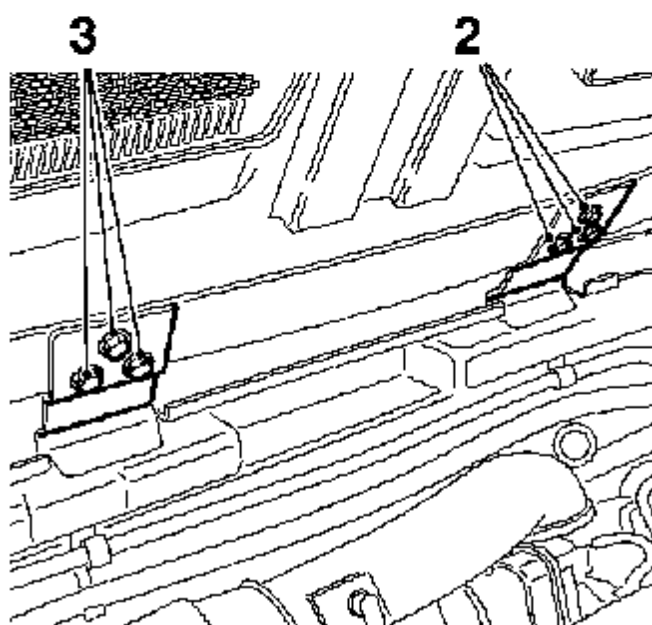
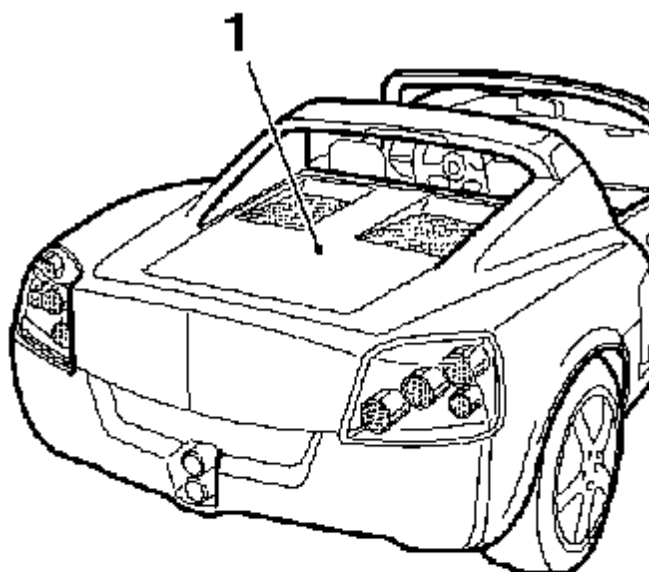


Engine, Remove and Install (Z 22 SE)



Remove

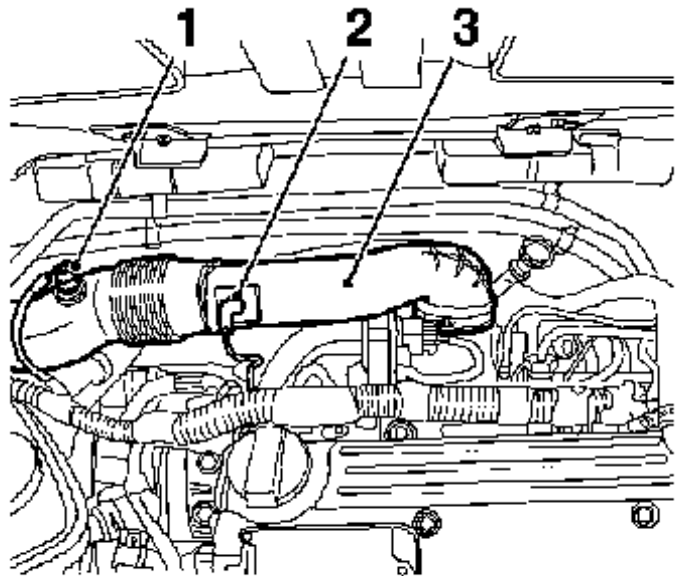
1. Detach the engine splash shield.
 - 13 bolts
 - Vehicle on 4-post ramp – other work performed on a 2-post ramp.
2. Open the bonnet.
3. Disconnect the battery.
 - Negative terminal
4. Open the rear engine cover (1).
5. Remove the rear engine cover.
 - 6 bolts (2) and (3)



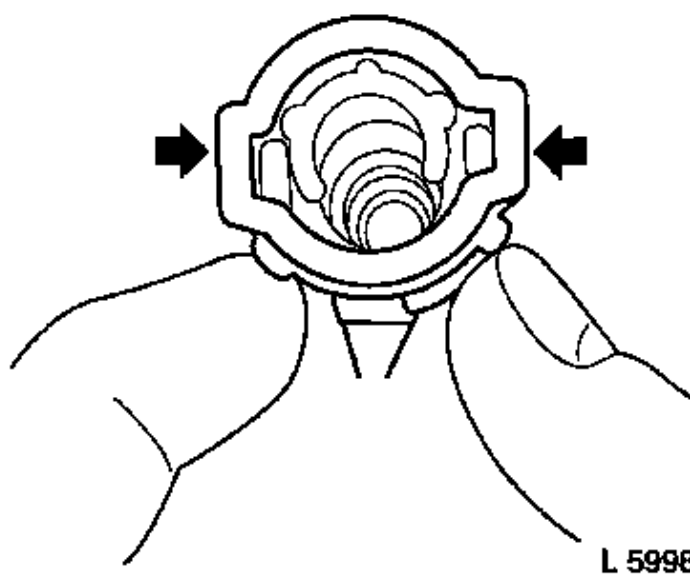
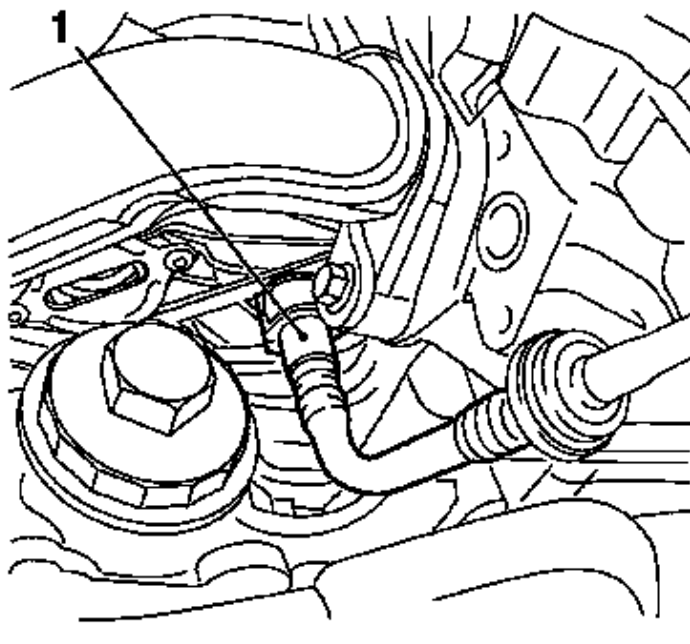
L0008715

6. Remove the air intake pipe (3).

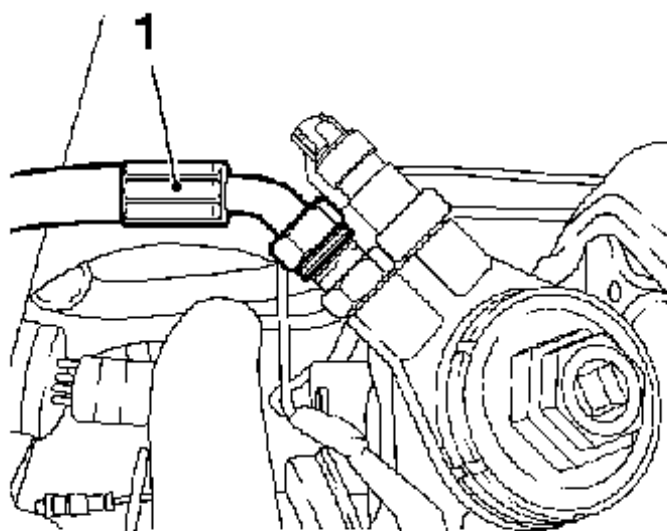
- 2 clamps
- Detach the fuel pressure regulator vacuum hose (2).
- Detach the intake air temperature sensor wiring harness (1).
- Engine breather hose.
 - From the cylinder head cover.
 - 1 clamp.

**L0008727****7. Detach the brake servo vacuum line (1).**

- Unclip the brake servo vacuum line.
- Press in the retainer on both sides (arrows) and release.

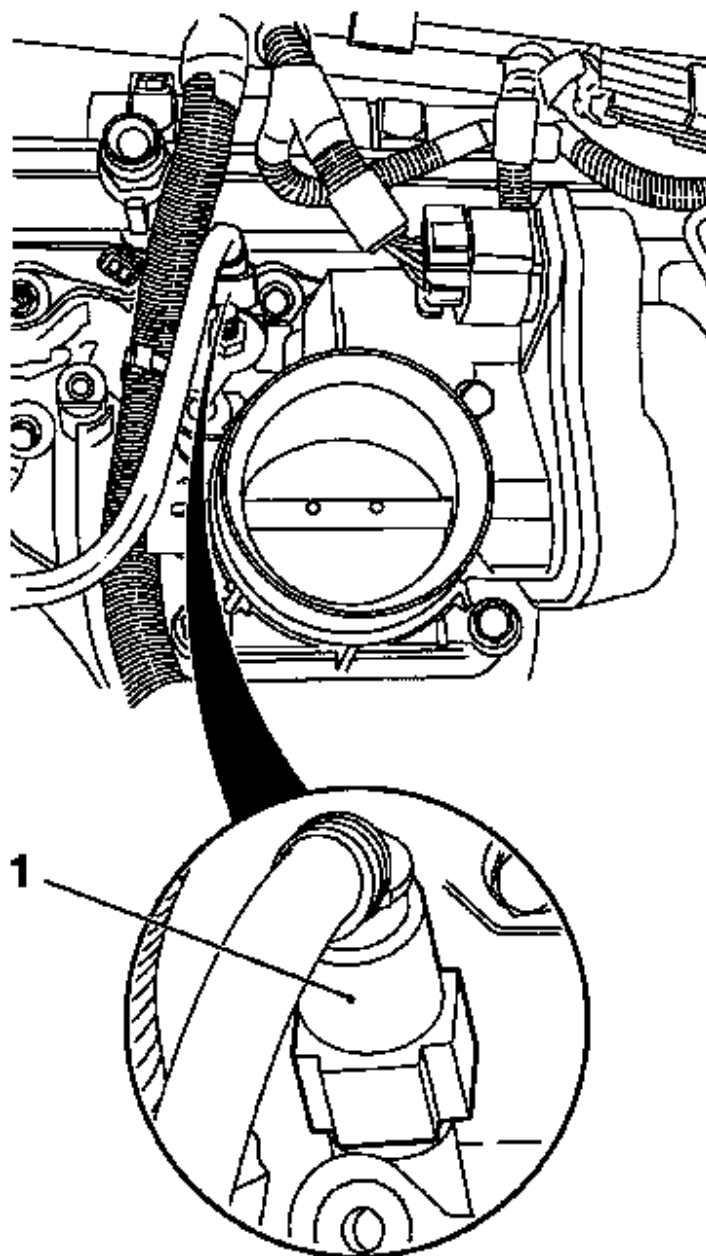


8. Place a drip tray underneath.
9. Detach the oil supply line (1) from the oil cooler.
 - 1 union nut.



L0008738

- 10.** Detach the tank breather valve line (1).
- From the intake manifold.
 - Reposition the line to one side.



L 5997

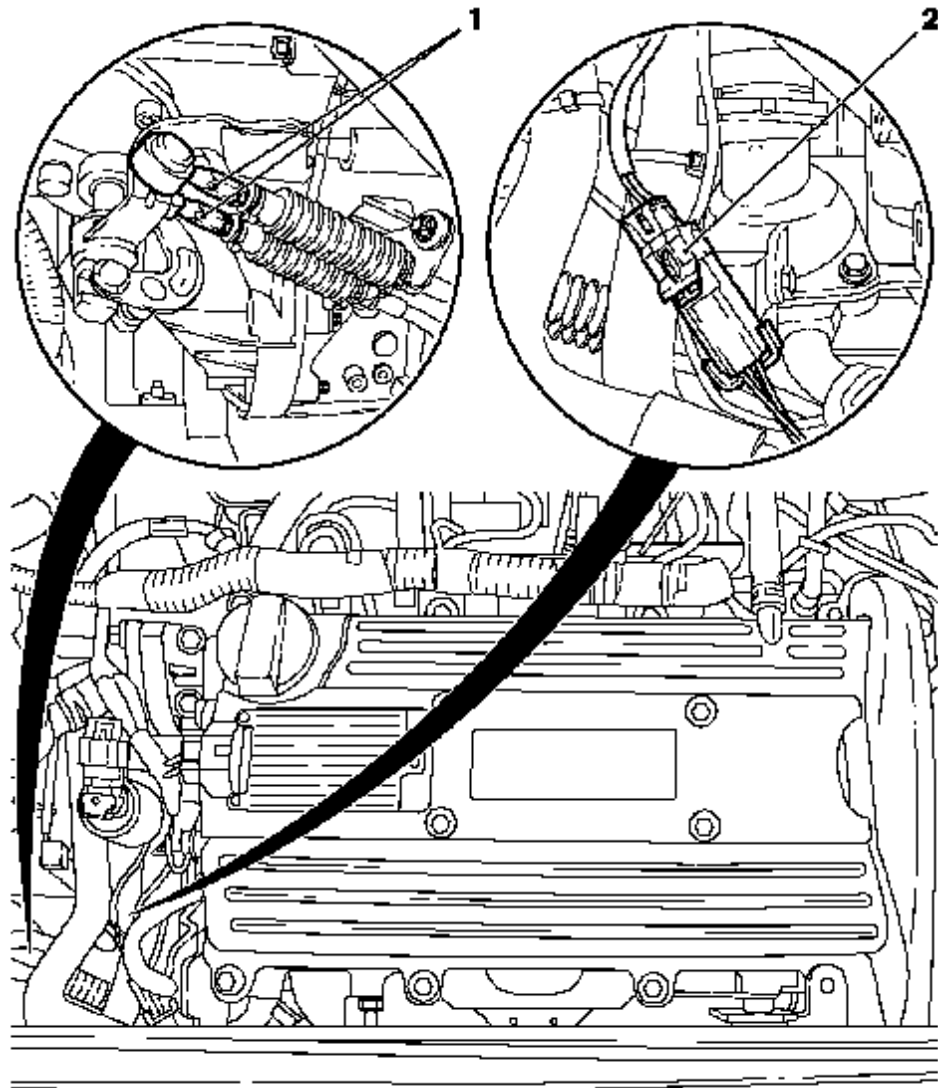
11. Disconnect the wiring harness connector from the lambda probe for catalytic converter monitoring (2).
- Detach from the bracket.
 - Disconnect the wiring harness connector.

Important: During disassembly of the gearshift cables it is

important to ensure that the spigots of the ball joints are not bent as a result of not lifting them off straight. This would prevent proper gear changes from taking place after installation. The gearshift cables must not be stretched, twisted or kinked.

12. Detach the gearshift cables (1).

- Disconnect the gearshift cables with **KM-6042**.
- Detach the gearshift cables from the bracket and the retaining cam.
 - 2 clips
 - Reposition the gearshift cables to one side.

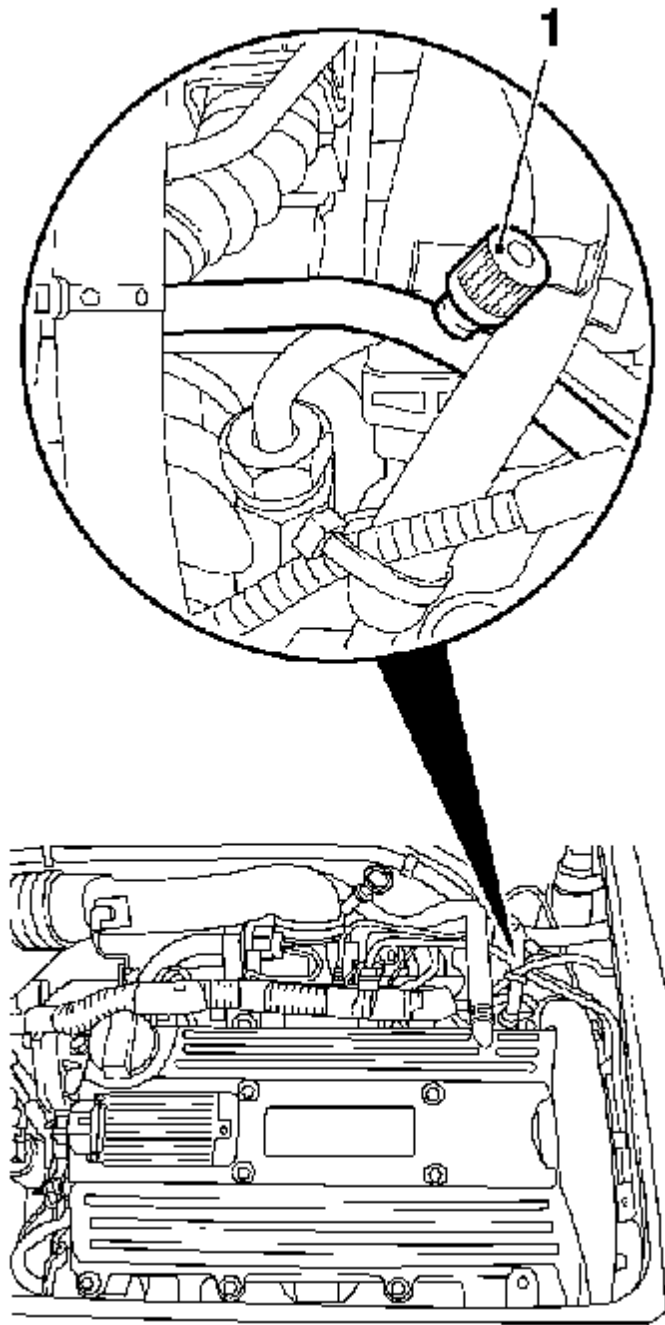


L0008739

Important: Fuel may escape – observe the safety regulations and relevant national legislation.

13. Release the fuel pressure.

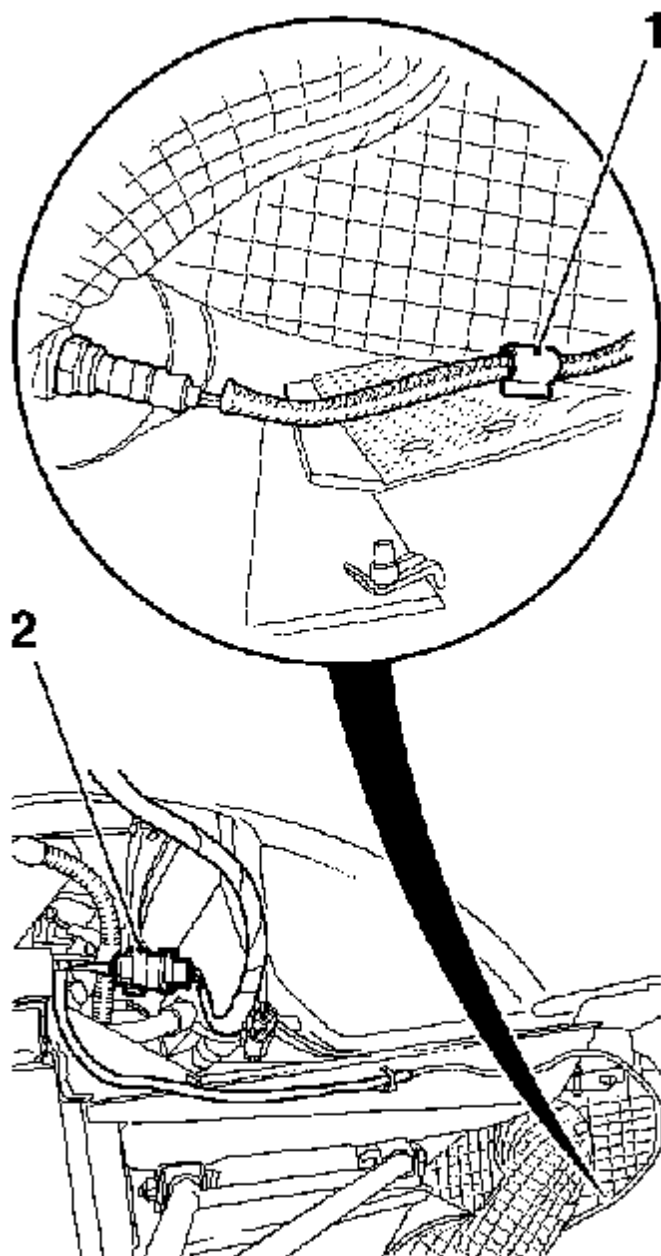
- Release the fuel pressure with the pressure tester **KM-J-34730-91** via test connection (1).
 - Collect any escaping fuel in a suitable container.



L0008716

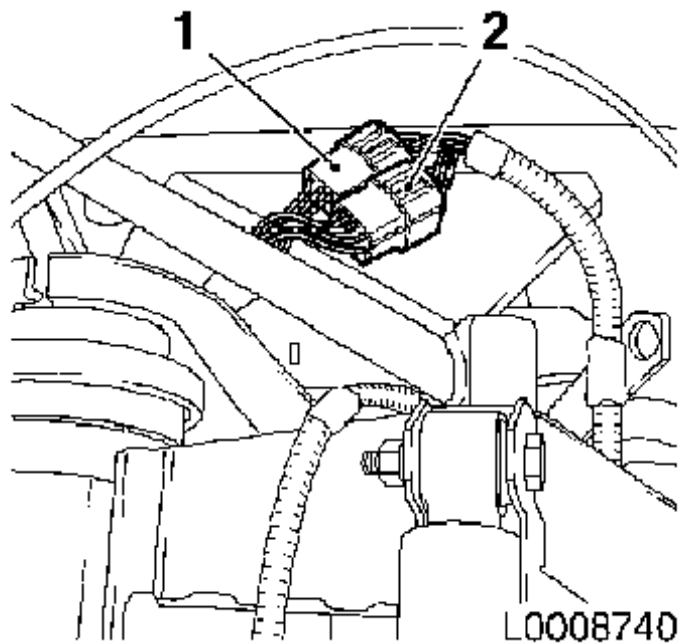
14. Raise the lifting ramp.
 - Half height.
15. Detach the rear wheels.
 - 10 bolts
16. Remove the wheel arch trim panel.
 - Both sides.
 - 12 bolts
17. Detach the wiring harness connector for the lambda probe for closed-loop mixture control (2).
 - Expose the wiring harness.

- 5 clips, 1 retaining clip (1)



L0008732

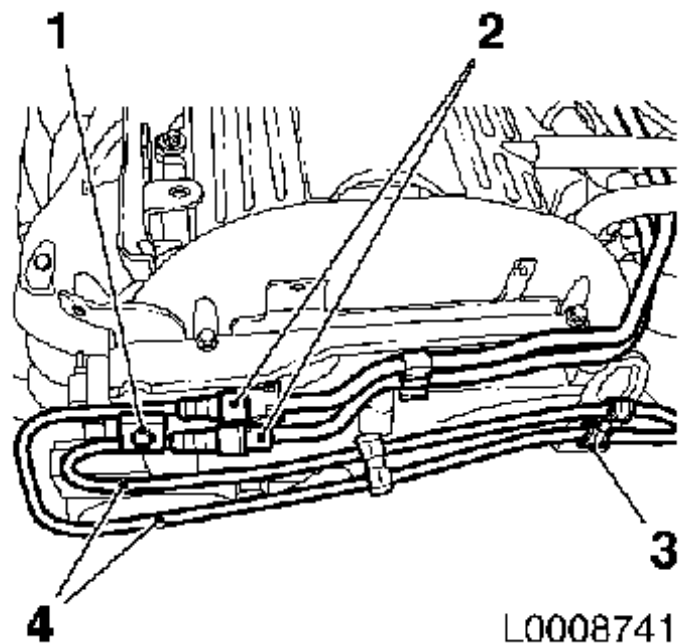
- 18.** Disconnect the engine wiring harness.
- 2 wiring harness connectors (1) and (2).



Important: Fuel may escape – observe the safety regulations and relevant national legislation.

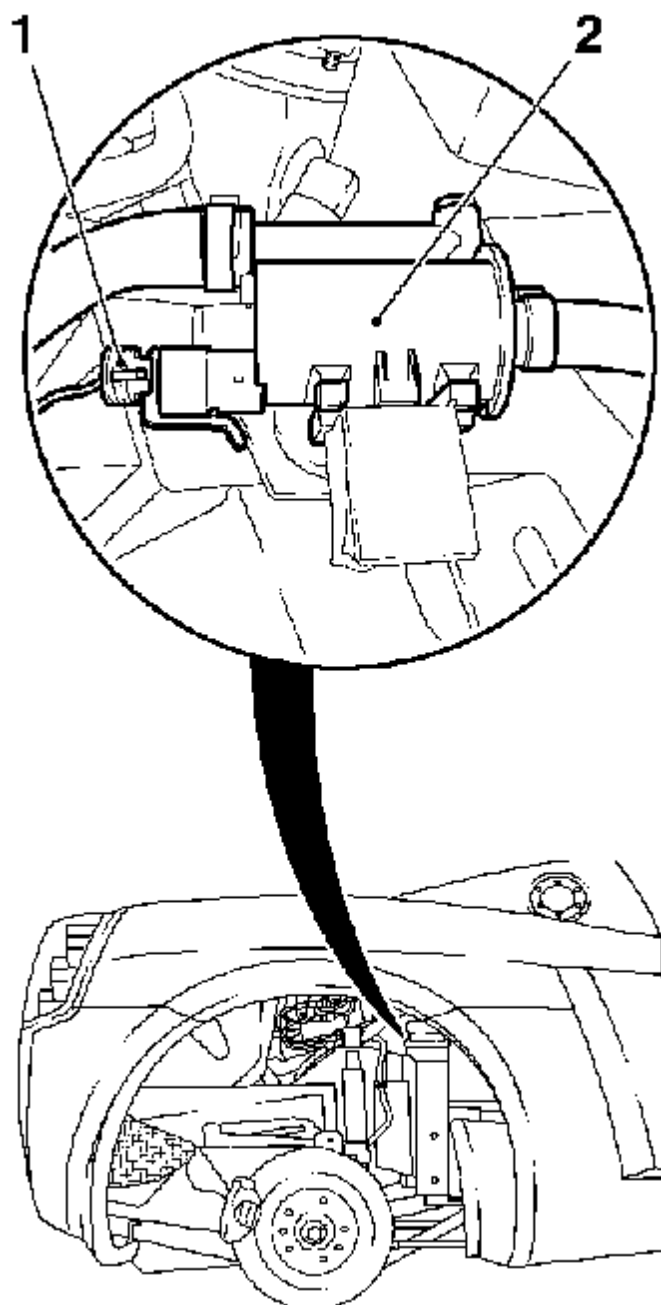
19. Disconnect the fuel lines.

- Disconnect the fuel lines (2) with **KM-796-A**.
- From the bracket.
 - 2 bolts (1) and (3)
- Reposition the fuel lines (4) to one side.



20. Disconnect the wiring harness connector (1) for the tank breather valve (2).

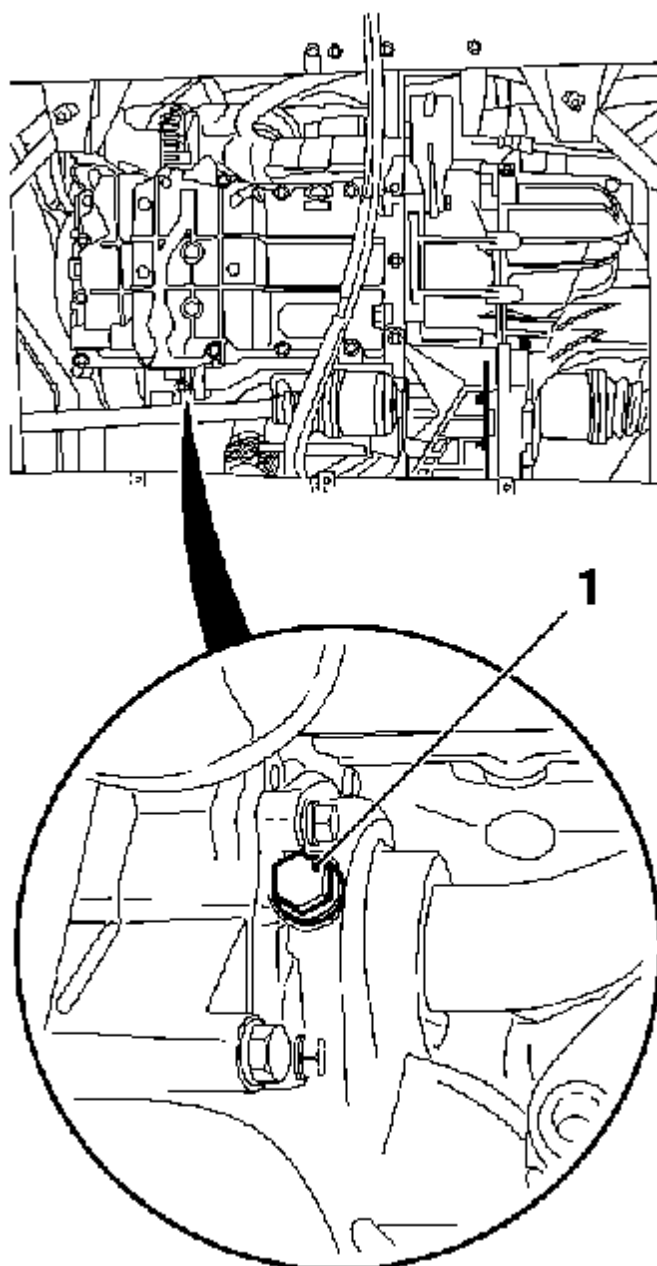
- 3 cable ties.
- Reposition the wiring harness to one side.



L0008734

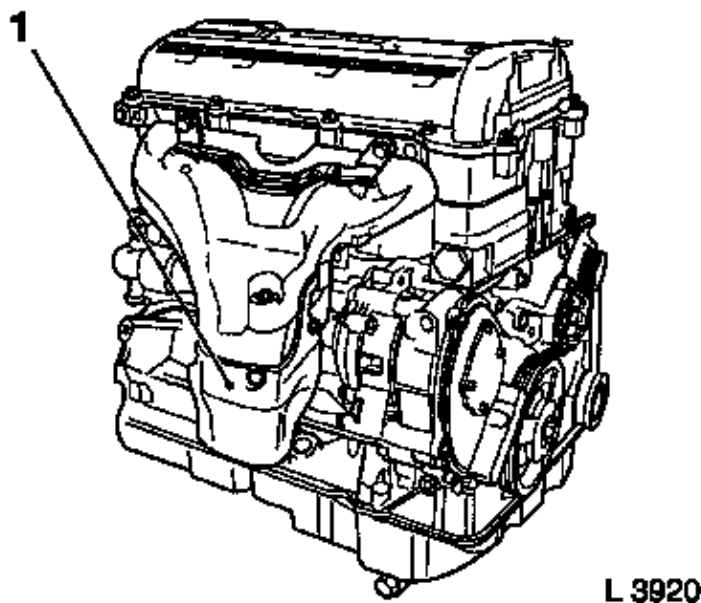
21. Drain the coolant.

- Open the coolant drain plug (1) at the coolant pump.
- Tighten the coolant drain plug.
 - Tightening torque **20 Nm**

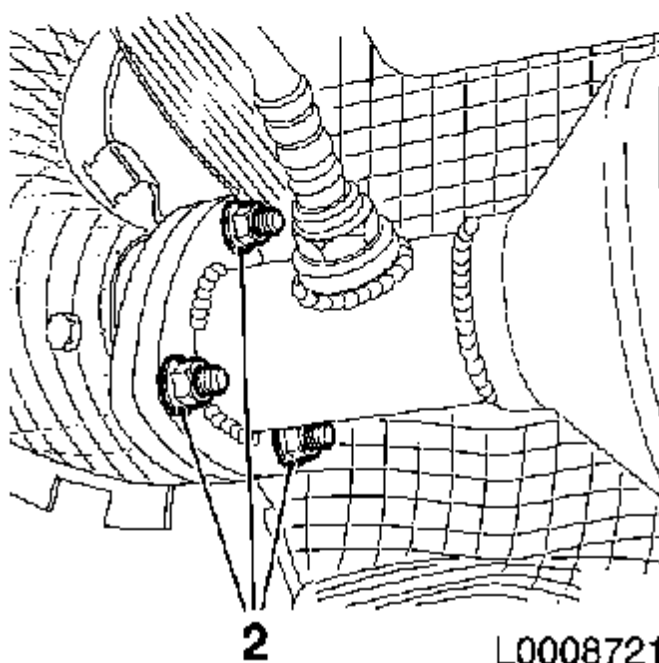
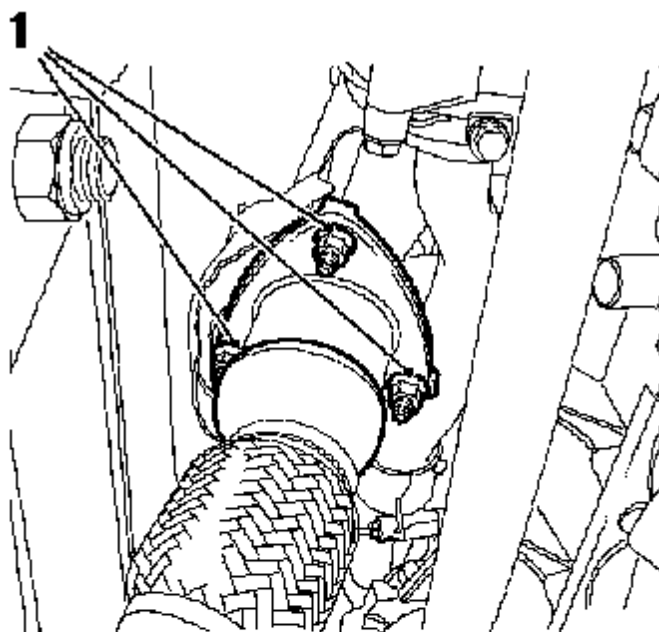


L0008724

22. Raise the lifting ramp.
 - Half height.
23. Remove the cover from the exhaust system.
 - 9 bolts
24. Detach the lower heat shield (1).
 - 3 bolts, 1 stud.

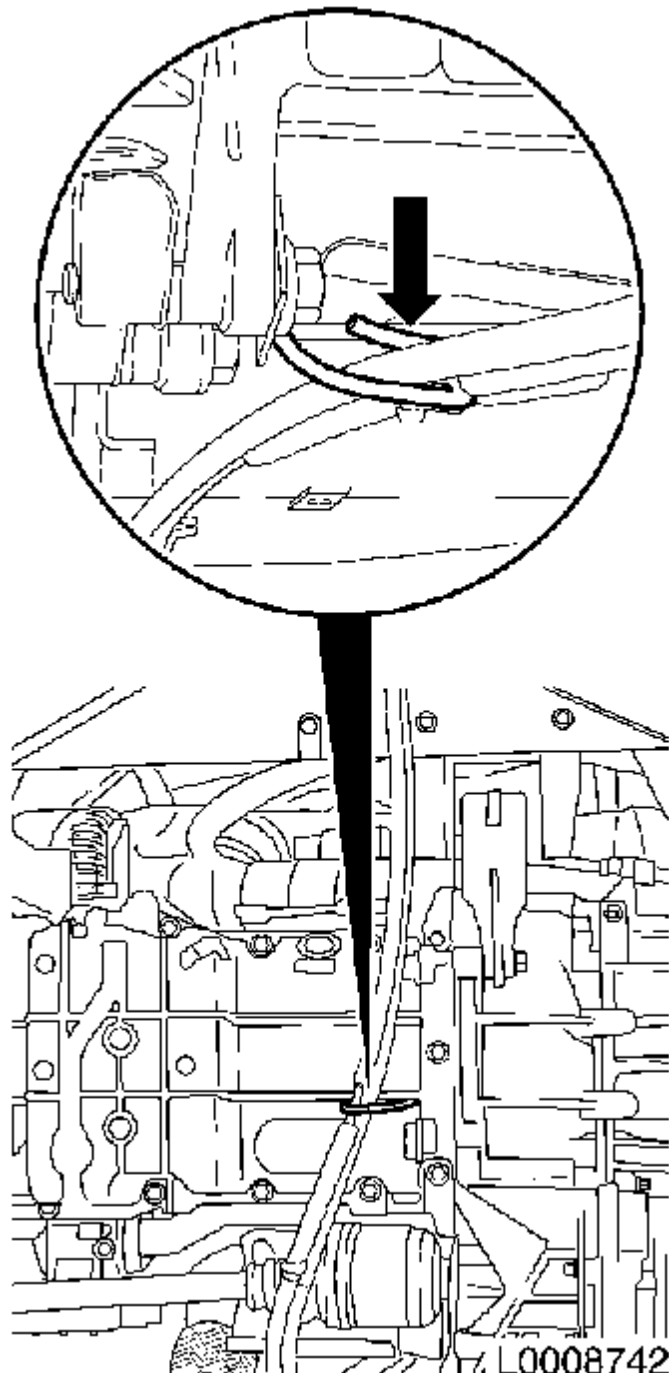


- 25.** Remove the front exhaust pipe.
- 6 nuts (1) and (2), 3 bolts
 - Remove from mounting.
 - Remove the gaskets.
 - 2 off

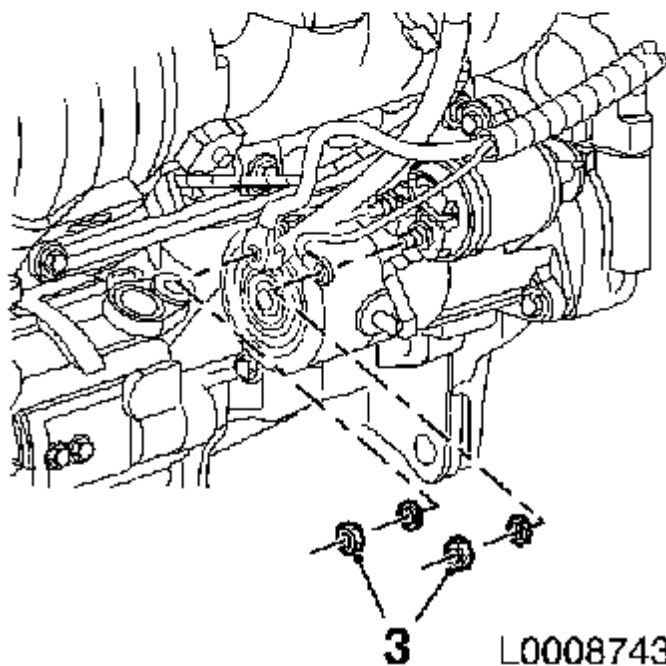
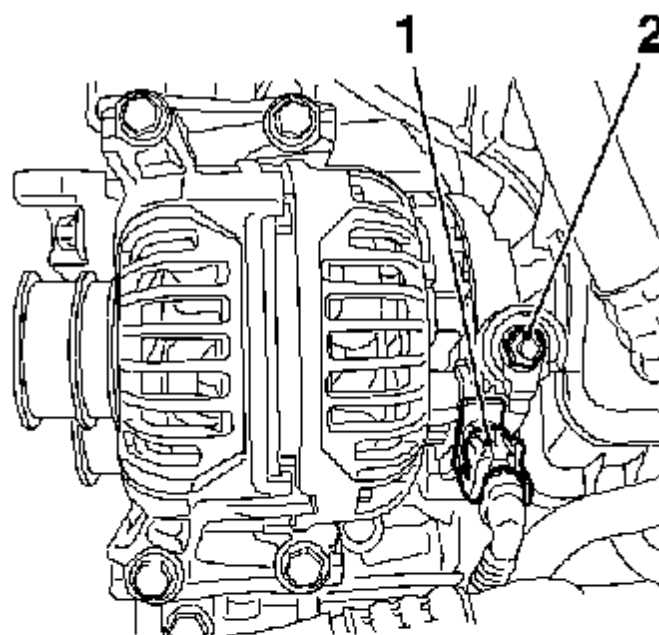


26. Unhook the gearshift cables.

- 2 off
 - Bracket on the transmission (arrow).

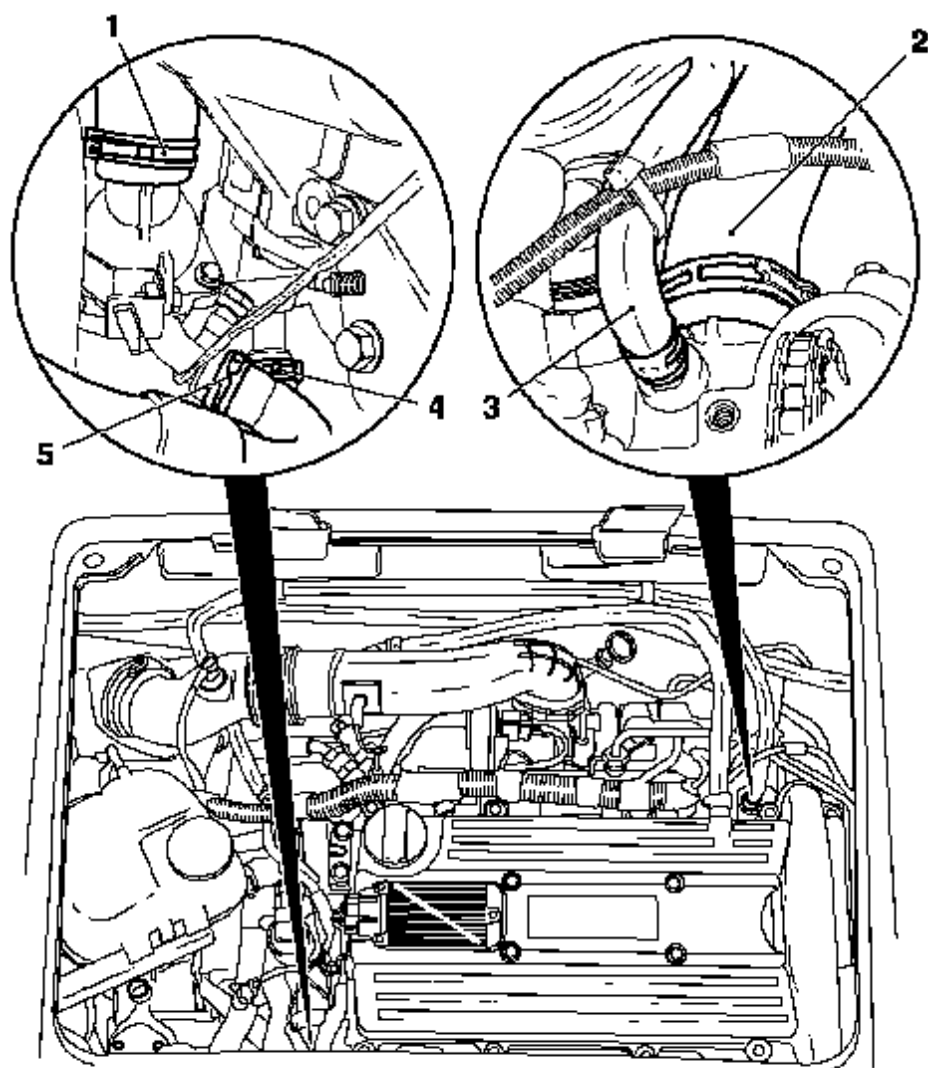


27. Unhook the hydraulic clutch actuation line.
 - Bracket on the transmission.
28. Detach the wiring harness to the alternator/starter motor.
 - 1 wiring harness connector (1), 3 nuts (2) and (3).
29. Lower the lifting ramp.



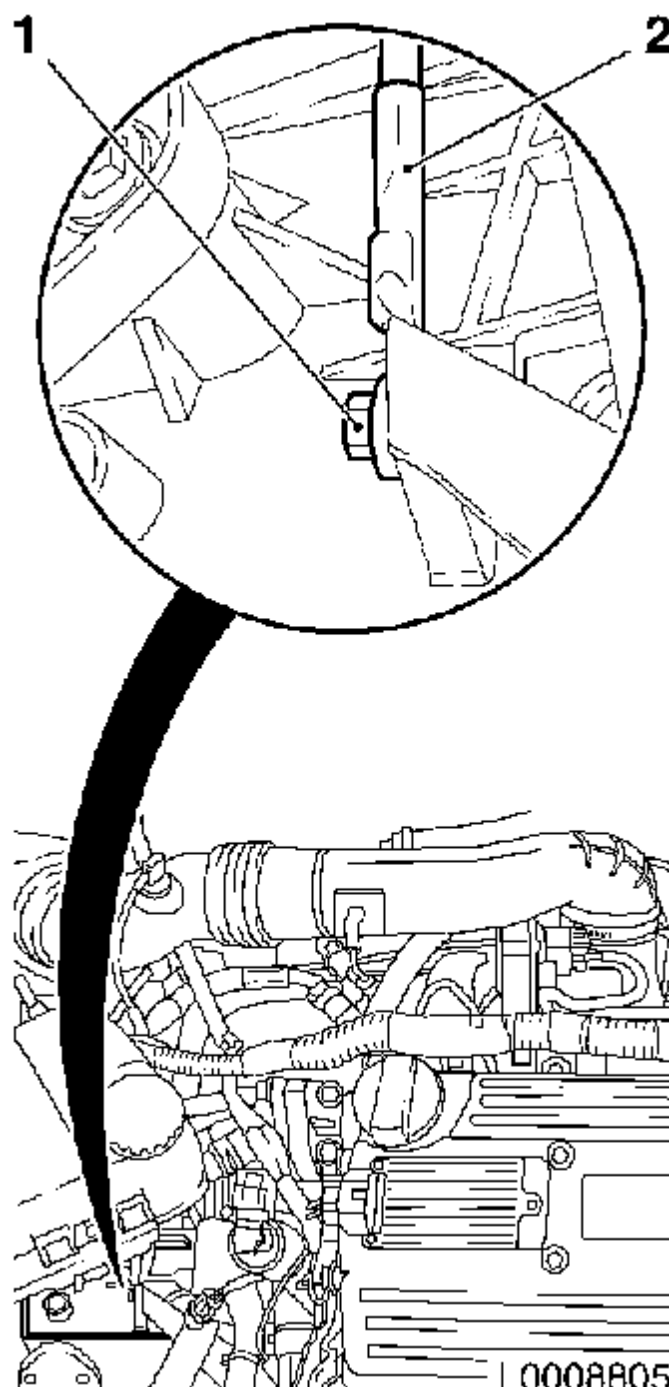
30. Detach the coolant hoses.

- From the thermostat housing.
 - 3 hoses (1), (4) and (5)
- From the cylinder head.
 - 2 hoses (2) and (3).

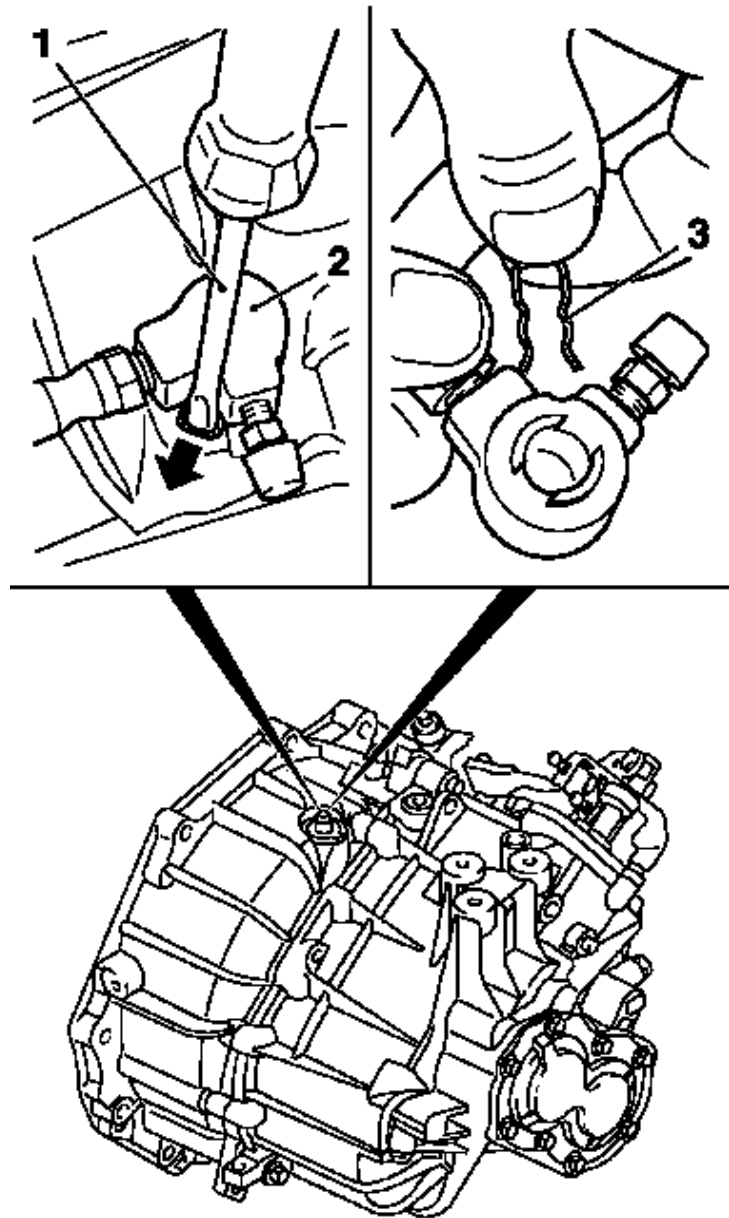


L0008744

- 31.** Detach the ground cable (2) from the transmission.
- 1 bolt (1)

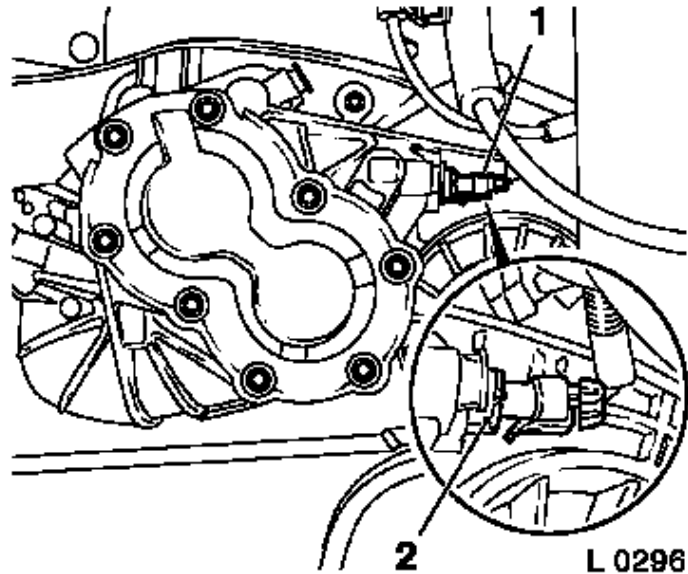


- 32.** Detach the high-pressure line with connection piece (2).
- Release the clip (3) with a screwdriver (1) in the direction of the arrow and remove.
 - Slightly bend the clip together and insert it back into the connection piece.

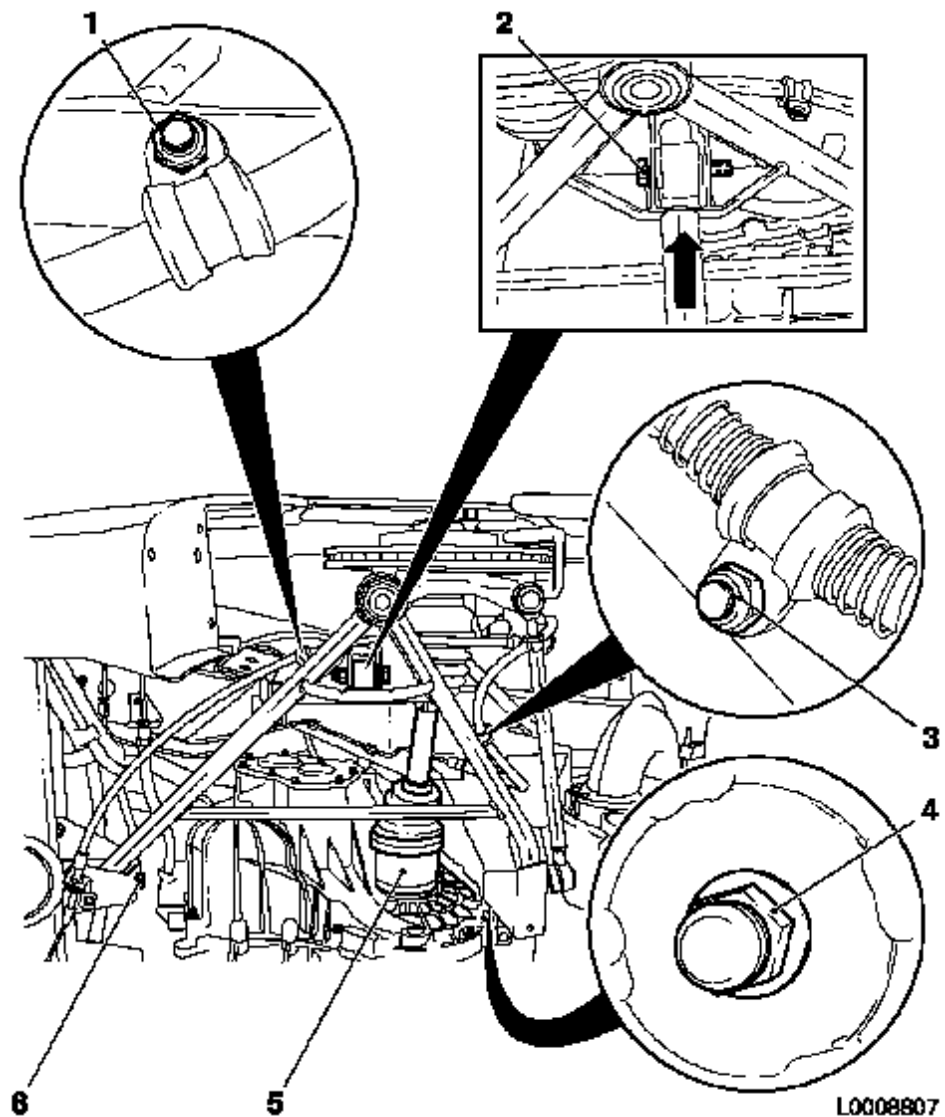


L 1459

33. Detach the left-hand engine damping block bracket.
 - From the transmission
 - 3 bolts
34. Raise the lifting ramp.
35. Disconnect the wiring harness connector (1) from the reversing lamp switch (2).



- 36.** Remove the axle shafts (5).
- Remove the castellated nuts.
 - 2 off, 2 split pins.
 - Detach the track rods.
 - 2 nuts (4)
 - Detach the front wishbone mounting.
 - 2 bolts (6)
 - Undo the shock absorbers.
 - 2 bolts (2), 2 nuts
 - Use a support to take the weight (arrow), take out the bolts.
 - Detach the bracket for the handbrake cables.
 - 2 nuts (1)
 - Detach the bracket for the brake hoses.
 - 2 nuts (3)



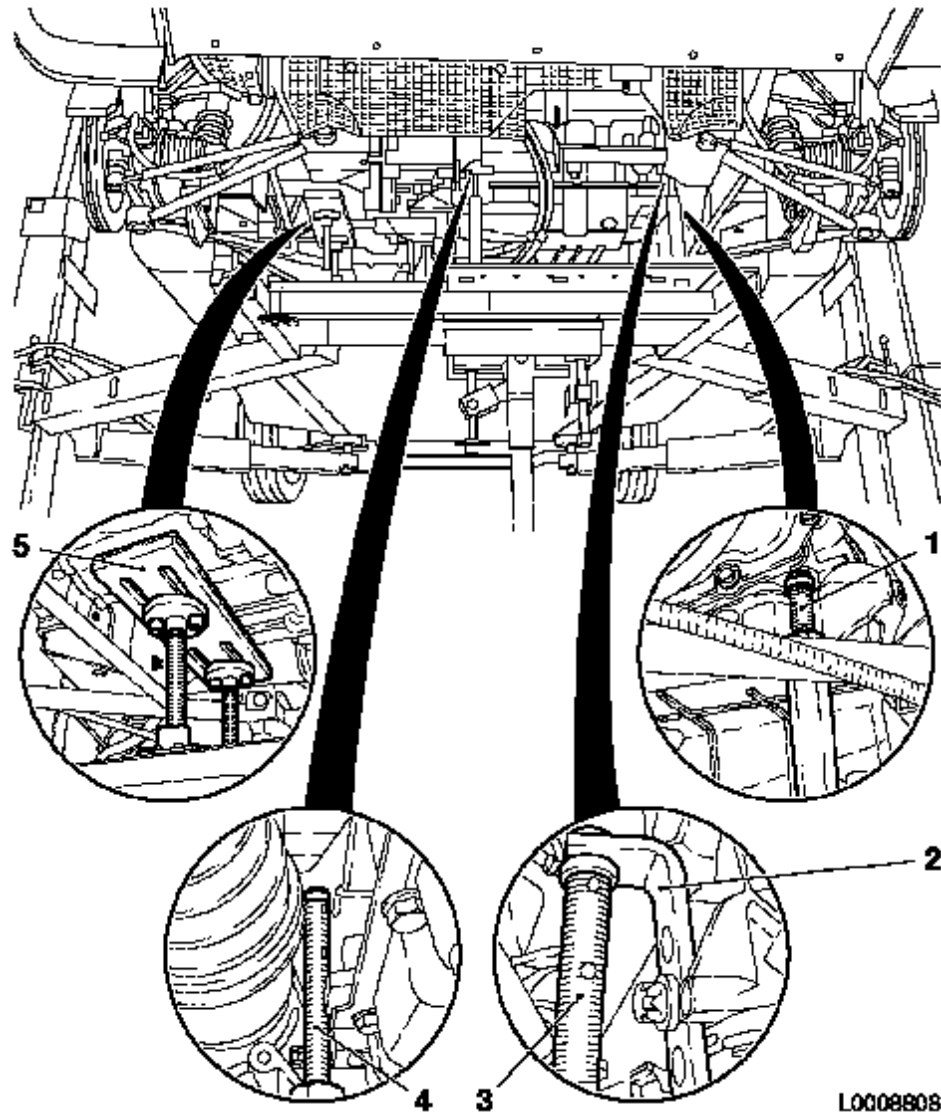
L0008807

37. Attach KM-904 with KM-6054.

- Set up on a hydraulic hoist.
- **Note:** Use a hydraulic hoist that can be lowered at least 100 cm.
- Undo the spigots of KM-6054.
- Attach KM-6054-4 (2) to the cylinder block.
- Position KM-6054 underneath the engine.
 - Align the spigots, starting at the front

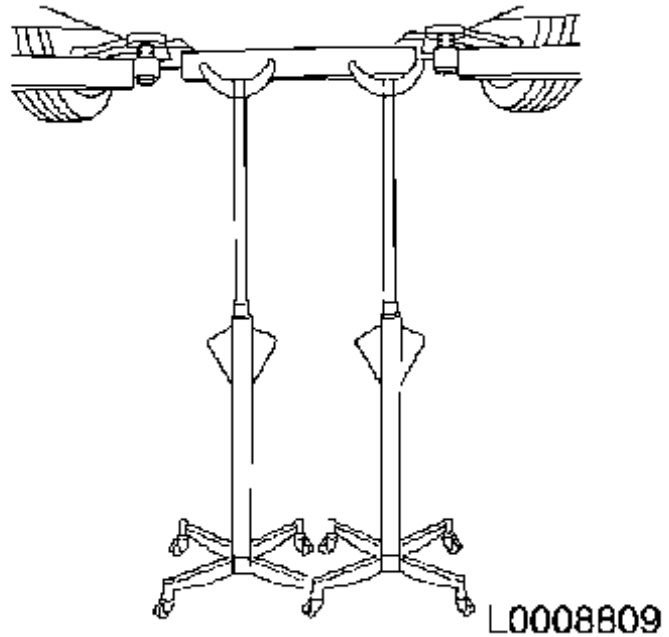
right (1).

- Insert spigots (1), (3) and (4) into their respective mountings.
 - Secure the spigots.
- Align the transmission support (5).



38. Support the front end.

- Use transmission jacks and square bars.

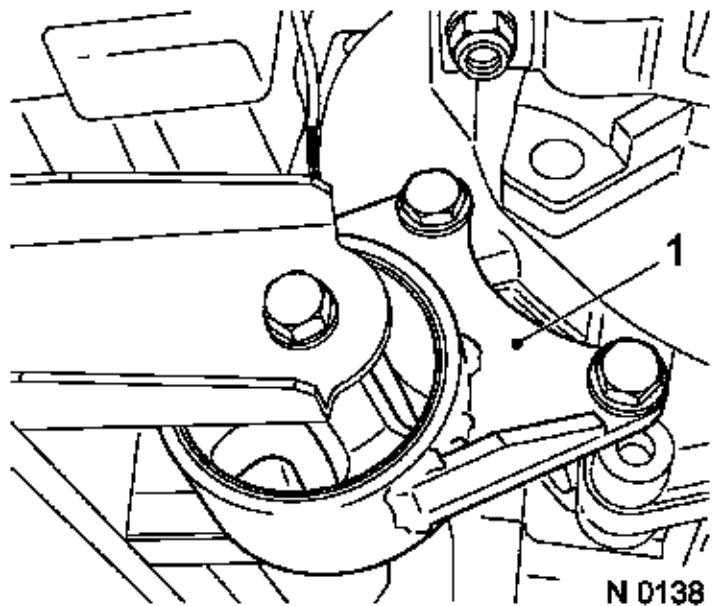


39. Remove the engine damping block bracket with the right-hand engine damping block.

- 3 bolts, 1 nut
- Take out the engine damping block bracket with the engine damping block.

40. Remove the front engine damping block (1).

- 3 bolts, 1 nut



41. Remove the front engine damping block bracket.

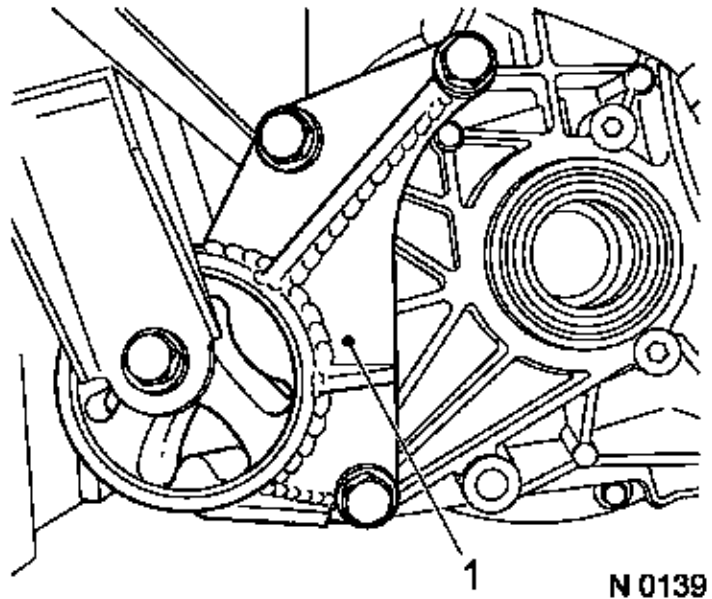
- 4 bolts

42. Remove the rear engine damping block (1).

- 4 bolts, 1 nut

Important: Make sure that no attached components are damaged.

43. Lower the engine.
Note: 2 technicians required



Install

Important: Make sure that no attached components are damaged.

44. Raise the engine.
Note: 2 technicians required
45. Attach the rear engine damping block.
- 3 bolts
 - Tightening torque **86 Nm**
 - 1 bolt, 1 nut
 - Tightening torque **49 Nm**
46. Attach the front engine damping block bracket.
- 4 bolts
47. Attach the front engine damping block.
- 3 bolts, 1 nut
 - Tightening torque **55 Nm**
48. Attach the engine damping block bracket with the right-hand engine damping block.
- Insert the engine damping block bracket with the right-hand engine damping block.
 - 3 bolts
 - Tightening torque **85 Nm**
 - 1 nut
 - Tightening torque **45 Nm**
49. Take out the support for the front end.
50. Detach **KM-904** with **KM-6054**.
- Lower the hydraulic hoist.
 - Detach **KM-6054-4** from the cylinder block.
 - Detach **KM-904** and **KM-6054** from the hydraulic hoist.
51. Install the axle shafts.
- Insert the driveshafts.

- 2 off
- Insert the wishbone.
- Attach the track rods.
 - 2 nuts.
 - Tightening torque **60 Nm**
- Attach the front wishbone mounting.
 - 2 bolts
 - Tightening torque **60 Nm**
- Tighten the shock absorbers.
 - Use a support to take the weight.
 - 2 bolts, 2 nuts
 - Tightening torque **60 Nm**
- Attach the bracket for the handbrake cables.
 - 2 nuts.
- Attach the bracket for the brake hoses.
 - 2 nuts.
- Attach the castellated nuts.
 - Use new castellated nuts.
 - 2 off, 2 split pins.
 - Tightening torque **120 Nm**, undo, tightening torque **20 Nm + 80°**
- 52.** Connect the wiring harness connector for the reversing lamps.
- 53.** Attach the wiring harness to the alternator/starter motor.
 - 1 wiring harness connector, 3 clips
- 54.** Attach the oil cooler oil return line.
 - To the oil cooler.
 - 1 union nut.
- 55.** Hook the hydraulic clutch actuation line into place.
 - Bracket on the transmission.
- 56.** Hook the gearshift cables into place.
 - 2 off
 - Bracket on the transmission.
- 57.** Attach the front exhaust pipe.
 - Renew the gaskets.
 - 2 off
 - 6 nuts, 3 bolts
 - Insert into mounting.
 - Tightening torque **16 Nm**
- 58.** At the lower heat shield.
 - 3 bolts, 1 stud.
 - Tightening torque **8 Nm**
- 59.** Attach the cover for the exhaust system.
 - 9 bolts
- 60.** Lower the lifting ramp.
 - Half height.
- 61.** Connect the tank breather valve wiring harness connector.
 - Route the wiring harness.

- 3 cable ties.
62. Connect the fuel lines.
- Connect the fuel lines.
 - 2 retainers
 - 2 nuts.
63. Attach the wiring harness connector for the lambda probe for closed-loop mixture control.
- Route the wiring harness.
 - Attach to bracket.
 - Connect the wiring harness connector.
64. Connect the engine wiring harness.
- 2 wiring harness connectors.
65. Install the wheel arch trim.
- Both sides.
 - 12 bolts
66. Attach the rear wheels.
- 10 bolts
 - Do not tighten.
67. Lower the lifting ramp.
- Half height.
68. Attach the left-hand engine damping block bracket.
- To the transmission
 - 3 bolts
 - Tightening torque **55 Nm**
69. Attach the clutch operation mechanism.
- Attach it to the high-pressure central release line on the clutch housing.
 - The clip must audibly engage.
70. Attach the ground cable to the transmission.
- 1 bolt
71. Connect the coolant hoses.
- To the thermostat housing.
 - 3 hoses.
 - To the cylinder head.
 - 2 hoses.
72. Attach the oil supply line to the oil cooler.
- 1 union nut.
73. Attach the wiring harness connector to the lambda probe for catalytic converter monitoring.
- Attach to bracket.
 - Connect the wiring harness connector.
74. Connect the tank breather valve line.
- To the intake manifold.
75. Attach the gearshift cables.
- Route the gearshift cables.
 - Insert the gearshift cable bracket into the retaining cam and attach it to the transmission.
 - 2 clips
 - Attach the gearshift cables to the relay lever assembly.
76. Attach the brake servo vacuum line.

- To the intake manifold.
- 77.** Attach the air intake pipe.
- Attach the fuel pressure regulator vacuum hose.
 - Attach the intake air temperature sensor wiring harness connector.
 - Engine breather hose.
 - To the cylinder head cover.
 - 1 clamp.
 - 2 clamps
 - Tightening torque **3,5 Nm**
- 78.** Attach the rear engine cover.
- 6 bolts
 - Check the alignment.
- 79.** Attach the rear wheels.
- Tightening torque **90 Nm**
- 80.** Connect the battery.
- Negative terminal
- 81.** Fill up with coolant and correct as necessary – see operation "Cooling System, Fill Up and Bleed.
- 82.** Bleed the hydraulic clutch actuation.
- See operation "Hydraulic Clutch Actuation, Bleed (F17/F23)" in Group "K"
- 83.** Check and correct the transmission fluid level.
- See operation "Transmission Fluid Level, Check and Correct (F23)" in Group "K"
- 84.** Attach the engine cover.
- 6 bolts
 - Check the alignment.
 - Tightening torque **14 Nm**
- 85.** Close the rear engine cover.
- 86.** Reprogram the volatile memories.
- 87.** Close the bonnet.
- 88.** Attach the engine splash shield.
- 13 bolts
 - Vehicle on 4-post ramp.
- 89.** Close the driver's door.