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|--------------------------|-----------------------------------------|-----------------------|----------------|
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| <b>Major System:</b>     | COOLING                                 | <b>Created:</b>       | 9/2/2014       |
| <b>Current Language:</b> | English                                 | <b>Last Modified:</b> | 9/5/2014       |
| <b>Other Languages:</b>  | NONE                                    | <b>Author:</b>        | Matthew Lazarz |
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Coding Information

|                  |                           |                                       |                         |              |                         |                |                    |
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**Title: Charge Air Cooler (CAC) Leak Test (Air Decay test)****Applies To: All Charge Air Coolers**

### **CHANGE LOG**

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8/21/2014 - Initial Article Release

### **DESCRIPTION**

When a low engine power complaint is encountered and a leak in the charge air cooler is suspected, you must leak test the charge air cooler (CAC).

#### **Customer Complaint(s):**

- Low Power
- Engine Noise
- Frequent Regen

### **SPECIAL TOOL(s) or SOFTWARE**

| Tool Description                               | Tool Number |
|------------------------------------------------|-------------|
| Charge Air Cooler Test Kit ( <b>Figure 2</b> ) | ZTSE-4341   |

### **INSPECTION STEP(s)**

1. Remove piping, hump hoses and clamps from the turbocharger and ETV or intake manifold. The charge air cooler can remain in the chassis for this test. Existing hump hoses and clamps on the charge air cooler itself will be used for this test. Double clamp all hump hose connections and tighten all constant torque hose clamps to 100 in-lbs.

**Figure 1.**



**To prevent possible injury from test adapters blowing off, secure safety chains on test adapters to any convenient bolt. Always remain out of line with the test adapters while performing the test and when the system is pressurized.**

2. Double-check all connections to verify that all joints are tight. Close air pressure regulator and drain valve before beginning test.
3. Begin test by slowly opening air pressure regulator until test pressure reaches 30 psi. When 30 psi test pressure has been reached, close the air pressure regulator.

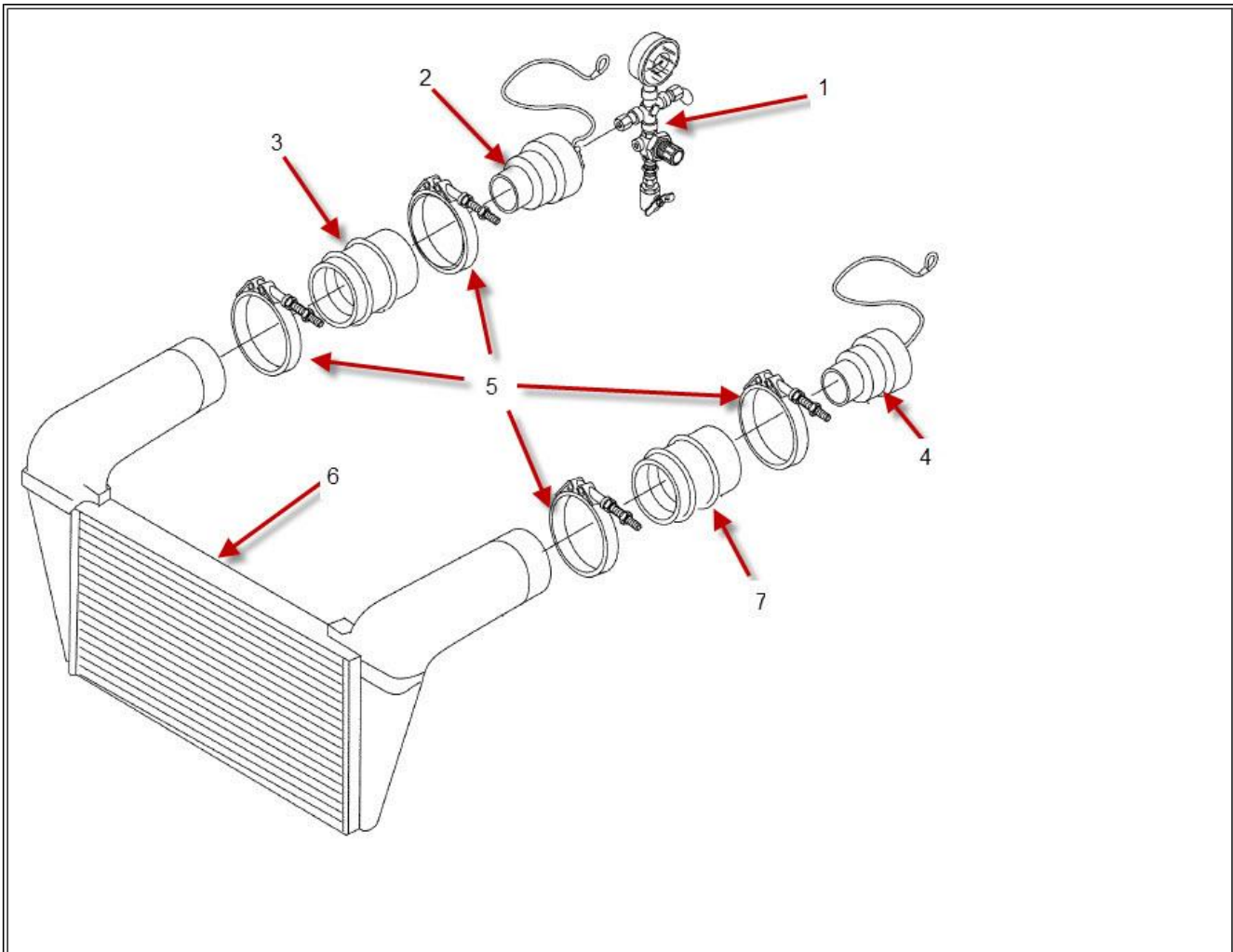


**Do not exceed 40 psi air pressure at any time, as excessive pressure can cause adapters to blow off which may result in injury or damage the cooler.**

4. Monitor pressure gauge and determine rate of pressure decay with a stopwatch. System pressure should not drop more than 5 psi in 15 seconds.
5. After testing, open the drain valve to release pressure. If pressure drop exceeds 5 psi in 15 seconds, re-check all connections.
6. If a leaky connection is found, tighten the connection and repeat the test. If the leak is within the charge air cooler, repeat the test as many times as necessary to verify the reading. Similar pressure decay readings should be obtained on at least three consecutive tests to confirm the reading.
7. **If pressure decay does not exceed 5 psi in 15 seconds, the charge air cooler is within acceptable performance limits and should not be replaced.**

**- IMPORTANT:** Charge Air Cooler units returned for warranty will be tested 100%. Charge air coolers are not designed to be 100% airtight and leak free. The charge air cooler is not defective if it leaks less than 5 psi in 15 seconds, from a start of 30 psi.

**- NOTE:** If testing indicates the Charge Air Cooler is leaking beyond the allowable specification, replace the CAC. Do not attempt to repair the CAC, because field repair is difficult and will void the CAC warranty.

**Figure(s)****Figure #1: Installation of Pressure Tester Installation**

- Item 1: Regulator & Pressure Gauge Assembly (with shut off valve)
- Item 2: CAC Pressure Test Inlet Fitting
- Item 3: Turbocharger to CAC Inlet "Hump Hose"
- Item 4: CAC Pressure Test Outlet Fitting (with bleed off valve)
- Item 5: CAC Hose Clamps
- Item 6: CAC
- Item 7: CAC Outlet to ETV "Hump Hose"



**Figure #2: CAC Pressure Test Kit**

Item 1: CAC Pressure Test Outlet Fitting (with bleed off valve)

Item 2: CAC Pressure Test Inlet Fitting

Item 3: Regulator & Pressure Gauge Assembly (with shut off valve)

Item 4: Safety Cables

## **WARRANTY INFORMATION**

### **Warranty Claim Coding:**

|               |                                        |
|---------------|----------------------------------------|
| <b>Group:</b> | 09046 Charge Air Cooler                |
| <b>Noun:</b>  | 925 Charge Air Cooler, Chassis Mounted |

### **Standard Repair Time(s):**

| Description                      | Engine                           | Chassis  | SRT Link                      |
|----------------------------------|----------------------------------|----------|-------------------------------|
| Charge Air Cooler, Pressure Test | MAXXFORCE 11/13                  | CT610    | <a href="#">AR09-3925U-1</a>  |
| Charge Air Cooler, Pressure Test | Cummins ISB                      | CE / BE  | <a href="#">GY09-3925SB-1</a> |
| Charge Air Cooler, Pressure Test | Cummins ISB                      | DuraStar | <a href="#">KL09-3925SB-1</a> |
| Charge Air Cooler, Pressure Test | MAXXFORCE DT/9/10 2010 Emissions | DuraStar | <a href="#">KL09-3925T-1</a>  |
| Charge Air Cooler, Pressure Test | MAXXFORCE 11/13                  | 7600     | <a href="#">N09-3925U-1</a>   |
| Charge Air Cooler, Pressure Test | MAXXFORCE 11/13                  | 8600     | <a href="#">Q09-3925U-1</a>   |
| Charge Air Cooler, Pressure Test | MAXXFORCE 11/13                  | ProStar  | <a href="#">R09-3925U-1</a>   |

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