

EGR LEAK DETECTION KIT



Product No. KL20060NAV

OPERATING INSTRUCTIONS



MAXXFORCE[®] 11 & 13 BIG BORE, 2010 EMISSIONS MODEL YEAR

INTRODUCTION:

This manual contains information to help you to learn about the safe and proper use of the KL20060NAV EGR Leak Detection Kit. K-Line® Industries, Inc cannot anticipate all conceivable or unique situations. The instructions and warnings included in this manual are not necessarily all-inclusive. You must make sure all conditions and procedures do not jeopardize your personal safety.

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SAFETY PRECAUTIONS:

Before using the KL20060NAV EGR Leak Detection Kit read, understand, and follow the safety precautions and operating instructions outlined in this manual. This equipment must be operated by qualified personnel.

PERSONAL PROTECTION/ IMPORTANT INFORMATION

WARNING



To avoid personal injury, carefully read and understand all instructions before attempting to operate any equipment or tools. Do not operate or work on a machine unless you read and understand the instructions and warnings in this and all other applicable manuals.



To avoid eye injury, always wear protective glasses to guard against possible flying particles and/or debris. If contact with eyes occurs, flush eyes with cold water for 30 minutes.



To avoid personal injury, always wear protective gloves. If antifreeze/coolant comes in contact with skin, thoroughly wash area with soap and water.

HAZARD AVOIDANCE

WARNING



To avoid personal injury, allow engine to cool completely. Hot antifreeze/coolant can burn skin.



To avoid inhaling mist or hot vapors, use this product in a well ventilated area. If inhaled, move to fresh air and call a physician. If swallowed, drink two glasses of water; induce vomiting; and call a physician.



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

OBJECTIVE:

This tool kit is designed to perform leak tests on the EGR Cooler. The tests use air pressure while the operator looks for leaks in the form of bubbles in water.

APPLICATION:

MARKET NAME	EMISSIONS MODEL	UNIQUE APPLICATION (OPT)
MaxxForce® 11 Big Bore MaxxForce® 13 Big Bore	Emissions Model Year 2010	Gen Set

CONTENTS:

PART #	DESCRIPTION	QTY
KL20020-13	Regulator Assembly	1
KL20060-1	Quick Connect - Pop Off	1
KL20060-2	Cooler Plug	1
KL20060-3A	Cooler Plug - Air Inlet	1
KL20060-3B	Cooler Plug - Leak Detection	1
KL20060-5	Double Hole Plate	1
KL20060-6	Double Hole Plugs	1
KL20060-7A	Large Plug Disc - Pop Off	1
KL20060-7B	Large Plug Disc - Handle	1
KL20090-1	Rear EGR Plate	1
KL20090-2	Bolt Down Plug	1
KL20090-3	Screw Down Plug	1



KL20060-1
Quick Connect
Pop off



KL20060-2
Cooler Plug



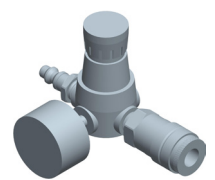
KL20060-3A
Cooler Plug
Air Inlet



KL20060-3B
Cooler Plug
Leak Detection



KL20090-1
Rear EGR Plate



KL20020-13
Regulator
Assembly



KL20060-5
Double
Hole Plate



KL20090-3
Screw Down
Plug



KL20090-2
Bolt Down
Plug



KL20060-6
Double
Hole Plugs



KL20060-7A
Large Plug Disc
Pop Off



KL20060-7B
Large Plug Disc
Handle

GENERAL USE AND INSTRUCTIONS:

⚠ CAUTION: This tool kit uses compressed air at high pressures. Use **EXTREME CAUTION** during testing. For your safety, make sure **ALL FITTINGS ARE TIGHT** and **DO NOT** stand in front of fittings while under pressure.

⚠ WARNING: Safety glasses must be worn when using ship air.

BEFORE PROCEEDING:

Clean all sealing surfaces on the EGR Cooler. This will insure proper sealing of all the tools, and will eliminate any error in the procedure.

NOTE: To reduce the chance of damaging the EGR cooler, set the Pressure Regulator (KL20020-13) to 45 psi before connecting it to the system and beginning the test.

NOTE: Do not let the EGR cooler sit on the LT Housing coolant ports (the Y-fitting or the straight coolant outlet). Do not carry the cooler from these ports or subject them to excessive force.

TOOL INSTRUCTIONS:

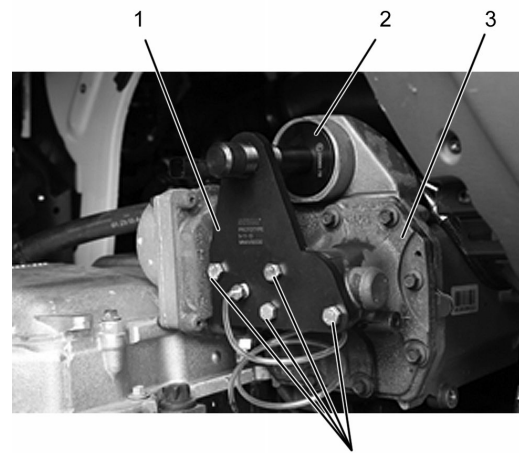
1. Install large test plate (Figure 1, Item 1) onto EGR dual flap valve (Figure 2 Item 3) with four bolts (Figure 1, Item 4). Using torque wrench, torque four bolts to 18 lb-ft (24 N•m).

2. Install plug disc handle (Figure 1, 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.

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

1. KL20090-1 - Rear EGR Plate
2. KL20060-7B - Plug Disc Handle
3. EGR Dual Flap Valve
4. Bolt (4)



4 Figure 1

NOTE: Steps 4 and 5 are needed only if vehicle is equipped with a bunk heater.

4. Remove spring clamp (Figure 2, Item 3) and sleeper coolant supply hose (Figure 2, Item 2) from brass fitting (Figure 2, Item 1).

5. Remove 90-degree brass fitting (Figure 2, Item 1) from EGR high-temperature cooler.

- 1. Brass Fitting
- 2. Sleeper coolant supply hose
- 3. Spring Clamp

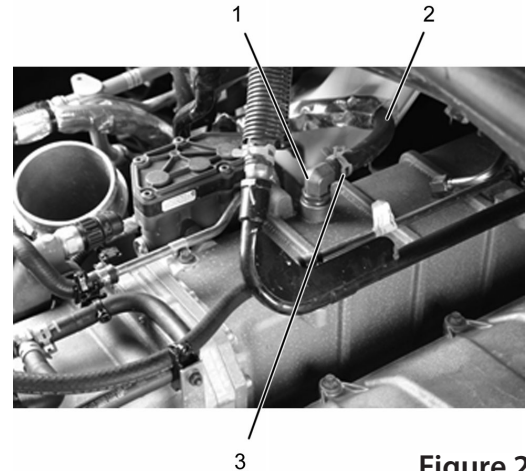


Figure 2

NOTE: Step 6 is needed only if vehicle is equipped with a bunk heater.

6. Install Allen plug (Figure 3, Item 2) into top of EGR high-temperature cooler heater supply port (Figure 3, Item 1). Using torque wrench, tighten Allen plug to 18 lb-ft (24 N•m).

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

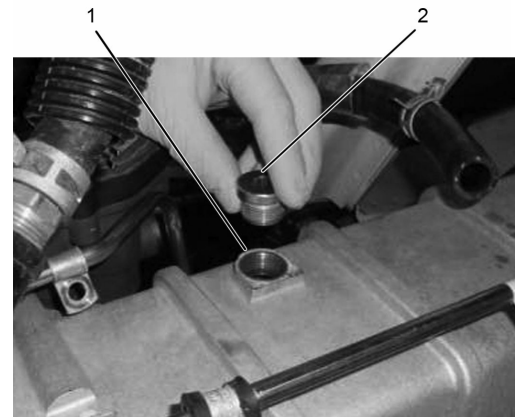


Figure 3

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

7. Disconnect EGR cooler low-temperature coolant outlet hose (Figure 4, Item 1) from fitting on EGR low-temperature cooler outlet (Figure 4, Item 2) and position hose out of the way.

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

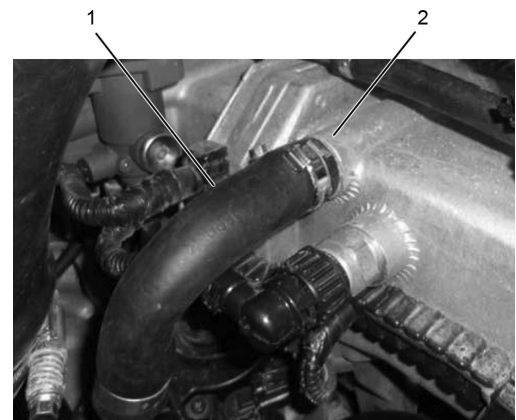


Figure 4

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

8. Install quick connect pop-off (Figure 6, Item 1) onto EGR cooler low-temperature coolant outlet (Figure 5, Item 2) hand tight.

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

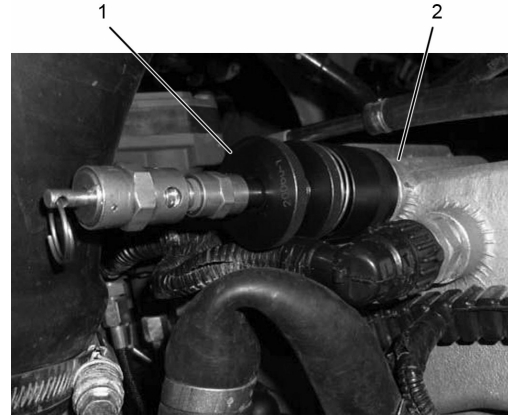


Figure 5

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

9. Refer to TSI 13-12-06 for removal of upper manifold sub-assembly (Figure 6, Item 1) and coolant control valve assembly (Figure 6, Item 4).

10. Remove EGR cooler low-temperature coolant inlet bolt (Figure 6, Item 3).

11. Remove EGR cooler low-temperature coolant inlet (Figure 6, Item 2).

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

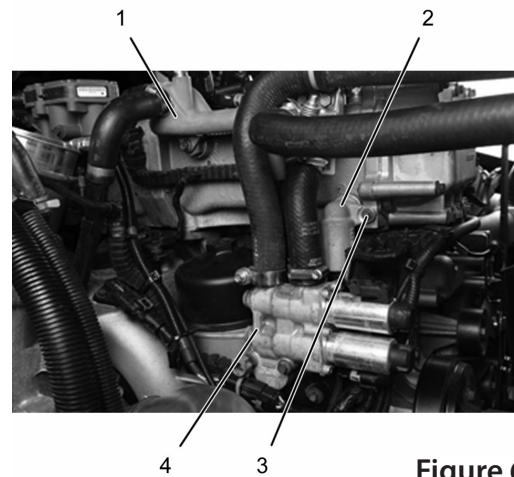


Figure 6

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

12. Install hole plug (Figure 7, Item 1) onto EGR cooler low-temperature coolant outlet (Figure 7, Item 2) hand tight.

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



Figure 7

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

13. Position quick connect pop-off (Figure 8, Item 1) onto EGR cooler low-temperature coolant inlet (Figure 8, Item 2).

14. Using torque wrench, install EGR cooler low-temperature coolant inlet bolt (Figure 8, Item 3) to quick connect pop-off (Figure 8, Item 1). Using torque wrench, torque bolt to 18 lb-in (2 N·m).

1. KL20090-2 - Bolt Down Plug
2. EGR cooler low-temperature coolant inlet
3. EGR cooler low-temperature coolant inlet bolt

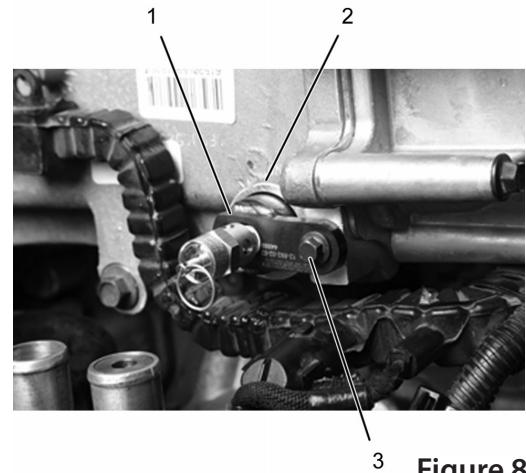


Figure 8

15. Loosen hose clamps (Figure 9, Items 1 and 2) and remove hose (Figure 9, Item 3) from EGR low-temperature cooler Y-fitting.

1. Hose Clamp
2. Hose Clamp
3. Hose

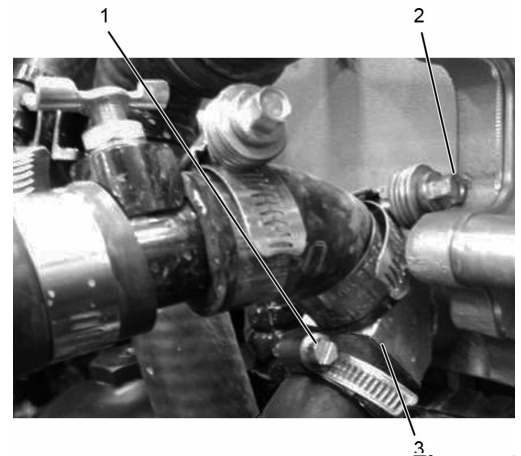


Figure 9

16. Loosen hose clamp (Figure 10, Item 1) and remove hose (Figure 10, Item 2) from CCV.

1. Hose Clamp
2. Hose

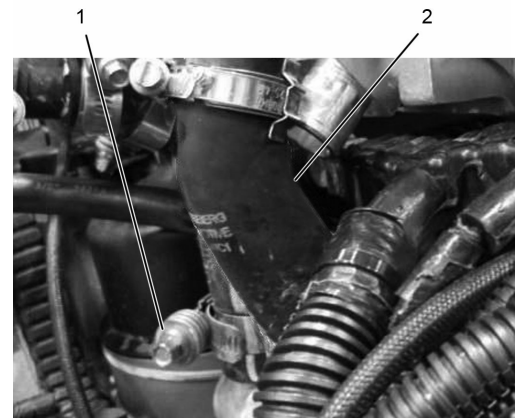


Figure 10

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

17. Install double hole plug (Figure 11, Item 1) into EGR low-temperature cooler housing inlet (Figure 11, Item 2) hand tight.

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

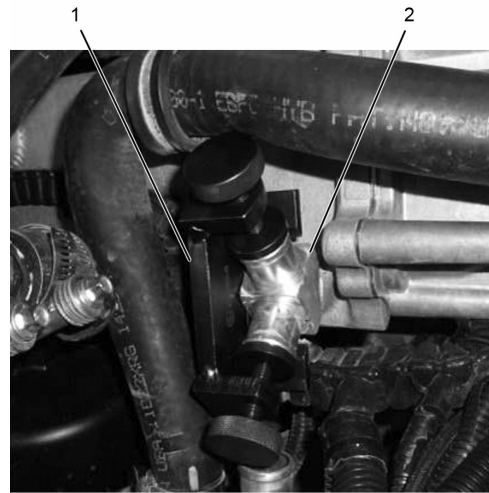


Figure 11

18. Remove two spring clamps (Figure 12, Item 1) from EGR cooler air bleed hoses (Figure 12, Item 3), and remove EGR cooler air bleed hoses from EGR cooler air bleed fittings (Figure 12, Item 2).

1. Spring clamp (2)
2. EGR cooler air bleed fitting (2)
3. EGR cooler air bleed hose (2)

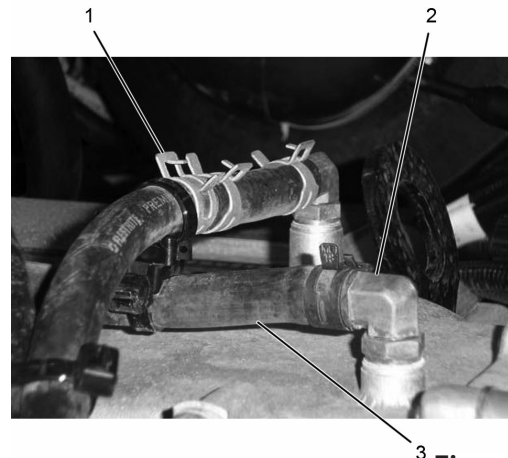


Figure 12

19. Remove two EGR cooler air bleed fittings (Figure 13, Item 1) from EGR cooler.

1. EGR cooler air bleed fitting (2)

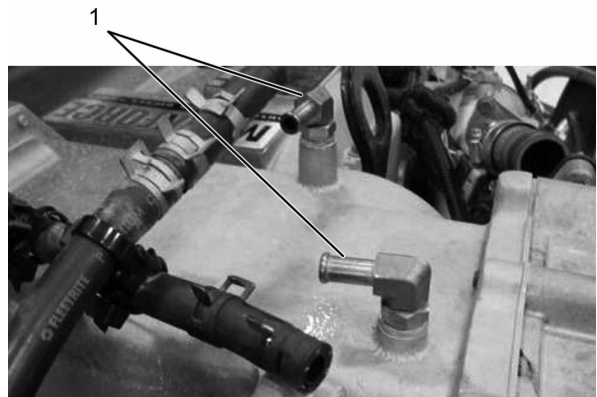


Figure 13

20. Disconnect EGR temperature sensor harness (Figure 14, Item 2) from EGR temperature sensor (Figure 14, Item 1).

21. Remove EGR temperature sensor (Figure 14, Item 1) from sensor port.

1. EGR Temperature sensor
2. EGR temperature sensor harness

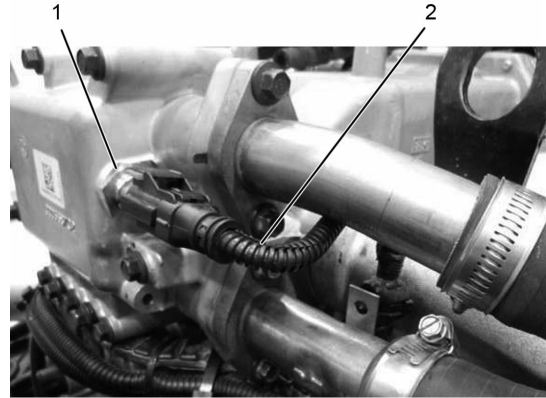


Figure 14

22. Install cooler plug (Figure 15, Item 1) into EGR temperature sensor port.

23. Install large plug disc - pop off (Figure 15, 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.

24. Install double hole plate (Figure 15, Item 5) with four M8 x 20 bolts (Figure 15, Item 2) onto EGR low-temperature cooler housing (Figure 15, Item 3).

1. KL20060-2 - Cooler Plug
2. M8 x 20 bolt (4)
3. EGR low-temperature cooler housing
4. KL20060-7A - Large Plug Disc - Pop Off
5. KL20060-5 - Double Hole Plate

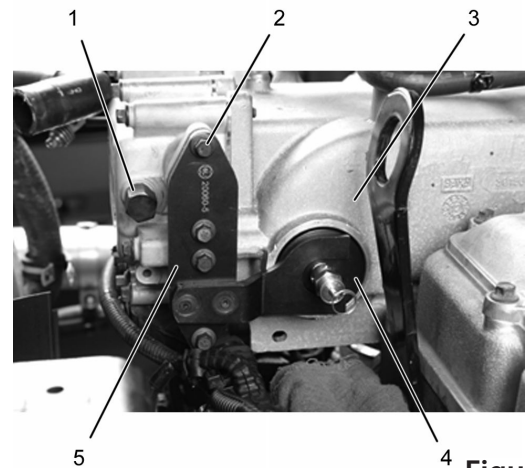


Figure 15

25. Install cooler plug - air inlet (Figure 16, Item 2) into EGR low-temp deaeration port (Figure 16, Item 1).

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

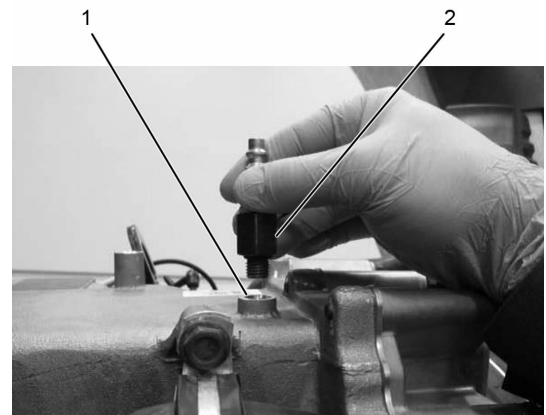


Figure 16

26. Install cooler plug - leak detection (Figure 17, Item 1) into EGR high-temperature deaeration port (Figure 17, Item 2).

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

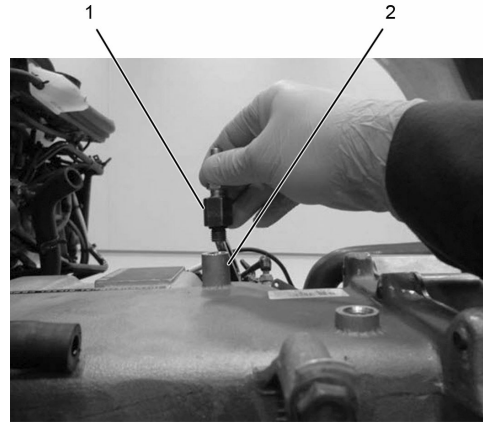


Figure 17

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

27. Install regulator assembly (Figure 18, Item 1) into EGR cooler plug - air inlet (Figure 18, Item 3) and attach shop air hose (Figure 18, Item 2) to regulator assembly.

28. Gradually turn regulator adjustment knob clockwise to increase pressure to 45 psi.

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

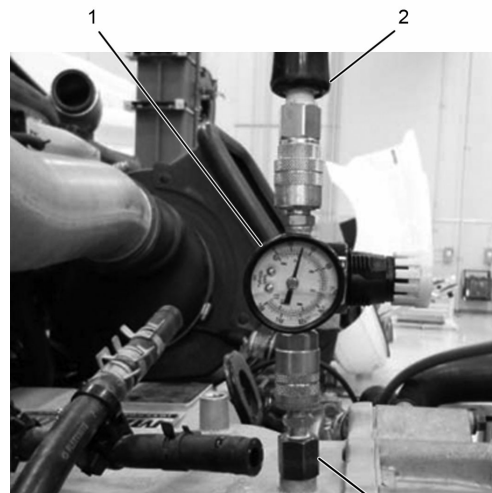


Figure 18

EGR LEAK TEST:

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 19).

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.

1. Large plate leak detector hose end (Red)

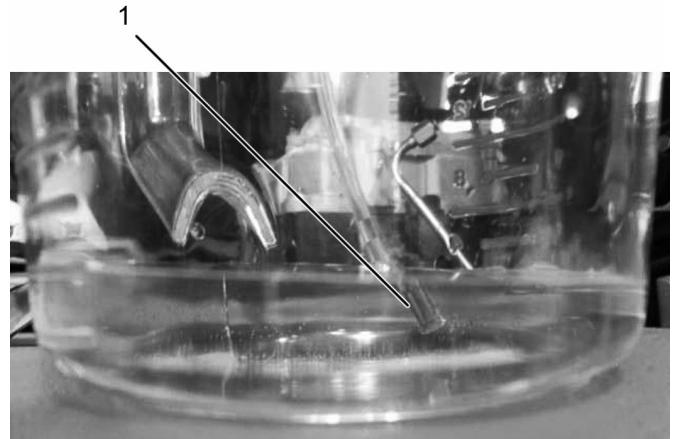


Figure 19

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 20, Item 2), regulator assembly (Figure 20, Item 1), and EGR cooler plug air inlet (Figure 20, Item 3).

1. KL20060-13 - Regulator Assembly

2. Shop air hose

3. KL20060-3A - EGR Cooler Plug - Air Inlet

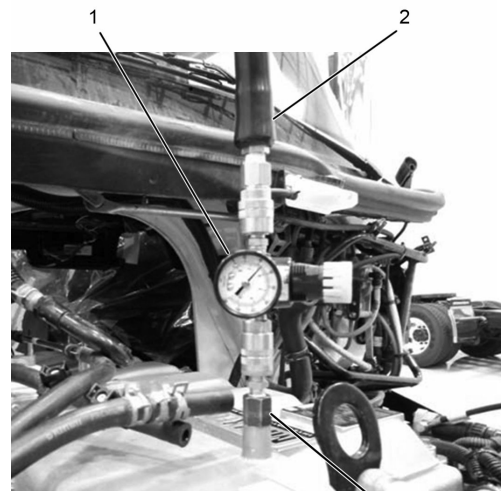


Figure 20

4. Install cooler plug air inlet (Figure 21, Item 1) into EGR high-temperature deaeration port (Figure 21, 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 KL20090-1 - Rear EGR Plate

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

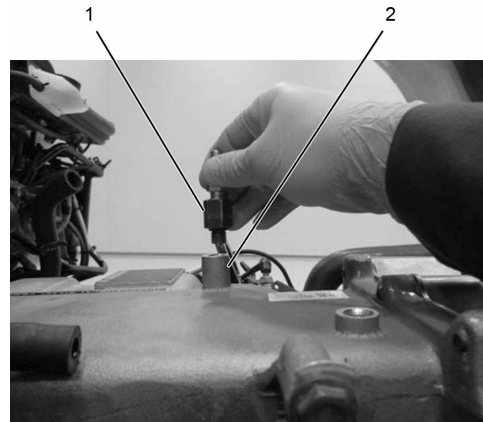


Figure 21

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.

NOTES

NOTES



For product information or
to purchase replacement parts
CONTACT K-LINE CUSTOMER SERVICE AT

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