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Coding Information

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Title: 2010 - 2013 MaxxForce 11 and 13 HP Turbocharger Center Section Replacement

Applies To: 2010 MaxxForce 11 and 13 2013 MaxxForce 13 HDOBD 2013 N13 with SCR

DESCRIPTION

This article provides the service procedure for replacing the High-Pressure (HP) turbocharger center section on 2010 MaxxForce® 11 and 13 engines, 2013 MaxxForce® 13 HDOBD engines, and 2013 N13 with SCR engines. The current turbocharger kit contains a complete turbocharger assembly, but only the center section will be replaced at this time.

TOOLS REQUIRED

| Tool | Tool Number |
|----------------------------------|-------------|
| Navistar Coolant Management Tool | KL5007NAV |

PARTS INFORMATION

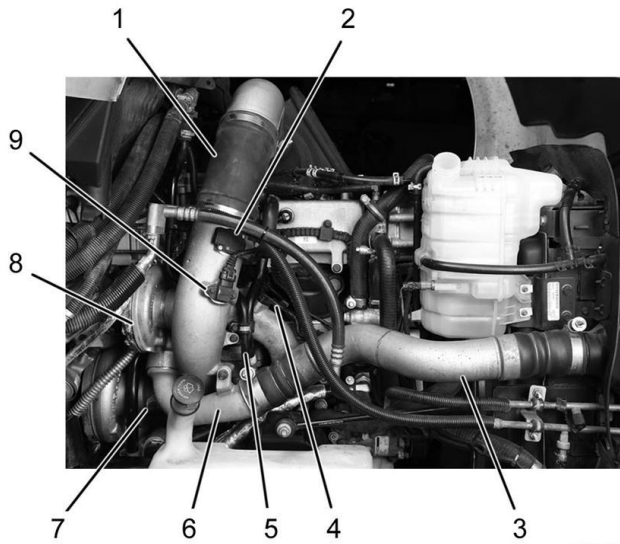
| Part Number | Description | Qty. |
|-------------|-----------------------------|------|
| 3007665C92 | Kit, Turbo Hi Pressure 13 L | 1 |
| 3007662C92 | Kit, Turbo Seals | 1 |

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.
4. Using Navistar Coolant Management Tool KL5007NAV, drain coolant from system. Place suitable drain pan under vehicle to collect any remaining coolant throughout procedure.





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Figure 1. High-Pressure and Low-Pressure Turbochargers and Connections.

- 1. Air inlet duct
- 2. MAF sensor
- 3. HPCAC pipe
- 4. TC2CIP sensor
- 5. Cab heater return and LPCAC coolant supply pipes
- 6. HP compressor outlet duct
- 7. LP turbocharger air inlet duct
- 8. HP turbocharger
- 9. AIT sensor

5. Remove air inlet duct (Figure 1, Item 1).

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

7. Install cap on HPCAC.

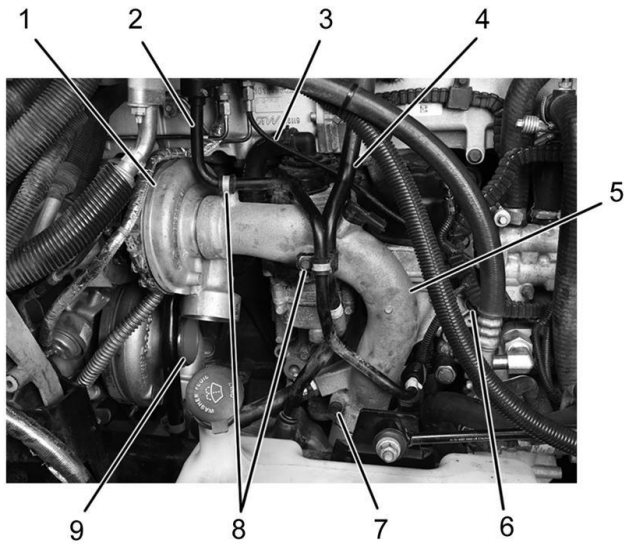
8. Disconnect engine harness connectors at Turbocharger 2 Compressor Inlet Pressure (TC2CIP) sensor (Figure 1, Item 4), Air Inlet Temperature (AIT) sensor (Figure 1, Item 9), and Mass Air Flow (MAF) sensor (Figure 1, Item), if equipped.

9. Remove engine harness nut, located on coolant control valve (CCV) mounting bolt, and secure engine harness out of the way.

10. Remove HP turbocharger compressor outlet duct (Figure 1, Item 6).

11. Remove Low-Pressure (LP) turbocharger inlet duct (Figure 1, Item 7) and cover LP turbocharger with cap (Figure 2, Item 9).



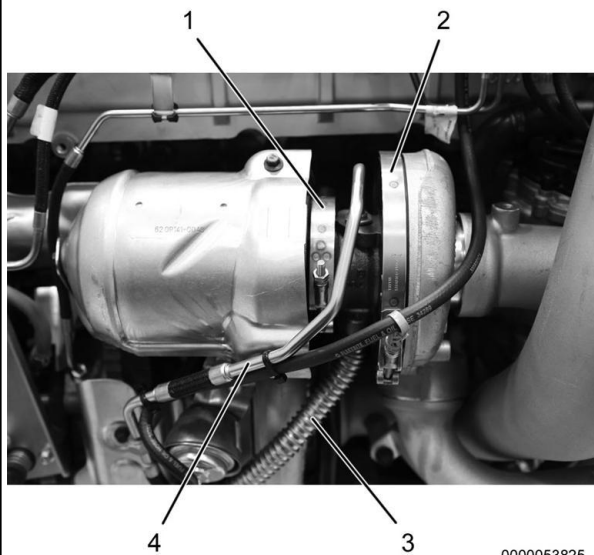


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Figure 2. HP Turbocharger and Connections.

1. HP turbocharger
2. Cab heater coolant return pipe
3. Air supply line to ACV
4. LPCAC coolant supply pipe
5. HP turbocharger air supply duct
6. M10 x 200 Bolt
7. M10 x 200 Bolt
8. M8 x 20 Bolt
9. Cap

12. Disconnect air supply line (Figure 2, Item 3) from Air Control Valve (ACV) and secure out of the way.



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Figure 3. HP Turbocharger.

1. V-band clamp (turbine housing)
2. V-band clamp (compressor housing)
3. HP turbocharger oil return line

4. HP turbocharger oil supply line

CAUTION:

Make sure oil supply line does not bend. Failure to do so will result in damage to HP turbocharger. Damage or distortion will require replacement of oil supply line.

13. Disconnect oil supply line (Figure 3, Item 4) from HP turbocharger only.

14. Disconnect oil return line (Figure 3, Item 3) from HP turbocharger only.

NOTE:

Do not remove HP turbocharger air inlet duct from HP turbocharger at this time.

15. Remove two mounting bolts (Figure 2, Items 6 and 7) from HP turbocharger air inlet duct, and two bolts (Figure 2, Item 8) securing cab heater coolant return pipe and Low-Pressure Charge Air Cooler (LPCAC) coolant supply pipe. Re-position cab heater coolant return pipe and LPCAC coolant supply pipe out of the way.

NOTE:

Make sure all coolant hoses and pipes are disconnected from HP turbocharger air inlet duct before removal.

16. Remove HP turbocharger turbine housing V-band clamp (Figure 3, Item 1).

17. Using a soft-blow mallet, gently tap HP turbocharger until loose.



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Figure 4. HP Turbocharger Removal.

18. Maneuver out and remove HP turbocharger center cartridge and compressor housing with HP air supply duct (refer to Figure 4).

19. Separate HP turbocharger and air supply duct once free from turbine housing.

INSTALLATION

[Empty rectangular box for installation instructions]

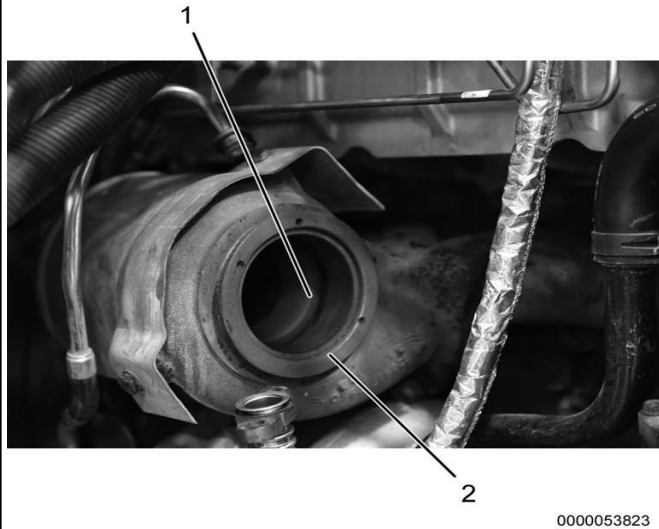


Figure 5. HP Turbocharger Turbine Housing.

1. HP turbocharger turbine housing.
2. HP turbocharger turbine housing flange (exterior)

1. Using suitable solvent and clean emery cloth, clean inside HP turbocharger turbine housing (Figure 5, Item 1) and exterior flange (Figure 5, Item 2).

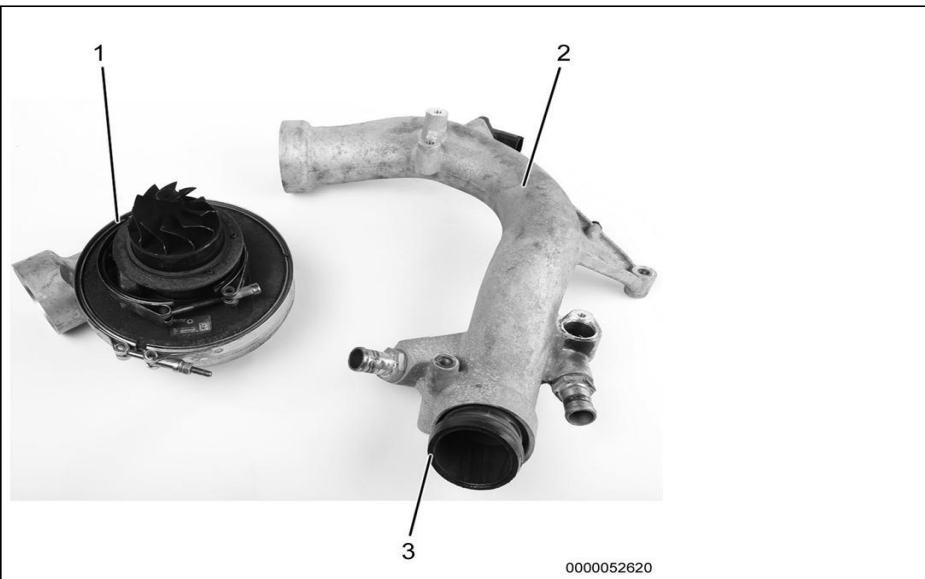


Figure 6. HP Turbocharger Center Cartridge and Air Supply Duct.

1. HP turbocharger center cartridge
2. HP turbocharger air supply duct
3. 72.2 x 60 (DMR) tube seal (extension tube)

2. Remove new HP turbocharger from kit and install as follows:

- a. Loosen and remove turbine housing V-band clamp.
- b. Remove new HP turbocharger center cartridge from new turbine housing.
- c. Install new HP turbocharger center cartridge into old turbine housing and let it rest freely.

NOTE:

Make sure to install lower HP turbocharger air supply duct mounting bolt before installation is complete. This bolt will not be accessible later in the installation procedure.

NOTE:

Make sure to lubricate rubber fittings and O-rings with P-80® or equivalent lubricant.

3. Install new O-ring onto HP turbocharger compressor housing.
4. Install new 72.2 x 60 (DMR) tube seal (extension tube) (Figure 6, Item 3) to HP turbocharger air supply duct (Figure 6, Item 2).
5. Install HP turbocharger air supply duct with new tube seal into LPCAC.



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Figure 7. HP Turbocharger and Air Supply Duct.

6. While pulling out on HP turbocharger, mate air supply duct to HP turbocharger inlet.
7. Align and fully seat HP turbocharger onto dowels.
8. Torque two HP turbocharger air supply duct mounting bolts to 45 lb-ft (62 N·m).
9. Install and torque new V-band clamp to 9 ft-lb (12.4 N·m). Use V-band clamp from new HP turbocharger in kit.

CAUTION:


Make sure oil supply line does not bend. Failure to do so will result in damage to HP turbocharger. Damage or distortion will require replacement of oil supply line.

10. Install new gasket onto oil return line and install into HP turbocharger.
11. Install new O-ring onto oil supply line and install into HP turbocharger.
12. Install cab heater coolant return pipe and LPCAC coolant supply pipe and secure with bolt.
13. Install air supply line to ACV.
14. Install new O-ring into LP turbocharger inlet duct, remove cap from LP turbocharger, and install duct to LP turbocharger. Secure with two bolts.
15. Install new O-ring into HP compressor outlet duct and install duct to HP turbocharger. Secure with two bolts.

16. Connect engine harness connectors at Turbocharger 2 Compressor Inlet Pressure (TC2CIP) sensor (Figure 1, Item 4), Air Inlet Temperature (AIT) sensor (Figure 1, Item 9), and Mass Air Flow (MAF) sensor (Figure 1, Item), if equipped.
17. Secure engine harness to CCV stud with mounting nut.
18. Install HPCAC pipe to HP compressor outlet duct and HPCAC. Secure with two clamps.
19. Remove cap from LP turbocharger and install air inlet duct to LP turbocharger.
20. Install upper portion of air inlet duct and secure with clamps.
21. Restore coolant using Navistar Coolant Management Tool KL5007NAV.
22. Start vehicle to verify proper operation, no leaks, and no fault codes are present.
23. Close and latch hood.
24. Remove wheel chocks.
25. Install failed HP turbocharger center section into new turbine housing from kit.
26. Return failed center section, along with kit containing remainder of new HP turbocharger, through normal warranty process.

STANDARD REPAIR TIME (SRT)

| Description | SRT |
|--|---------|
| Remove and Replace Turbocharger Center Section | 1.6 hrs |

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