

**SB-10052676-2516**

<b>Countries:</b>	CANADA, UNITED STATES, MEXICO	<b>Document ID:</b>	IK1200913
<b>Availability:</b>	ISIS	<b>Revision:</b>	6
<b>Major System:</b>	ENGINES	<b>Created:</b>	6/4/2013
<b>Current Language:</b>	English	<b>Last Modified:</b>	7/3/2013
<b>Other Languages:</b>	NONE	<b>Author:</b>	Collins Bonnema
<b>Viewed:</b>	655		

[Less Info](#)
 Hide Details

Coding Information

<b>Copy Link</b> 	<b>Copy Relative Link</b> 	<b>Bookmark</b>  <a href="#">View My Bookmarks</a>	<b>Add to Favorites</b> 	<b>Print</b> 	<b>Provide Feedback</b> 	<b>Helpful</b>  8	<b>Not Helpful</b>  1
----------------------	-------------------------------	--	-----------------------------	------------------	-----------------------------	-------------------------	-----------------------------

**Title:** EPA 10 MaxxFORce 11 & 13L, N13 Breather Housing replacement

**Applies To:** 2010 MaxxFORce 11 and 13L, 2013 MaxxFORce 13L, HDOBD 2013L, N13 with SCR

**DESCRIPTION**

This article provides the service procedure for replacing the Crankcase oil separator housing (CCOS breather) on 2010 MaxxFORce® 11 and 13 engines, 2013 MaxxFORce® 13 HDOBD engines, and 2013 N13 with SCR engines. The current CCOS breather kit contains a complete breather housing assembly with the oil jet plate attached. The oil jet plate will have to be separated from the housing and the two components installed individually.

**NOTE: The part number below is for the Crankcase oil separator (CCOS) housing and oil jet plate as an assembly. The assembly must be separated in order to be installed onto the engine using the following procedure. This is for temporary use until the new CCOS kit (breather) is released.**

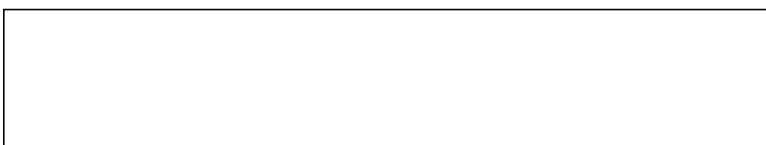
**PARTS INFORMATION**

Part #	Description	Qty.
3007513C92	Kit, Oil Separator	1

**REPAIR PROCEDURE****REMOVAL**

1. Bring truck into shop and park on flat surface.
2. Shift transmission to Park or Neutral, set parking brake, and install wheel chocks.
3. Unlatch and open hood.

**NOTE: It is not necessary to drain the coolant from the engine to perform this procedure.**



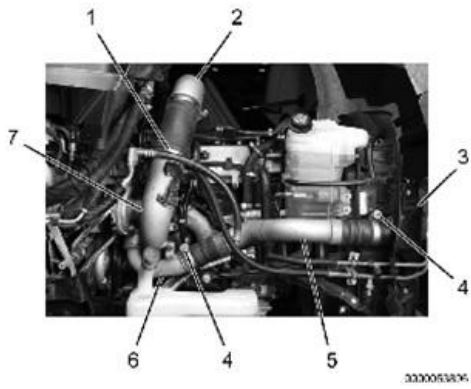


Figure 1. HP turbocharger Connections.

1. Air inlet duct clamp
2. Air inlet duct
3. HPCAC
4. HPCAC clamp (2)
5. HPCAC pipe
6. HP turbocharger outlet duct
7. LP turbocharger inlet duct

4. Remove air inlet duct clamp (Figure 1, Item 1) and remove air inlet duct (Figure 1, Item 2) from Low-Pressure (LP) turbocharger inlet duct (Figure 1, Item 7).

5. Remove two High-Pressure Charge Air Cooler clamps (Figure 1, Item 4) and remove HPCAC pipe (Figure 1, Item 5) from HPCAC (Figure 1, Item 3) and HP turbocharger outlet duct (Figure 1, Item 6).

6. Install cap on HPCAC.

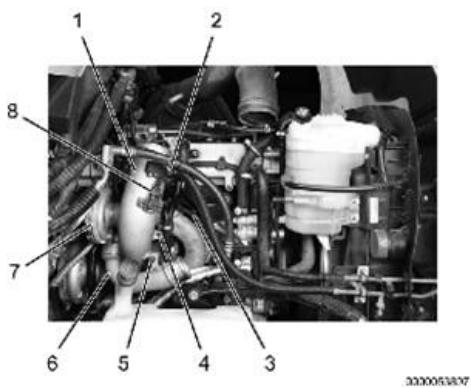


Figure 2. HP and LP Turbocharger Connections

1. LP turbocharger inlet duct
2. MAF sensor connector
3. TC2CIP sensor connector
4. LP turbocharger inlet duct bolt (2)
5. HP turbocharger outlet duct bolt (2)
6. HP turbocharger outlet duct
7. HP turbocharger
8. AIT sensor connector

7. If equipped, disconnect Mass Air Flow (MAF) sensor connector (Figure 2, Item 2).

8. Disconnect Turbocharger 2 Compressor Inlet Pressure (TC2CIP) sensor connector (Figure 2, Item 3).
9. Disconnect Air Inlet Temperature (AIT) sensor connector (Figure 2, Item 8) and position engine harness aside.
10. Remove two HP turbocharger outlet duct bolts (Figure 2, Item 5) and HP turbocharger outlet duct (Figure 2, Item 6) from HP turbocharger (Figure 2, Item 7).
11. Remove two LP turbocharger inlet duct bolts (Figure 2, Item 4) and LP turbocharger inlet duct (Figure 2, Item 1) from LP turbocharger.
12. Install plugs in turbocharger openings.

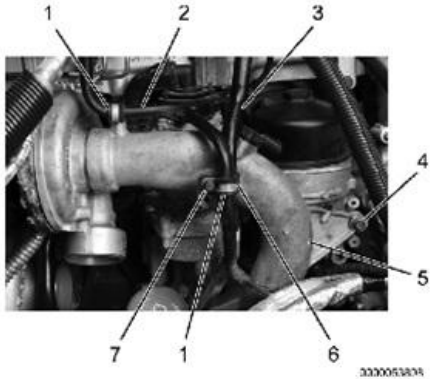


Figure 3. Coolant Supply Tubes.

1. Coolant return tube P-clamp (2)
2. Coolant return tube
3. Coolant supply tube
4. HP turbocharger inlet duct bolt (2)
5. HP turbocharger inlet duct
6. Coolant supply tube P-clamp
7. Coolant tube P-clamp bolt (2)

13. Remove two coolant tube P-clamp bolts (Figure 3, Item 7) from two coolant return tube P-clamps (Figure 3, Item 1), coolant supply tube P-clamp (Figure 3, Item 6), coolant return tube (Figure 3, Item 2) and coolant supply tube (Figure 3, Item 3).
14. Position coolant return tube (Figure 3, Item 2) and coolant supply tube (Figure 3, Item 3) aside.

**NOTE: The lower HP turbocharger inlet duct bolt does not come all the way out due to interference with the washer reservoir. Removal of the washer bottle is not required.**

15. Remove two HP turbocharger inlet duct bolts (Figure 3, Item 4) from HP turbocharger inlet duct (Figure 3, Item 5).

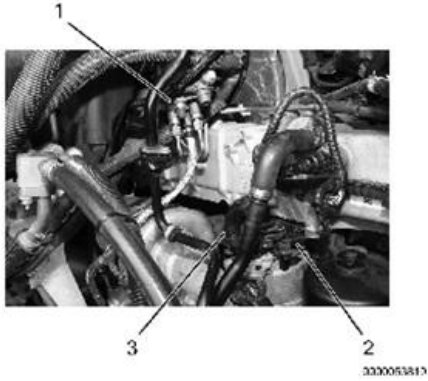


Figure 4. Air Control Valve.

1. ACV
2. CCOS housing sensor connector
3. CCOS housing outlet hose

16. Disconnect air supply line from Air Control Valve (ACV).
17. Remove three mounting bolts from ACV (Figure 4, Item 1) and position ACV aside.
18. Disconnect CCOS housing outlet hose (Figure 4, Item 3) from CCOS housing.
19. Disconnect CCOS housing sensor connector (Figure 4, Item 2).



Figure 5. Crankcase Breather Tube.

1. Crankcase breather tube
2. Clamp
3. Bolt

20. Remove bolt (Figure 5, Item 3) from clamp (Figure 5, Item 2) and position crankcase breather tube (Figure 5, Item 1) aside.

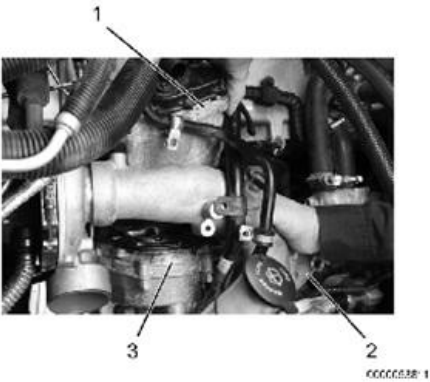


Figure 6. CCOS Housing.

1. CCOS housing
2. HP turbocharger inlet duct
3. Oil jet plate

21. Remove three CCOS housing bolts from CCOS housing (Figure 6, Item 1) and oil jet plate (Figure 6, Item 3). Retain bolts for re-use

**NOTE: While pulling out on the HP turbocharger inlet duct, maneuver and remove the CCOS housing up and out (Figure 6).**

22. While pulling out HP turbocharger inlet duct (Figure 6, Item 2), remove CCOS housing (Figure 6, Item 1) from oil jet plate.

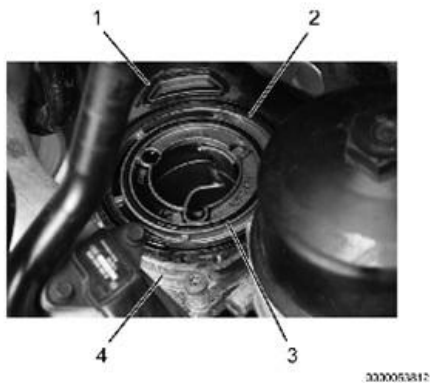


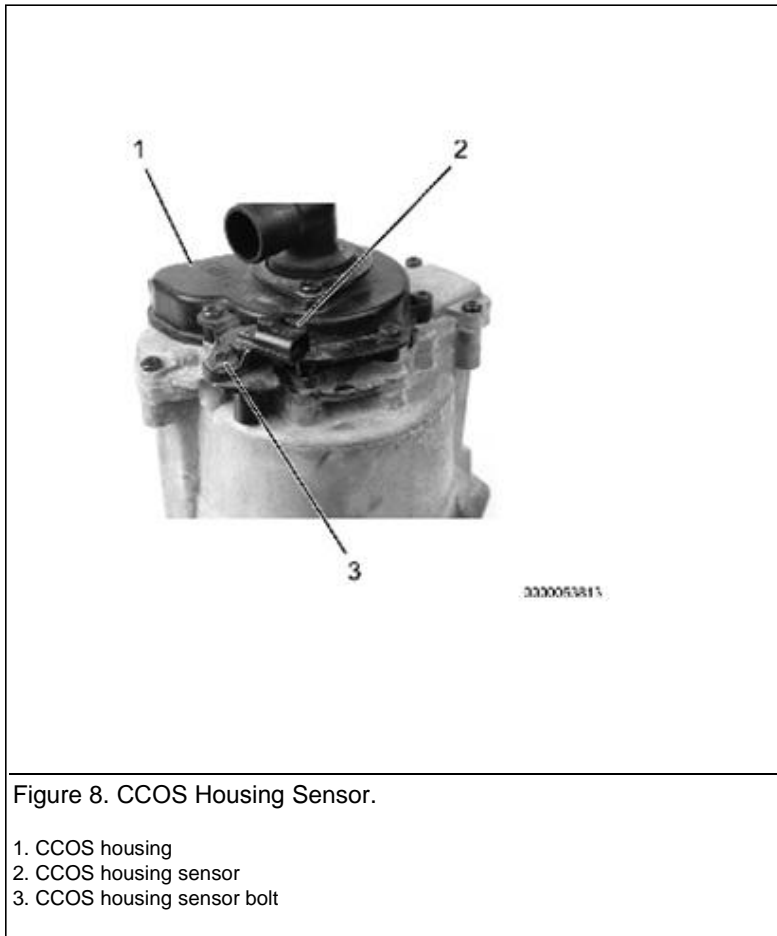
Figure 7. Oil Jet Plate Seals.

1. Oil jet plate seal breather-to-turbine HSG
2. Oil jet plate seal breather-to-turbine HSG
3. Oil jet plate o-ring breather-to-turbine HSG
4. Oil jet plate

23. Remove four torx screws from oil jet plate.

24. Remove oil jet plate.(Figure 7, Item 4). Discard the seals and o-ring.

25. Clean mating surfaces free of oil and debris.

**DISASSEMBLY**

1. Remove CCOS housing sensor bolt (Figure 8, Item 3) and CCOS housing sensor (Figure 8, Item 2) from CCOS housing (Figure 8, Item 1).

**NOTE: Step 2 and figure 9 are for the NEW breather housing assembly.**





Figure 9. NEW CCOS Housing and Jet Plate seperated

2. Separate the NEW breather housing from the oil jet plate (figure 9).

**NOTE: Keep seals and o-ring on the oil jet plate for assembly on engine.**

### ASSEMBLY

**NOTE: Do not place the plastic turbine wheel on bench when installing the sensor. This could allow the turbine wheel to bend causing equipment damage.**

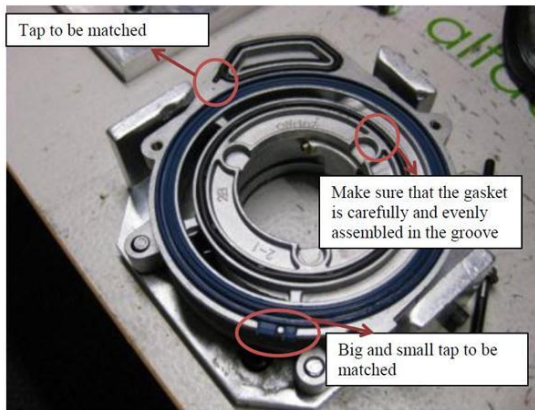
1. Install CCOS housing sensor (Figure 8, Item 2) on new CCOS housing (Figure 8, Item 1) with CCOS housing sensor bolt (Figure 8, Item 3). Tighten CCOS housing sensor bolt to 89 lb-in (10 N·m).
2. Install the NEW oil jet plate with the seals and o-ring in place.
3. Install and torque the four Torx screws. Torque to 13Nm (115 lb-f-in).

### INSTALLATION

**CAUTION: Make sure that the oil jet plate seal is orientated correctly so the tangs match up with the slots on the**

**oil jet plate (Figure 10). Failure to follow may cause equipment damage.**

**NOTE: Make sure to lubricate new rubber seals and O-rings with P-80® or equivalent lubricant.**



*Clean of the three sealing surfaces thoroughly.*

Figure 10. Oil Jet Plate Seals.



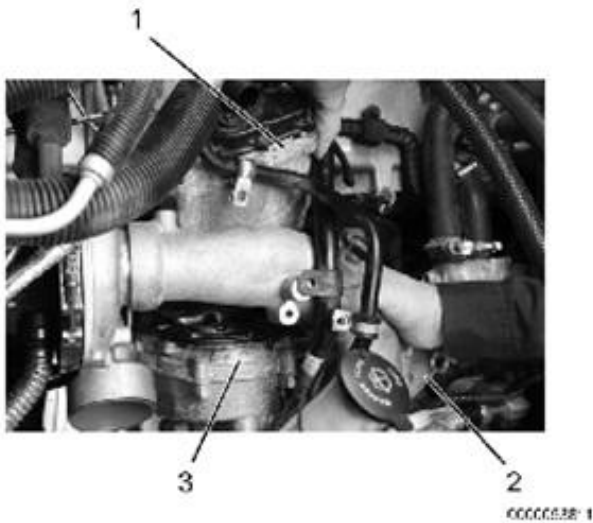


Figure 11 CCOS Housing.

1. CCOS housing
2. HP turbocharger inlet duct
3. Oil jet plate

**NOTE: While pulling out on the HP turbocharger inlet duct, maneuver and install the CCOS housing in and down (Figure 11).**

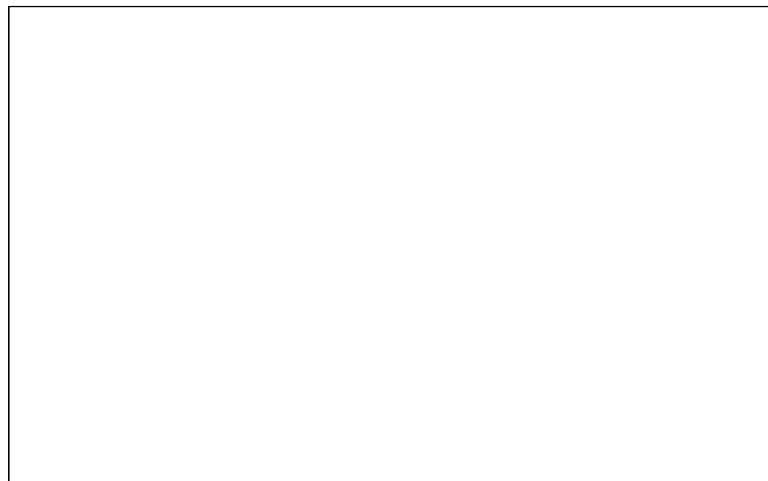
1. While pulling out HP turbocharger inlet duct (Figure 11, Item 2), install CCOS housing (Figure 11, Item 1) on oil jet plate (Figure 11, Item 3).
2. Secure CCOS housing (Figure 11, Item 1) with three CCOS housing bolts. Tighten CCOS housing bolts to 79 lb-in (8.9 N-m).



Figure 12. Crankcase Breather Tube.

1. Crankcase breather tube
2. Clamp
3. Bolt

3. Secure crankcase breather tube (Figure 12, Item 1) with bolt (Figure 12, Item 3) and clamp (Figure 12, Item 2).



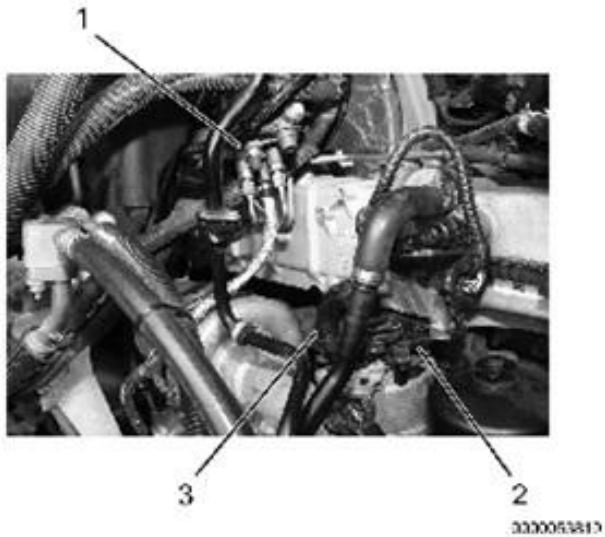


Figure 13. Air Control Valve.

1. ACV
2. CCOS housing sensor connector
3. CCOS housing outlet hose

4. Connect CCOS housing sensor connector (Figure 13, Item 2).
5. Connect CCOS housing outlet hose (Figure 13, Item 3) on CCOS housing.
6. Secure ACV (Figure 13, Item 1) with three mounting bolts.
7. Connect air supply line to ACV.

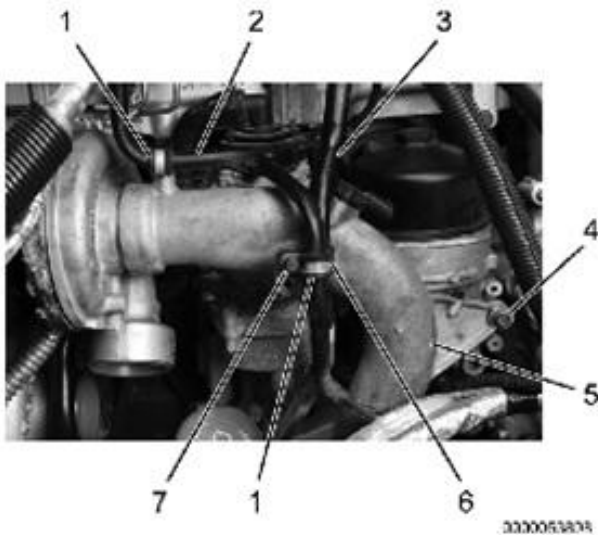


Figure 14. Coolant Tubes.

1. Coolant tube P-clamp (2)
2. Coolant return tube
3. Coolant supply tube
4. HP turbocharger inlet duct bolt (2)
5. HP turbocharger inlet duct
6. Coolant supply tube P-clamp
7. Coolant tube P-clamp bolt (2)

8. Secure HP turbocharger inlet duct (Figure 14, Item 5) with two HP turbocharger inlet duct bolts (Figure 14, Item 4).

9. Position coolant return tube (Figure 14, Item 2), coolant supply tube (Figure 14, Item 3), two coolant return tube P-clamps (Figure 14, Item 1), and coolant supply tube P-clamp (Figure 14, Item 6) on HP turbocharger inlet duct (Figure 14, Item 5), and secure with two coolant tube P-clamp bolts (Figure 14, Item 7).

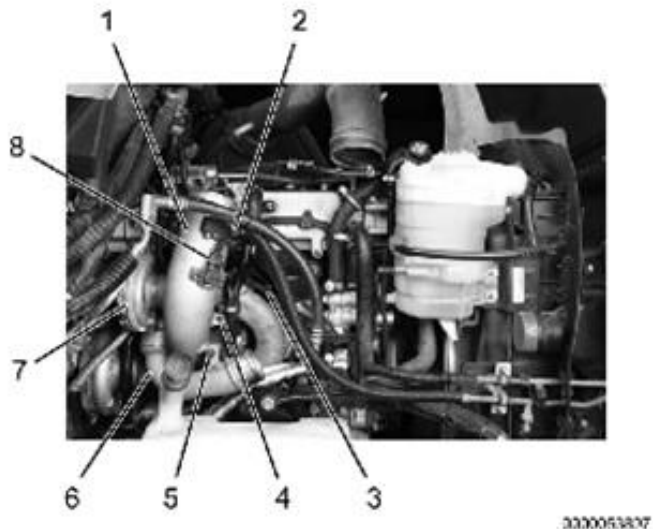


Figure 15. HP and LP Turbocharger Connections

1. LP turbocharger inlet duct
2. MAF sensor connector
3. TC2CIP sensor connector
4. LP turbocharger inlet duct bolt
5. HP turbocharger outlet duct bolt (2)
6. HP turbocharger outlet duct
7. HP turbocharger
8. AIT sensor connector

10. Remove plugs from turbocharger openings.

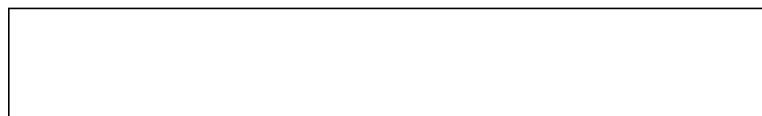
11. Install LP turbocharger inlet duct (Figure 15, Item 1) on LP turbocharger with two LP turbocharger inlet duct bolts (Figure 15, Item 4).

12. Install HP turbocharger outlet duct (Figure 15, Item 6) on HP turbocharger (Figure 15, Item 7) with two HP turbocharger outlet duct bolts (Figure 15, Item 5).

13. Connect AIT sensor connector (Figure 15, Item 8).

14. Connect TC2CIP sensor connector (Figure 15, Item 3).

15. If equipped, connect MAF sensor connector (Figure 15, Item 2).



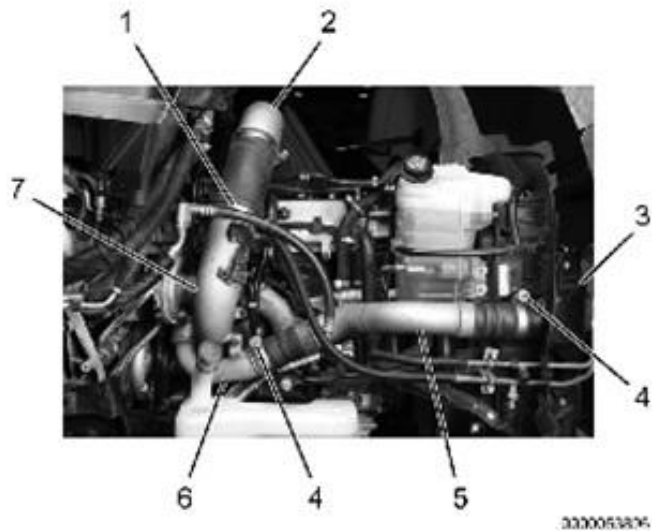


Figure 16. Turbocharger Connections

1. Air inlet duct clamp
2. Air inlet duct
3. HPCAC
4. HPCAC clamp (2)
5. HPCAC pipe
6. HP turbocharger outlet duct
7. LP turbocharger inlet duct

16. Remove cap from HPCAC.

17. Install HPCAC pipe (Figure 16, Item 5) on HPCAC (Figure 16, Item 3) and HP turbocharger outlet duct (Figure 16, Item 6), and secure with two HPCAC clamps (Figure 16, Item 4).

18. Install air inlet duct (Figure 16, Item 2) on LP turbocharger inlet duct (Figure 16, Item 7), and secure with air inlet duct clamp (Figure 16, Item 1).

19. Start vehicle to verify proper operation and no leaks or no fault codes are present.

20. Close and latch hood.

21. Remove wheel chocks.

## STANDARD REPAIR TIME

Table 2. [Standard Repair Time \(SRT\).](#)

Description	SRT
CCOS Replacement	1.0 hr

**OTHER RESOURCES**

Put any other resources or reference links here.

 Hide Details

**Feedback Information**

<p>No Feedback Found</p>	Viewed: 654
	Helpful: 8
	Not Helpful: 1

Copyright © 2013 Navistar, Inc.