C703/C703A/C703L Alternator Installation

CEN models C703/C703A/C703L are cradle mount, negative ground alternators rated at 28V/350A. Follow these instructions to ensure proper installation.

1. Remove Existing Alternator
   a. Turn off battery switch or disconnect battery ground.
   b. Remove alternator drive belt.
   c. Label wires for identification, then disconnect electrical connections on existing alternator.
   d. Remove alternator mounting bolts and remove alternator from mounting bracket.
   e. If replacing oil-cooled alternator, remove all oil lines and cap off ports at their sources.

2. Install C703/C703A/C703L
   a. Alternators not shipped with 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.
   b. Install pulley and furnished disc spring washer with beveled side facing pulley. Torque pulley nut to 163 Nm/120 lb. ft. See Figure 1.
   c. Mount alternator on engine bracket. Torque mounting bolts to 88 Nm/65 lb. ft. or to engine manufacturer’s specifications.
   d. Connect vehicle B+ cable to alternator B+ terminal. Install hardware on B+ terminal in stacking order shown in Figure 2. Torque to 30 Nm/22 lb. ft.
   e. Connect vehicle B− cable to alternator B− terminal. Install B− hardware in stacking order shown in Figure 3. Torque to 15 Nm/11 lb. in.
   f. Install regulator according to instructions on pages 2 and 3.

**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.

**NOTICE**

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

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**Figure 1:** C703/C703A/C703L Alternator Connections

**Figure 2:** B+ Terminal Hardware Stacking Order

**Figure 3:** B− Terminal Hardware Stacking Order
Charging System Wiring

Adapting Existing Electrical Connections

- If replacing Delco Remy or similar regulator, perform the following steps to modify or reuse existing vehicle cabling to complete installation:

  - 50-VR regulators with Deutsch connector (see Figure 4): Unplug Deutsch harness from regulator and plug it into a CEN A9-940 wiring adaptor. No other wiring modification is required. Secure harness as needed.

  - 50-VR regulator with terminal block (see Figure 5): Disconnect IGN lead at regulator IGN terminal and reconnect to FLD terminal on regulator. Torque screw to 1.4–1.7 Nm/12–15 lb. in.

  ![Figure 4: Reuse Existing FLD wire for IGN with A9-940 Adapter](image)

  ![Figure 5: Reuse Existing FLD wire for IGN by Jumping Terminals](image)
Regulator Installation

1. Turn regulator over and make sure set point of switch at bottom of regulator is appropriate for type of battery used in vehicle. If necessary, change switch set point. See Figure 6 and Table 1 for voltage set point options.

2. Mount regulator on alternator or remotely and torque mounting screws to 8.5 Nm/75 lb. in.

3. Plug alternator-to-regulator harness into receptacle on regulator. See Figure 7 for receptacle location.

4. Connect regulator terminals as required by vehicle:
   - **IGN terminal** (required) must receive voltage from vehicle DC ignition source, multiplex, or F wire if retrofit from competitor’s system (see page 2) in order to energize regulator. Torque to 4.5 Nm/40 lb. in. See Figure 7.
   - **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 Figure 7.
   - **P/AC terminal** (if required) taps AC voltage from alternator, typically half the charge voltage (3A maximum). 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 Figure 7.

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

5. If using a J1939/temperature/voltage sense harness, plug harness into J1939 receptacle on regulator. See Figure 7 for receptacle location. Reference installation instructions included with harness for more information. Harness sold separately.

<table>
<thead>
<tr>
<th>Position</th>
<th>Conventional Regulator Set Point and Smart Series with Sensor/Harness Not Connected</th>
<th>Battery profile for Smart Series Regulators with Sensor/Harness Connected (Battery Select)(^{1,2})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27.5 V</td>
<td>Maintenance (D category)</td>
</tr>
<tr>
<td>2</td>
<td>28.0 V</td>
<td>Maintenance-free (Group 31)</td>
</tr>
<tr>
<td>3</td>
<td>28.5 V</td>
<td>AGM</td>
</tr>
<tr>
<td>4</td>
<td>29.0 V Flat</td>
<td></td>
</tr>
</tbody>
</table>

1. Contact CEN for regulator extension harness options.
2. A9-4036 Harness: 4.5 m/15 ft.
   A9-4049 Harness: 12 m/40 ft.
   A9-4048 Harness: 16.7 m/55 ft.
3. Contact CEN for alternative sensor/harness options

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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