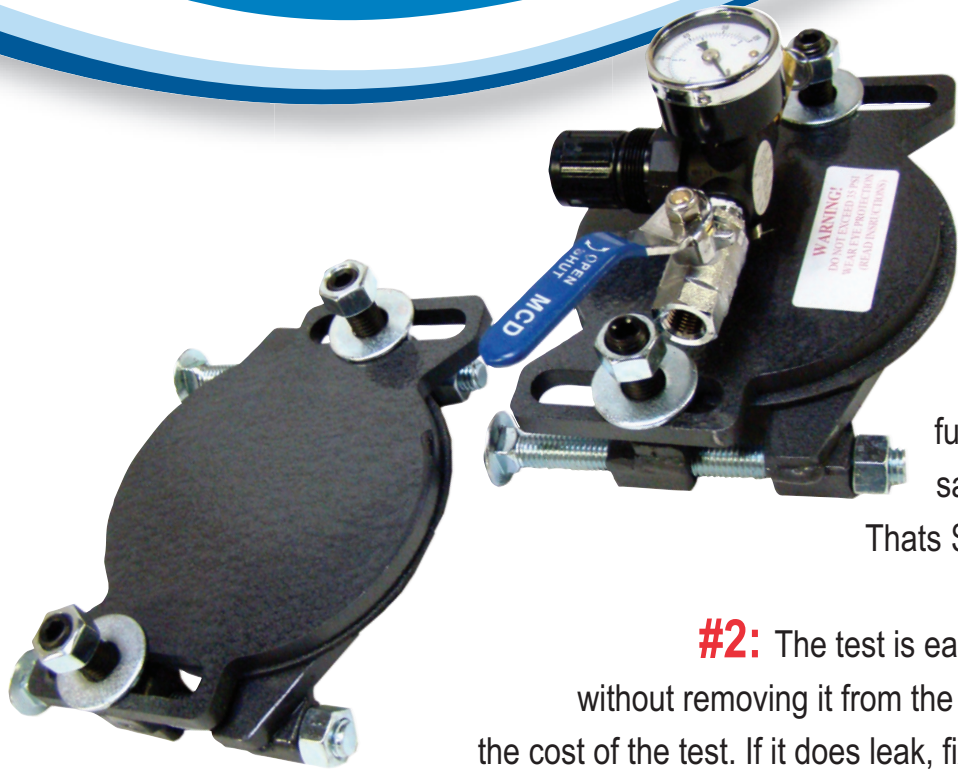


★Northern

CHARGE AIR COOLER TEST KIT



WHY TEST? Here's the 1-2-3 Answer...

#1: Leaking Charge Air Coolers leak away turbo boost. Low or No boost means MPG loss and horsepower loss. Consider this, at \$4.00 per gallon fuel, by finding an air leak you can easily save 600 gallons of fuel per year, per truck. That's \$2,400 per truck per year.*

#2: The test is easy. You can test the Charge Air Cooler without removing it from the truck. If it doesn't leak, all you are out is the cost of the test. If it does leak, fix or replace the Charge Air Cooler and you can stuff 24 \$100 dollar bills in your pocket with the fuel savings, plus your power is renewed!

#3: But I thought a little Charge Air Cooler leak was OK? So how much is a little leak? Think of your Charge Air Cooler as a water faucet - a drip every once in a while is OK. But drip, drip, drip means a big water bill or in our case a loss of fuel mileage or power. A technician can tell you the specification, but if you don't test you won't know!

So Test and Save, it's that EASY!

* Using average base assumptions, Average daily trip of 300 miles per day

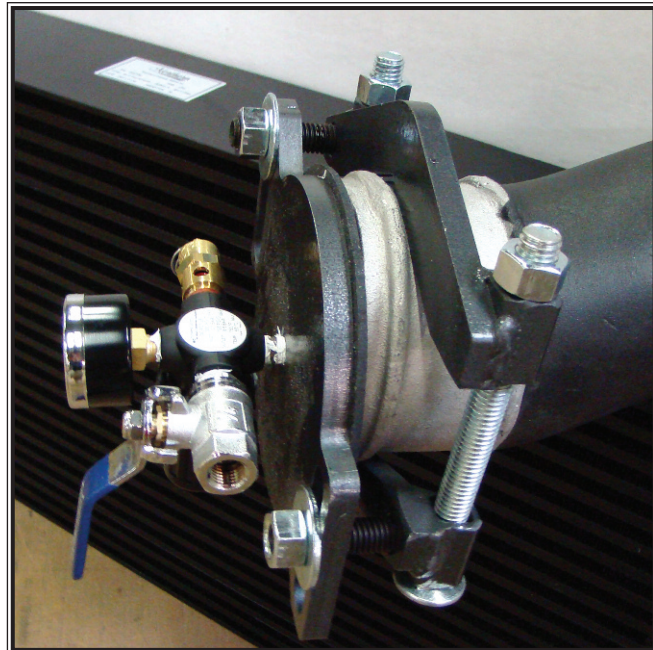


**RW0090-11
CAC Test Kit**

According to most OEM specifications, Charge Air Coolers that show a pressure drop greater than 5 PSI within 15 seconds when pressurized at 30 PSI, should be replaced. Northern's CAC Test Set provides you with the tools to safely and effectively determine whether any CAC passes or fails the manufacturer's specifications.

CHARGE AIR COOLER LEAK TESTING OEM RATE SPECIFICATIONS:

Caterpillar	5 psi in 15 seconds @ 30 psi
Cummins (ISB, ISC, N14)	7 psi in 15 seconds @ 30 psi
Cummins (ISX, M11)	5 psi in 15 seconds @ 30 psi
Detroit Diesel	5 psi in 30 seconds @ 30 psi
International	5 psi in 15 seconds @ 30 psi
Mack	5 psi in 15 seconds @ 30 psi
Mercedes	5 psi in 15 seconds @ 25 psi
Volvo	5 psi in 15 seconds @ 30 psi



RW0090-11

(Showing a properly mounted V Clamp just below the hose bead.)

Note: Charge air coolers are not designed to be 100% air tight and leak free.

INSTRUCTIONS ON USING CAC TEST KIT:

1. Position tester over inlet and outlet of charge air cooler.
2. V Clamp should be positioned below hose bead and tension nuts should be finger tight plus 1 turn.
3. If no hose bead exists, then position V Clamp 1" below inlet/outlet and tighten tension nuts finger tight plus 1 turn.
4. Center seal plate over inlet/outlet and tighten seal plate nuts to 5 ft. lbs. of torque.
5. Back off air regulator by turning adjusting knob counter clockwise and close inlet valve.
6. Attach air supply and slowly open inlet valve.
7. Adjust regulation by turning knob clockwise to 30 PSI as indicated on pressure gauge.
(The safety pop-it valve releases at 35 PSI should over pressurization occur.)
8. Close the inlet valve.
9. Observe pressure gauge.
10. A pressure drop of over 5 PSI in a 15 second period indicates charge air cooler is leaking and requires replacement.
11. Disconnect air supply and open inlet valve to release all pressure before removing tester assemblies.
12. If your testing procedure requires total submersion of the cooler and tester assembly, we recommend the regulator gauge be mounted remotely, above the surface of the water.