

<b>Technical Service Bulletin Number</b>
--

TSB170002
-----------



## Technical Service Bulletin

### Subject

---

Injector Sleeve Seal Leakage Causing Fuel and Coolant Cross-Contamination

### Warranty Statement

---

The information in this document has no effect on present warranty coverage or repair practices, nor does it authorize TRP or Campaign actions.

### Contents

---

#### Product Affected

- ISX15 CM2250
- ISX15 CM2250 SN
- ISX15 CM2350 X101
- PowerGen QSX15 CM2250
- PowerGen QSX15 CM2250 ECF
- QSX15 CM2250 ECF
- QSX15 CM2250 X115
- QSX15 CM2350 X105
- QSX15 CM2350 X106
- X15 CM2350 X116B
- X15 CM2350X114B

#### Issue

Symptom:

- Fuel in coolant system

- Coolant in fuel system
- Fault Code 418 (water-in-fuel indicator)
- Pressurized cooling system

#### Root Cause:

- Shrinkage of injector sleeve seal material can create a leak path between cylinder head cooling jacket and injector bore.

#### Verification

**NOTE:** Injector sleeve seal material degradation is only one possible cause of symptoms discussed in this document. Published troubleshooting procedures must be followed to determine root cause.

- Inspection for fuel or coolant leakage past injector sleeve seal is **only** to be performed when other possible sources of contamination, such as fuel heaters, have been ruled out.
- Injector sleeve seal leaks can be verified in-chassis by pressure testing cooling system with injectors removed and monitoring upper edge of injector sleeves for bubbles or coolant leaking into injector bore. See corresponding Service Manual. Reference Procedure 002-014 in Section 2.
- If cylinder head has been removed, injector sleeve seal leaks can be verified by leak testing coolant passage using service tool, Part Number 3164231. See corresponding Service Manual. Reference Procedure 002-004 in Section 2.



Figure 1, Small Amount of Coolant Leakage Past Injector Sleeve.



Figure 2, Large Amount of Coolant Leakage Past Injector Sleeve.

## Resolution

- Cylinder head assemblies are **not** to be replaced if injector sleeve is found leaking.
- If leaking injector sleeve is root cause of coolant or fuel cross-contamination, install retaining ring, Part Number 4312298 in all six injector sleeves. See Service Instructions and Service Parts Availability Sections below.
- Even if **only** one injector sleeve is found leaking, retaining rings **must** be installed in all six injector sleeves.
- Installation of a retaining ring is a onetime repair **only**. If an injector sleeve is found to be leaking again and a retaining ring was previously installed, Service Manual Procedure 002-014 in Section 2 will direct further investigation of cylinder head to better understand severity of fuel or coolant leak or causes besides sleeve seal material being compromised.

## Service Instructions

- See video link below for instructions on installation of retaining rings.

**NOTE:** <http://tsb.cumminsvirtualcollege.com/TSB170002.aspx>

- See corresponding Service Manual. Reference Procedure 002-014 in Section 2 for instruction on repairing a leaking injector sleeve using service tool, Part Number 5394735, and retaining ring, Part Number 4312298.

### Service Parts Availability

Cummins® warranty will reimburse an authorized repair location once for the purchase of the installation tool, Part Number 5394735, to support a warrantable injector sleeve repair. The installation tool part number should be claimed in the parts section of the warranty claim for the cylinder head repair. The tool is reusable and is to be claimed **only** one time per repair location.

Table 1, Service Parts		
Part Description	Part Number	Quantity
Kit, Installer	5394735	1
Ring, Retaining	4312298	6

### Publications Affected

Table 2, Publications Affected					
Manual Type	Engine	Bulletin Number	Procedure Title	Procedure	Section
Service Manual	ISX15 CM2250	4022250	Injector Sleeve, Cylinder Head	<a href="#">Refer to Procedure 002-014</a>	2
	ISX15 CM2250 SN	4310736		<a href="#">Refer to Procedure 002-014</a>	
	ISX15 CM2350 X101	4310641		<a href="#">Refer to Procedure 002-014</a>	
	QSX15 CM2250 X115	4388739		<a href="#">Refer to Procedure 002-014</a>	
	QSX15 CM2350 X105	4332667		<a href="#">Refer to Procedure 002-014</a>	
	QSX15 CM2250 ECF	2883557		<a href="#">Refer to Procedure 002-014</a>	
	QSX15 CM2350 X106	4332712		<a href="#">Refer to Procedure 002-014</a>	

<b>Manual Type</b>	<b>Engine</b>	<b>Bulletin Number</b>	<b>Procedure Title</b>	<b>Procedure</b>	<b>Section</b>
	PowerGen QSX15 CM2250	4310664		Refer to Procedure 002- 014	
	PowerGen QSX15 CM2250 ECF	4310661		Refer to Procedure 002- 014	
	X15 CM2350X114B	5411181		Refer to Procedure 002- 014	
	X15 CM2350 X116B	5411186		Refer to Procedure 002- 014	

## Document History

<b>Date</b>	<b>Details</b>
2017-1-3	Module Created

**Last Modified: 24-Mar-2017**

Copyright © 2000-2010 Cummins Inc. All rights reserved.