



C803D/C840D Alternator Installation Instructions

CEN alternator models C803D and C840D are cradle mount, negative ground alternators rated at 28 volts/ 525 amps. Follow these instructions to insure proper installation.

1. Alternators shipped without pulley are shipped with shaft collar, disc spring washer, and nut installed. Remove and discard shaft collar. Make sure Woodruff key is securely wedged in slot in shaft.
2. Install pulley, furnished disc spring washer, and pulley nut on shaft. Beveled side of disc spring washer must be facing pulley. Torque nut to 163 Nm/120 lb. ft. See Figure 1.

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

3. Mount alternator on engine. Use hardened steel washers and 0.5-13 UNC-2B bolts, grade 5 bolts or higher. Torque mounting bolts to 88 Nm/65 lb. ft. or to engine manufacturer's specifications.

CAUTION Minimum recommended thread engagement is 12.7 mm (0.5 in.) into alternator drive end mounting holes and 16.5 mm (0.65 in.) into anti-drive end mounting holes. Maximum mounting screw depth into alternator regardless of washer and bracket stackup is 21.6 mm (0.85 in.) into drive end mounting holes and 25.4 mm (1 in.) into anti-drive end mounting holes. See Figure 1 inset. EXCEEDING MAXIMUM DEPTH WILL RESULT IN IMMEDIATE ALTERNATOR FAILURE.

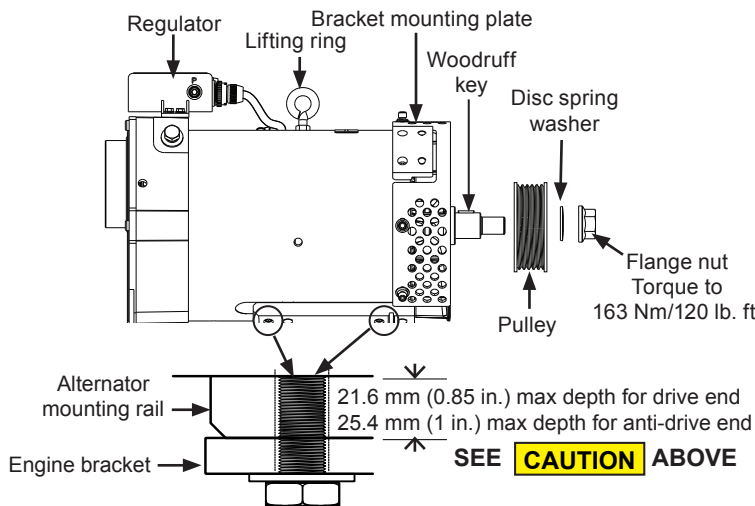


Figure 1: Alternator Installation Details

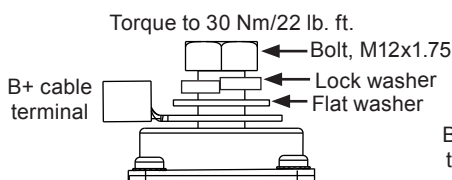


Figure 3: B+ Terminal Hardware Stacking Order

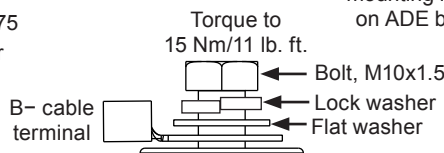


Figure 4: B- Terminal Hardware Stacking Order

4. Install vibration damper bracket per engine manufacturer's instructions if included with alternator and/or required by engine manufacturer. See Figure 2.
5. Install drive belt per engine manufacturer's instructions. Typical belt tension is between 80- 120 lbs. nominal.

CAUTION All cables must be supported within 300 mm (12 in.) to prevent twisting, loosening, and damage to terminals.

6. Connect vehicle B+ cable to alternator B+ terminal. Install terminal hardware in stacking order shown in Figure 3 and torque to 30 Nm/22 lb. ft.
7. Connect vehicle B- cable to alternator B- terminal. Install terminal hardware in stacking order shown in Figure 4 and torque to 15 Nm/11 lb. ft.
8. Install regulator according to instructions on page 2.

Fresh Air Duct Installation Instructions

Attach fresh air duct (not supplied by CEN) to duct opening on alternator anti-drive housing. See Figure 5. Duct installation requirements include:

- Duct must be 100 mm/4 in. diameter and no more than 2.5 m/8 ft. long.
- Duct can have only two 90° bends, maximum.
- Duct must not obstruct airflow to alternator.
- Duct must not allow moisture such as rain, road spray, and water used during vehicle cleaning to be ingested into alternator.

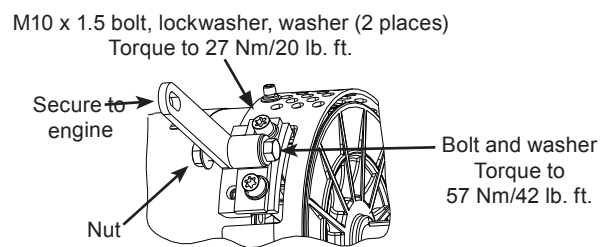


Figure 2: Vibration Dampening Bracket Installation (Example only; install if required)

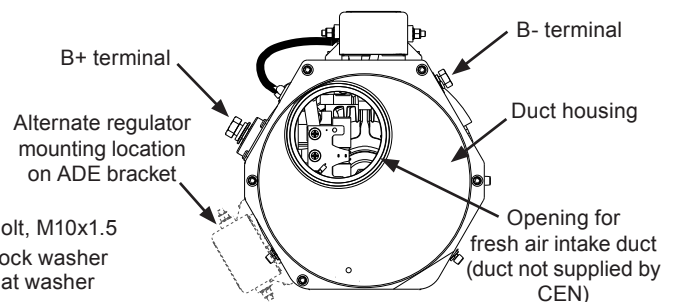


Figure 5: B+/B- Terminals and Fresh Air Duct Opening

CEN Regulator Installation

1. Before installing regulator, verify appropriate switch setting for your application and change if necessary. See Figure 6 and Table 1 for fixed voltage set point options when used without battery sensor/harness. See Table 2 for battery chemistry-based charge profiles when used with compatible CEN battery sensor/harness. **Contact battery manufacturer or vehicle OEM for charging set point recommendations for your environment or application if necessary.**
2. Mount regulator directly on ADE housing or mounting bracket on anti-drive end of alternator as shown in Figures 1 and 5 on page 1, or install remotely with extension harness¹.
3. Secure regulator by installing supplied flange lock screws. Torque screws to 8.5 Nm/75 lb. in.
4. Plug alternator-to-regulator harness into 6-pin receptacle on regulator. See Figures 7 and 8 for receptacle location.

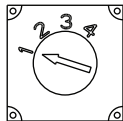


Figure 6: Regulator Voltage Selection Switch

Table 1: Regulator Fixed Voltage Switch Settings	
Switch Position	Set Point for Conventional Regulators or Smart Series Regulators with <u>no Sensor/Harness Connected</u>
1	27.5 V
2	28.0 V
3	28.5 V
4	29.0 V

5. Connect regulator terminals as required by vehicle:
 - **IGN terminal (required)** must receive voltage from vehicle DC ignition source or multiplex in order to energize regulator. Torque to 4.5 Nm/40 lb. in. See Figures 7 and 8.

NOTICE Voltage should be present at regulator IGN terminal when ignition is on or engine is running. No voltage should be present when ignition is off or engine is not running.

- **D+ terminal (if required)** provides DC system battery voltage to vehicle (5A maximum) for charge indicator lamp, relay, or multiplex while alternator is producing output. Torque terminal hardware to 4.5 Nm/40 lb. in. See Figures 7 and 8.
- **R/P/AC terminal (if required)** taps AC voltage from alternator, typically half the charge voltage (3A maximum). R/P/AC terminal provides alternator RPM frequency at 10:1 ratio for use with tachometer. Torque terminal hardware to 4.5 Nm/40 lb. in. See Figures 7 and 8.

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

6. If using smart regulator and a J1939/temperature-voltage sense harness, plug J1939 harness into J1939 receptacle on regulator. See Figure 8 for receptacle location. See installation instructions included with harness for more harness information. Harness sold separately².

Table 2: Regulator Battery Profile Switch Settings	
Switch Position	Battery profile for Smart Series Regulators with <u>Sensor/Harness Connected</u> ²
1	Maintenance (D Category)
2	Maintenance-free (Group 31)
3	AGM
4	29.0 fixed

1. Contact CEN for regulator extension harness options.
2. Contact CEN for alternative sensor/harness options

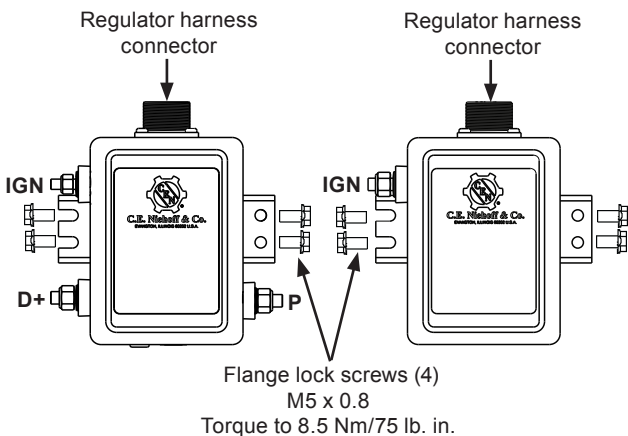


Figure 7: Conventional Series Regulator Connections

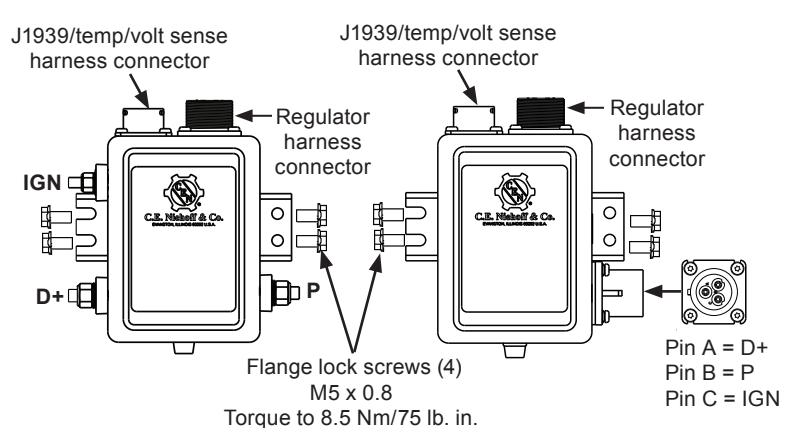


Figure 8: Smart Series Regulator Connections

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