Authorized Field Change

NAVISTAR®

AFC 11934

Date: February 2012

Subject File: ENGINE / CAB

Subject: Heater Supply Pipe Change / Grease Application for Exhaust Gas Recirculation (EGR) Valve / HVAC Front Inside Module Drain Repair

Model: **For Grease Application for EGR Valve Repair–** Specific engine serial numbers within the following date range
Start Date: 03/01/2011 End Date: 09/15/2011

Engine Family: MaxxForce® 11 and 13

Model: **For Heater Supply Pipe Change –** TransStar® and ProStar® (Springfield Assembly Plant)
Start Date: 01/10/2011 End Date: 06/27/2011

Model: TransStar® and ProStar® (Garland Assembly Plant)
Start Date: 12/02/2010 End Date: 06/29/2011

Model: ProStar® (Escobedo Assembly Plant)
Start Date: 11/30/2010 End Date: 07/05/2011

Model: **For HVAC Front Inside Module Drain Repair** – TranStar®, ProStar®, and LoneStar® equipped with Feature 0016WCT – Heater and Air Conditioner (Blend-Air)
Start Date: 01/19/2011 End Date: 09/13/2011

DESCRIPTION

FOR GREASE APPLICATION FOR EGR VALVE

EGR Valves for certain MaxxForce® 11 and 13 engines were produced without grease and could fail prematurely. This AFC describes a repair procedure to install grease in the EGR valve for all affected engines. The repair will involve drilling small hole in the EGR housing, injecting 18 cc of grease with a syringe, and sealing the hole with a rivet and RTV sealant.

FOR HEATER SUPPLY PIPE CHANGE

Vehicle Population: Certain vehicles repaired before 12/01/2011 under AFC 10924 or AFC 10926, or vehicles built after these AFCs with the single-piece pipe per the date ranges above are included in this campaign. NOTE: Vehicles that have NOT been repaired under AFC 10924 or 10926 will be repaired under those two revised AFCs. Those procedures will include the new three-piece heater pipe.

DESCRIPTION (CONT.)

Certain TransStar® and ProStar® vehicles built with MaxxForce® 11 or 13 2010-emission engines may experience leaks in the single-piece water pipe. The purpose of this AFC is to replace the single-piece water pipe with the three-piece water pipe on certain TransStar® and ProStar® models.

FOR HVAC FRONT INSIDE MODULE DRAIN REPAIR

The HVAC drain valve is being held open. When the blower motor is on, this causes the moisture not to drain. The following are the causes:

1. The HVAC module floor seal interferes with the drain tube and forces it open or closed. Condensate inside the module does not properly drain and instead is pulled into the blower motor.
2. The floor seal is mis-positioned or damaged during HVAC module installation.

PARTS INFORMATION

Table 1 Parts Information – For Grease Application for EGR Valve Repair

Part Number	Description	Quantity
3016337C91	Grease Application on EGR Valve Kit	1
	Blind rivet	1
	Cotton swab	2
	Drill bit assembly	1
	Drill jig	1
	Jig bolt	1
	M8 x 25 heat-resistant bolt	1
	RTV sealant	1
	Spacer assembly	1
	Syringe assembly	1
	Syringe tip	1
	Instruction Sheet	1

Table 2 Parts Information – For Heater Supply Pipe Repair

Part Number	Description	Quantity
8000932R91	Three-piece water pipe kit	1

Table 3 Parts Information – For HVAC Front Inside Module Drain Repair

Part Number	Description	Quantity
8000934R91	Sealant	1

PROCEDURE

WARNING – To prevent vehicle damage, personal injury or death, park the vehicle on a flat, level surface. Make sure the engine ignition is in the off position, and the transmission is in neutral or in the park position, if the vehicle is equipped with an automatic transmission. Set the parking brake, block the wheels to prevent the vehicle from moving in both directions, and disconnect the batteries at the negative terminal before doing any service procedures on the vehicle.

WARNING – To prevent personal injury or death, remove ground cable from negative terminal of main battery before disconnecting electrical components. Always connect ground cable last.

WARNING – To prevent personal injury or death, always wear safe eye protection when performing vehicle maintenance.

WARNING – To prevent personal injury or death, make sure that the engine has cooled before removing components.

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.

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR

1. Park vehicle on a flat surface, shift transmission to park or neutral, set parking brake, and block wheels to prevent the vehicle from moving in both directions.

2. Raise hood assembly. Flip down bumper on ProStar®+ models.

3. Drain the coolant using the Navistar Coolant Management tool.

4. Remove engine housing cover. (NOTE: It may be necessary to remove trim panels on some models and trim levels.) On ProStar® and TransStar® models with the deluxe interior, removal of the driver and passenger seat and floor mats is necessary.

5. Remove coolant manifold (rear of EGR) according to removal procedure in the “Exhaust Gas Recirculation (EGR) System” section of the *EGES-465 Engine Service Manual*.

   NOTE – Save all fasteners and seals for reuse.

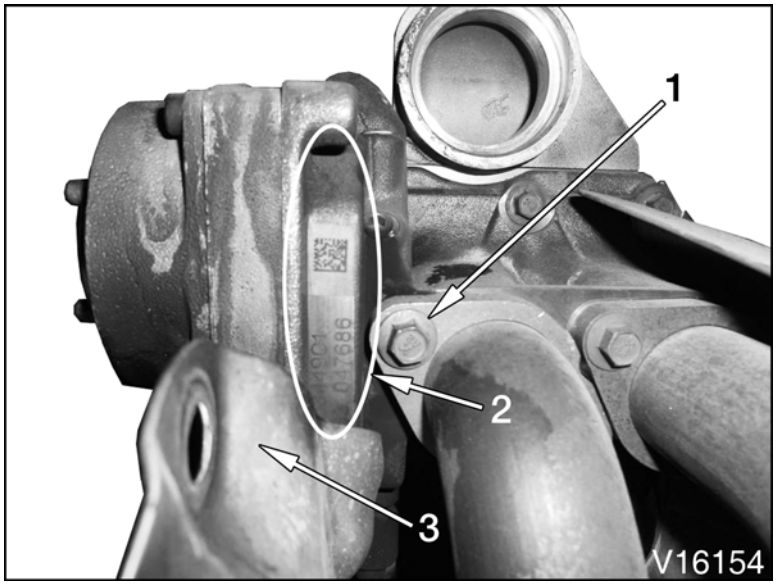


Figure 1 EGR Valve

1. M8 x 25 heat resistant bolt
2. EGR part number and serial number location
3. EGR heat shield

6. Push EGR heat shield as far inboard as possible to allow room to work.

7. Thoroughly clean EGR part number and serial number surface with brake cleaner or equivalent.

8. Remove only one M8 x 25 heat resistant bolt from EGR inlet tube flange. Discard bolt.

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

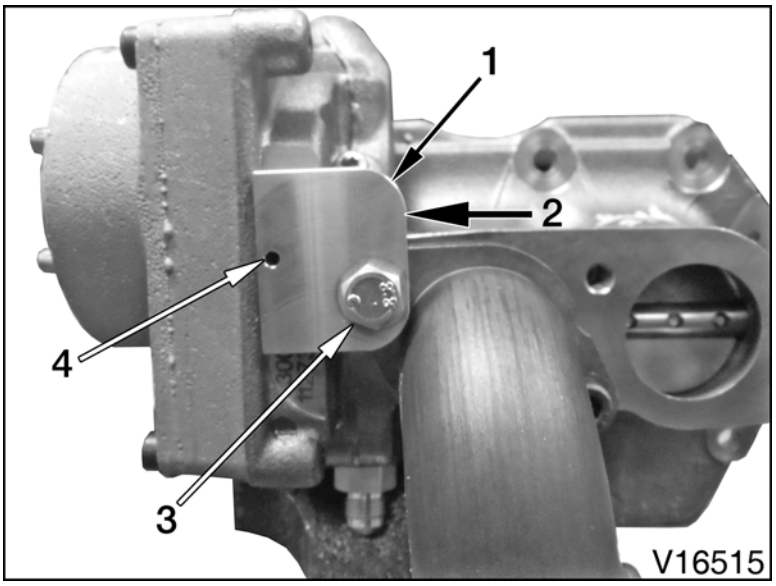


Figure 2 Drill Jig

1. Drill jig
2. Push direction
3. Jig bolt
4. Jig drill hole

9. Place drill jig onto EGR housing and install jig bolt finger tight.

10. Push drill jig in the direction as shown and tighten jig bolt to 18 lb-ft (24 N•m).

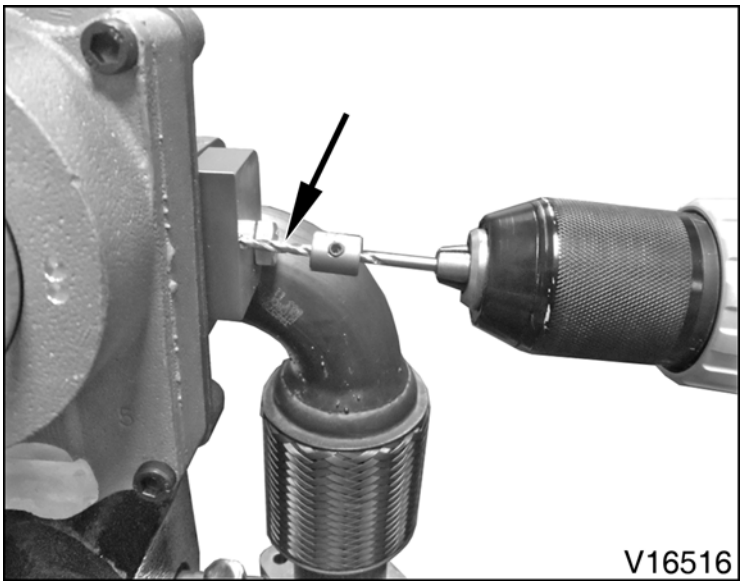


Figure 3 Drill Hole to Proper Depth

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

11. Drill through the hole in the drill jig to the mounted stop collar.

12. Continue to rotate the drill bit while removing.

13. Remove jig bolt and jig. Save jig bolt.

Figure 4 Syringe Assembly

14. Remove protective cover from end of syringe assembly by rotating counterclockwise.

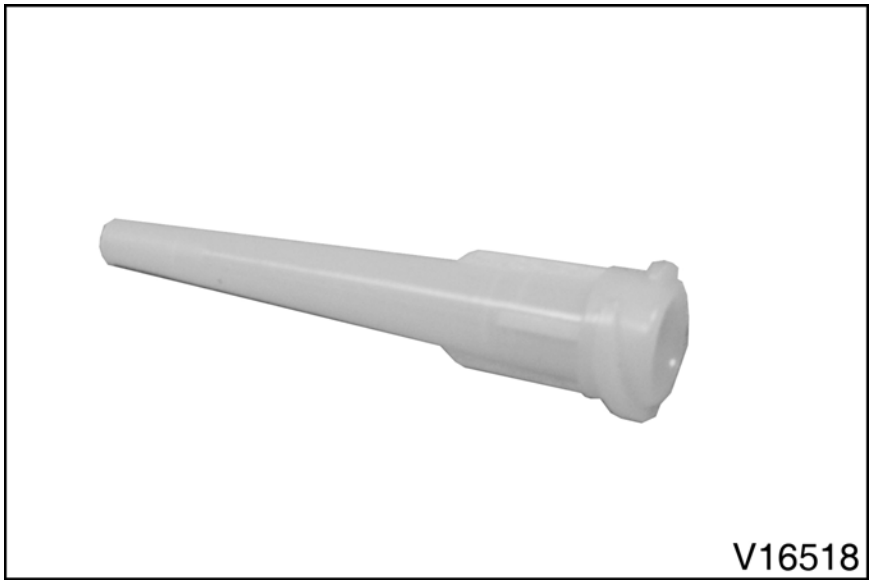


Figure 5 Syringe Tip

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

15. Install syringe tip onto syringe assembly end by rotating clockwise.

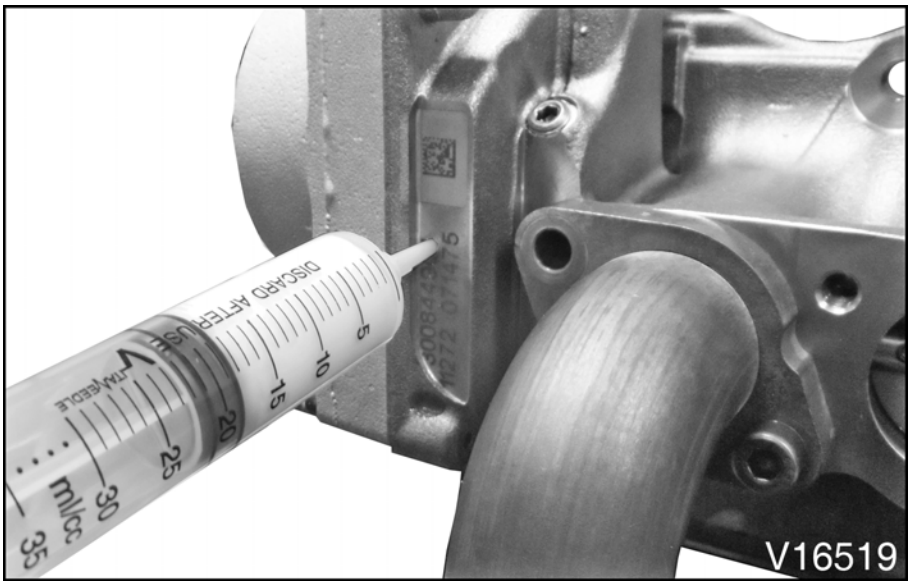


Figure 6 Inject Grease into EGR Housing

16. Insert syringe tip fully into drilled hole.

17. Slowly inject 0.3 fl oz (9 cc) of grease by pressing plunger.

18. Wait 30 seconds to allow grease to settle.

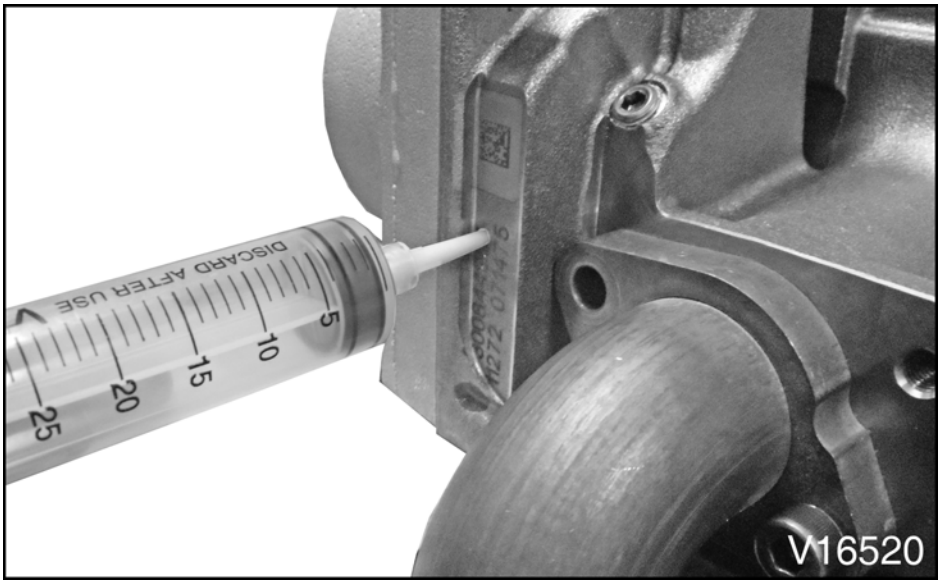


Figure 7 Empty Syringe

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

19. Inject remaining 0.3 fl oz (9 cc) of grease.

    NOTE – Some grease may squeeze out of the hole. Wipe off excess if this occurs.

20. Remove syringe assembly with tip and discard.

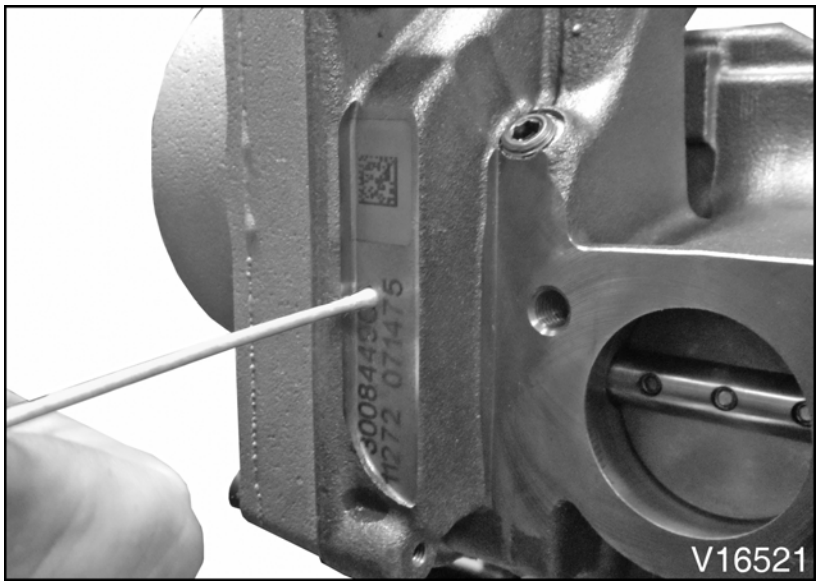


Figure 8 Clean Drilled Hole

21. Insert one of the cotton swabs to full depth of cotton end while rotating.

22. Continue to rotate in the same direction while removing.

23. Repeat with second cotton swab.

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

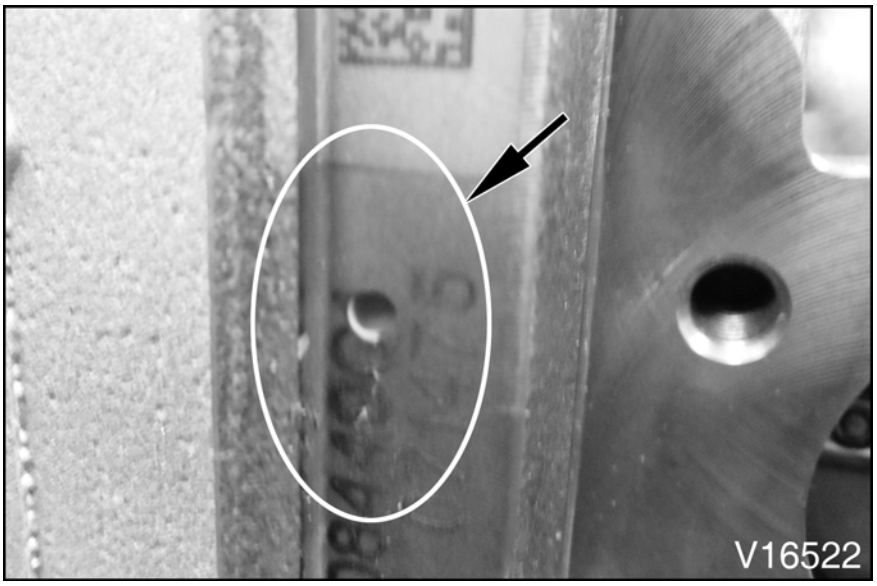


Figure 9 EGR Housing Surface

24. Apply brake cleaner or equivalent to a clean shop towel and wipe EGR housing surface clean of any grease.

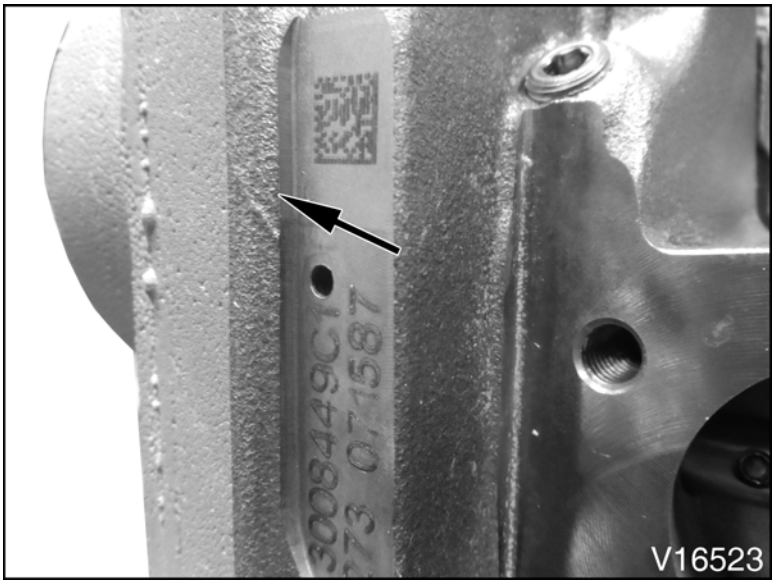


Figure 10 EGR Housing Surface Height Difference

NOTE – Due to the difference in height between the as-cast and machined surfaces of the EGR housing, it will be necessary to use a spacer to install the blind rivet.

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

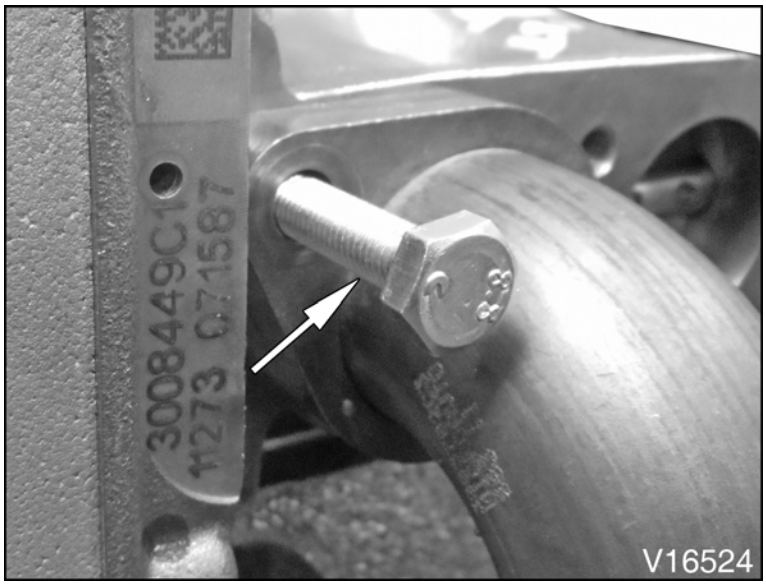


Figure 11 Jig Bolt

25. Reinstall the jig bolt in the EGR housing to where there is approximately 1.0 in. (26 mm) of thread left above the exhaust flange.

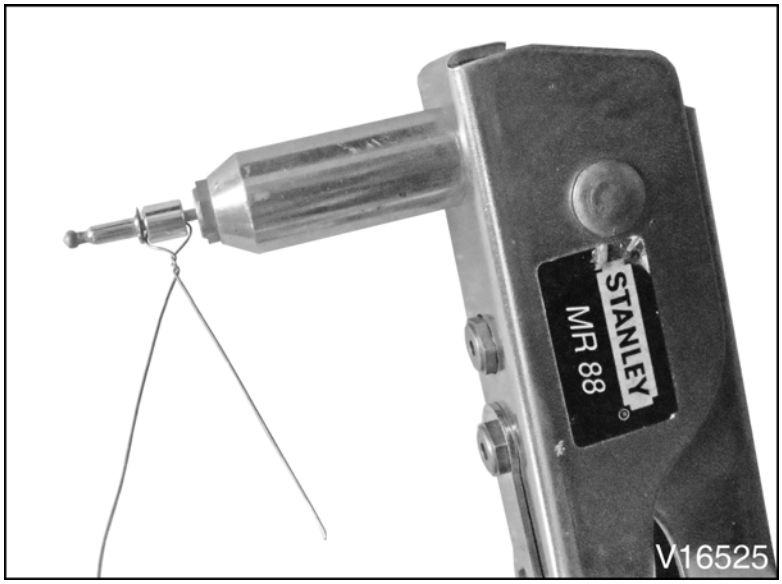


Figure 12 Rivet Gun and Rivet/Spacer Assembly

26. Install blind rivet into spacer assembly.

27. Install blind rivet/spacer assembly into locally obtained rivet gun. Use the appropriate rivet guide on the rivet gun for rivet supplied in the kit.

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

NOTE – Always wear safety glasses when using a rivet gun.

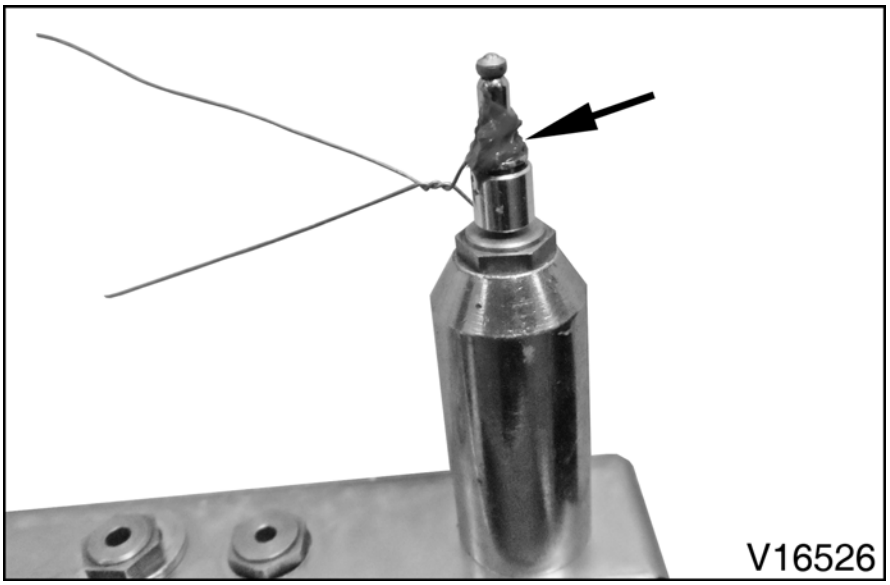


Figure 13 Rivet/Spacer Assembly Positioned in the Rivet Gun

28. Using the rivet gun to hold the rivet/spacer assembly, apply RTV sealant around the diameter of the blind rivet shank as shown.

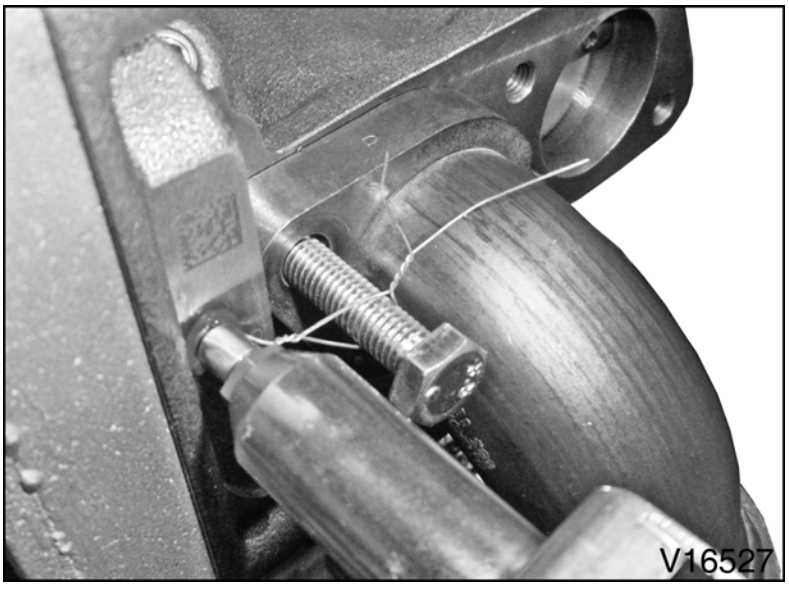


Figure 14 Tether Rivet/Spacer Assembly to Jig Bolt

29. After coating the blind rivet with RTV sealant, insert the blind rivet/spacer assembly into the drilled hole. Position tether wire on rivet/spacer assembly in such a way where the wire can be tied to the jig bolt.

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

30. Tie the tether wire of the blind rivet/spacer assembly around the jig bolt to retain the spacer when the mandrel on the blind rivet breaks off.

31. Squeeze riveter handles until rivet stem pulls free from the blind rivet. Tether wire should keep spacer assembly attached to jig bolt.

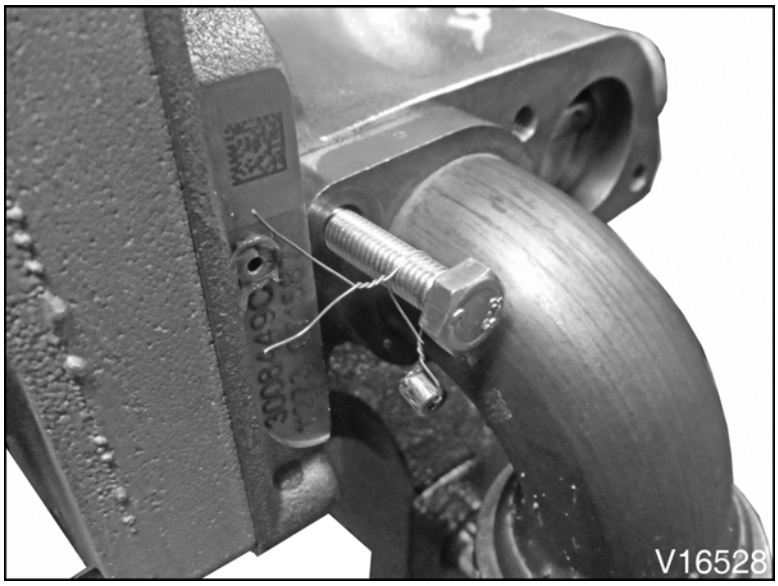


Figure 15 Blind Rivet Installed

32. Remove spacer assembly and jig bolt from EGR valve and discard.

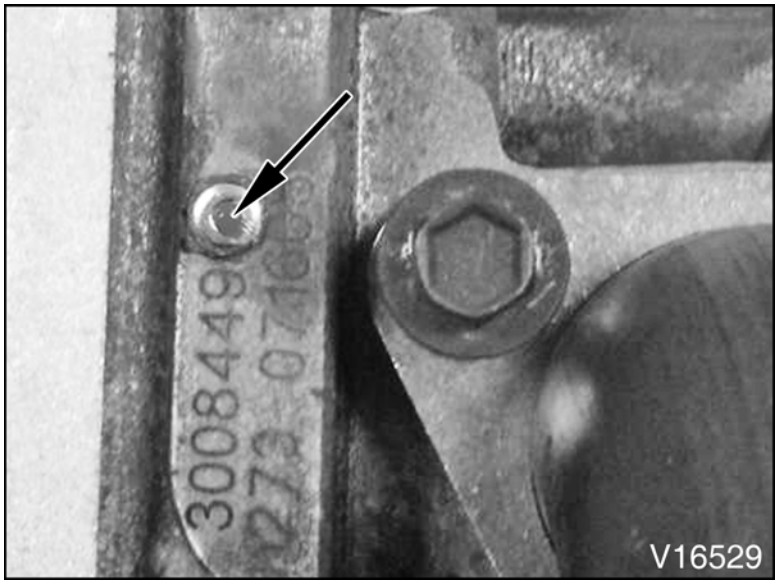


Figure 16 Rivet Filled with RTV

SERVICE PROCEDURE FOR GREASE APPLICATION FOR EGR VALVE REPAIR (CONT.)

33. Apply a small amount of RTV sealant to remaining hole. Additional RTV sealant over the head of the blind rivet is acceptable and does not need to be removed.

34. Install new M8 x 25 heat-resistant bolt to EGR inlet tube flange and tighten to 18 lb-ft (24 N•m).

35. Install coolant manifold (rear of EGR) according to installation procedure in the “Exhaust Gas Recirculation (EGR) System” section of the *EGES-465 Engine Service Manual*.

SERVICE PROCEDURE FOR HEATER SUPPLY PIPE CHANGE

1. From inside cab, locate EGR crossover pipe (coolant manifold) (See Figure 17, page 14) at the rear of the engine.

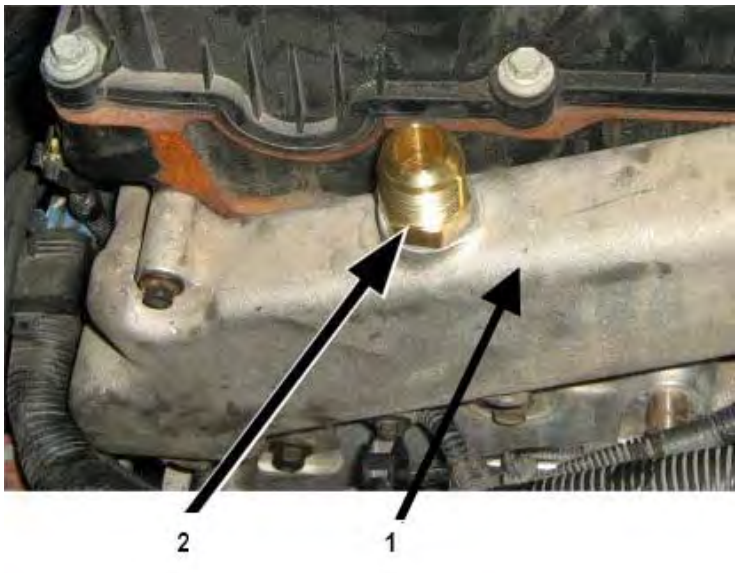


Figure 17 EGR Crossover Pipe (Rear of Engine)

1. EGR crossover pipe (coolant manifold)
2. M18 fitting

2. Remove the single-piece water pipe at the flare fitting end leaving the brass fitting in place in the EGR crossover. NOTE: Hold the brass fitting with a wrench when removing the flare fitting as this is an O-ring seal. The torque on the O-ring fitting should be maintained at 15 to 18 ft-lb (20-25 N•m). The torque on the flare nut should be 44-55 ft-lb (60-75 N•m). Remove the two fasteners holding the pipe to the EGR cooler housing. Disconnect the front end of the single-piece water pipe from the heater supply hose.

NOTE – When installing threaded fittings note whether the fitting is supplied with sealant applied to the threads. If no sealant is present, apply sealant during installation.

3. Install new heater **supply** hose, as follows (See Figure 18, page 15).

SERVICE PROCEDURE FOR HEATER SUPPLY PIPE CHANGE (CONT.)

Figure 18 Three-Piece Heater Supply Hose

1. Top of engine-side of heater pipe
2. 15 in. (380 mm) section of 0.75 in. (19 mm) heater hose (supplied hose may need to be trimmed to 15 in. (380 mm))
3. Flare-side of heater pipe
4. 2 x Mubea #27 clamps

4. Remove the nipple or shut-off valve from the single-piece pipe and install the nipple or shut-off valve to the new heater supply pipe BEFORE installing on the engine (See Figure 19, page 16).

SERVICE PROCEDURE FOR HEATER SUPPLY PIPE CHANGE (CONT.)

Figure 19 Adding Nipple to Assembly Heater Front Supply Pipe

5. Add the 15 in. (380 mm) hose section onto the rear end of the curved pipe that mounts to top of the engine BEFORE installing on engine. Use P80® lubricant on hose and pipe for assembly. Install hose approximately 1 in. over the raised flare on the pipe.

6. Add the Mubea #27 clamp to the step 5 assembly.

7. Install step 6 assembly onto engine and fasten down using the 2 M6 hex flange nuts (See Figure 20, page 17) that were removed in step 2.

SERVICE PROCEDURE FOR HEATER SUPPLY PIPE CHANGE (CONT.)

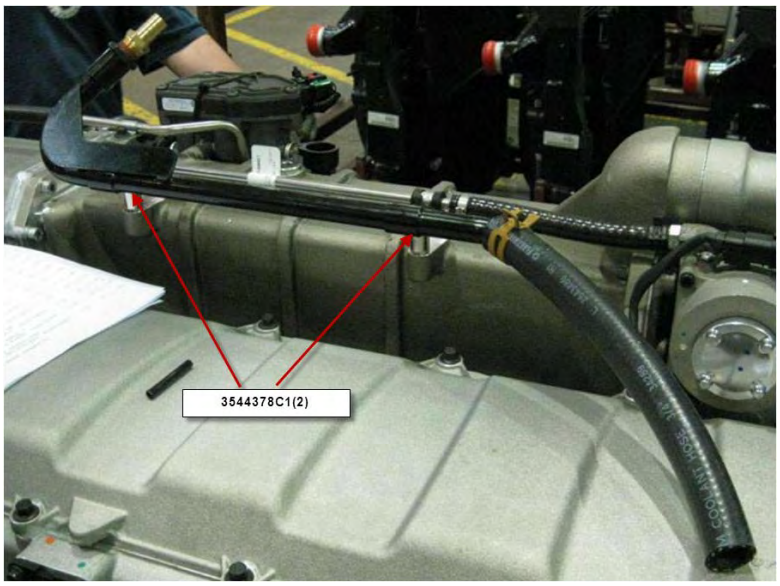


Figure 20 Attaching Supply Heater Pipe to Engine

8. Install the rear pipe and hand-tighten the flare nut on the heater pipe. The tube should align up with the top engine heater pipe and torque to 44-55 lb-ft (60-75 N•m) (See Figure 21, page 17) while holding the brass fitting in the EGR crossover pipe with a back-up wrench.

Figure 21 Aligning Heater Supply Tube

9. Add the Mubea clamp #27 to the hose and attach the hose end to step 13 assembly using P80.

10. Review the procedure and verify that all connections are tight and properly secured.

11. Inspect the front heater return hose to make sure the hose on the elbow is not contacting the cowl drain.

SERVICE PROCEDURE FOR HEATER SUPPLY PIPE CHANGE (CONT.)

12. If the hose or elbow is contacting the cowl drain, slide the hose down farther on the metal tube to gain clearance.

13. Refill the cooling system using the Navistar Coolant Management Tool.

14. Start engine and check for coolant leaks.

15. Stop engine.

SERVICE PROCEDURE FOR HVAC FRONT INSIDE MODULE DRAIN REPAIR

1. Remove the kick panel and scuff panel on the passenger side of the truck (See Figure 22, page 19).

Figure 22 Removing Kick and Scuff Panels

2. Detach and pull back the center console to expose the floor mat (See Figure 23, page 19).

Figure 23 Removing Center Console

3. Pull the floor mat away from the drain area (See Figure 24, page 20).

SERVICE PROCEDURE FOR HVAC FRONT INSIDE MODULE DRAIN REPAIR (CONT.)

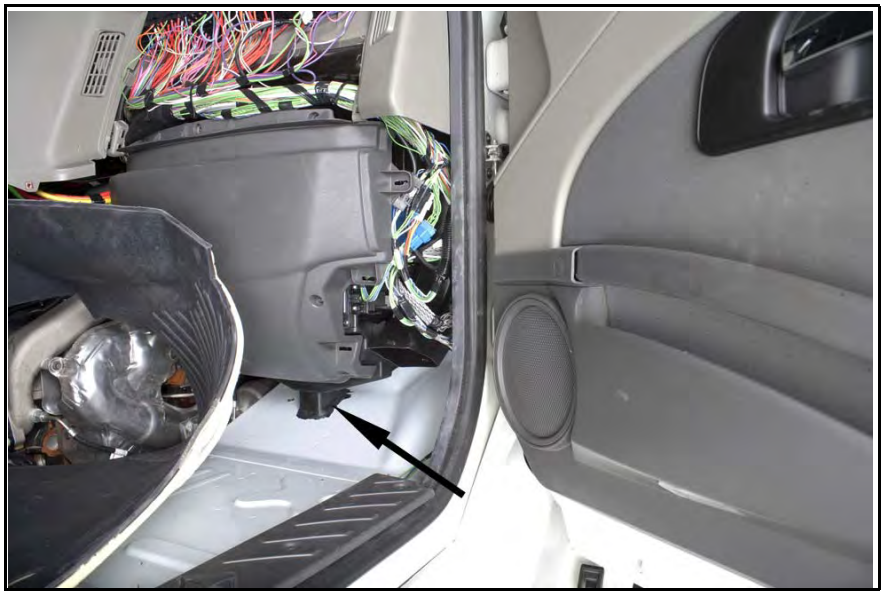


Figure 24 Pulling Floor Mat away from Drain Area

4. Removal of drain seal.

   a. In the engine compartment on the firewall, loosen the lower mounting nuts from area shown (See Figure 25, page 20).

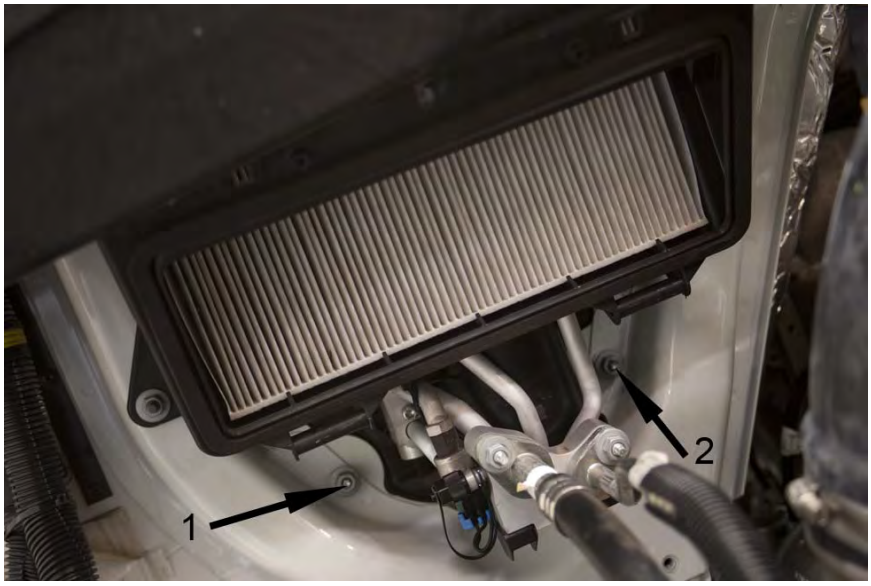


Figure 25 Loosening Mounting Nuts

1. Outboard Nut next to HVAC TXV
2. Inboard Nut next to HVAC TXV

   b. Back the nuts off the studs until the end of the nut is approximately flush with the end of the stud (do not remove completely).

SERVICE PROCEDURE FOR HVAC FRONT INSIDE MODULE DRAIN REPAIR (CONT.)

c. With the mounting nuts loosened, gently pull the HVAC unit rearward to expose the drain seal for easier removal (See Figure 26, page 21) and (See Figure 27, page 21). Remove the foam seal and not the rubber drain valve (See Figure 28, page 22).

Figure 26 Pulling HVAC Unit Rearward

Figure 27 Typical Condition of the Foam Seal after Removal

SERVICE PROCEDURE FOR HVAC FRONT INSIDE MODULE DRAIN REPAIR (CONT.)

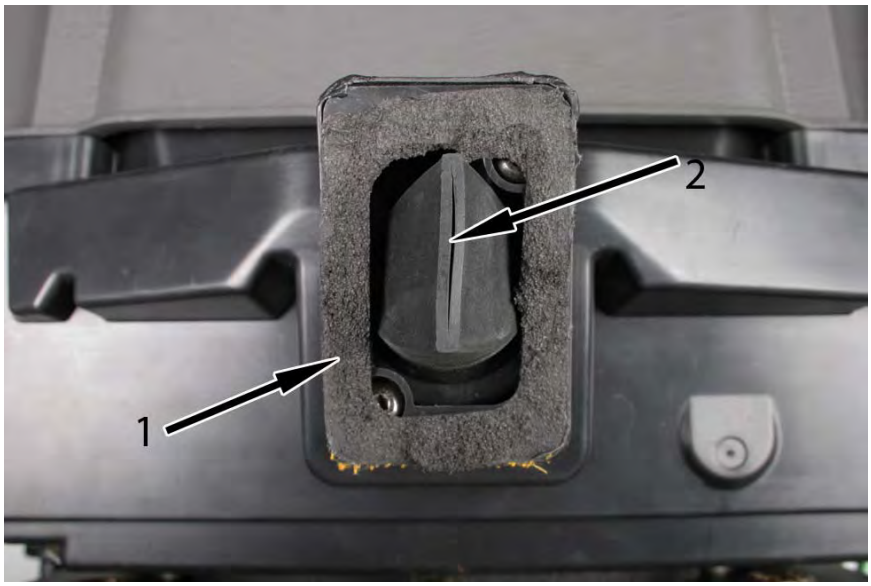


Figure 28 Rubber Drain Valve

1. Foam Seal
2. Rubber Drain Valve

5. Tighten the HVAC module mounting nuts (See Figure 25, page 20).

6. Using a thin piece of cardboard / credit card, place the cardboard between the floor and the HVAC module.
   a. Push the cardboard halfway under the HVAC module.
   b. Continue this operation for all sides of the drain. This will make sure the drain valve is not caught.
   c. Slide the cardboard / credit card from the firewall side completely under the HVAC housing to ensure it is not folded under. You will be able to see the drain valve end as you slide the cardboard / credit card under the module between HVAC Module and Floor (See Figure 29, page 23).

SERVICE PROCEDURE FOR HVAC FRONT INSIDE MODULE DRAIN REPAIR (CONT.)

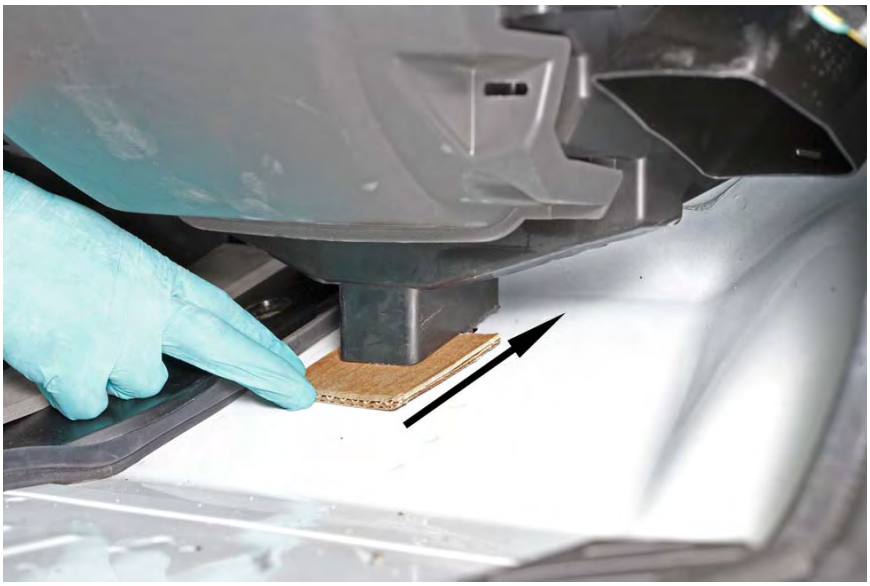


Figure 29 Placing Cardboard Between HVAC Module and Floor

7. Use sealant (p/n 8000934R91) to seal the HVAC unit to the floor. Make sure not to force excessive sealant into the gap (See Figure 30, page 23).

Figure 30 Sealing HVAC unit to the Floor

8. Reposition the floor mat in place.

9. Do the following to test the blower motor:
   a. Turn the ignition key to the On position.
   b. Turn the control on high blower speed.

SERVICE PROCEDURE FOR HVAC FRONT INSIDE MODULE DRAIN REPAIR (CONT.)

c. If the blower turns on, go to each blower speed and verify that the blower is operational. If the blower is operational, go to step 10.

d. If the blower does not turn on or has limited airflow, locate the Linear Power Module (LPM) behind the passenger-side kick panel (See Figure 31, page 24) and do the following:

Figure 31 Locating the LPM

- Black wire on the two-cavity connector.
- White heavy ground wire on the 6-way connector.

e. Use a 12-gauge jumper harness to place the jumper across these two wires (See Figure 32, page 25).

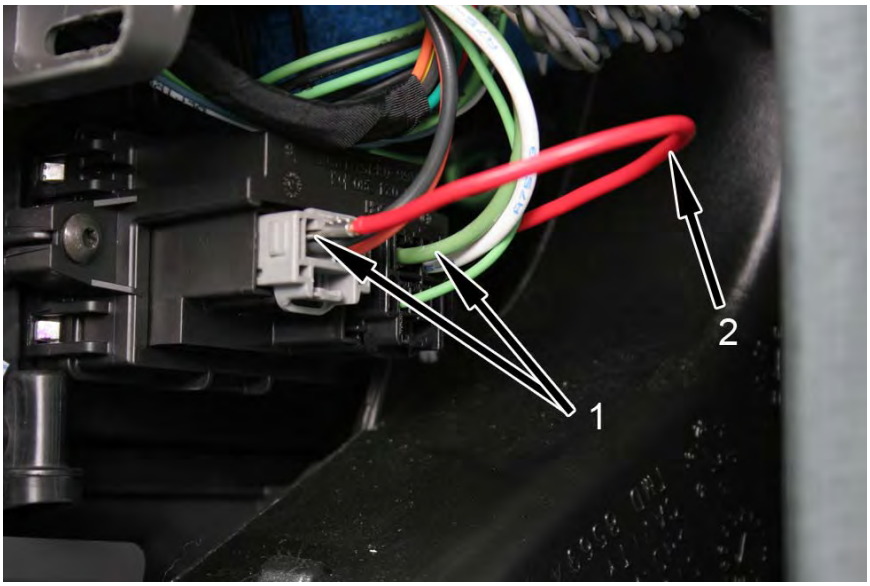


Figure 32 Using 12-gauge Jumper Harness

1. Jumper wire on the two-cavity connector and on the 6-way connector.
2. 12-gauge jumper harness

f. The blower motor should operate.

g. Remove the jumper wire.

h. Turn the key off and then back on to verify the blower motor works.

10. Reassemble the center console.

11. Install engine cover and any trim panels removed earlier. On ProStar® and TransStar® models with deluxe interior, install the driver and passenger seats and floor mats. For all other models, install passenger seat (if it was removed).

Table 4 Labor Information

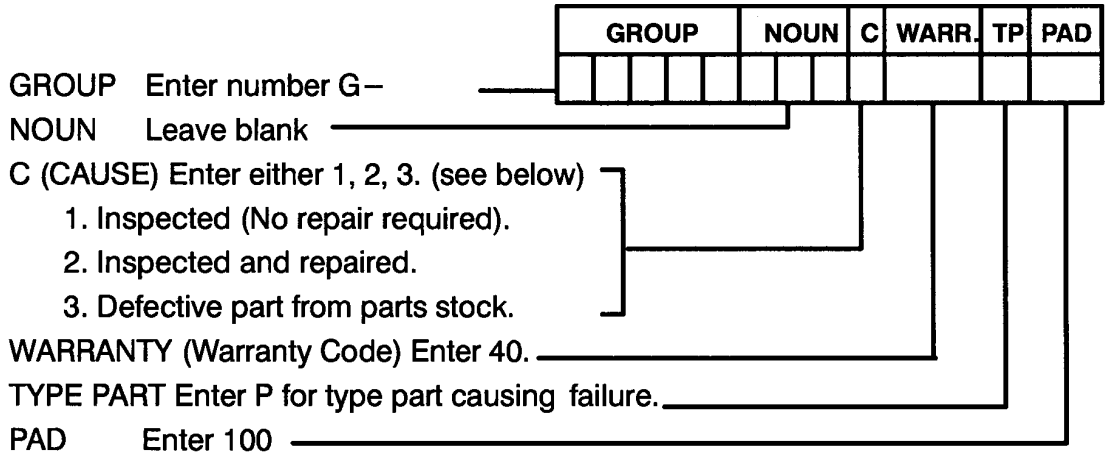
Operation No.	Description	Time
A40-11934-1	Three-piece heater hose installation, EGR Valve Re-Greasing, and HVAC Front Inside Module Drain Repair – ProStar®, LoneStar®, and TransStar®(deluxe interior)	3.2 hrs.
A40-11934-2	Three-piece heater hose installation, EGR Valve Re-Greasing, and HVAC Front Inside Module Drain Repair – TransStar® (standard interior)	2.6 hrs.

ADMINISTRATIVE PROCEDURE

Expense is to be charged to Warranty. Claims are to be submitted in the normal manner, making reference to Authorized Field Change Number G-11934.

It is important that the coding be completed properly to assist in processing the warranty claim. Complete instructions will be found in the Warranty Manual, Section 7–1. Special attention should be given to Items 39 through 44.

To assure this important improvement is made in a timely manner, all claims for G-11934 activity must be submitted by February 28, 2013 or within the normal warranty period for the vehicle, if after February 28, 2013.



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