

Tool Instruction Exhaust Gas Recirculation (EGR) Leak Detection Kit

4328040R2

Tool Number: 12-892-02



0000063204

Figure 1. Exhaust Gas Recirculation (EGR) Leak Detection Kit – 12-892-02.

Tool Number: 12-892-02 (cont.)

Purpose

The EGR Leak Detection Kit 12-892-02 is designed to pressure test EGR Coolers. This pressure test is used to determine if an internal leak is present in the EGR Cooler by the form of bubbles in water.

Application(s)

MaxxForce® 11 & 13 (EPA 10) with HD-OBD

N13 with SCR



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 (such as filters or 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, read all safety instructions in the Safety Information section of the Service and Diagnostic Engine Manuals for the engine model being serviced.

! 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.

! WARNING: To prevent personal injury or death, shift transmission to park or neutral, set parking brake, and block wheels before doing diagnostic or service procedures.

! WARNING: Always wear safe eye protection when performing vehicle maintenance. Failure to do so may result in personal injury and / or death.

! WARNING: To prevent personal injury or death, allow engine to cool before draining coolant.





! WARNING: To prevent personal injury or death, never exceed any noted regulator pressures.

CAUTION: To prevent damage to the vehicle or engine, read all safety instructions in the Safety Information section of the Service and Diagnostic Engine Manuals for the engine model being serviced.


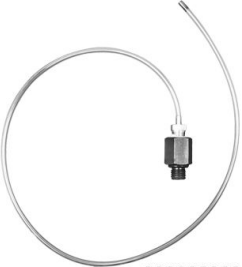


CAUTION: To prevent damage to the vehicle or engine, never exceed any noted regulator pressure.

Tool Contents





Table 1

Image	Tool Number	Qty	Description
 <p>000063238</p>	12-892-02	1	EGR Cooler Leak Detection Tool
 <p>000063217</p>	KL20060-13	1	Regulator Assembly
 <p>000063216</p>	KL20060-1	1	Quick Connect Pop-off
 <p>000063220</p>	KL20060-2	1	Cooler Plug



Tool Contents (cont.)

Image	Tool Number	Qty	Description
 <p>0000063222</p>	KL20060-3A	1	Cooler Plug - Air Inlet
 <p>0000063221</p>	KL20060-3B	1	Cooler Plug - Leak Detection
 <p>0000063213</p>	12-892-02-01	1	Large Plate - Leak Detection
 <p>0000063212</p>	12-892-02-02	1	Quick Connect Pop-off

Tool Contents (cont.)

Image	Tool Number	Qty	Description
 <p>0000063211</p>	12-892-02-03	1	Hole Plug
 <p>0000063214</p>	KL20060-5	1	Double Hole Plate
 <p>0000063215</p>	KL20060-6	1	Double Hole Plugs
 <p>0000063219</p>	KL20060-7A	1	Large Plug Disc - Pop Off

Tool Contents (cont.)

Image	Tool Number	Qty	Description
 <p>0000063218</p>	KL20060-7B	1	Large Plug Disc - Handle
 <p>0000160075</p>	4328040R2	1	Instruction Sheet

Instructions

Tool Installation

1. Refer to [0000001682](#) Engine Service Manual MaxxForce® 11 and 13 (EPA 10) for removal of coolant manifold, EGR outlet tubes, EGR inlet tubes, and EGR cooler return manifold.

Instructions (cont.)

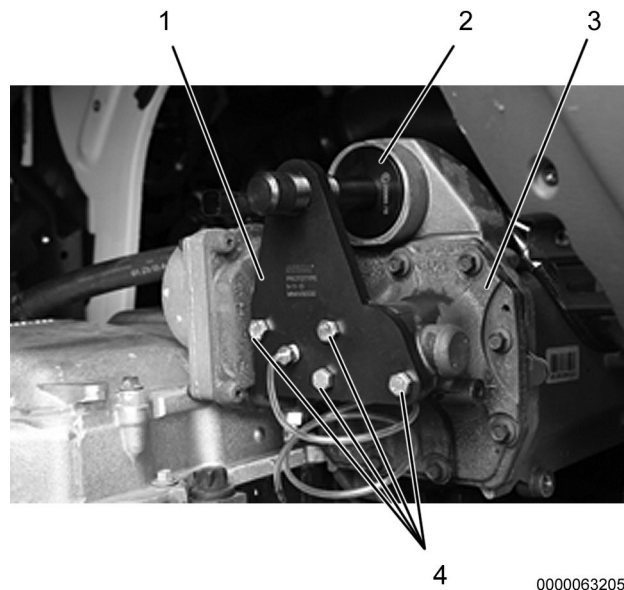


Figure 2. Leak Detection Plate and Plug Disc Handle.

1. Large Plate - Leak Detection 12-892-02-01
2. Plug Disc Handle KL20060-7B
3. EGR dual flap valve
4. Bolt (4)

2. Install large test plate (Figure 2, Item 1) onto EGR dual flap valve (Figure 2, Item 3) with four bolts (Figure 2, Item 4). Using torque wrench, torque four bolts to 18 lb-ft (24 N·m).
3. Install plug disc handle (Figure 2, Item 2) into coolant manifold bore of high-temperature cooler.

NOTE: Hollow retainer screw only needs to contact Plug Disc Handle KL20060-7B to properly retain it. If screw is over tightened, it could cause retainer plate to leak.

4. Thread hollow screw of rear test plate (Figure 2, Item 1) over screw of plug disc handle (Figure 2, Item 2) to retain plug disc into EGR dual flap valve (Figure 2, Item 3).

Instructions (cont.)

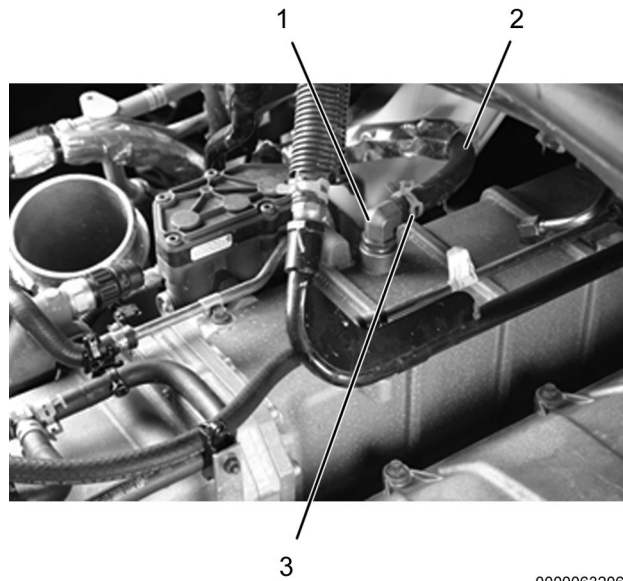


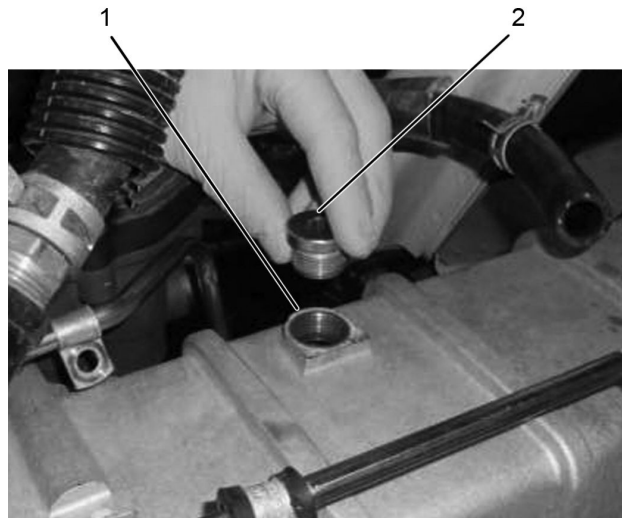
Figure 3. Sleeper Coolant Supply Hose and Brass Fitting.

1. Brass fitting
2. Sleeper coolant supply hose
3. Spring clamp

NOTE: Steps 5 and 6 are needed only if vehicle is equipped with a bunk heater.

5. Remove spring clamp (Figure 3, Item 3) and sleeper coolant supply hose (Figure 3, Item 2) from brass fitting (Figure 3, Item 1).
6. Remove 90-degree brass fitting (Figure 3, Item 1) from EGR high-temperature cooler.

Instructions (cont.)



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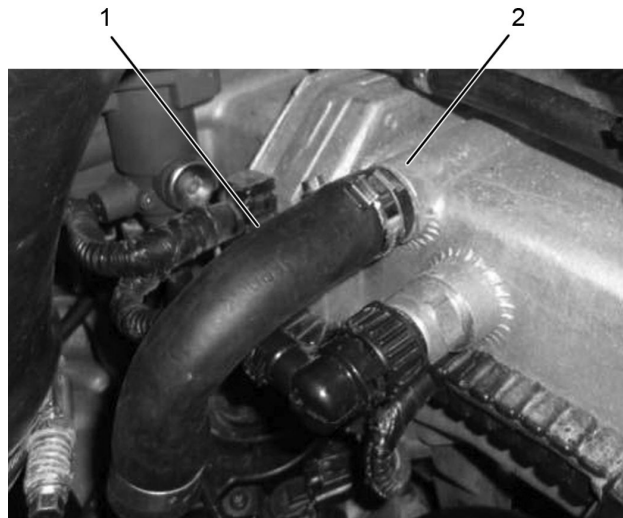
Figure 4. Installation of Allen Plug.

1. EGR high-temperature cooler heater supply port
2. Allen plug

NOTE: Step 7 is needed only if vehicle is equipped with a bunk heater.

7. Install Allen plug (Figure 4, Item 2) into top of EGR high-temperature cooler heater supply port (Figure 4, Item 1). Using torque wrench, tighten Allen plug to 18 lb-ft (24 N·m).

Instructions (cont.)



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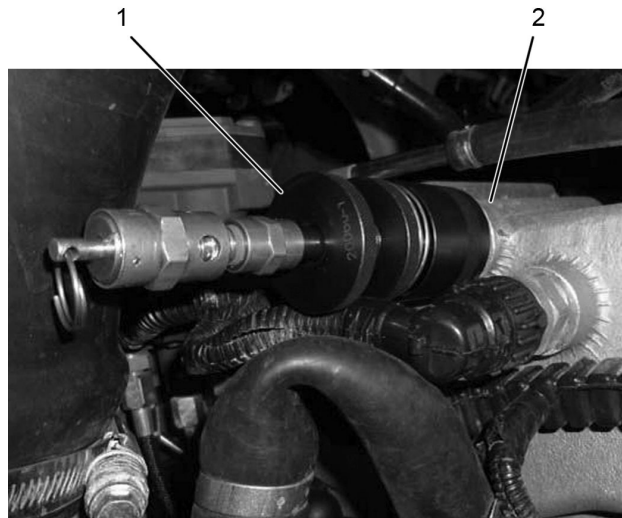
Figure 5. EGR Cooler Low-Temperature Coolant Outlet Hose.

1. EGR cooler low-temperature coolant outlet hose
2. EGR low-temperature cooler outlet

NOTE: The following step represents EPA 10 with HD-OBd equipped engines only.

8. Disconnect EGR cooler low-temperature coolant outlet hose (Figure 5, Item 1) from fitting on EGR low-temperature cooler outlet (Figure 5, Item 2) and position hose out of the way.

Instructions (cont.)



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Figure 6. Installation of EPA 10 with HD-OBD Quick Connect Pop-off.

1. Quick Connect Pop-off KL20060-1
2. EGR cooler low-temperature coolant outlet

NOTE: The following step represents EPA 10 with HD-OBD engines only.

9. Install quick connect pop-off (Figure 6, Item 1) onto EGR cooler low-temperature coolant outlet (Figure 6, Item 2) hand tight.

Instructions (cont.)

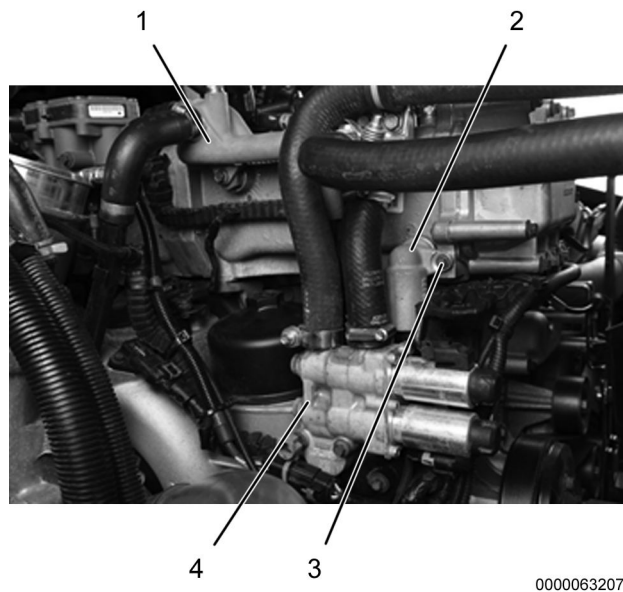


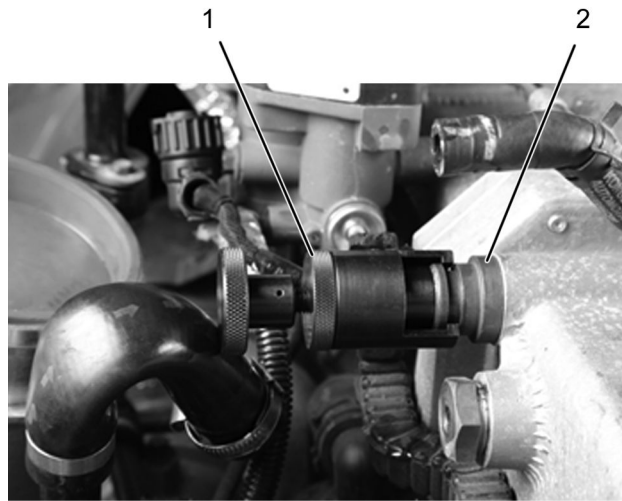
Figure 7. N13 with SCR Coolant Control Valve.

1. Upper manifold sub-assembly
2. EGR cooler low-temperature coolant inlet
3. EGR cooler low-temperature coolant inlet bolt
4. Coolant control valve assembly

NOTE: The following steps represent N13 with SCR equipped engines only.

10. Refer to TSI 13-12-06 for removal of upper manifold sub-assembly (Figure 7, Item 1) and coolant control valve assembly (Figure 7, Item 4).
11. Remove EGR cooler low-temperature coolant inlet bolt (Figure 7, Item 3).
12. Remove EGR cooler low-temperature coolant inlet (Figure 7, Item 2).

Instructions (cont.)



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Figure 8. Installation of N13 with SCR Hole Plug.

1. Hole Plug 12-892-02-03
2. EGR cooler low-temperature coolant outlet

NOTE: The following step represents N13 with SCR equipped engines only.

13. Install hole plug (Figure 8, Item 1) onto EGR cooler low-temperature coolant outlet (Figure 8, Item 2) hand tight.

Instructions (cont.)

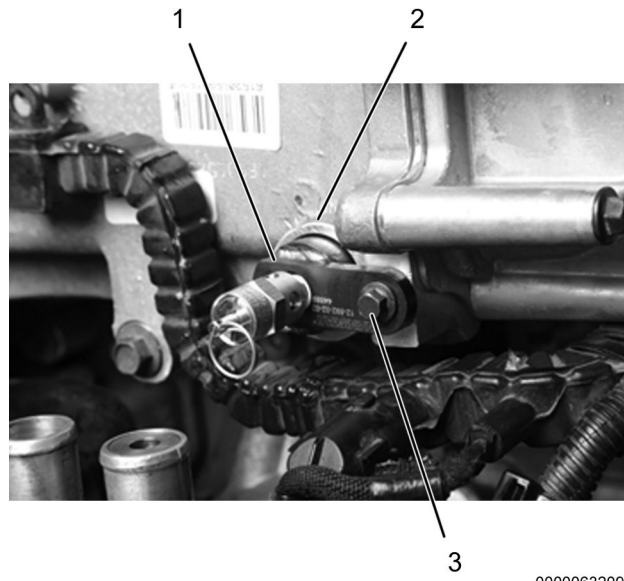


Figure 9. Installation of N13 with SCR Quick Connect Pop-off.

1. Quick Connect Pop-off 12-892-02-02
2. EGR cooler low-temperature coolant inlet
3. EGR cooler low-temperature coolant inlet bolt

NOTE: The following steps represent N13 with SCR equipped engines only.

14. Position quick connect pop-off (Figure 9, Item 1) onto EGR cooler low-temperature coolant inlet (Figure 9, Item 2).
15. Using torque wrench, install EGR cooler low-temperature coolant inlet bolt (Figure 9, Item 3) to quick connect pop-off (Figure 9, Item 1). Using torque wrench, torque bolt to 18 lb-in (2 N·m).

Instructions (cont.)

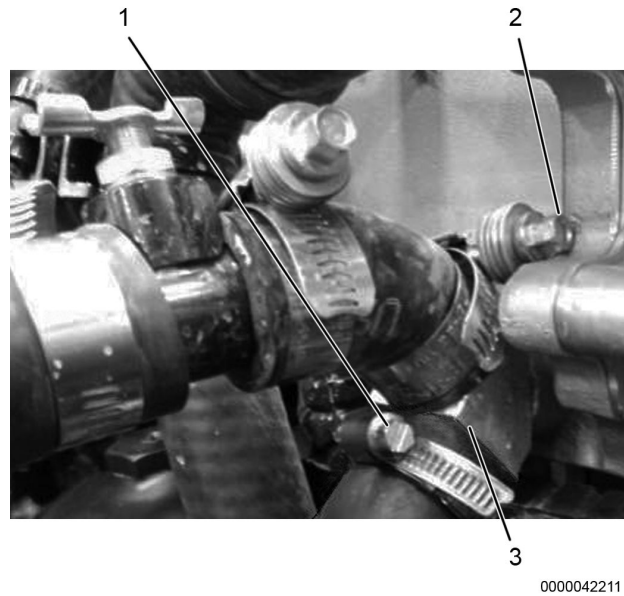
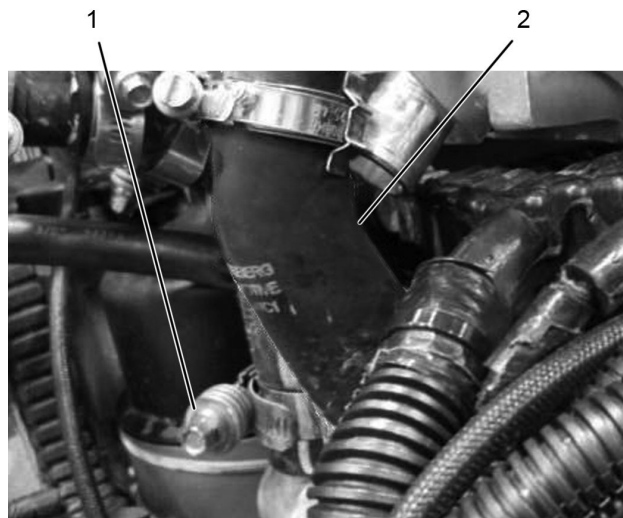


Figure 10. Hose Clamps.

1. Hose clamp
2. Hose clamp
3. Hose

16. Loosen hose clamps (Figure 10, Items 1 and 2) and remove hose (Figure 10, Item 3) from EGR low-temperature cooler Y-fitting.

Instructions (cont.)



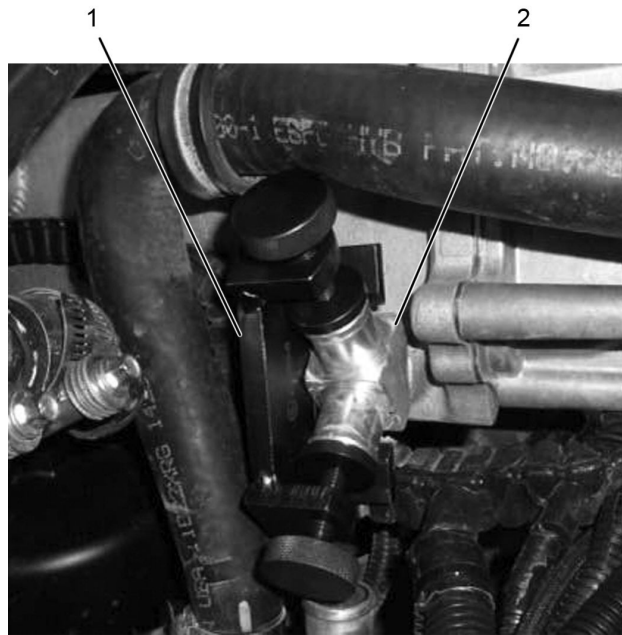
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Figure 11. Removal of Coolant Control Valve (CCV) Hose.

1. Hose clamp
2. Hose

17. Loosen hose clamp (Figure 11, Item 1) and remove hose (Figure 11, Item 2) from CCV.

Instructions (cont.)



0000042213

Figure 12. Installation of Double Hole Plug.

1. Double Hole Plug KL20060-6
2. EGR low-temperature cooler housing inlet

NOTE: Be sure to tighten double hole plug evenly. If not tightened evenly, a leak could occur.

18. Install double hole plug (Figure 12, Item 1) into EGR low-temperature cooler housing inlet (Figure 12, Item 2) hand tight.

Instructions (cont.)

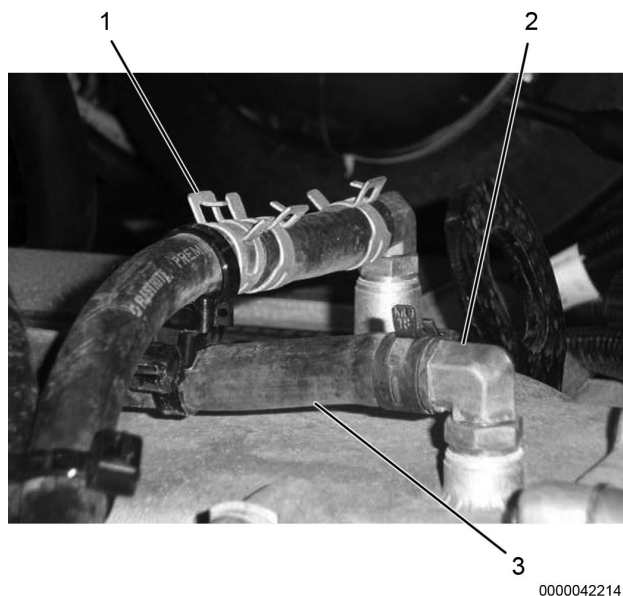
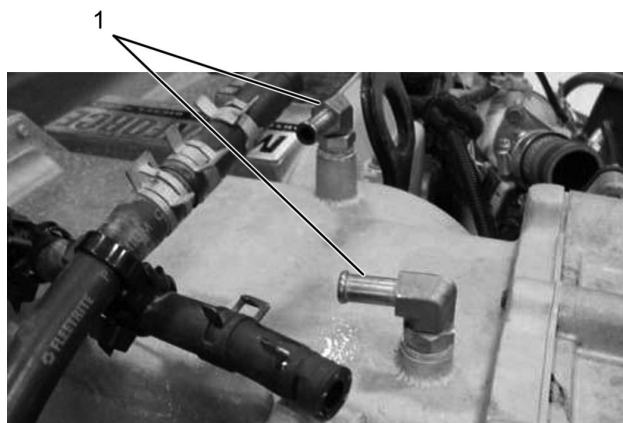


Figure 13. Removal of Air Bleed Hoses.

1. Spring clamp (2)
 2. EGR cooler air bleed fitting (2)
 3. EGR cooler air bleed hose (2)
19. Remove two spring clamps (Figure 13, Item 1) from EGR cooler air bleed hoses (Figure 13, Item 3), and remove EGR cooler air bleed hoses from EGR cooler air bleed fittings (Figure 13, Item 2).

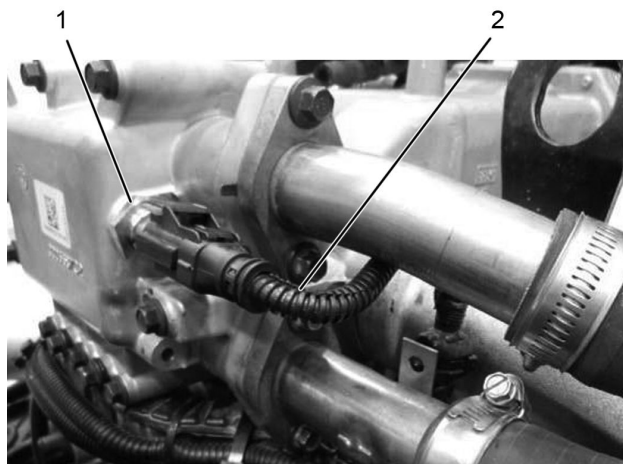
Instructions (cont.)



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Figure 14. Removal of EGR Cooler Air Bleed Fittings.

1. EGR cooler air bleed fitting (2)
20. Remove two EGR cooler air bleed fittings (Figure 14, Item 1) from EGR cooler.



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Figure 15. Removal of EGR Temperature Sensor.

1. EGR temperature sensor
2. EGR temperature sensor harness
21. Disconnect EGR temperature sensor harness (Figure 15, Item 2) from EGR temperature sensor (Figure 15, Item 1).
22. Remove EGR temperature sensor (Figure 15, Item 1) from sensor port.

Instructions (cont.)

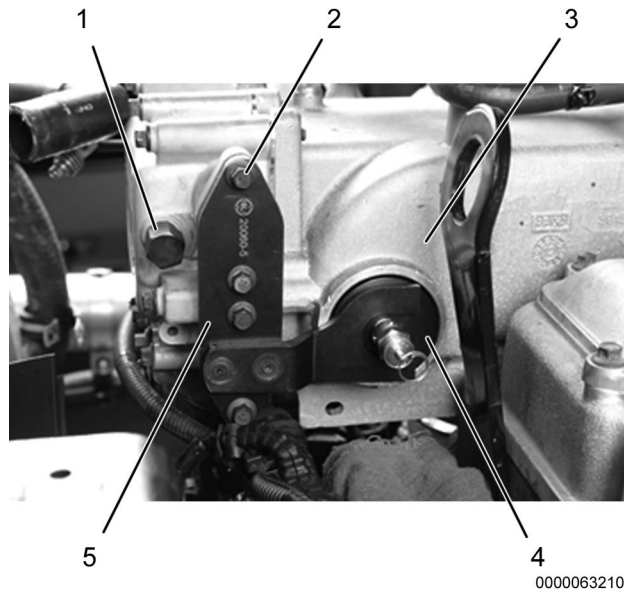
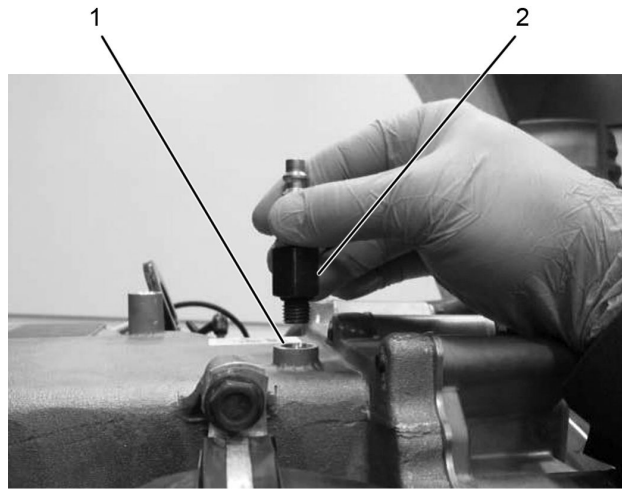


Figure 16. Installation of Cooler Plug, Large Plug Disc - Pop Off, and Double Hole Plate.

1. Cooler Plug KL20060-2
 2. M8 x 20 bolt (4)
 3. EGR low-temperature cooler housing
 4. Large Plug Disc - Pop Off KL20060-7A
 5. Double Hole Plate KL20060-5
23. Install cooler plug (Figure 16, Item 1) into EGR temperature sensor port.
24. Install large plug disc - pop off (Figure 16, Item 4) into EGR high-temperature cooler outlet.
- NOTE: Be sure to cap off or cover the thermostat port to prevent any debris or foreign objects from entering the cooling system.**
25. Install double hole plate (Figure 16, Item 5) with four M8 x 20 bolts (Figure 16, Item 2) onto EGR low-temperature cooler housing (Figure 16, Item 3).

Instructions (cont.)



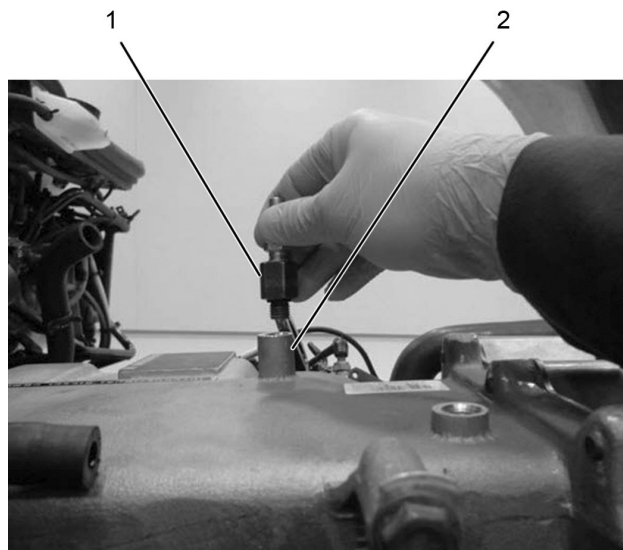
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Figure 17. Installation of Cooler Plug - Air Inlet.

1. EGR low-temperature deaeration port
2. Cooler Plug - Air Inlet KL20060-3A

26. Install cooler plug - air inlet (Figure 17, Item 2) into EGR low-temp deaeration port (Figure 17, Item 1).

Instructions (cont.)



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Figure 18. Installation of Cooler Plug Leak Detection.

1. Cooler Plug - Leak Detection KL20060-3B
2. EGR high-temperature deaeration port

27. Install cooler plug - leak detection (Figure 18, Item 1) into EGR high-temperature deaeration port (Figure 18, Item 2).

Instructions (cont.)

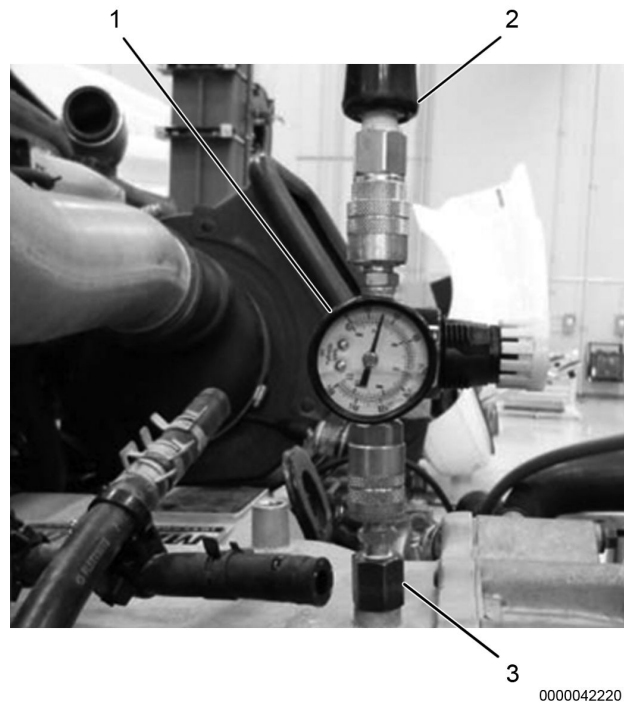


Figure 19. Installation of Regulator Assembly.

1. Regulator Assembly KL20060-13
2. Shop air hose
3. EGR Cooler - Plug Air Inlet KL20060-3A

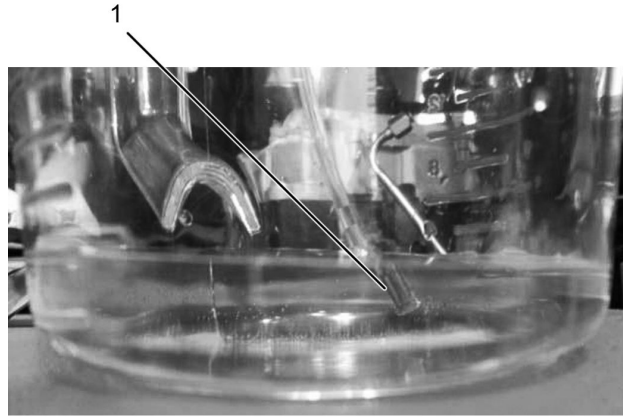
NOTE: Turn regulator adjustment knob counterclockwise to be sure regulator is set to zero before connecting shop air hose.

28. Install regulator assembly (Figure 19, Item 1) into EGR cooler plug - air inlet (Figure 19, Item 3) and attach shop air hose (Figure 19, Item 2) to regulator assembly.
29. Gradually turn regulator adjustment knob clockwise to increase pressure to 45 psi.

Instructions (cont.)

EGR Leak Test

NOTE: This cooler has multiple chambers. Multiple tests are required to check for leaks between any of the chambers.



0000042221

Figure 20. Leak Inspection.

1. Large plate leak detector hose end (Red)

NOTE: The system must remain pressurized, and the operator should look for air bubbles to come from the end of the hose. The bubbles indicate a leak, and a very small leak may take up to 5 minutes to appear. This is the maximum time that would be required of the operator to watch for air bubbles to be sure there are no leaks in the cooler. The operator should look for leaks from each of the hoses individually and for 5 minutes each.

1. Check for leaks by placing end of hose from Cooler Plug - Leak Detection KL20060-3B, and later the Large Plate - Leak Detection 12-892-02-01, into a container of water to a depth of .375," which is marked with red dye on each of the hoses (Figure 20).

NOTE: Be sure to record whether the EGR cooler passed or failed the leak test. If the cooler fails the test, be sure to also record which chambers were leaking.

2. The test will now need to be repeated as detailed above.

Instructions (cont.)

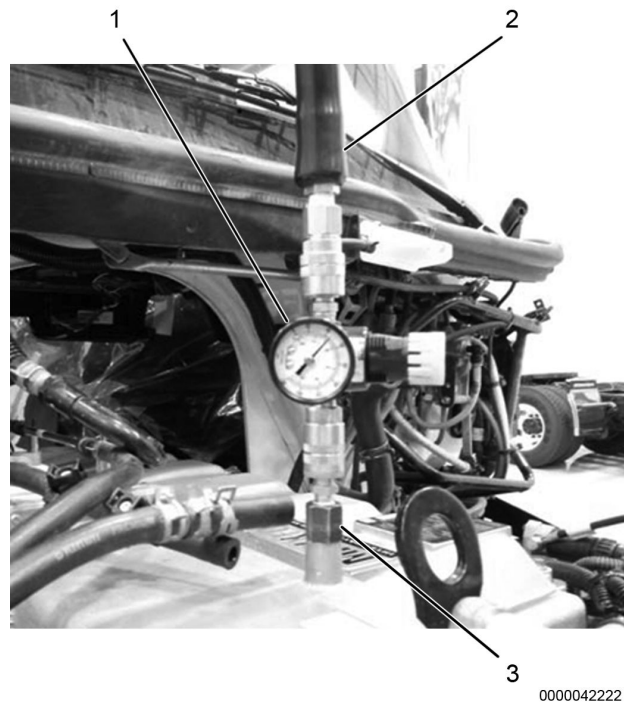


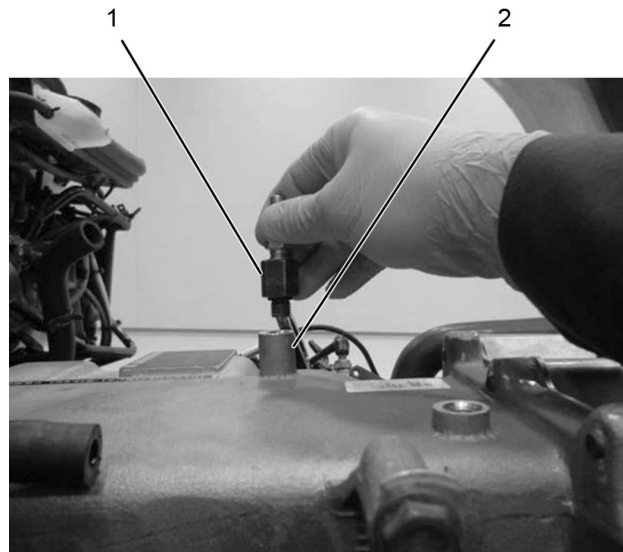
Figure 21. Removal of Equipment.

1. Regulator Assembly KL20060-13
2. Shop air hose
3. EGR Cooler Plug - Air Inlet KL20060-3A

NOTE: The air pop-off valves in the Quick Connect Pop-off KL20060-1 and the Large Plug Disc - Pop Off KL20060-7A are set to 50 psi to prevent damage to the cooler and for safety in the case of over pressurization.

3. Remove shop air hose (Figure 21, Item 2), regulator assembly (Figure 21, Item 1), and EGR cooler plug air inlet (Figure 21, Item 3).

Instructions (cont.)



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Figure 22. Installation of Cooler Plug Air Inlet.

1. Cooler Plug - Air Inlet KL20060-3A
2. EGR high-temp deaeration port

4. Install cooler plug air inlet (Figure 22, Item 1) into EGR high-temperature deaeration port (Figure 22, Item 2).

NOTE: Installation of Cooler Plug - Leak Detection KL20060-3B to EGR high-temperature deaeration port as stated in Step 5 is used only to prevent debris from entering EGR cooler. Monitoring KL20060-3B for the second test is not needed.

5. Install Cooler Plug - Leak Detection KL20060-3B to EGR high-temperature deaeration port (Figure 22, Item 2).

NOTE: Turn regulator adjustment knob counterclockwise to be sure regulator is set to zero before connecting shop air hose.

NOTE: Set regulator pressure to 45 psi.

6. Install Regulator Assembly KL20060-13 to EGR cooler plug air inlet (Figure 22, Item 1) and attach shop air hose to regulator assembly.

NOTE: For EGR Leak Test, only check for leaks from Large Plate - Leak Detection 12-892-02-01.

7. Perform EGR Leak Test. Reference **EGR Leak Test** Step 1 for procedure.

Tool Removal

1. Disconnect air line from Regulator Assembly KL20020-13.
2. Remove all tools from cooler and clean any oil and dirt from them.
3. Store EGR Leak Detection Kit tools for reuse.
4. Refer to [0000001682](#) Engine Service Manual MaxxForce® 11 and 13 for installation of coolant manifold, EGR outlet tubes, EGR inlet tubes, and EGR cooler return manifold.

Contact Information

If you would like to order additional tools or need replacement parts, please refer to the [Navistar Service Tool Catalog](#). If you have questions, concerns, feedback, or need replacement parts, please contact:

[Navistar Service Tool Support Center](#)

- Phone: 800-365-0088 (Toll-Free) or 630-985-4171.
- Submit a Service Tool iKNOW Case.

