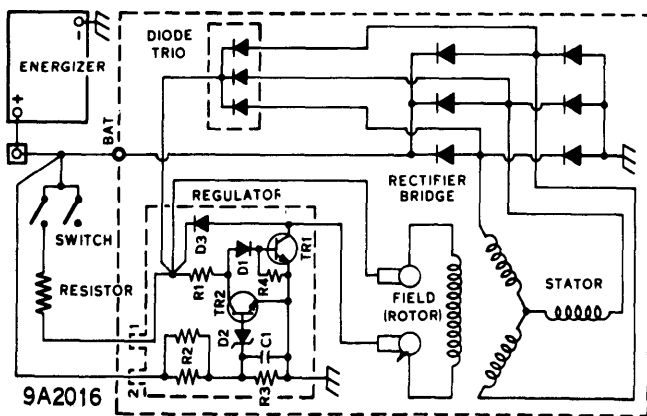
1) Connect voltmeter in series between battery positive and negative terminals and ammeter between generator "BAT" terminal and battery positive. Place a 10 ohm, 6 watt minimum resistor in series with generator No. 1 terminal and battery positive terminal. Connect jumper wire from battery positive to generator No. 2 terminal.

2) Slowly increase generator speed and observe voltage. If voltage is uncontrolled with speed and increases above 16 volts, check for grounded brush clip as described under Regulator Output Test "Overcharged Battery" step No. 2. If not grounded, replace regulator. **NOTE:** Battery must be fully charged when making this check.

3) Connect carbon pile rheostat across battery terminals. Operate generator at moderate speed and adjust carbon pile to obtain maximum current output. If output is within 10 percent of output stamped on generator frame, generator is good.

4) If output is not within 10 percent figure, ground generator field as outlined in Regulator Output Test "Undercharged Battery" step No. 3. Operate generator at moderate speed and adjust carbon pile for maximum output. If output is within 10 percent of rated generator output, replace regulator.

5) If output is not within that figure, fault lies field winding, diode trio, rectifier bridge or stator.



INTEGRAL ALTERNATOR-REGULATOR CIRCUIT DIAGRAM

Alternator Performance

Alternator No.	Hot - Amperes	Cold
1100825	61	14
1100833, 59	42	14

Field Current - 2.2-2.6 amperes at 12 volts.

DELCO-REMY WITH INTEGRAL REGULATOR (Cont.)

Diode Trio Test

CAUTION - Do not use a 100 volt test lamp to test diode trio.

1) Connect ohmmeter as shown in "Slip Ring End Frame" illustration, then reverse ohmmeter connections. One reading should indicate high resistance, the other should indicate low resistance. **CAUTION** - Insure brushes do not touch each other or end frame.

2) If both readings are same, check for grounded brush lead clip caused by broken or missing insulating washer. Also remove screw and check for damaged or missing insulating sleeve.

3) If insulating washer and sleeve are good, remove three diode trio attaching nuts and washers and attaching screw and insulating washer. Remove stator by prying up and then remove diode trio. Connect ohmmeter as shown in illustration "Checking Diode Trio", then reverse ohmmeter leads. If both readings are same, replace diode trio. A good diode trio will have one high and one low or zero reading.

4) Repeat test between single connector and each of other two connectors. If any one tests bad, replace diode trio.

Rectifier Bridge Test

Refer to illustration and determine which rectifier bridge is being checked. "A" has round stud bases and "B" uses rectangle connectors at base of three studs. Refer to checking procedure "A" or "B".

"A" Connect ohmmeter between grounded heat sink and one of three terminals as shown in illustration. Reverse ohmmeter connections. If both readings are same, replace rectifier bridge. One reading should be high and other should be low or zero. Perform same test between grounded heat sink and each of other two terminals and between insulated heat sink and each of three connectors.

"B" Connect ohmmeter between grounded heat sink and one of connectors as shown in illustration "Checking Rectifier Bridge," Do not connect ohmmeter to threaded stud, rather to rectangle connector at base of stud. Press down hard to get good connection. Reverse ohmmeter connections. If both readings are same, replace rectifier bridge. One reading should be high and one low or zero. Perform same test on each of other two connectors and between insulated heat sink and each of three connectors.

OVERHAUL

NOTE - Disassembly and reassembly procedure for integral alternator regulator is same as for Delcotron with separate regulator except for additional rectifier bridge and voltage regulator assemblies.

Rectifier Bridge - To remove, disconnect "BAT" terminal stud, insulator, condenser, lead screw and rectifier bridge. To install, reverse procedure.

Voltage Regulator - To remove, take out stator, diode trio and brush holder plate. **NOTE** - Brush terminal screw has insulating washer. Insulator screw on brush holder may or may not have an insulating sleeve. Reverse removal procedure when installing voltage regulator.

