



Alternator Installation Instructions

CEN alternator models A1-101 (24V/30A with A2-101 regulator, 32V/30A with A2-103 regulator), A1-103 (24V/50A), and A1-105 (24V/65A) are J180 spool mount alternators with isolated ground (can be configured for positive or negative ground). Follow instructions below for proper installation.

NOTICE Fan, pulley, regulator, and all other accessories sold separately. Contact CEN for options and part numbers.

NOTICE Alternators intended for marine use must be installed in conformance with TITLE 33 CFR PART 3, SUBPART I - ELECTRICAL SYSTEMS.

Prepare Alternator for Installation

1. Alternators are shipped with shaft collar, flat washer, and lock nut in place of fan and pulley. To install fan and pulley:
 - a. Remove nut, washer, and cardboard shaft collar. Discard shaft collar. Make sure Woodruff key is level and securely wedged in slot in shaft.
 - b. Install bearing cover and/or spacer (if required by application), fan, and pulley with flat washer and lock nut. Torque nut to 68 Nm/50 lb. ft. See Figure 1.

NOTICE Woodruff key may need to be removed and replaced for installation of bearing cover and/or spacer where applicable.

CAUTION Do not hammer pulley when installing fan/pulley on shaft. Carefully slip-fit pulley over shaft to prevent Woodruff key from moving out of place.

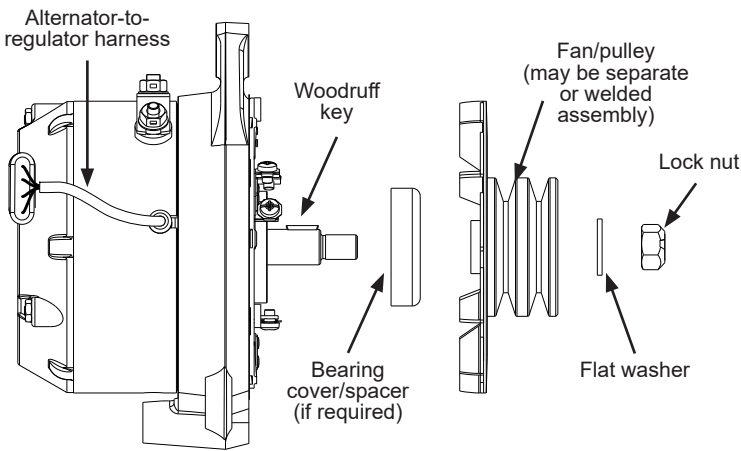


Figure 1: Install Fan and Pulley

2. Determine ground configuration for application and install copper ground link as required. See Figure 2:
 - For isolated ground applications remove ground link.
 - For negative ground applications, install ground link between ground terminal and B- terminal. Use flat washers between link and lock nuts. Torque both ground terminal and B- terminal to 9 Nm/ 75 lb. in.
 - For positive ground applications, install ground link between ground terminal and B+ terminal. Use flat washers between link and lock nuts. Torque both ground terminal and B+ terminal to 9 Nm/ 75 lb. in.
3. Check regulator set point and adjust if necessary before installation. See Figure 3.
 - Most applications require NORMAL setting. See regulator model-specific data sheet for set point options.
 - When vehicle is used in extreme cold, intermittent service, or when vehicle is equipped with maintenance-free batteries, HIGH setting may be used. To change set point, loosen/remove all set point screws and move link from NORMAL to HIGH position. Hand-tighten all screws.

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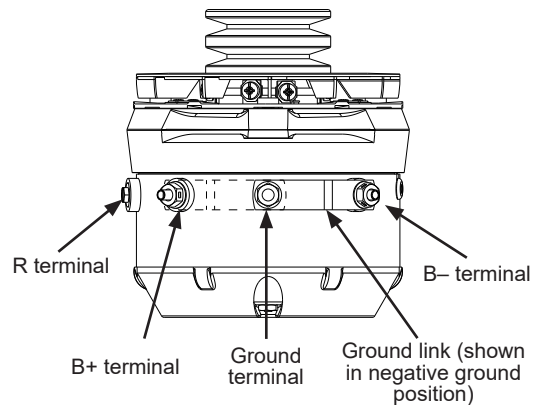


Figure 2: Install Ground Link

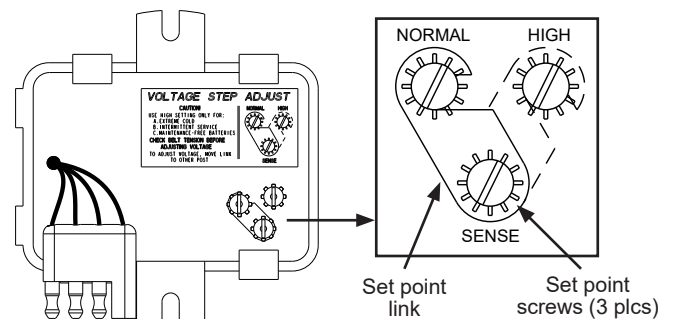


Figure 3: Set Regulator Set Point

4. Install regulator as shown in Figure 4:
 - a. Fully insert alternator harness into regulator receptacle.
 - b. Mount regulator on alternator anti-drive end (ADE) cover plate and fasten regulator with the two screws supplied with regulator. Torque to 8.5 Nm/75 lb. in.
5. Install alternator on mounting bracket according to vehicle/engine manufacturer's instructions and specifications. Torque lower mounting bolt/nut to 52 Nm/38 lb. ft. and upper mounting bolt to 21 Nm/15 lb. ft. unless otherwise specified by vehicle/engine manufacturer.
 - Use hardened flat washers between mounting surfaces and bolt heads or lock washers.
 - It is recommended that belt wrap is not less than 135°.
 - Consult front end accessory drive (FEAD) designer/manufacturer for optimal belt tension and specifications for your application.

CAUTION Excessive belt tension will result in premature bearing failure.

6. Connect vehicle wiring to alternator:
 - Connect vehicle battery negative (B-) cable to alternator B- terminal (see Figure 4 for terminal location). Install hardware on B- terminal in stacking order shown in Figure 5. Torque to 8.5 Nm/75 lb. in.
 - Connect vehicle battery positive (B+) cable to alternator B+ terminal (see Figure 4 for terminal location). Install hardware on B+ terminal in stacking order shown in Figure 5. Torque to 8.5 Nm/75 lb. in.
 - "R" terminal taps AC voltage from alternator, typically half the charge voltage, at a frequency of 10:1 alternator shaft RPM. Use of this terminal is dependent on the application and can be used with tachometer to measure alternator speed or be used with a relay to control the vehicle's charge indicator lamp. Torque "R" terminal screw to 2 Nm/18 lb. in.

NOTICE If using relay for "R" circuit, coil must be diode-protected and properly rated.

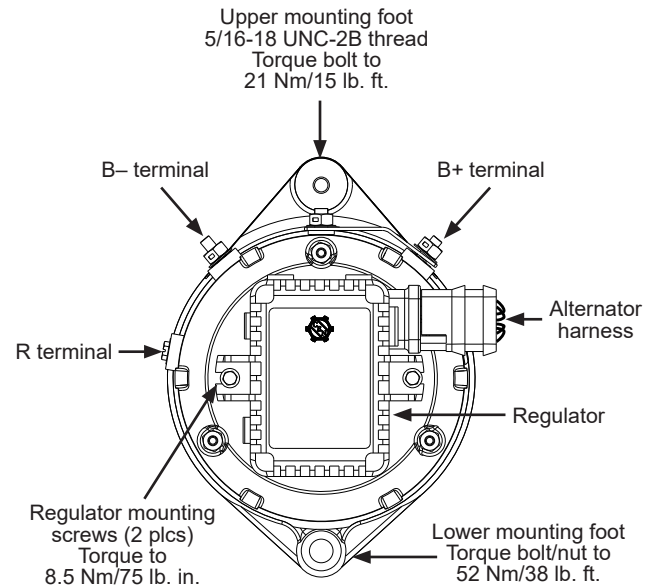


Figure 4: Alternator/Regulator Connections

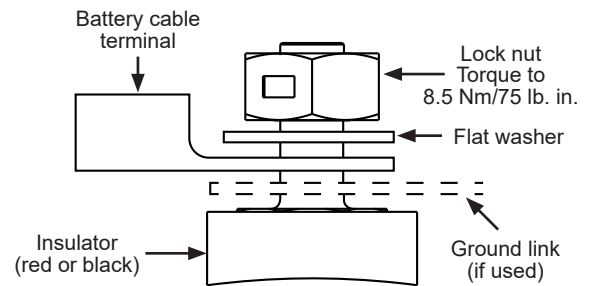


Figure 5: B- / B+ Output Stud Stacking Order

If you have questions about your alternator or any of these instructions, or if you need to locate a Factory Authorized Service Distributor, please contact us at:
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