Countries:	AUSTRALIA, CANADA, COLOMBIA, UNITED STATES, MEXICO, PUERTO RICO	**Document ID:**	IK1201091
Availability:	ISIS	**Revision:**	0
Major System:	ENGINES	**Created:**	3/11/2014
Current Language:	English	**Last Modified:**	4/7/2014
Other Languages:	NONE	**Author:**	Aaron Wenthold
Viewed:	441		

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Title: 2010 - 2013 11/13 Liter Coolant Leak to Lube Oil

Applies To: 2010 MaxxForce 11/13 Coolant

CHANGE LOG

Initial Launch - 03/2014

DESCRIPTION:

Provide repair advice for 2010 - 2013 11/13 Liter vehicles that exhibit Coolant in the Oil, after following IK1201066 2010 MaxxForce 11 & 13L Coolant Consumption and SPN-111 FMI-1

SYMPTOM:

Engine oil with a light gray and sludgy appearance. The crankcase may also be overfilled.

SPECIAL TOOLS

Tool Description	Tool Number	Comments	
Plastic Plug / Cap Kit	ZTSE4891	Used for sealing components during repairs	
Radiator Pressure Testing Kit	ZTSE2384		
Coolant Cap Pressure Testing Kit	09-040-01	Perform with warm engine	
Coolant Management Tool	KL5007NAV	Cooling system drain and vacuum fill	
EGR Cooler Leak Detection Test Kit	KL20060NAV	HT and LT EGRC Pressure Tester "New" procedure tests with valve installed	

EGR Cooler Alignment Tool	12-892-01	If replacing an HT or LT EGRC section	
EGR Cooler Lifting Bracket	12-892-03	If removing EGR Cooler	
Kit, Charge Air Cooler Test	ZTSE6042	LPCAC Pressure Test Tool	

COOLANT LEAK TO LUBE OIL DIAGNOSTIC PROCEDURE:

Possible Causes

Failed EGR Cooler
Cracked cylinder liner
Failed cylinder Head rear gear train freeze plug
Failed air compressor
Cracked oil cooler housing
Missing/damaged oil cooler gaskets
Missing/damaged oil filter module gasket
Missing mounting bolts for the oil filter module to the crankcase

Step	Action	Decision
1	**Check lube oil for proper level and visible contamination.** • **Oil contaminated with coolant generally causes the oil to thicken and coagulate, giving the oil a light gray sludgy appearance.** **Does the lube oil show signs of visual contamination?**	**Yes: Go to step 2** **No: Take an oil sample for analysis. Restore the engine to operational condition and retest cooling system.**

Step	Action	Decision
2	**Pressure test Low Temp (LT) and High Temp (HT) EGR cooler, in vehicle, following procedures in the Engine Service Manual.** • **Using KL 20060 NAV - EGR Cooler Leak Detection Test Kit, pressure test EGR cooler following the procedure in the Engine Service Manual.** **Is there a leak present in either of the EGR Cooler sections?**	**Yes: Go to step 3** **No: Reinstall removed components then, go to step 4.**

Step	Action	Decision
3	**Verify which section of the EGR Cooler is leaking.** **Which Section of the EGR Cooler is leaking?**	**HT EGR Cooler: Replace HT EGR Cooler, then go to step 8.** **LT EGR Cooler: Replace LT EGR Cooler, then go to step 8.** **Both LT and HT: Replace both the LT and HT EGR Cooler sections, then go to step 8.**

Step	Action	Decision
4	Remove oil pan following procedures in the Engine Service Manual. Inspect the inside of the crankcase for evidence of coolant leakage. • Remove deareation tank cap. • Install Radiator Pressure Testing Kit ZTSE2384 with Surge Tank Cap Adaptor on deaeration tank. • Pressurize cooling system to 117 kPa (17 psi) for a minimum of 15 minutes. Is coolant leakage present inside the crankcase?	Yes: Go to step 5. No: Restore the engine to operational condition and retest cooling system.

Step	Action	Decision
5	Identify where the coolant leakage in the crankcase originates. (Cylinder Liners or Rear Gear Train) • Inspect for coolant at bottom edge of cylinder liners. • Inspect for coolant evident at the rear gear train area. What area does the coolant leakage originate from?	Cylinder Liners: Go to step 7. Rear Gear Train Area: Inspect cylinder head freeze plugs for leaking coolant. Repair as necessary. Then go to step 8. Neither Area: Go to step 6.

Step	Action	Decision
6	Identify where the coolant leakage in the crankcase originates. (Air Compressor or Oil Cooler) • Inspect for coolant evident at the Air Compressor drain. • Inspect for coolant evident at the Oil Cooler drain. What area does the coolant leakage originate from?	Air Compressor Drain: Replace Air Compressor. Then go to step 8 Oil Cooler Drain: Check for leaking oil cooler module gasket as per the Engine Service Manual. Repair as necessary.Then go to step 8. Neither Area: Restore the engine to operational condition and retest cooling system.

Step	Action	Decision
7	Inspect lower edges of cylinder liners for coolant leaks.	

	• **Note cylinder number(s) where coolant leakage is identified.** **Is coolant leakage present between cylinder liner and crankcase?**	**Yes: Replace failed cylinder liner o-ring (s). Then go to step 8.** **No: Go to "Coolant Overflow" Symptom diagnostic section in the Engine Diagnostic Manual for further testing.**

Step	Action	Decision
8	**Change the engine oil, filter and soot centrifuge oil filter (if equipped).**	**Repair Complete.**

SERVICE PART(s) INFORMATION

Kit Description	Part Number	Quantity Required	Ordering Instructions
HT EGR Cooler	3014254C95	1 (If Required)	Order from Navistar
LT EGR Cooler	3015862C94	1 (If Required)	Order from Navistar
Engine Oil Filter	3007498C93	1 (If Required)	Order from Navistar
Soot Centrifuge Filter	2606467C92	1 (If Required)	Order from Navistar

WARRANTY INFORMATION

Group:	**12000**
Noun:	892 EGR Cooler 186 EGR Cooler Coolant Manifolds/Pipes/Connections 192 Cylinder Liner

Warranty Coding Manual CTS-1025

Standard Repair Time(s):

Step	Description	SRT Link	Hours
	EGR Cooler Repairs, see EGR Cooler SRT Table	SRT Table	

Standard Repair Time Manual

Special Requirement(s):
EGR Cooler iApprove
Cooling package components (radiators) require a photo attachment, per WPL 10-010G

OTHER RESOURCES

IK1201066 2010 MaxxForce 11 & 13L Coolant Consumption and SPN-111 FMI-1
RC1200004 2010 MaxxForce 11/13 EGR Cooler Resource Center

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