



## Service Information System

Previous Screen

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### Technical Information Bulletin

#### SPN 111 FMI 1 – 2010-2013 CT11 and CT13 Coolant Consumption{7000}

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Caterpillar: Confidential Yellow

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## SPN 111 FMI 1 – 2010-2013 CT11 and CT13 Coolant Consumption{7000}

SMCS - 7000

### On Highway Truck:

CT660 (S/N: TGA1-UP; TGD1-UP; TJD1-UP; TEJ1-UP; TRK1-UP; TKL1-UP; TEM1-UP; TEP1-UP; TGR1-UP; TGS1-UP; TJS1-UP; TGT1-UP; TGW1-UP; TSW1-UP; TEY1-UP; TSY1-UP; TEZ1-UP; TGZ1-UP)

## Introduction

This Technical Information Bulletin (TIB) addresses low coolant (SPN 111 FMI 1) and/or coolant consumption on 2010 to 2013 – CT11 and CT13 liter engines. The procedure will guide the user through common failure areas, diagnostic tools, SRTs, and warranty filing.

## Problem

Consistent need to refill deaeration tank and active or previously active DTCs related to the cooling system.

SPN 111 FMI 1 - Low Coolant



**Malfunction Indicator Light (MIL)**

## Customer Observations or Concerns

- Malfunction Indicator Light (MIL)
- Red Stop Lamp (RSL)
- Coolant consumption
- Low coolant
- Coolant puddle under engine
- White smoke from the exhaust
- Coolant in the oil or oil analysis

## Solution

Table 1

Special Tools		
Tool Description	Tool Number	Comments
Plastic Plug/Cap Kit	373-4730	Used for sealing components during repairs
Radiator Pressure Testing Kit	259-6237	Coolant Tester Gp
Coolant Management Tool	372-5254	Cooling system drain and vacuum fill
EGR Cooler Leak Detection Kit	372-5257	HT and LT EGRC Pressure Tester "New" procedure tests with valve installed
EGR Cooler Alignment Tool	442-9850	If replacing an HT or LT EGRC section
EGR Cooler Lifting Bracket	462-9173	If removing EGR Cooler
Kit, Charge Air Cooler Test	373-4793	LPCAC Pressure Test Tool

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### NOTICE

**Engine fluids (oil, fuel, and coolant) may be a hazard to human health and the environment. Handle all fluids and other contaminated**

**materials (e.g., filters, rags) in accordance with applicable regulations.  
Recycle or dispose of engine fluids, filters, and other contaminated  
materials according to applicable regulations.**

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 **WARNING**

**Hot engine components can cause injury from burns. Before performing maintenance on the engine, allow the engine and the components to cool.**

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 **WARNING**

**Personal injury can result from hot coolant, steam and alkali.**

**At operating temperature, engine coolant is hot and under pressure. The radiator and all lines to heaters or the engine contain hot coolant or steam. Any contact can cause severe burns.**

**Remove filler cap slowly to relieve pressure only when engine is stopped and radiator cap is cool enough to touch with your bare hand.**

**Cooling System Conditioner contains alkali. Avoid contact with skin and eyes.**

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**Before Beginning:**

To prevent unnecessary repair, it is important to review a few areas of the vehicle. Each of the following can manifest in coolant consumption or low coolant level:

- Was the vehicle recently in for repair in which the cooling system was not properly filled (air pockets)?
- Was the vehicle recently repaired and the fault code unsuccessfully cleared?
- Is the operator aware of the proper filling procedure (overfill)?

If the coolant leak path is known (white smoke, coolant in oil samples, etc.), proceed to the applicable steps or Technical Service Bulletin as noted below. Otherwise, continue with Step 1.

- Step 1 – External Leaks

- Coolant in the exhaust
- Coolant in the intake
- Coolant in the oil

### **Coolant Consumption Diagnostic Procedure:**

If diagnosing a 111-1 code and having no associated coolant loss concern, go to 111-1 code circuit troubleshooting in the Engine Diagnostic Manual under Circuit Diagnostics > ECL Switch (Engine coolant level).



**Pressurized system: Hot coolant can cause serious burn. To open cap, stop engine, wait until radiator is cool. Then loosen cap slowly to relieve the pressure.**

Table 2

Step	Action	Decision
1	Visually inspect all components and hoses for external leaks.  Are any external coolant leaks visible?	<b>Yes:</b> Repair as necessary. Restore the engine to operational condition and retest cooling system.
		<b>No:</b> Go to Step 2.
2	Remove deaeration tank cap. Pressurize cap to its rated pressure:  Remove deaeration tank cap.  Connect Radiator Pressure Testing Kit 259-6237 with Surge Tank Cap Adaptor to deaeration cap..  Pressurize deaeration cap to its rated pressure..	<b>Yes:</b> Go to Coolant Overflow diagnostics in the Engine Diagnostic Manual.
		<b>No:</b> Go to Step 4
3	Start engine. With engine at operating temperature and operating at high idle speed, inspect for coolant overflow out of deaeration tank.  Is coolant overflowing out of the deaeration tank?	<b>Yes:</b> Go to Coolant Overflow diagnostics in the Engine Diagnostic Manual.
		<b>No:</b> Go to Step 4
4		<b>Yes:</b> Go to Coolant in the Exhaust symptom-based diagnostics.

	<p>Inspect for coolant in the exhaust.</p> <p>Is coolant visible in the exhaust system?</p>	<p><b>No:</b> Go to Step 5</p>
5	<p>Inspect for coolant and/or white coolant residue in the charge air intake:</p> <p>Disconnect CAC pipe at ETV housing.</p> <p>Inspect CAC pipe for visual signs of white coolant residue.</p> <p>Inspect the ETV housing for visual signs of coolant.</p> <p>Is coolant and/or white coolant residue present in intake?</p>	<p><b>Yes:</b> Go to Coolant in intake symptom -based diagnostics.</p>
		<p><b>No:</b> Go to Step 6</p>
6	<p>Inspect for visible evidence of coolant on the engine oil level gauge (dipstick):</p> <p>Remove and inspect engine oil dipstick for visible evidence of contamination.</p> <p>Oil contamination with coolant generally causes the oil to thicken and coagulate, giving the oil a light gray, sludge appearance.</p>	<p><b>Yes:</b> Go to Coolant in lube oil symptom -based diagnostics.</p>
		<p><b>No:</b> Restore the engine to operational condition and retest cooling system.</p>