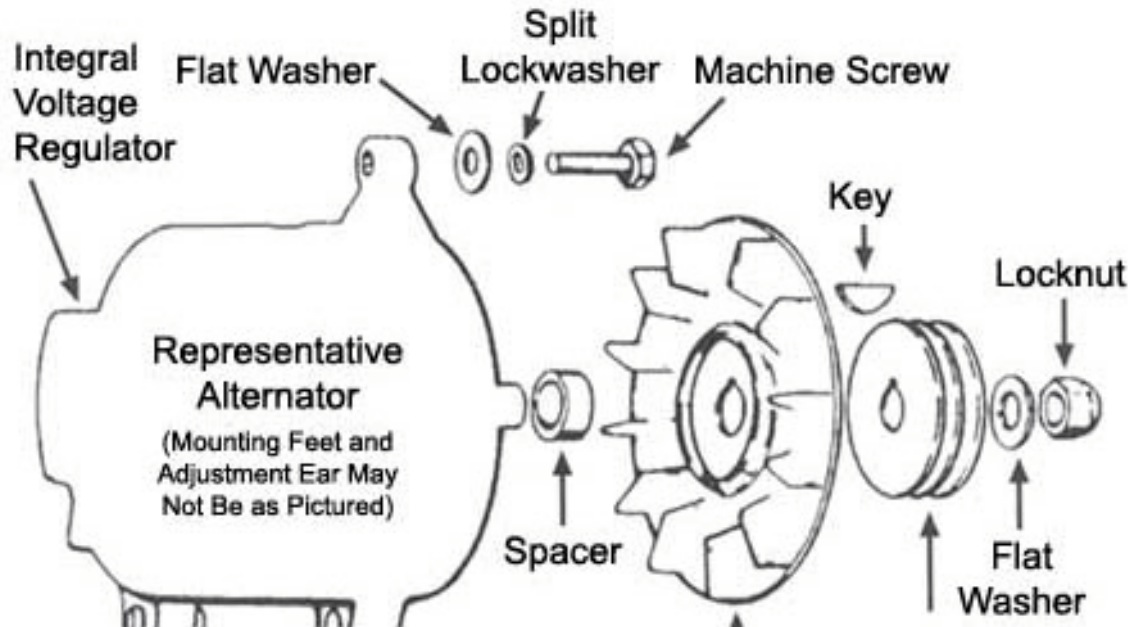


Installation Instructions Alternators 8LHA Series



General Information

Heavy duty, all electronic alternator systems in this series are designed for use with many combinations of system voltage and grounding. See Table 1 for the specifications of the model you purchased.

This alternator is equipped with a bidirectional fan which can rotate in either a clockwise or counterclockwise direction. A dual groove 3.3" pulley may be included. (if not, a suitable pulley may be purchased from your local Prestolite dealer - See Section II). For operation in a hazardous atmosphere, it has a completely enclosed brush assembly to prevent slip ring contamination and to shield any arcing. The rectifier assembly contains three positive and three negative diodes to provide more than ample current handling capability. The stator is insulated to provide maximum protection against shorting of windings to the laminations. The stator has one or more AC stator tap (R) terminals that can be used for tachometer input.

The alternator has a 7/8 shaft and a No. 305 bearing on the drive end. The rear bearing is fully sealed and permanently lubricated for the life of the bearing.

Some models include a fully transistorized integral adjustable voltage regulator which performs all of the operations necessary for complete control of the alternator output. The system is temperature compensated to permit the ideal charging rate at all temperatures.

In the regulator, transistors replace the relays, contacts and springs which contribute to most of the failures in conventional electromechanical voltage regulators. It is capable of operating in an ambient temperature of 100 C to 40 C.

NOTE: On certain applications where this alternator is being installed in place of another brand or make of alternator, it may be necessary to rotate the rear housing relative to the front housing to insure a correct installation fit. See Section I for instructions.

If an ammeter is desired, Prestolite recommends the use of a good quality ammeter with a full scale slightly larger than the alternator's output rating. Two types are available; direct connected (where heavy current passes through meter); and shunt (remote) types. If the direct type is selected, a quantity of proper size wire sufficient to run from the output terminal of the alternator, up the meter and back to battery may be supplied with the meter or may have to be obtained. (See Table 2 for proper wire size for required length.) Consult ammeter installation instructions for additional information.

Section I - Rotating Spindle Mount Type Rear Housing (If Necessary)

To rotate the rear housing follow the steps outlined below:

1. Remove the four through bolts.
2. Remove brush cover plate and brush assembly.
3. Using a screwdriver, separate the stator from the front housing. Then remove the rear housing and stator assembly as a unit from the front housing and rotor assembly.
4. Reinstall the rear housing and stator assembly in the correct position.
5. Press the front and rear housings together and replace the through bolts (**important:** To prevent the through bolts from backing out or loosening, apply Loctite 240 or equivalent to the threads of the four through bolts.)
6. Reinstall the brush assembly and brush cover plate.

TABLE 1: MODEL SPECIFICATIONS								
Model #	Sales #	System Volts	Ground	Wiring Diagram	Oper Volt	Output (Amps)	Stator Conn.	Mntg* Hardware
8LHA2022R	110-250	12	N	5	14.4	90	DELTA	A
8LHA2023V	110-255	12	N/P	6	14.4	130	DELTA	A
8LHA2024R	110-251	12	P	5	14.4	90	DELTA	A
8LHA2026V	110-277	12	N	4	14.4	130	DELTA	B
8LHA2027R	110-278	12	N	4	14.4	90	DELTA	B

8LHA2028V	110-279	12	N	4	14.4	130	DELTA	B
8LHA2030R	110-281	12	N	5	13.3	84	DELTA	A
8LHA2032V	110-309	12	N	4	14.4	130	DELTA	B
8LHA2037V		12	N	4	14	130	DELTA	B
8LHA2050V A1		12	N	5	14.2	130	DELTA	B
8LHA2050V AS	110-454	12	N	5	14	130	DELTA	B
8LHA2050V B		12	N	5	14	130	DELTA	B
8LHA2050V BS		12	N	5	14	130	DELTA	B
8LHA2051V		12	N	5	14.2	130	DELTA	B
8LHA2051V A	110-472	12	N	5	14	130	DELTA	B
8LHA2054U	110-455	12	N/P	5	14.2	105	DELTA	A
8LHA2055R	110-429	12	N	5	14.2	84	DELTA	A
8LHA2057V		12	N/P	5	14.2	160	DELTA	A
8LHA2057V A	110-450	12	N/P	5	14	160	DELTA	A
8LHA2063R	110-407	12	N	5	13.8	90	DELTA	A
8LHA2070V		12	N/P	5	14.4	130	DELTA	A
8LHA2070V A	110-555	12	N/P	5	14	130	DELTA	A
8LHA2070V B		12	N/P	5	14	130	DELTA	A
8LHA2073V	110-434	12	N/P	5	14.4	130	DELTA	C
8LHA2077V	110-447	12	N	4	14.4	130	DELTA	B
8LHA2078V	110-449	12	N	4	14.4	130	DELTA	B
8LHA2079V	110-436	12	N	4	14.4	130	DELTA	B
8LHA2080V		12	N	4	14.4	130	DELTA	B
8LHA2081V		12	N	5	14.4	130	DELTA	B
8LHA2084		12	N	5	14.4	130	DELTA	A
8LHA2085V		12	N	4	14.4	130	DELTA	B
8LHA2087V A		12	N	5	14.2	130	DELTA	A
8LHA2088V A		12	N	5	14.2	130	DELTA	A
8LHA2090U A		12	N	5	14.2	105	DELTA	A

8LHA2091U A		12	N	5	14.2	105	DELTA	A
8LHA2092V A		12	N	5	14.2	160	DELTA	A
8LHA2093V A		12	N	5	14.2	160	DELTA	A
8LHA2094V		12	N	5	14.2	130	DELTA	A
8LHA2095V		12	N	5	14.2	130	DELTA	A
8LHA2095V -N		12	N	5	14.2	130	DELTA	A
8LHA2096V		12	N/P	5	14.2	130	DELTA	A
8LHA2096V A	110555N	12	N	5	14	130	DELTA	A
8LHA3025P	110-296	24	N/P	6	28.8	75	WYE	A
8LHA3056R	110-428	24	N/P	5	28	85	WYE	C
8LHA3071P	110-446	24	N/P	5	28.8	75	WYE	A
8LHA3072P	110-433	24	N/P	5	28.8	75	WYE	A
8LHA3076R	110-435	24	N/P	5	28.8	85	WYE	C
8LHA3095R	110-466	24	N/P	5	28	85	DELTA	C
8LHA3095R OK	310-466	24	N/P	5	28	85	DELTA	C
8LHA3096U	110-459	24	N/P	5	28	110	DELTA	C
8LHA3096U K	310-459	24	N/P	5	28	110	DELTA	C
8LHA3161U	110-550	24	N	5	28	110	DELTA	B
8LHC2010Z	110-254	12	N/P	7	14.4	160	DELTA	A

	A	B	C
FLAT WASHER	1/2" ID x 1" OD	3/8" ID x 1" OD	12MM ID x 25 MM OD
LOCKWASHER	1/2" ID	3/8" ID	12MM ID

*Not MACHINE 1/2-13 x 1-1/4" 3/8-16 x 1-1/4" M12-1.75 6H x 30MM
 Provided SCREW

Section II - Pulley Selection

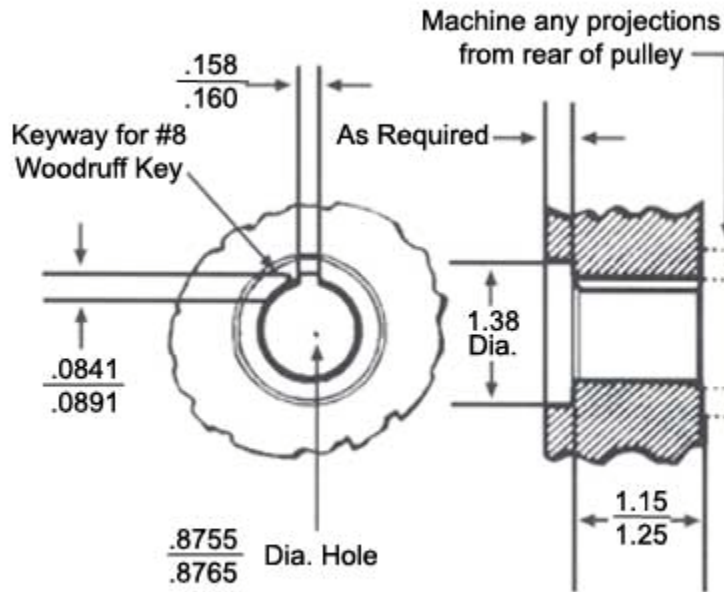


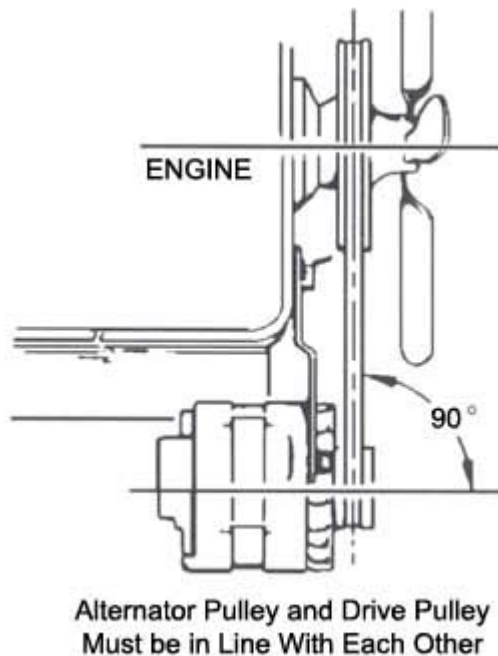
Figure 2 - Shaft Dimension Detail

Several pulleys are available from your Prestolite distributor or dealer to fit a wide variety of applications. There are single and double grooved pulleys which fit standard belt sizes from 3/8" to 1". Pulley blanks into which grooves must be cut to fit special belt sizes, are also available. Consult your Prestolite dealer.

In addition, any pulley which fits a standard 7/8" shaft can be used. For machining instructions on other than a standard pulley refer to Figure 2. The pulley is installed on the machine by removing the washer, locknut, and protective composition sleeve and then assembling the pulley on the shaft and tightening in place with the washer and locknut.

NOTE: Torque on pulley locknut - min. **40** to **50** foot-pounds. Maximum do not exceed stamped rating on fan. Failure to regulate torque on impact wrench may result in damaged shaft. Also use pulley nut supplied with alternator.

Section III - Mounting of Alternator



Several mounting assemblies, including a mounting bracket and mounting hardware, are available from your Prestolite distributor or dealer to fit a wide variety of applications. Consult your local Prestolite dealer.

After the alternator mounting location has been determined, loosely attach the mounting bracket to the engine with the mounting engine bolts. Position the alternator mounting foot between the two ears on the mounting bracket with the alternator mounting bolts. Align the alternator pulley with the engine drive pulley as shown in Figure 3 and tighten the bracket mounting bolts, securing the mounting bracket to the engine. Loosely attach the alternator adjustment bracket to the alternator adjustment ear with the bolt, lockwasher and flat washer. Tighten the fan belt by applying pressure to the alternator front housing only and tighten the bolt to the adjustment ear. Tighten the alternator mounting bolts and retighten all other bolts to secure the installation.

CAUTION: *Alternator will be permanently damaged if pressure is applied to rear housing. Tighten the fan belt by pressing against front casting near alternator fan.*

Set belt tension per belt manufacturer's recommended specifications, and tighten all remaining bolts (contact manufacturer for specifications). If manufacturer's specifications are not readily available, set belt tension tight enough so that the belt on alternator fan pulley will not slip when attempting to rotate alternator by hand.

CAUTION: *Alternator drive belts do stretch, particularly when they are new. Recheck belt tension from time to time. Belt slippage is more likely to occur with an alternator because of heavy charge rate possible at engine idle.*

Section IV - Electrical Connections

Disconnect cables from battery before making following electrical connections. (See appropriate Figure - Table 1)

1. Connect the existing generator output to the output terminal (1) of the alternator. Be certain that the proper size wire is used to carry full output current of alternator from positive output terminal to the battery. Consult Table 2. Connect ground to terminal (2). If regulator is not integral, connect regulator harness lead to alternator field terminal

Total Length of Wire in Feet	75 Amp	90 Amp	130 Amp	160 Amp
5 or less	No. 6	No. 8	No. 6	No. 6
5 to 10	No. 4	No. 6	No. 4	No. 2

2. Turn off all switches and electrical loads. Replace one cable on battery. Momentarily touch second terminal to other battery post. If no spark occurs, fasten cables to battery posts. If a spark occurs, recheck polarity of battery and all above steps until the fault is found.

WARNING: *Reverse polarity of battery connections will cause damage to the rectifier diodes in the alternator. Be sure to check wiring before making battery connections.*

3. After installation has been completed, check for proper operation. With ignition switch off, turn on headlights. Ammeter should now show discharge. If it shows charge, ammeter connections are reversed. Correct. When engine is started, ammeter should indicate charge.

Section V - Regulator Adjustment

After installation is completed, adjust regulator voltage by turning adjustment screw clockwise to increase, and counterclockwise to decrease voltage. See manufacturer's specifications for correct voltage setting.

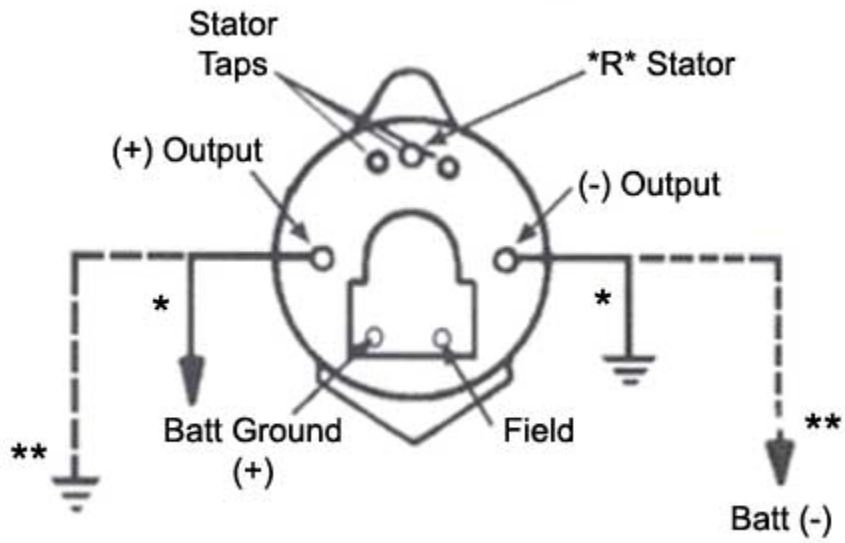


Figure 4: Wiring Diagram
NEG/POS Ground

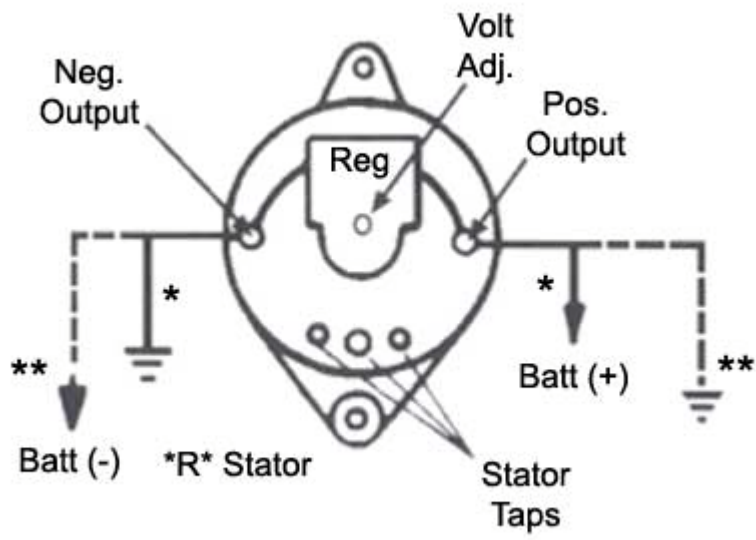


Figure 5: Wiring Diagram
NEG/POS Ground

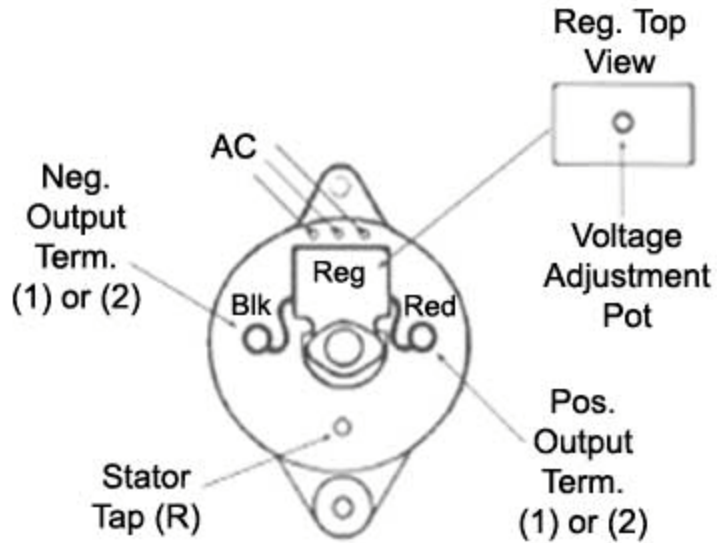


Figure 6: Wiring Diagram
NEG/POS Ground

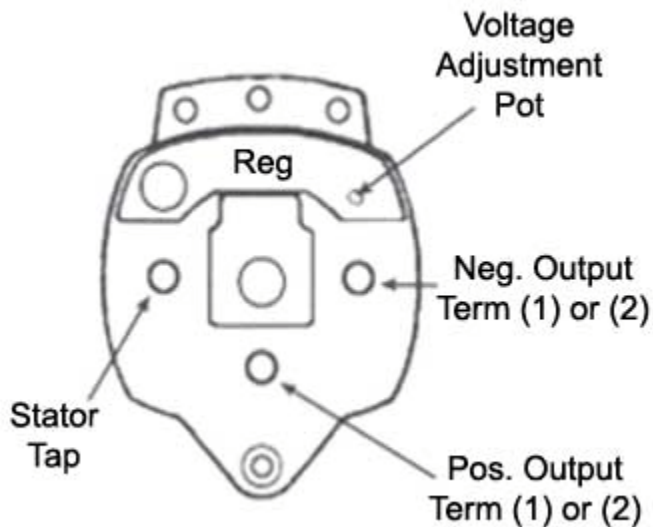


Figure 7: Wiring Diagram
NEG/POS Ground

Section VI - Proper Ammeter Indication

After engine is started, the ammeter will usually show a rather heavy charge for a short time. The transistor regulator is permitting the alternator to charge heavily to replace the power taken from the battery during starting.

As the engine continues to operate, the amperes of charge will gradually drop to 0 to 4 amps as the battery becomes fully charged. This may take anywhere from 15 minutes to a few hours and will depend on the size and condition of the battery.

If a heavy electrical load (like a number of floodlights, an electric hoist motor, etc.) is turned on, the ammeter may show less charge or even discharge for a while. This is a normal condition, even if the load is only 40 to 50 amps.

If the load remains on, the amount of discharge will decrease and soon the ammeter will show a slight charge. If the load is now turned off, the ammeter will show a heavy charge for a short while and then gradually return to near zero. This is also a normal condition.

If the ammeter shows a continuing high charge rate, 10 to 20 or more amperes, for long periods of time, for hours of continuous operation, the condition of the batteries should be checked with a hydrometer. If the hydrometer reads below a full charge (1.260 approximately), the condition is normal - the alternator is just charging the batteries. If the hydrometer shows full charge (1.270 to 1.280), the voltage regulator may be defective.

If the ammeter shows a slight discharge consistently when the engine is operating at normal speeds, turn off all electrical loads, except ignition, for a few seconds. If ammeter jumps up to 30 to 85 amp charge, system is normal - the electrical loads are just absorbing all the alternator can generate. However, if ammeter should still show a slight discharge of 2 to 8 amps, there is a problem in the charging system. It is likely that the drive belt is either slipping or broken. If belt is OK, check for loose or broken electrical wires.

If the engine is required to run at slow idle for long periods while heavy electrical loads are demanded, the ammeter should be observed from time to time. If the ammeter shows a heavy discharge (more than 10 amps), it would be wise to increase the idle speed of the engine sufficiently to bring the ammeter to zero or to show a slight charge.

Keep in mind that when the batteries are normal and well charged, the ammeter should rest near zero, or show a very slight charge. With a transistor voltage regulator, there may be very little or no motion of the ammeter needle. This is also normal because the transistors maintain the voltage very constantly and smoothly.