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Viewed:	908		

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Coding Information

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Title: Big Bore Coolant Overflow Diagnostics

Applies To: ProStar, LoneStar, PayStar, WorkStar, and TranStar equipped with 2010 MaxxForce 11/13L Engines

CHANGE LOG

Dealers: Please refer to the change log text box below for recent changes to this article:

04/20/2015 - Un-tagged N13 from this article and corresponding iKNOW articles. The information for coolant overflow is located in the respective diagnostic manual for N13 engines. Changed EGR cooler leak detection tool number from "KL20060NAV" to "12-892-02".
 12/04/2014 - Added Australia, Russia and Korea to country coding
 09/16/2014 - Added Part #'s and SRT's
 09/11/2014 - Removed step 6 and adjusted diagnostic.

DESCRIPTION

This document is for Coolant Overflow Diagnostics, and should only be used after first performing [IK1201066](#)

SYMPTOM(s)

Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

- Red light under temperature gauge
- Low coolant warning on Message Center

Customer Concern(s)

- Coolant Overflowing from Reservoir/De-Aeration Tank
- Overheating
- Low Coolant Warning on Message Center

Possible Causes

- Failed Air Compressor
- Failed EGR Cooler
- Cracked Cylinder Liner
- Failed Cylinder Head

SPECIAL TOOL(s) or SOFTWARE

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 Kit	12-892-02	HT and LT EGRC Pressure Tester
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
Combustion in Cooling System Tester Kit	09-889-01	

OVERVIEW



GOVERNMENT REGULATION: 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.



WARNING:

To prevent personal injury or death, make sure the engine has cooled before removing components.



WARNING:

To prevent personal injury or death, do not let engine fluids stay on your skin. Clean skin and nails using hand cleaner and wash with soap and water. Wash or discard clothing and rags contaminated with engine fluids.

DIAGNOSTIC PROCEDURE

Step	Action	Decision
1	Symptom Verification	Yes: Go to Step 2
	When recreating overflow, watch for engine overheating.	No: Go to Step 3
	Does the vehicle overheat?	

Step	Action	Decision
		Yes: Go to Step 3

2	Symptom Verification When recreating Overflow concern verify which concern occurs first Does Overflow condition occur before over temperature?	No: Go to Overheat diagnostics IK1201192
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Step	Action	Decision
3	Air Compressor Test Perform Air compressor Isolation test to verify that the Air compressor is not aerating the coolant. - Run the Engine - When Overflow condition is present perform next step - Pull and prop open the drain valves on the air tanks After pulling and propping the drain valves open on the air tanks with the engine running. Is the overflow condition still present?	Yes: Go to Step 4 No: Correct issue with Air Compressor and Retest

Step	Action	Decision
4	Pressure test Low Temp (LT), and High Temp (HT) EGR Cooler. Using KL 20060 NAV EGR Cooler Leak Detection Test Kit, Pressure test EGR Cooler following the Installation, and testing Instructions in TL2900004 Is there a leak present in either of the EGR Cooler Sections?	Yes: Go to Step 5 No: Go to Step 6

Step	Action	Decision
5	Verify which section of the EGR Cooler is leaking. Note : See IK1201113, or IK1201100 for EGR Cooler SRT codes and warranty replacement guidelines. Which Section of the EGR Cooler is leaking?	HT EGR Cooler : Replace HT EGR Cooler Core, See IK1201113, if condition is still present go to Step 6 LT EGR Cooler : Replace LT EGR Cooler Core, See IK1201100. If condition still present go to Step 6 Both HT and LT : Follow the individual instructions above. Neither procedure interferes with the other so there's no set order of repair.

Step	Action	Decision
6	Cylinder Liner/Cylinder Head Inspection Remove cylinder head for inspection (see Engine Service Manual Starting on Page 409) Bar engine over to put each cylinder at BDC	Yes: Go to Step 7 No : Replace affected liners, reassemble, and retest for condition. Note : If replacing any liners be

2. Visually inspect for coolant staining and coolant to identify suspect cylinder	sure to inspect the piston cooling jet for obstructions
3. Check for pinholes and cracks in the liner	
Are cylinder liners free of coolant leaks, and coolant staining?	

Step	Action	Decision
7	Measure Cylinder Sleeve Protusion on each cylinder. See Cylinder Sleeve Protrusion Procedure in Engine Service Manual Page 497 : Check cylinder sleeve protrusion above crankcase deck as follows: 1. Install Sleeve Protrusion Hold Down Clamps (page 504) using four included bolts. Torque bolts to special torque (page 503). 2. Place dial indicator with magnetic base (page 504) on crankcase deck surface. 3. Position dial indicator tip on crankcase deck adjacent to cylinder sleeve flange. Zero dial indicator. 4. Carefully pivot dial indicator until tip is resting on cylinder sleeve flange. Record reading. 5. Measure cylinder sleeve protrusion at three locations evenly spaced around the cylinder sleeve. Spec : 0.050 - 0.085 mm (0.0019 - 0.0033 in) Is liner protrusion within specification on all cylinders?	Yes: Go to Step 9
		No: Go to Step 8

Step	Action	Decision
8	Liner Protrusion diagnostic Swap liners on cylinder(s) with incorrect protrusion measurement and known good liner on other cylinder. Note : When Reinstalling Piston/Connecting Rod Assembly be sure that Piston(s) are oriented correctly and being put back in the correct cylinder. Is the liner protrusion now within specifications?	Yes: Replace affected liner(s) Note : If replacing any liners be sure to inspect the piston cooling jet for obstructions
		No: Counterbore issue present - Contact your Supervisor.

Step	Action	Decision
9	Liner damage diagnostic Remove all liners, and visually inspect inside and out for pinholes, cracks, and damage Note : When Reinstalling Piston/Connecting Rod Assembly be sure that Piston(s) and connecting rod caps are oriented correctly and being put back in the correct cylinder. Is the liner free of defects/issues?	Yes: Replace Cylinder head and Re-Test.
		No: Replace affected liner(s) Note : If replacing any liners be sure to inspect the piston cooling jet for obstructions

SERVICE PART(s) INFORMATION:

Kit Description	Part Number	Quantity Required	Ordering Instructions
Air Compressor	N/A	Depends on Application	Order From Navistar
Cylinder Head Removal Kit	3007652C91	1	
MaxxForce 11 Cylinder Head Gasket	62039010403	1	
MaxxForce 13/N13 Cylinder Head Gasket	62039010402	1	
Cylinder Head Ass'y	3007649C92	1	
MaxxForce13/N13 Cylinder Sleeve Kit	3004718C93	Depends on repair (1-6)	
MaxxForce 11 Cylinder Sleeve Kit	3014598C91	Depends on repair (1-6)	
Connecting Rod Bolts (Torque to Yield)	62904900079	2 Per Cylinder	Only needed if replacing Cylinder Sleeve

WARRANTY INFORMATION

Warranty Claim Coding:

NOTE: There are multiple noun groups that diagnostic time could be charged to.

Group:	Multiple Groups - Code to repair made
Noun:	Multiple Nouns - Code to repair made

- Link to the Coding Manual: [Click Here](#)

STANDARD REPAIR TIME(s)

Note : New SRT's will be available, but until then please utilize T-Times shown below.

ProStar			
Step	Description	SRT Link	Hours
1-3	Cooling System Diagnostics	T-Time	0.5
3	Air Compressor Replacement	R04-1202U-21(1 Cyl)	3.5
3	Air Compressor Replacement	R04-1202U (2 Cyl)	3.4
4	EGR Cooler Pressure Test (Only use if Cooler not replaced)	R12-6892U-22	3.9
6	Cylinder Head Removal	R12-1342L	20.2
			0.9

7	Cylinder Sleeve Protrusion Measurement (Add-On)	R12-1342U-4	
8	Cylinder Sleeve Replacement	A12-1192	2.7
8/9	Cylinder Sleeve Replacement (Each Additional)	A12-1192-11	0.8

TranStar			
Step	Description	SRT Link	Hours
1-3	Cooling System Diagnostics (No compressor replacement)	T-Time	0.5
3	Air Compressor Replacement	Q04-1202U-20(1 Cyl)	3.5
3	Air Compressor Replacement	Q04-1202U (2 Cyl)	3.4
4	EGR Cooler Pressure Test (Only use if Cooler not replaced)	Q12-6892U-22	3.6
6	Cylinder Head Removal	Q12-1342U	18.9
7	Cylinder Sleeve Protrusion Measurement (Add-On)	Q12-1342U-4	0.9
8	Cylinder Sleeve Replacement	A12-1192	2.7
8/9	Cylinder Sleeve Replacement (Each Additional)	A12-1192-11	0.8

WorkStar			
Step	Description	SRT Link	Hours
1-3	Cooling System Diagnostics (No Compressor Replacement)	T-Time	0.5
3	Air Compressor Replacement	N04-1202U-20 (1Cyl)	3.5
3	Air Compressor Replacement	N04-1202U (2Cyl)	3.4
4	EGR Cooler Pressure Test (Only use if Cooler not replaced)	N12-6892U-22	3.9
6	Cylinder Head Removal	N12-1342U	19.9
7	Cylinder Sleeve Protrusion Measurement (Add-On)	N12-1342U-4	0.9
8	Cylinder Sleeve Replacement	A12-1192	2.7
8/9	Cylinder Sleeve Replacement (Each Additional)	A12-1192-11	0.8

PayStar			
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Step	Description	SRT Link	Hours
1-3	Cooling System Diagnostics (No Compressor Replacement)	T-Time	0.5
3	Air Compressor Replacement	T04-1202U-20 (1Cyl)	3.5
3	Air Compressor Replacement	T04-1202U (2Cyl)	3.4
4	EGR Cooler Pressure Test (Only use if Cooler not replaced)	T-Time	3.6
6	Cylinder Head Removal	T12-1342U	18.9
7	Cylinder Sleeve Protrusion Measurement (Add-On)	T12-1342U-4	0.9
8	Cylinder Sleeve Replacement	A12-1192	2.7
8/9	Cylinder Sleeve Replacement (Each Additional)	A12-1192-11	0.8

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Feedback Information

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