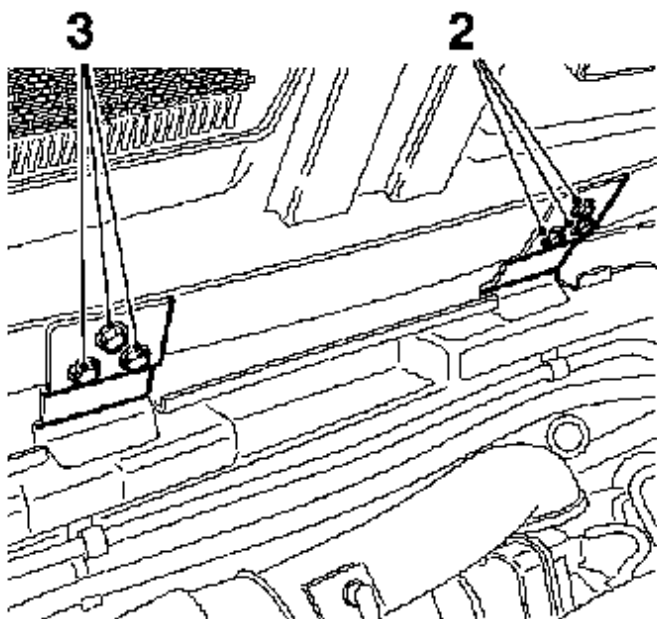
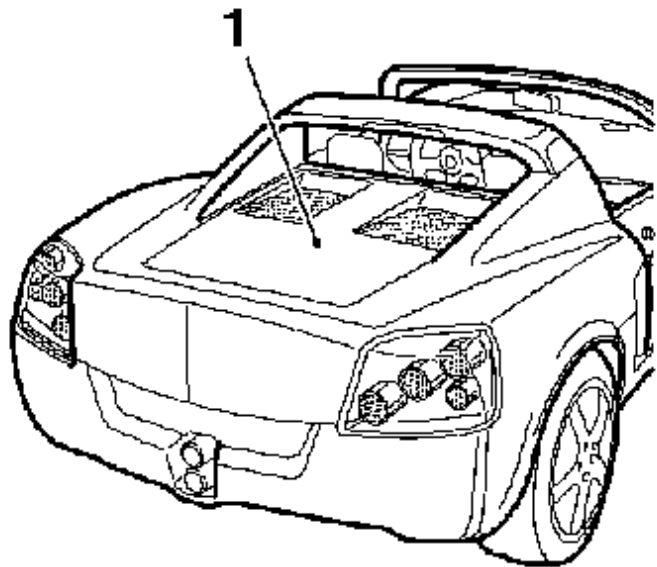


Oil Pump, Overhaul (Z 22 SE)



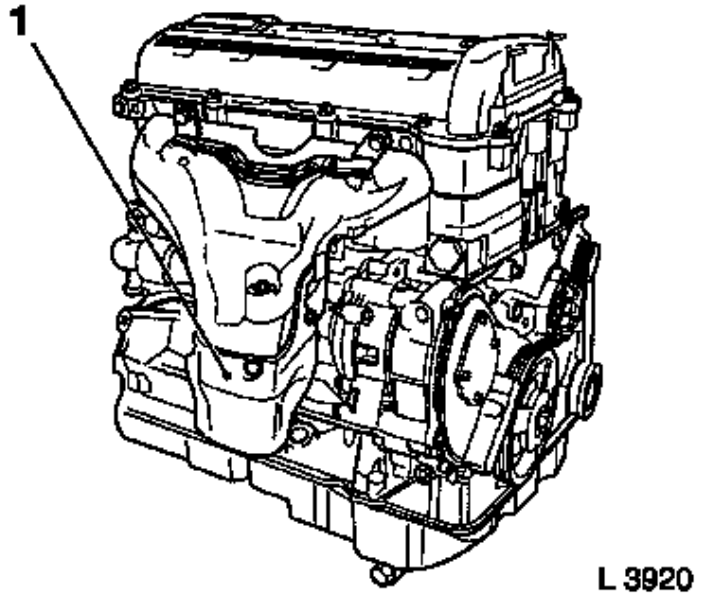
Remove

1. Open the bonnet.
2. Disconnect the battery.
3. Open the rear engine cover (1).
4. Detach the rear engine cover.
 - 6 bolts (2) and (3)

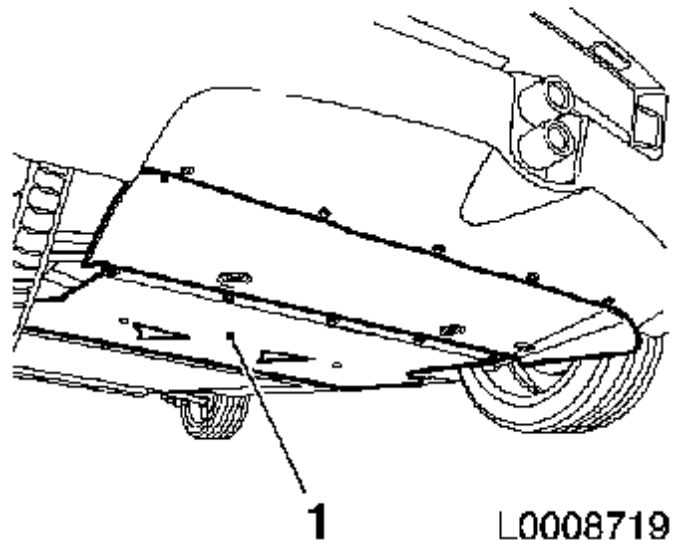


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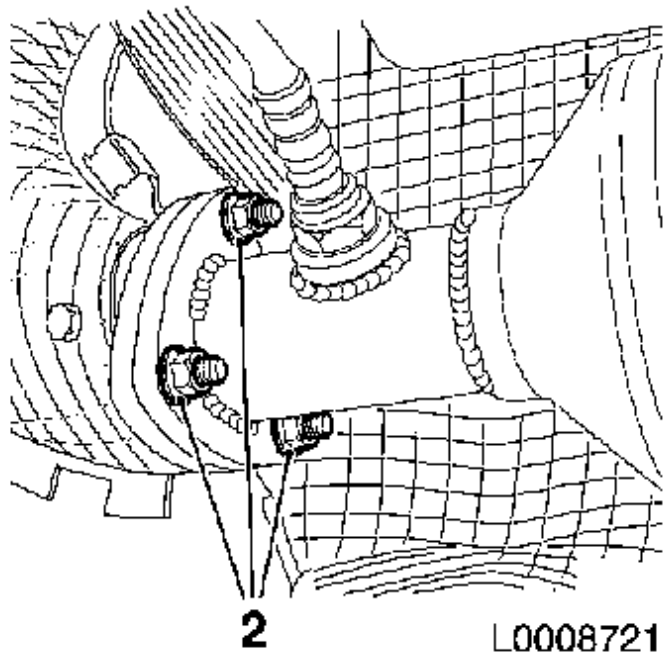
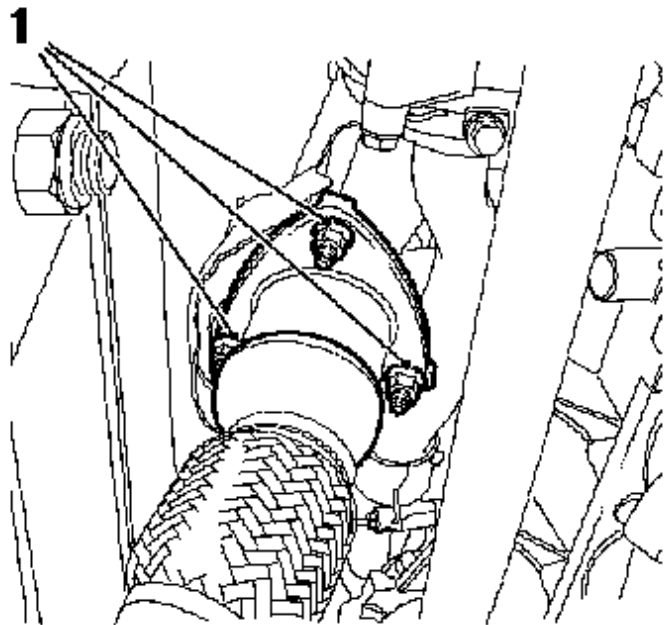
5. Remove the lower heat shield (1).
 - 3 bolts



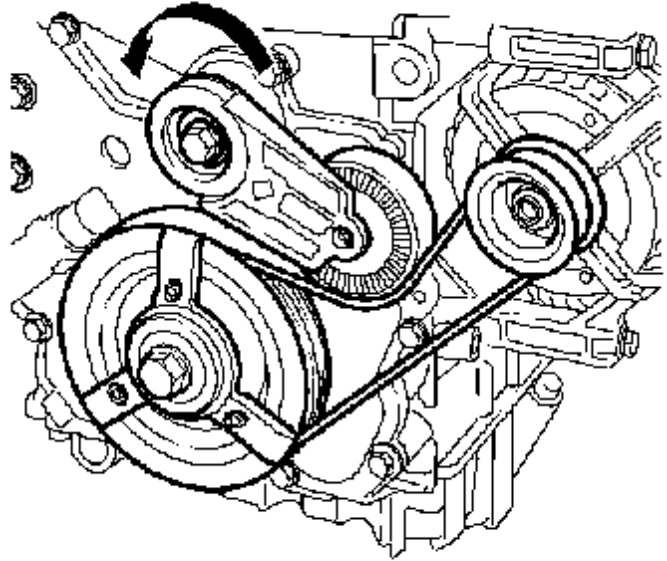
6. Raise the lifting ramp.
7. Remove the lower engine splash shield (1).
 - 13 bolts



8. Place a drip tray underneath.
9. Drain the engine oil.
 - Open the oil drain plug.
 - Install the oil drain plug using a new oil seal.
 - Tightening torque **25 Nm**
10. Detach the front exhaust pipe.
 - 6 nuts (1) and (2), 3 bolts
 - Unhook the exhaust pipe from its mountings.
 - Remove the gaskets.

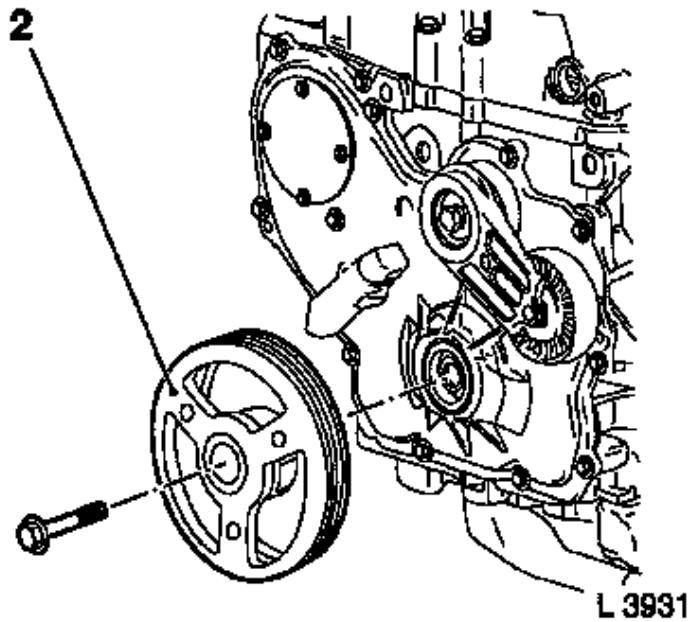
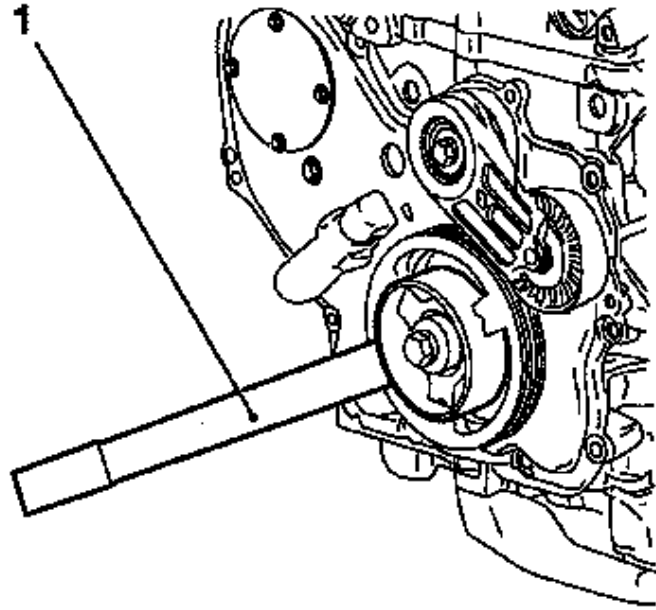


11. Remove the ribbed V-belt.
- Mark the running direction of the ribbed V-belt.
 - Tension the ribbed V-belt tensioner in the direction of the arrow with **KM-6151**.
 - Take out the ribbed V-belt.

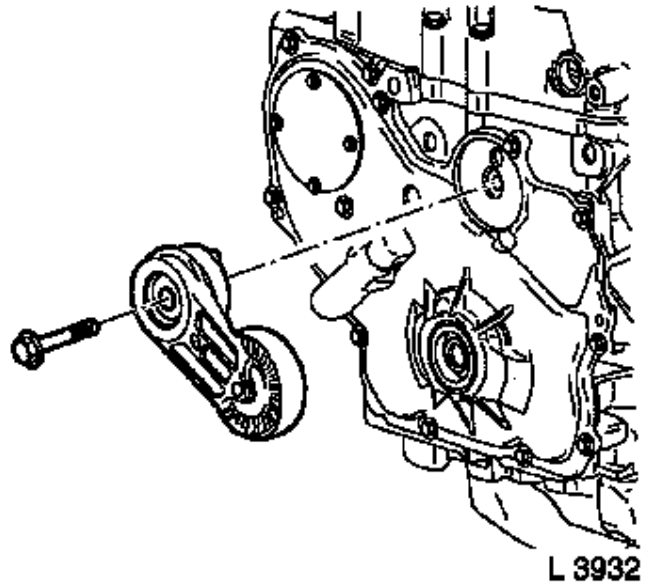


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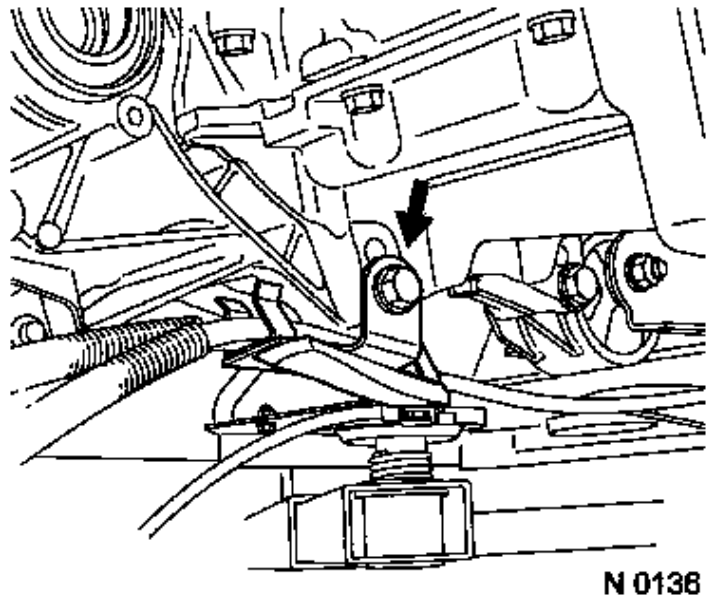
12. Detach the rotational vibration damper (2).
 - Use holding adapter **KM-J-38122-A** in conjunction with **KM-956-1** (1) to hold.



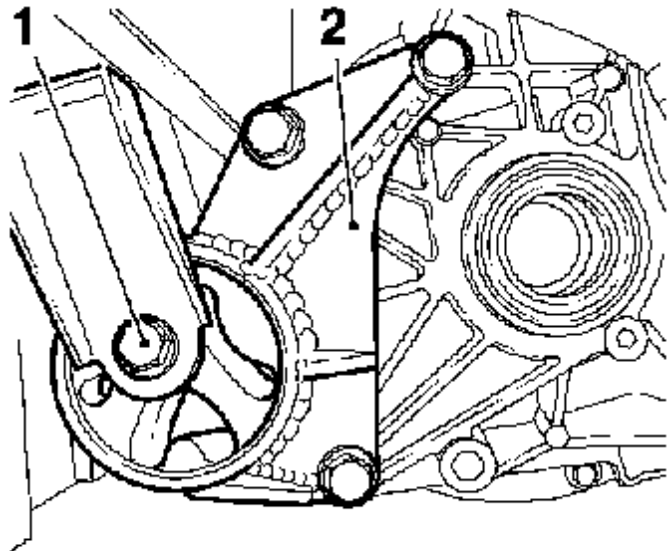
13. Detach the ribbed V-belt tensioner.



14. Detach the bracket for the gearshift cables.
 - From the transmission
 - 1 bolt (arrow)

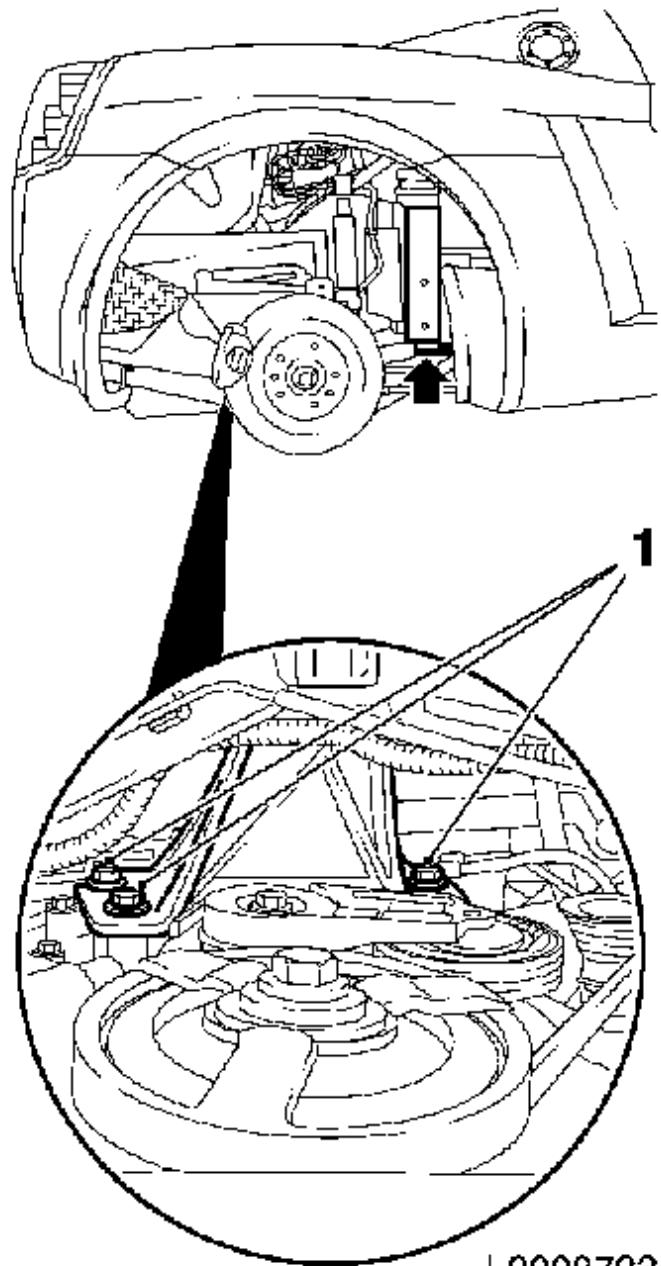


15. Support the engine from underneath with **KM-904** together with **KM-6054**.
16. Release the rear engine damping block (2).
 - 1 bolt (1), 1 nut



L0008722

17. Undo the bolts on the right-hand engine damping block bracket.
 - 3 bolts (1)
18. Undo the bolts on the right-hand engine damping block.
 - 1 nut (arrow)
19. Take out the engine damping block bracket together with the right-hand engine damping block.



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20. Undo the bolts on the timing case (5).
 - 11 bolts (1), (2) and (6)
21. Lower the engine.

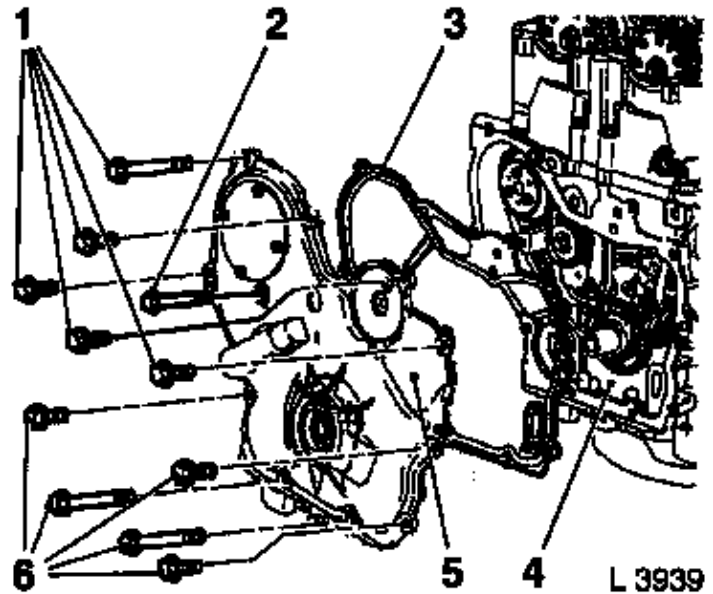
Note: It must be possible to guide the long bolt (2) of the timing case past the longitudinal member.
22. Remove the timing case.
 - Remove the gasket (3).

Note: Cover the opening (4) in the timing case with a cloth.
 - Use a suitable tool to remove the oil seal.

Important: Do not damage the sealing

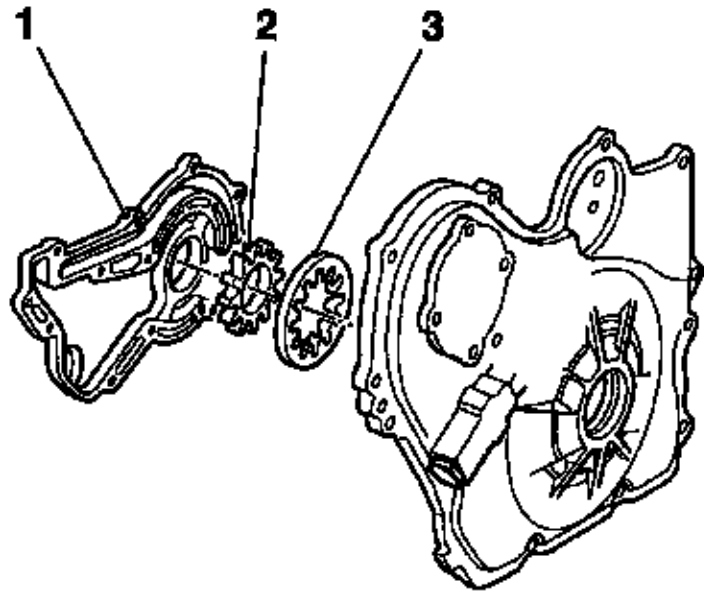
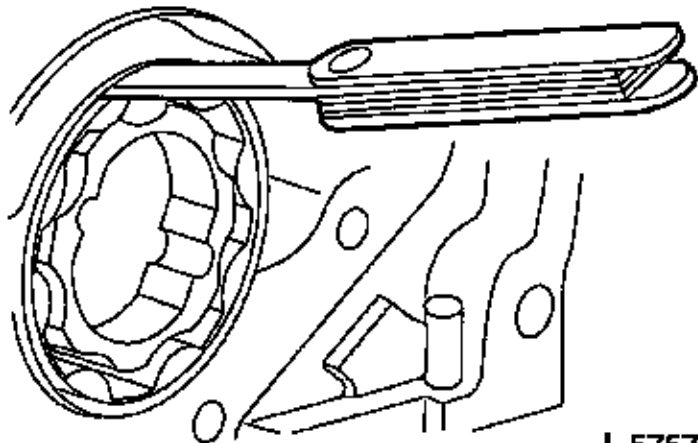
surfaces.

- Clean the sealing surfaces.

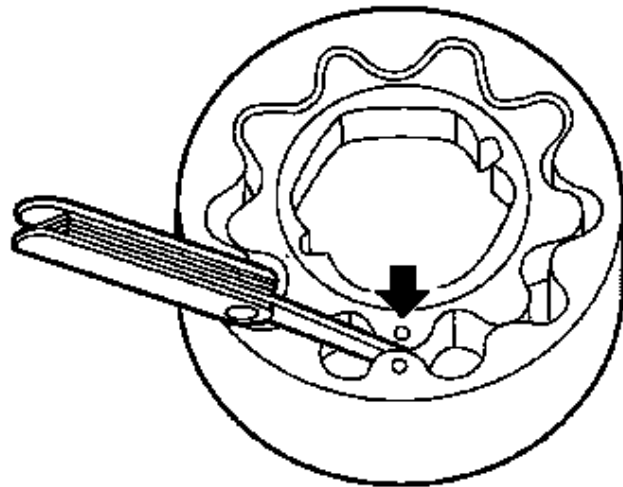


Inspect

23. Overhaul the oil pump.
 - Detach the oil pump cover (1).
 - 15 bolts
 - Measure the distance between the outer rotor (3) and the oil pump housing (4).
 - Max. permissible distance **0,350 mm**
 - Take out the outer rotor together with the inner rotor (2).
 - Visually inspect the components.

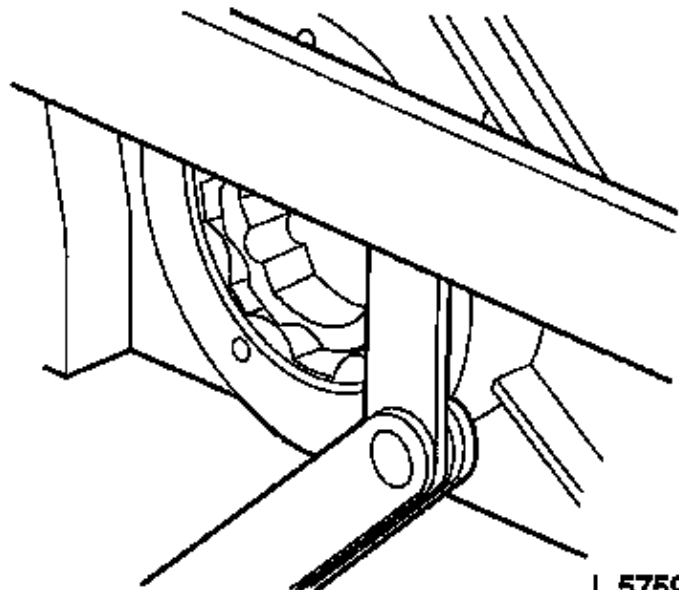
**I**

24. Measure the clearance between the inner rotor and the outer rotor at the marking (arrow).
- Max. permissible clearance **0,150 mm**



L 5758

25. Coat the outer rotor and inner rotor with engine oil and insert them.
26. Check the recess (between the rotors and the upper edge of the timing case).
 - Max. permissible measurement **0,08 mm**
27. Clean the sealing surfaces.
28. Attach the oil pump cover.



L 5759

**Install**

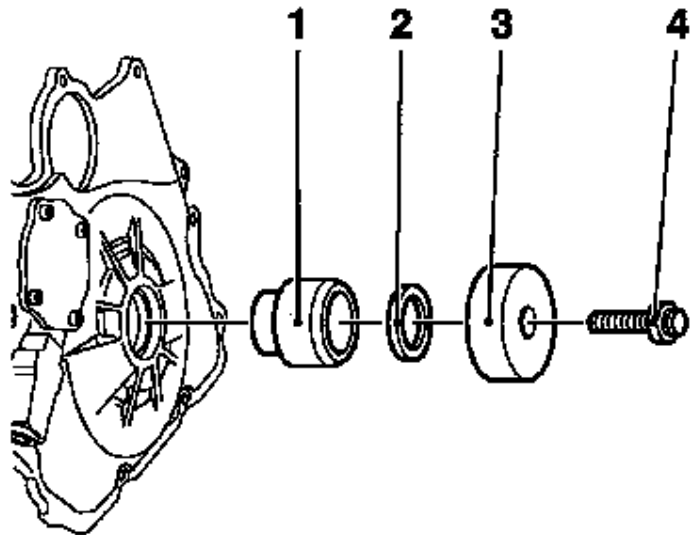
29. Install the timing case.

Note: Remove the cloth from the opening in the timing case.

 - Use a new gasket.
 - Tightening torque **21 Nm**
 - Install a new crankshaft front oil seal (2).
 - Slide protective sleeve (1) from **KM-6105** (3) onto the connecting

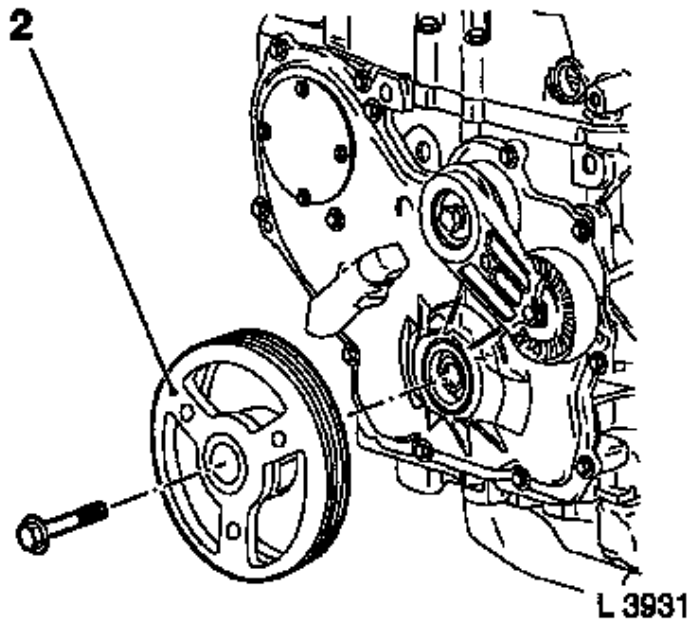
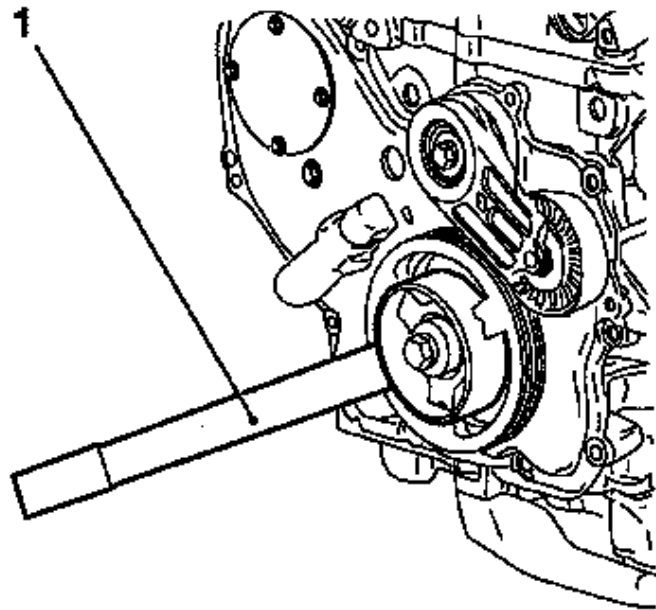
rod journal.

- Coat the sealing lips with silicone grease (white).
- Slide the oil seals over the protective sleeve onto the connecting rod journal.
- Use **KM-6105** to press the oil seal into the timing case.
- Use bolt (4) of the rotational vibration damper.
- Take out **KM-6105**.



L 3952

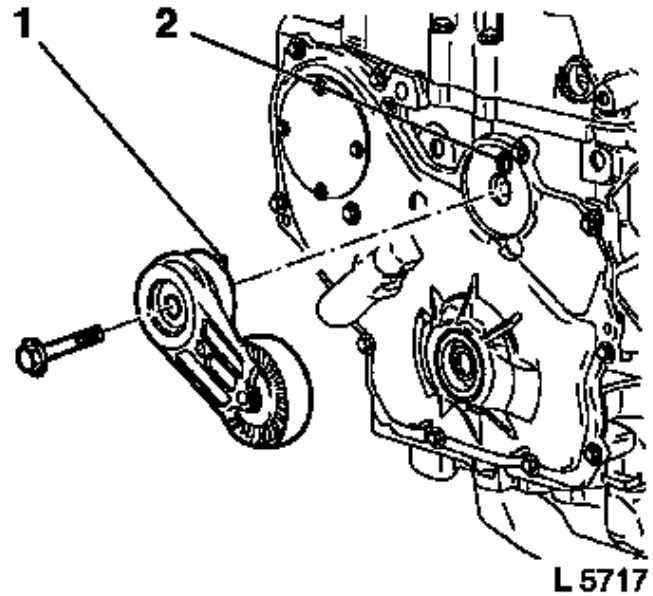
30. Raise the engine.
31. Insert the right-hand engine damping block together with the engine damping block bracket.
32. Attach the right-hand engine damping block.
 - 1 nut
 - Tightening torque **45 Nm**
33. Attach the engine damping block bracket.
 - 3 bolts
 - Tightening torque **85 Nm**
34. Attach the rear engine damping block.
 - 1 bolt, 1 nut
 - Tightening torque **86 Nm**
35. Lower the engine.
 - Take out **KM-904** with **KM-6054**.
36. Attach the bracket for the gearshift cables.
 - To the transmission
 - 1 bolt
 - Tightening torque **22 Nm**
37. Attach the rotational vibration damper (2).
 - Use holding adapter **KM-J-38122-A** in conjunction with **KM-956-1** (1) to hold.
 - Use a new bolt.
 - Tightening torque **100 Nm + 75° + 15°**



38. Attach the ribbed V-belt tensioner.

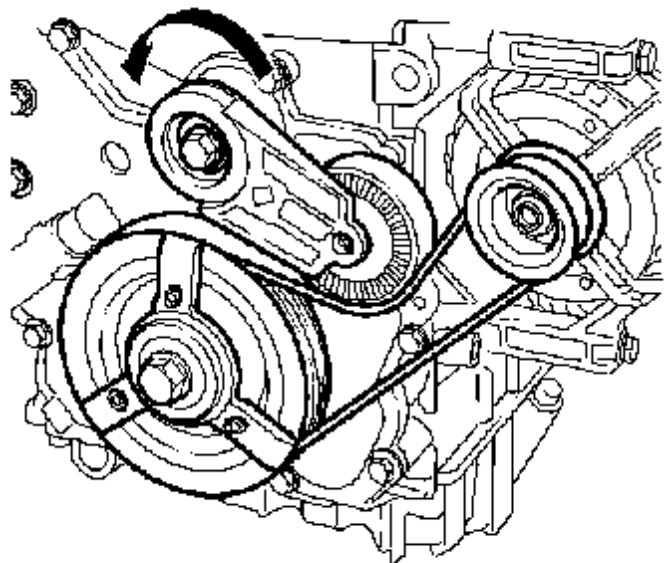
Note: The lug (1) of the ribbed V-belt tensioner engages into the bore in the timing case (2).

- Tightening torque **43 Nm**



39. Install the ribbed V-belt.

- Lay the ribbed V-belt in place.
- **Note:** Note the running direction and installation position of the ribbed V-belt.
- Tension the ribbed V-belt tensioner in the direction of the arrow with **KM-6151**.



40. Install the front exhaust pipe.

- Use new gaskets.
- 6 nuts, 3 bolts
 - Tightening torque **16 Nm**
- Hook into the mountings.

41. Install the lower engine splash shield

- 13 bolts

42. Lower the lifting ramp.

43. Install the lower heat shield.

- Tightening torque **8 Nm**

44. Fill up with engine oil and check the oil level.
45. Install the rear engine cover.
 - Check the alignment.
 - 6 bolts, tightening torque **14 Nm**
46. Close the rear engine cover.
47. Connect the battery.
48. Close the bonnet.
49. Reprogram the volatile memories.