

Authorized Field Change



AFC 12947

Date: February 2013

Subject File: ENGINE

Subject: Removal and Replacement of the MaxxForce® 15 Doser Tube Coolant Return Hose, leak checking cooler hose assemblies, and replacing if necessary.

Model: PayStar®, ProStar®, 9900 Premium Conventional®

Start Date: 21 December 2010 End Date: 1 April 2012

Engine Family: MaxxForce® 15

DESCRIPTION

Doser Tube Coolant Return Hose assemblies and coolant hoses for certain MaxxForce® 15 engines have been found to leak. This AFC describes a repair procedure to replace Doser Tube Coolant Return hoses and, if leaking, coolant hoses with improved hose clamps for all affected MaxxForce® 15 engines.

PARTS INFORMATION

Table 1. Kit Contents: 7092256C91 — Low Temperature Radiator (LTR) Lower Bypass Kit

Part Number	Description	Quantity
3014154C1	Hose, Elbow	1
3016974C1	Clamp	1
2022867C1	Clamp	1

Table 2. Kit Contents: 7092257C91 — LTR Supply Hose Kit

Part Number	Description	Quantity
3014155C1	Hose, Elbow	1
3016945C1	Clamp, SAE 15	1
3008685C2	Clamp, SAE 16	1

PARTS INFORMATION (CONT.)

Table 3. Kit Contents: 7092259C91 — Low Pressure (LP) Cooling Circuit Hose Kit

Part Number	Description	Quantity
3014225C1	Coolant Adapter	1
3008822C2	Coolant Hose, 24.6 X 55	1
2022867C1	Clamp, 27 mm	1
3016974C1	Clamp	3
7092258C91	Kit , ISC Hoses (Included)	1
3002242C1	Low Pressure Charge Air Cooler (LPCAC) Coolant Return Hose	1
3008779C2	Clamp, SAE 24	1
3004250C1	Clamp, 30 mm	2
3004369C1	High Pressure Charge Air Cooler (HPCAC) Coolant Supply and Return Hose	1
3016974C1	Clamp, 35 mm	1

Table 4. Kit Contents: 3015974C92 — Coolant Control Valve (CCV) Supply Hose

Part Number	Description	Quantity
3015973C1	Hose	1
3013733C1	Clamp, SAE LH Clip	2

Table 5. Kit Contents: 3015976C91 — Fitting Assembly, Water Outlet

Part Number	Description	Quantity
3015975C1	Water Outlet Fitting	1
3007808C1	O-ring Seal 3–910	2

Table 6. Doser Components

Part Number	Description	Quantity
3013830C93	Doser Tube	1
138241	Bolt	2
3007325C1	Washer	2

Table 7. Interstage Cooler Seals

Part Number	Description	Quantity
1883141C1	O-ring size 2–230 3.5 X 63.09 ID	1
3013030C1	O-ring, size 333	2

PARTS INFORMATION (CONT.)

Table 7. Interstage Cooler Seals (cont.)

Part Number	Description	Quantity
3013029C1	Seal, Inlet Low Pressure Compressor	1
3014369C1	Tube, Extension Diameter 72.2 X 60	1

Table 8. Equipment Required

Coolant Management Tool KL5007NAV

Table 9. Tools Required

Regular hand tools

DOSER TUBE COOLANT RETURN REPLACEMENT AND COOLING CIRCUIT HOSE LEAK CHECK AND REPLACEMENT FOR MAXXFORCE®

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 **WARNING:** Park vehicle on hard flat surface, turn the engine off, set the parking brake, and block the wheels to prevent the vehicle from moving in both directions. Failure to do so may result in property damage, personal injury, and / or death.

 **WARNING:** If the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over, potentially resulting in property damage, personal injury, and / or death.

 **WARNING:** Always wear safe eye protection when performing vehicle maintenance. Failure to do so may result in serious eye injury.

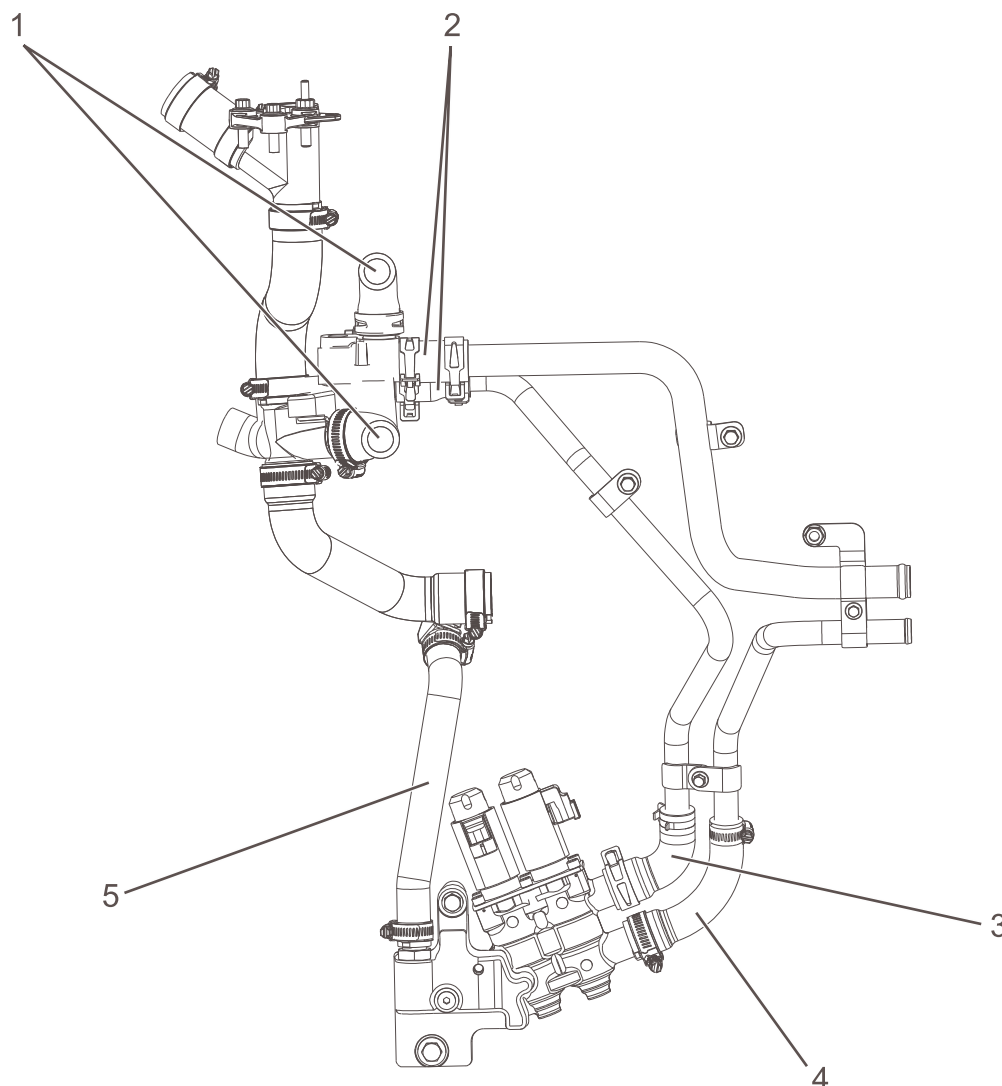
 **WARNING:** Keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. Batteries expel explosive gases. Failure to do so may result in property damage, personal injury, and / or death.

 **WARNING:** Remove the ground cable from the negative terminal of the battery box before disconnecting any electrical components. Always connect the ground cable last. Failure to do so may result in property damage, personal injury, and / or death.

 **WARNING:** To prevent personal injury or death from hot coolant or steam, use only the following procedure to remove the pressure cap from the surge tank. Allow the engine to cool first. Wrap a thick, heavy cloth around the cap. Loosen cap slowly and then pause a moment to allow pressure to release. After the pressure has been released, the pressure cap may be removed. Failure to follow this warning could result in personal injury and / or death.

NOTE: All of the hoses pertaining to this AFC are one-time use only.

DOSER TUBE COOLANT RETURN REPLACEMENT AND COOLING CIRCUIT HOSE LEAK CHECK AND REPLACEMENT FOR MAXXFORCE® 15 (CONT.)



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Figure 1. Cooler Hoses and Clamps Replacement.

1. ISC Hoses Kit 7092258C91. (Contains HPCAC coolant supply / return hose and LPCAC coolant return hose. This kit number is included in Kit number 7092259C91)
2. ISC Coolant Supply Hose and CCV LTR bypass hose connections at coolant manifold 7092259C91
3. LTR Lower Bypass Kit 7092256C91
4. LTR Supply Hose Kit 7092257C91
5. CCV Supply Hose Assembly Kit 3015974C92

NOTE: Before performing any work on the cooling package system components, be sure to perform these basic tasks first:

DOSER TUBE COOLANT RETURN REPLACEMENT AND COOLING CIRCUIT HOSE LEAK CHECK AND REPLACEMENT FOR MAXXFORCE® 15 (CONT.)

1. Park vehicle on a flat, level surface.
2. Place transmission in neutral (or PARK, if automatic transmission).
3. Set parking brake.
4. Turn off ignition.
5. Install wheel chocks.

NOTE: Replace only the hoses that have leaking connections.

Initial Pressure Leak Test

1. Run engine to get coolant up to operating temperature.
2. Carefully visually inspect for any signs of external coolant leaks.
3. Shut off engine and allow it to cool.
 - A. If leakage is observed, determine source of coolant leak.

If leakage is from a hose joint covered in this AFC, proceed to Doser Tube Coolant Return Hose Replacement. If leakage is from another source, repair as necessary.
 - B. If no leakage was observed, after completing Doser Tube Coolant Return Hose Replacement, proceed to Inspection of LTR Supply Hose connection to CCV for Over-Insertion section of AFC.



WARNING: To prevent personal injury or death: Allow engine to cool before removing any hose connections. Drain coolant before removing any hose connections.

Doser Tube Coolant Return Hose Replacement

1. Disconnect negative battery terminal from battery.
2. Replace doser components listed in Table 6 above. (See Table 6. page 2)
3. Refer to Aftertreatment System section of the MaxxForce® 15 Service Manual (EGES 510) for instructions on how to replace tube.
4. If no leakage is found in Initial Pressure Leak Test, proceed to Inspection of LTR Supply Hose connection to CCV for Over-Insertion section of AFC.

Hose and Clamp Replacements

1. If leak is found on Coolant Control Valve (CCV) Low Temperature Radiator (LTR) Bypass Hose, ISC coolant supply hose on connection with coolant manifold (Figure 1, Item 2), HPCAC coolant supply and return hoses, or LPCAC coolant return hose (Figure 1, Item 1), proceed to next step.

DOSER TUBE COOLANT RETURN REPLACEMENT AND COOLING CIRCUIT HOSE LEAK CHECK AND REPLACEMENT FOR MAXXFORCE® 15 (CONT.)

2. Remove interstage cooler. Refer to Turbocharger Interstage Cooler (ISC) Assembly in Turbocharger section of MaxxForce® 15 Engine Service Manual (EGES 510) for instructions on how to remove and install interstage cooler. Replace Interstage Cooler Seals with parts from Table 7. (See Table 7. page 2)
3. Remove leaking hose assemblies and replace with new parts.

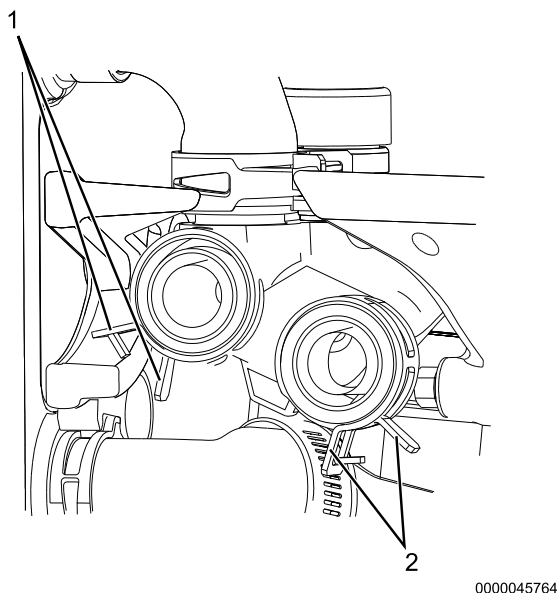
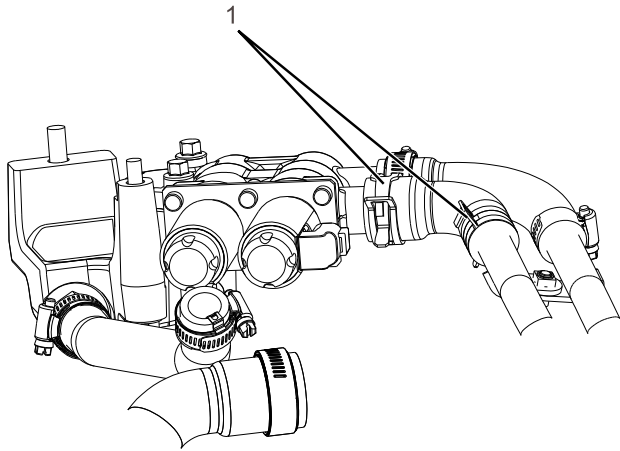


Figure 2. Proper Placement of Spring Loaded Clamp Release Prongs at ISC Coolant Supply and CCV LTR Bypass Hose Connections to Coolant Manifold.

1. Correct position of release prongs on ISC coolant supply tube
 2. Correct position of release prongs on CCV LTR bypass tube
4. Position clamp release prongs properly (Figure 2, Item 1) when installing ISC coolant supply tube.
Position clamp release prongs properly (Figure 2, Item 2) when installing CCV LTR bypass tube.
 5. If leak is found on any connection with LTR Lower Bypass Hose (Figure 1, Item 3), or LTR Supply Hose (Figure 1, Item 4), proceed to next step.
 6. Remove and replace hose assemblies. Refer to Coolant Manifold, ISC Coolant Supply Tube Assembly, and CCV LTR Bypass Tube Assembly in Exhaust Gas Recirculation (EGR) System section of MaxxForce® 15 Engine Service Manual (EGES 510) for instructions on how to replace these hose assemblies.

NOTE: Parts Kit Number. 7092256C91, Table 1, includes updated spring loaded clamps, as well as worm gear style clamps. Proper placement of release prongs of spring loaded clamps is critical to allow for removal and installation.

DOSER TUBE COOLANT RETURN REPLACEMENT AND COOLING CIRCUIT HOSE LEAK CHECK AND REPLACEMENT FOR MAXXFORCE® 15 (CONT.)



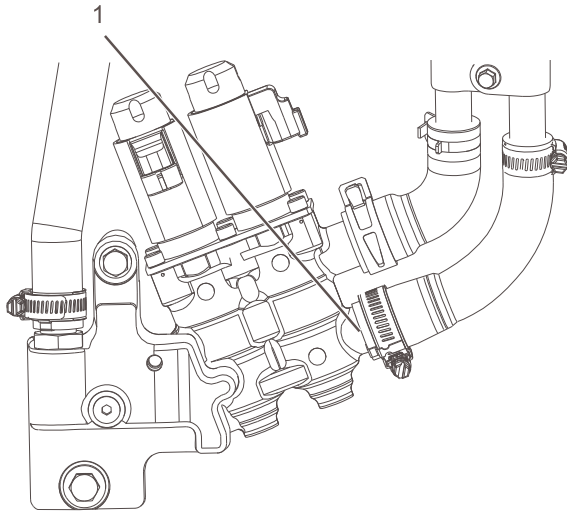
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Figure 3. Proper Placement of Spring Loaded Clamp Release Prongs.

1. Correct position of release prongs on LTR lower bypass hose.
7. Position spring loaded clamp release prongs properly (Figure 3, Item 1) when installing LTR lower bypass hose.

DOSER TUBE COOLANT RETURN REPLACEMENT AND COOLING CIRCUIT HOSE LEAK CHECK AND REPLACEMENT FOR MAXXFORCE® 15 (CONT.)

Inspection of LTR Supply Hose Connection to CCV for Over-Insertion

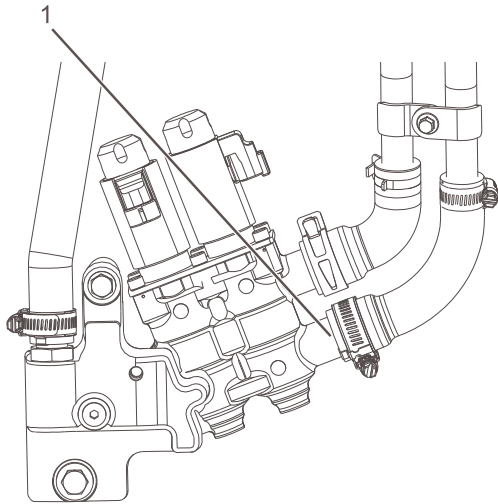


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Figure 4. LTR Supply Hose Over-insertion.

1. Hose over-inserted all the way up to Coolant Control Valve body.
1. Inspect LTR Supply Hose for over-insertion (Figure 4, Item 1).

DOSER TUBE COOLANT RETURN REPLACEMENT AND COOLING CIRCUIT HOSE LEAK CHECK AND REPLACEMENT FOR MAXXFORCE® 15 (CONT.)

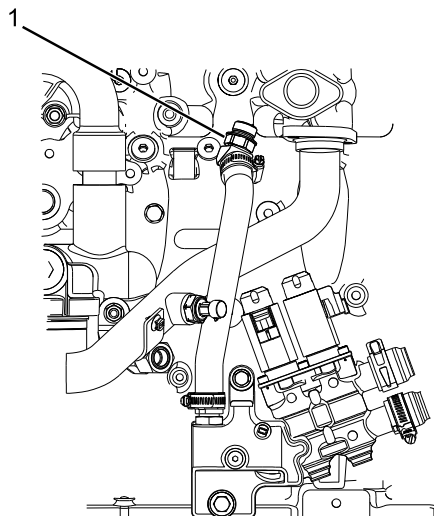


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Figure 5. LTR Supply Hose Properly Installed.

1. Proper hose insertion shown. (hose is not pushed all the way to Coolant Control Valve body)
2. If over-inserted, replace hose and clamp with Kit Part Number 7092257C91. For correct installation, see Figure 5, Item 1. If no leaks were found from Initial Pressure Leak Test, proceed to Final Pressure Leak Test section of AFC.
3. If leak is found on either connection of Coolant Control Valve (CCV) Assembly Supply Hose (Figure 1, Item 5), remove and replace hose assembly. Refer to Coolant Control Valve (CCV) Assembly and Coolant Adapter in Exhaust Gas Recirculation (EGR) System Section of MaxxForce® 15 Engine Service Manual (EGES 510), for instructions on how to replace hose assembly. New fitting assembly 3015976C91 is to be used.

DOSER TUBE COOLANT RETURN REPLACEMENT AND COOLING CIRCUIT HOSE LEAK CHECK AND REPLACEMENT FOR MAXXFORCE® 15 (CONT.)



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Figure 6. Proper Positioning of Water Outlet Fitting at End of CCV Supply Hose.

1. Correct positioning of water outlet fitting at end of CCV supply hose shown.
4. Install water outlet fitting to CCV supply hose properly (Figure 6, Item 1).
5. Reinstall interstage cooler.

Final Pressure Leak Test

1. Using Coolant Management Tool KL5007NAV, refill cooling system.
2. Carefully remove coolant surge tank cap and install surge tank cap adapter, part of Coolant Management Tool KL5007NAV.
3. Connect clean, dry compressed air (15 psi) to pressure module and open air valve.
4. Carefully inspect for any signs of external coolant leakage.
 - A. If leakage is observed, determine source of leak.

If leakage is from a hose joint covered in this AFC, return to Hoses and Clamps Replacement section of AFC. If leakage is from another source, repair as necessary.
 - B. If no leakage was observed, leak testing is complete.
5. Reconnect negative terminal to battery.
6. Close and secure hood.
7. Remove wheel chocks.

LABOR INFORMATION

Operation number must appear on all claims.

Table 10. Labor Information

Operation No.	Description	Time
A40-12947-1	R&R Doser Coolant Return Line and inspect for leaks	1.8
A40-12947-2	R&R Interstage Cooler	1.3
A40-12947-3	R&R Interstage Cooler Mounting	.1
A40-12947-4	R&R hoses and clamps (per hose)	.1

ADMINISTRATIVE PROCEDURE

Expense is to be charged to Warranty. Claims are to be submitted in the normal manner, making reference to Authorized Field Change 12947.

It is important that the coding be completed properly to assist in processing the warranty claim. Complete instructions will be found in the Warranty Policy Manual, Section 7.1.8.

As with all claim submissions, items acquired locally must be submitted in the "Other Charges" tab. The cost of any bulk items (such as a bag of cable tie straps, roll of wire, barrel of oil, or tube of silicone) should be prorated for the cost of the individual pieces / amount used during each repair.

To make sure this important improvement is made in a timely manner, all claims for AFC 12947 activity must be submitted by 28 February 2014 or within the normal warranty period for the vehicle, if after 28 February 2014.

	GROUP	NOUN	C	WARR.	TP	PAD
GROUP — Enter number G —						
NOUN — Leave blank						
C (CAUSE) — Enter either 1, 2, 3. (See below)						
1. Inspected (No repair required).						
2. Inspected and repaired.						
3. Defective part from parts stock.						
WARRANTY — (Warranty Code) Enter 40.						
TYPE PART — Enter P for type part causing failure.						
PAD — Enter 100						