



### Repair of this equipment shall only be carried out by C.E. Niehoff & Co.

**WARNING**

This symbol is used to indicate presence of hazards that can cause severe personal injury, death or substantial property damage.

**WARNING**

The alternator contains no user serviceable parts. DO NOT DISMANTLE. Failure to follow any instructions in the troubleshooting guide may result in misdiagnosis of alternator function and void the warranty.

**WARNING**

DO NOT DISASSEMBLE. The cover O-ring may dislodge and cause failure of the flameproof protection features. Verify that there is NOT a gap between the cover and the alternator housing.

### Tools and Equipment for Testing

- Digital Multimeter (DMM)
- Ammeter (digital, inductive)
- Test bench with 5–10 hp motor able to drive alternator to 8500 rpm. Mount alternator per test bench manufacturer's instructions. Make sure test bench batteries are charged at 95% or higher.

### On-Vehicle Troubleshooting on Site

If a no-charge condition is suspected, check that charge light on vehicle comes on when master battery switch is on:

- If light is not on, check/repair vehicle wiring to light. Retest system.
- If light is on and no-charge condition is suspected, measure battery voltage between B+ and B– from the alternator harness where they connect to the batteries.
  - 28 V system: 27.0-28.2 V
  - 14 V system: 13.0-14.2 V

If voltage reading is out of specs, remove alternator with cable intact and take to CEN authorized service dealer for further testing (refer to "On Bench Tests").

If no battery voltage is read at battery connections, investigate vehicle side of circuit to determine cause.

### On-Bench Tests to be Performed at CEN Authorized Testing Facility

- Alternator rated output (listed on nameplate)  $\pm 10\%$  is determined at 5000 rpm at 72°F.
- Do not conduct test for longer than 20 minutes.
- Alternator/internal regulator should be connected properly to test bench.

**NOTICE**

Alternator/internal regulator will not test accurately without being properly connected to power source.

### ON-BENCH TEST 1: NO-LOAD TEST

(Refer to Table 1)

With battery connected and no electrical load, run alternator at 2000-2500 rpm shaft speed.

- If alternator **passes** No-Load Test, go to Full Load Test.
- If alternator **fails** No-Load Test, alternator should be replaced.

**TABLE 1 No-Load Test**

ALT.	AMPS	VOLTS
CI93	5-20	27.0-28.2
CI92	5-20	13.0-14.2

### ON-BENCH TEST 2: FULL LOAD TEST

(Refer to Table 2)

With load set to rated output (listed on nameplate)  $\pm 10\%$ , run alternator at 5000-8500 rpm shaft speed.

- If alternator **passes** Full Load Test, alternator is functioning properly.
- If alternator **fails** Full Load Test, alternator should be replaced.

**TABLE 2 Full Load Test**

ALT.	AMPS	VOLTS
CI93	30-35	27.0-28.2
CI92	60-70	13.0-14.2

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

C. E. Niehoff & Co. • 2021 Lee Street • Evanston, IL 60202 USA

TEL: 800.643.4633 USA and Canada • TEL: 847.866.6030 outside USA and Canada • FAX: 847.492.1242