AMERICAN MOTORS PRESTOLITE

Alternator Make & Model	Rating (Amps.)
Prestolite ALK-6309	35
Prestolite ALK-6310	35
Prestolite ALK-6311	35
Prestolite ALE-6305	40
Prestolite ALE-6306	40
American Motors (AM) 3195534(5)	35

DESCRIPTION

Three-phase, self-rectifying type using six diodes for rectification and an isolation diode (mounted on positive heat sink within alternator) to control operation of charge indicator lamp, to connect voltage regulator to alternator and battery when alternator is operating, and to prevent battery discharge through alternator windings when engine is not operating (maximum discharge is less than 1 milliampere). A 75 ohm resistor (in regulator) is connected in parallel with indicator light circuit to provide current for alternator field build-up in case of indicator light failure.

TESTING (ON CAR)

► *CAUTION: 1) Do not ground field circuit between alternator and voltage regulator as regulator will be damaged 2) Do not ground alternator output terminal or alternator and circuit will be damaged (no circuit breaker used and battery applied to output terminal at all times). 3) Do not operate alternator on open circuit with field winding energized. 4) Do not polarize alternator as it is not required and doing so will damage entire system. 5) Before making test connections, ignition switch must be off and battery ground cable disconnected.*

Alternator Output

1) Install battery post adapter switch on battery positive terminal post, connect test set as shown in illustration. Make certain voltmeter set to correct scale (16-20 volt range) and polarity switch in negative position.

2) Close adapter switch and start engine, adjust engine speed to approximately 2000 RPM., open adapter switch. Make certain all lights and accessories turned off.

3) Adjust control knob on test unit until maximum ammeter reading is obtained. Add 5 amperes to indicated reading. This total should be equal to specified alternator output (see Specifications).

4) If rated output not obtained in above test, check regulator performance (see Prestolite Transistorized Regulator). If trouble not caused by defective regulator, check field circuit (following).

5) Without disturbing test leads, disconnect field lead from alternator terminal, connect jumper wire between this terminal and field rheostat terminal, connect other field rheostat terminal to alternator output terminal. With battery adapter switch open, rotate field rheostat knob fully clockwise to "direct" position. Ammeter will indicate field current of approximately 2 amperes (see Field Current Specifications). If ammeter reading is low, defective brushes or rotor field winding is indicated. Rotate field control rheostat back to full counterclockwise or open position before disconnecting test leads.

Alternator Specifications

Alternator No.	Amperes	Volts
ALK-6309, 6310, 6311	35	14.2
ALE-6305, 6306	40	14.2
Am. Mot. 3195534(5)	35	14.2

Alternator Field Current

Alternator No.	Amperes	Volts
ALK-6309, 6310, 6311	2.3-2.4	10.0
ALE-6305, 6306	2.4-2.5	10.0
Am. Mot. 3195534(5)	2.4-2.5	10.0

TESTING (ON BENCH)

NOTE - Alternator must be disassembled (see Overhaul) before the individual components can be checked as directed below.

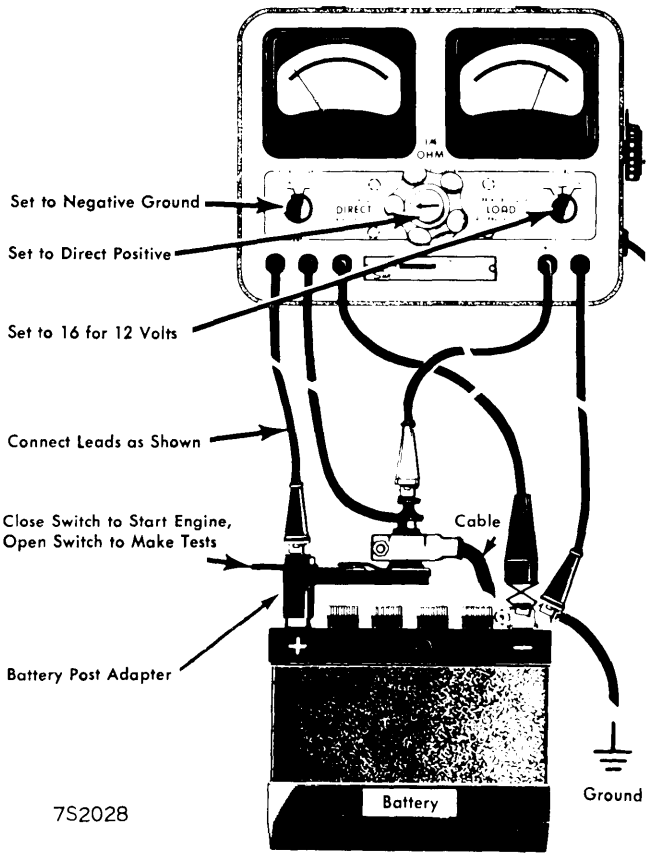
Rotor

1) Test for grounds with a 110 volt test lamp. Place one test probe on slip ring and other test probe on rotor core. Lamp should not light. If lamp lights, rotor winding is grounded.

2) Test for shorted winding with a fully charged battery connected in series to ammeter and rheostat and connect one test lead to each of the slip rings, connect voltmeter across slip rings. Adjust battery voltage to specified voltage and check current draw as indicated on ammeter (see Field Current Specifications). Excessive current draw indicates shorted turns in field winding.

Diodes

NOTE - If Diode Tester used, it will not be necessary to disconnect diodes from stator leads. If test lamp used, conclusive tests cannot be made unless diodes disconnected (unsoldered) from stator leads. *See Overhaul for precautions to be observed when disconnecting diodes.* **Diode Tester Method** - Follow test procedure as recommended by manufacturer of test equipment.



ALTERNATOR OUTPUT TEST CONNECTIONS

AMERICAN MOTORS PRESTOLITE (Continued)

Test Lamp Method - Use No. 57 bulb connected in series with 12 volt battery and test probes. Touch one test probe to heat sink (positive diodes) or to rear end housing (negative diodes) and other test probe to individual diode lead, then reverse test probes. Lamp should light in one direction and should not light in opposite direction. If lamp lights in both directions, diode is shorted. If lamp does not light in one direction only, diode is open.

Stator

1) Test for open winding using No. 57 bulb or Continuity Light Tool J-21008 in series with 12 volt battery and test probes. Touch one test probe to junction of three stator windings and other test probe to each stator lead in turn at diode connection. Lamp should light. If lamp does not light at any one test point, that section of stator winding is open.
2) Test for grounded winding with 110 volt test lamp and test probes *(CAUTION - Diodes should be disconnected from stator leads for this test).* Touch one test probe to stator core and other test probe to each stator lead in turn. Lamp should not light. If lamp lights at any or all test points, stator winding is grounded and stator should be replaced.
3) Shorted stator windings are difficult to check due to low resistance of winding. If rotor and diodes are not cause of alternator failure, stator should be replaced.

OVERHAUL

Disassembly

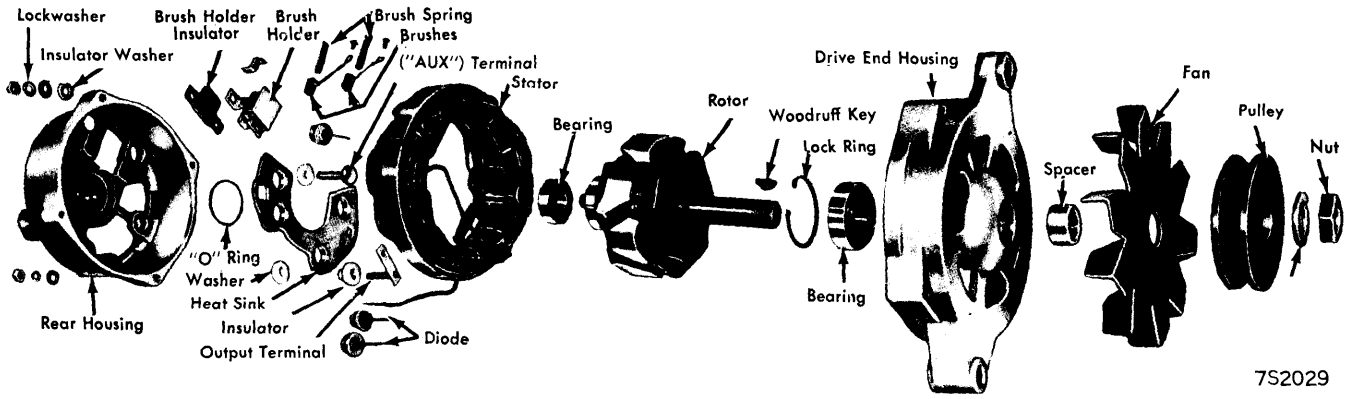
1) Remove brush mounting screws and cover, tip brush assembly away from alternator and remove assembly. Remove brushes by taking out retaining screws.
2) Mark rear housing, stator, and drive end housing to ensure correct reassembly, remove four retaining screws, tap stator and rear housing lightly with soft hammer, separate stator and rear housing assembly from drive end housing. If diode replacement or stator service required, unsolder stator leads from diodes (see Diode Replacement for procedure), separate stator from end housing. Disassemble terminal screws *(CAUTION - Note arrangement of insulators and washers to ensure correct reassembly)* and separate positive heat sink from end housing.
3) If front bearing replacement or rotor service required, use suitable puller to remove pulley, remove fan, woodruff key, and spacer. Use suitable puller (Snap-On No. CG-253) to remove front housing from rotor shaft. Remove bearing retainer ring and press bearing out of front housing.

Diode Replacement

1) When unsoldering or soldering stator leads from diodes, use pliers and wad of water-soaked cotton to grip diode lead and protect diode from excessive heat. Do not use more heat than necessary to melt solder.
2) Use Diode Remover & Installer Tool (Snap-On CJ-96A) to press diodes in and out of heat sink and end housing *(CAUTION - Do not drive on diodes, shock will cause internal damage).*

Reassembly

1) Press new bearing into front drive housing with dust seal toward rotor, install bearing retainer snap ring. Start rotor shaft into bearing, use press tool fitting over shaft and against bearing inner race to press bearing on shaft until seated against shaft shoulder. Install spacer, woodruff key, fan and pulley on shaft, install lockwasher and pulley nut, tighten nut securely.
2) With diodes installed in heat sink and rear housing (see Diode Replacement above) and all soldered connections properly made, install stator and rear housing on rotor and front housing *(CAUTION - Align marks made at disassembly),* install retaining screws.
3) Install brush holder assembly. Check assembly to make certain that rotor turns freely and there is no interference between rotor and brush holder or stator leads.



PRESTOLITE "ALK" ALTERNATOR ASSEMBLIES