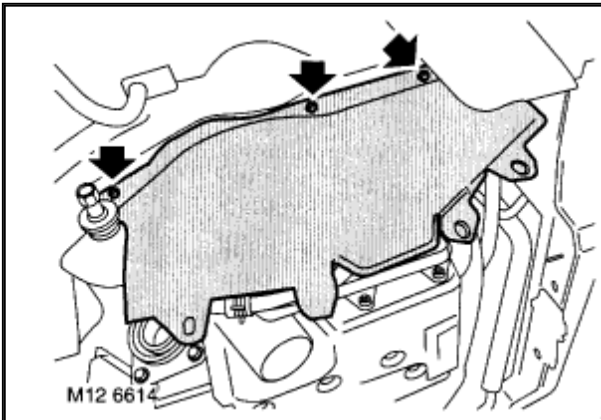


Camshaft Timing Belt

Service Repair No - 12.65.18

Remove

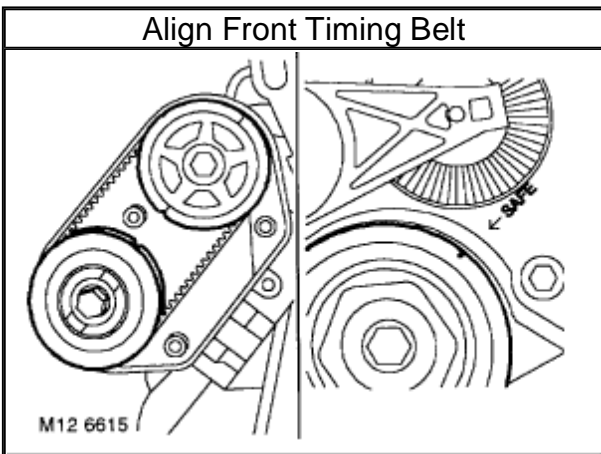
1. Disconnect battery earth lead.
2. Remove ancillary [drive belt](#).
3. Remove RH front road wheel.



Zoom

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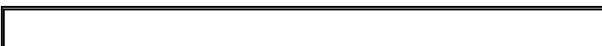
4. Remove 3 bolts securing RH splash shield to body and remove shield.
5. Remove 3 bolts securing camshaft timing belt LH rear cover and remove cover.

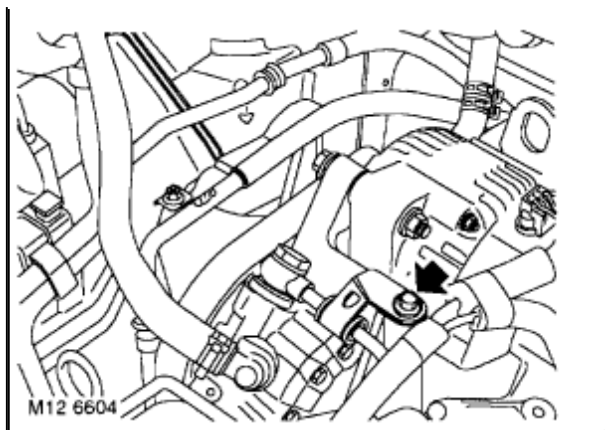


Zoom

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6. Rotate crankshaft in a clockwise direction and align the engine "SAFE" position, notch on crankshaft pulley aligned to the "ARROW" on front mounting plate and the timing marks aligned on the rear camshaft gears as illustrated.

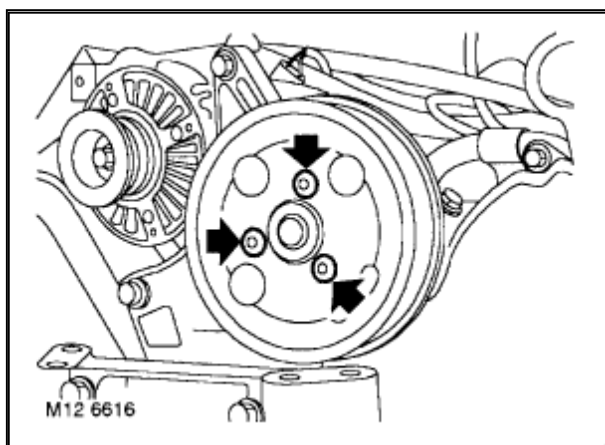




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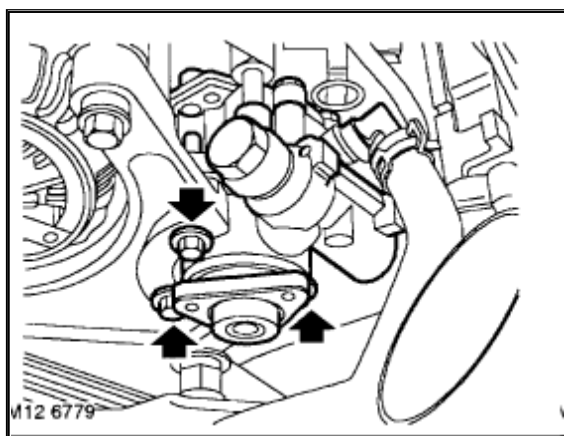
7. Remove bolt securing PAS pipe to engine front mounting plate.



Zoom

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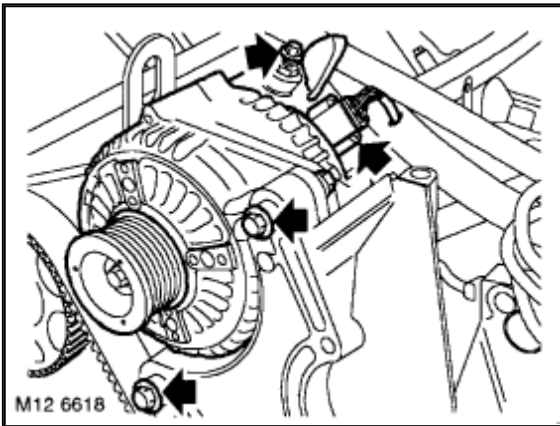
8. Remove 3 Torx screws securing PAS pump pulley and remove pulley.



Zoom

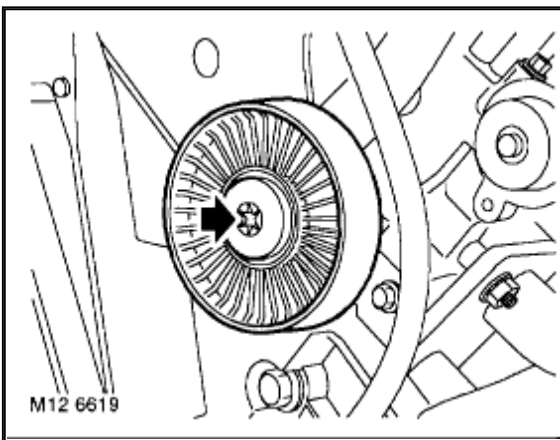
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9. Remove 3 bolts securing PAS pump to front mounting plate and tie pump aside.



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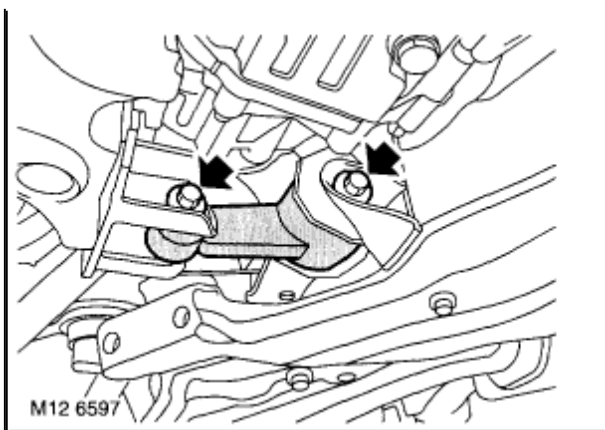
10. Release alternator battery lead terminal cover, loosen terminal nut and disconnect lead from terminal.
11. Disconnect multiplug from alternator.
12. Remove lower bolt and upper nut and bolt securing alternator to front mounting plate.
13. Remove alternator.



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14. Remove Torx screw securing idler pulley to front mounting plate and remove pulley.

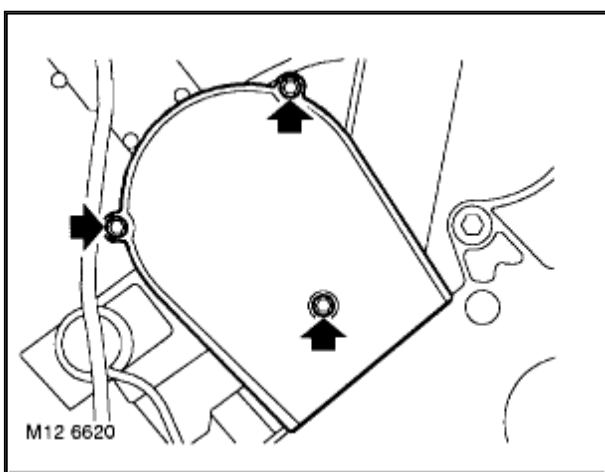




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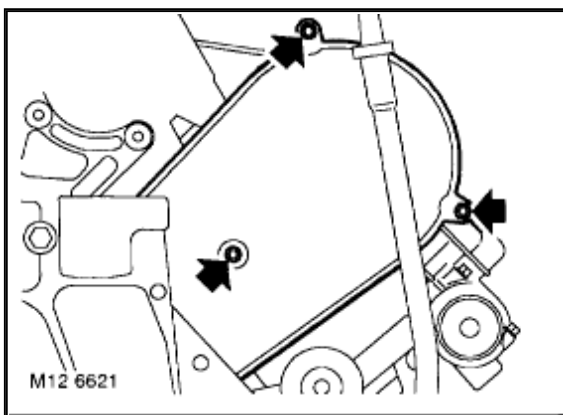
- 15. Loosen bolt securing lower engine steady to front subframe.
- 16. Remove bolt securing lower engine steady to sump mounting, release lower engine steady from sump mounting.



Zoom

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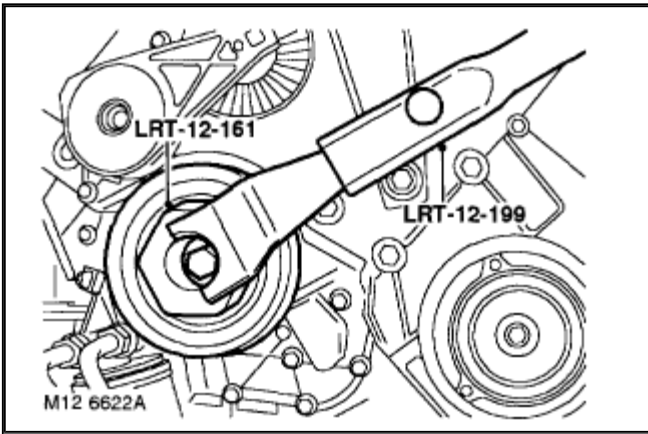
- 17. Remove 3 bolts securing camshaft timing belt RH front cover and remove cover.



Zoom

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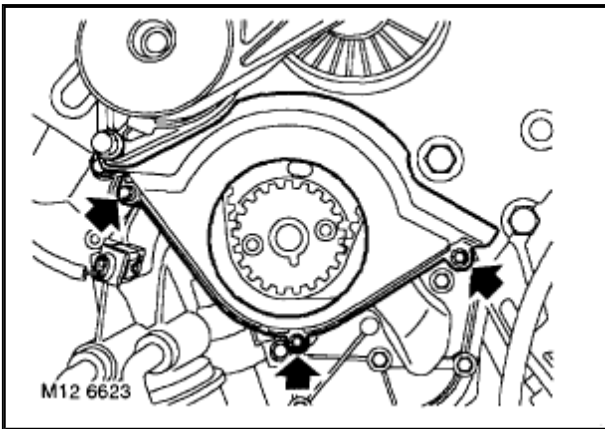
- 18. Remove 3 bolts securing camshaft timing belt LH front cover and remove cover.
- 19. Assemble LRT-12-161 to LRT-12-199 and secure with clamp bolt.



Zoom

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- 20. Insert LRT-12-161 with LRT-12-199 into crankshaft pulley, loosen and remove pulley bolt.
- 21. Remove special tool from crankshaft pulley and remove crankshaft pulley.

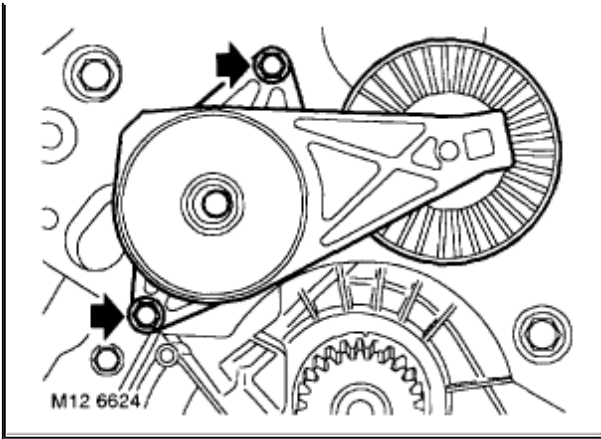


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- 22. Remove 3 bolts securing camshaft timing belt lower cover to cylinder block and remove cover.

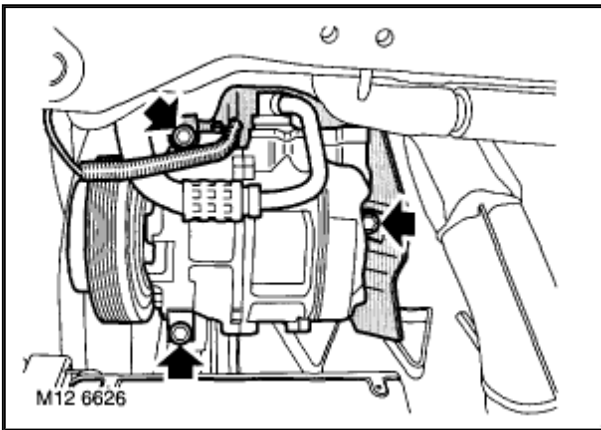




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23. Remove 2 bolts securing ancillary drive belt tensioner and remove tensioner.



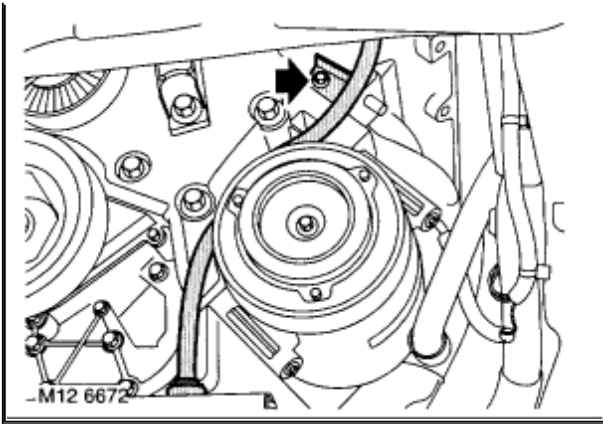
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24. Note fitted position of heat shield on A/C compressor and remove 3 bolts securing A/C compressor to front mounting plate and cylinder block. Release A/C compressor and heat shield and position aside.

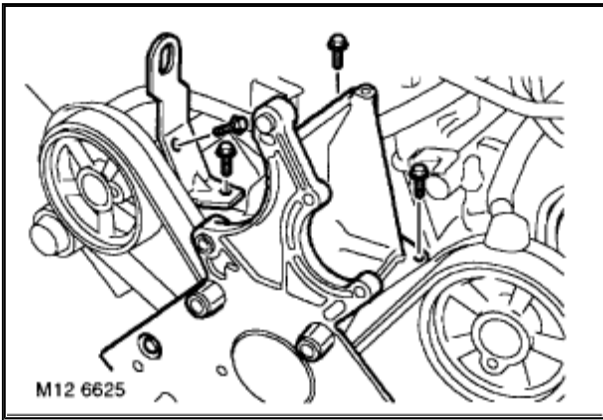
25. Drain engine oil.





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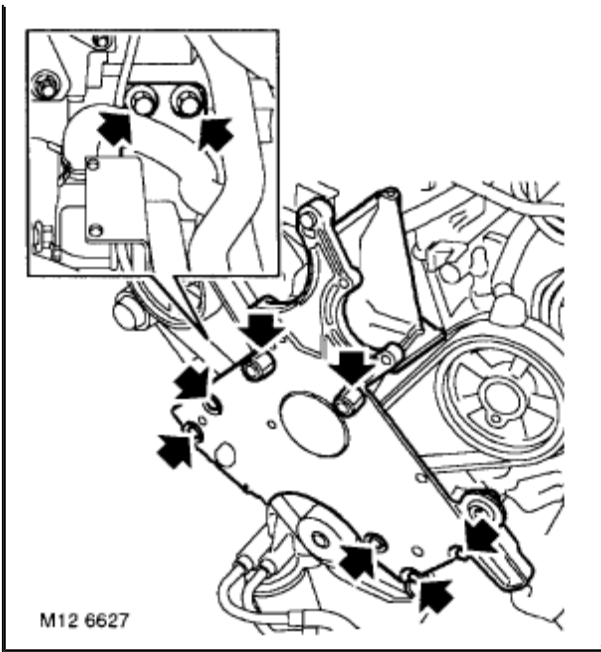
- 26. Remove bolt securing dipstick tube to cylinder block.
- 27. Depress locking collar, release and remove dipstick tube from engine sump.



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- 28. Remove 3 bolts securing engine front mounting plate and lifting bracket to cylinder block.
- 29. Remove bolt securing lifting bracket to RH cylinder head and remove lifting bracket.

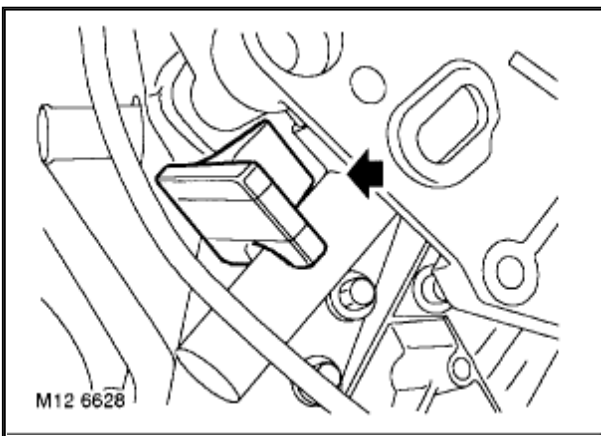




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- 30. Remove 2 bolts securing IRD support bracket to engine front mounting plate.
- 31. Remove 5 bolts and 2 pillar bolts securing engine front mounting plate to cylinder block.
- 32. With care, release and remove front mounting plate from engine.

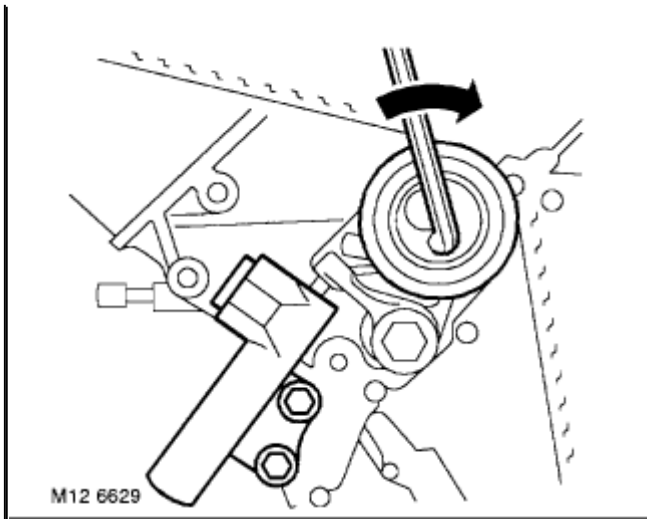


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- 33. Remove rubber blanking plug from around camshaft timing belt tensioner.

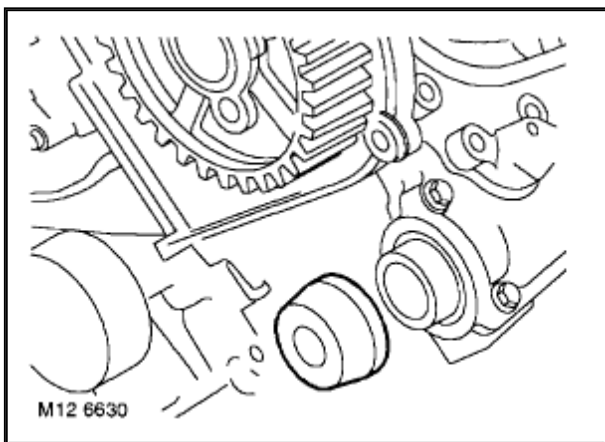




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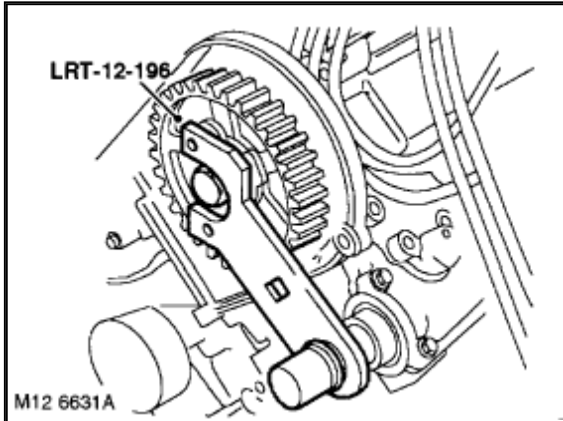
34. With assistance, relieve tension from camshaft timing belt tensioner using an Allen key fitted in the tensioner pulley backplate. Remove 2 bolts securing tensioner to cylinder block and remove tensioner. **CAUTION:** DO NOT loosen Allen screw securing tensioner pulley.
35. If camshaft timing belt is to be refitted, mark direction of rotation on timing belt before removal.
36. With care, ease camshaft timing belt from gears using fingers only and remove timing belt. **CAUTION:** Camshaft timing belt must be replaced if cylinder head is to be removed or new drive gears, tensioner or coolant pump are to be fitted. Camshaft timing belts must be stored and handled with care. Always store a camshaft timing belt on its edge with a bend radius greater than **50 mm** . Do not use a camshaft timing belt that has been twisted or bent double as this will damage the reinforcing fibers. Do not use a camshaft timing belt if debris other than belt dust is found in timing belt covers. Do not use a camshaft timing belt if partial engine seizure has occurred. Do not use a camshaft timing belt if mileage exceeds **48,000 miles (77,000 km)** . Do not use an oil or coolant contaminated timing belt, cause of contamination must be rectified.



Zoom

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37. Remove LH and RH exhaust camshaft cap seals.



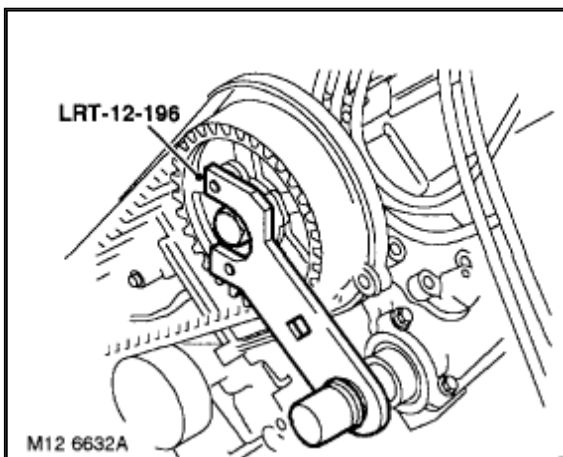
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38. Position tools LRT-12-196 to LH and RH front inlet camshaft gears and into the end of each exhaust camshaft. **CAUTION:** Special tools must be fitted when tightening or loosening gear retaining bolts, otherwise damage to camshafts may occur.
39. Remove and discard bolts retaining front inlet camshaft gears to camshafts.
40. Remove tools LRT-12-196 from both inlet camshaft gears and exhaust camshafts.
41. Remove camshaft drive gears and hub assemblies.

Refit

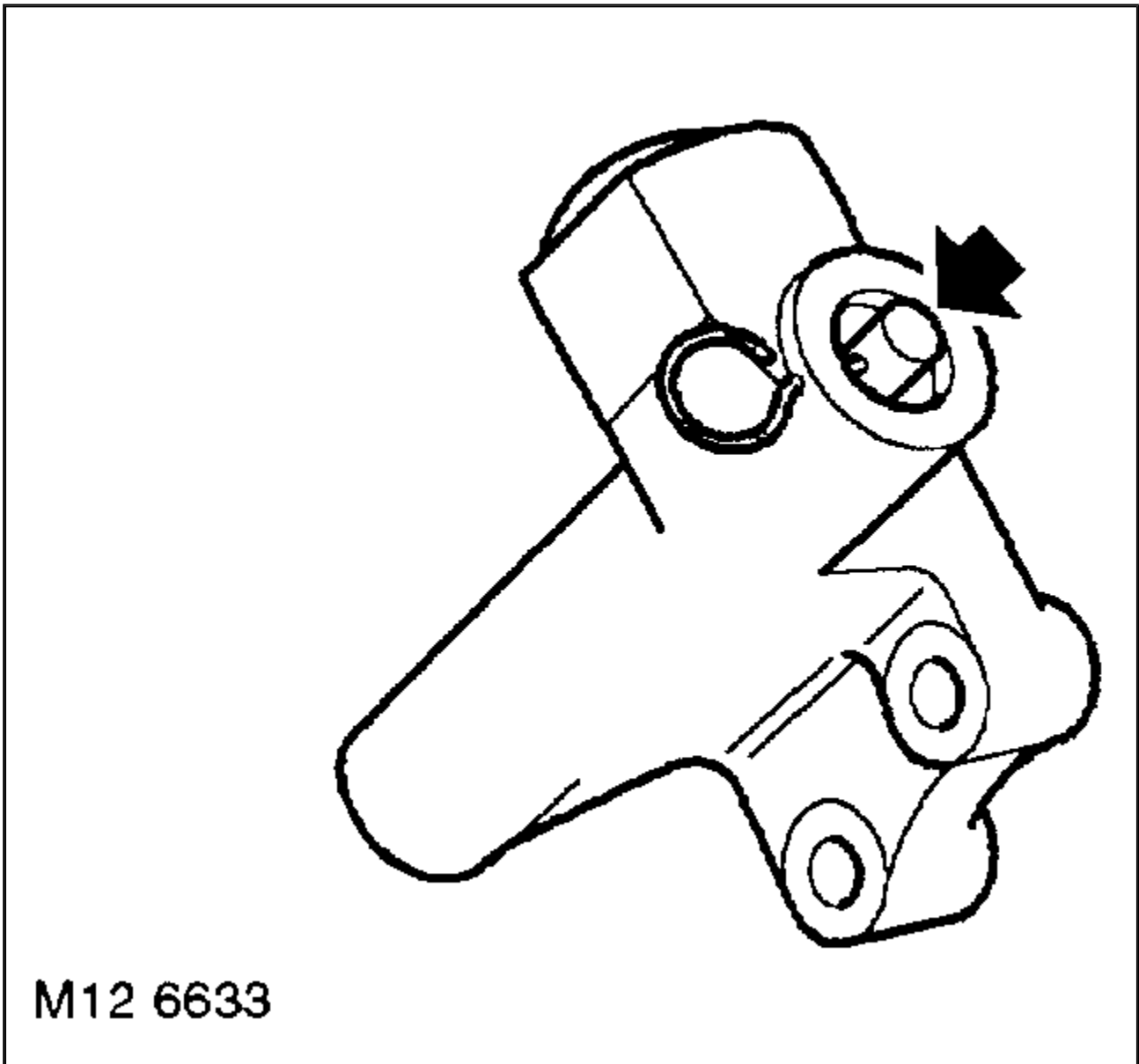
1. Clean camshaft gears and hubs, crankshaft gear, tensioner and water pump pulleys.
2. Fit hubs to camshaft gears and fit gears to camshafts. Fit new bolts and tighten sufficiently to allow gears to rotate without tipping.
3. Position timing belt to gears.



Zoom

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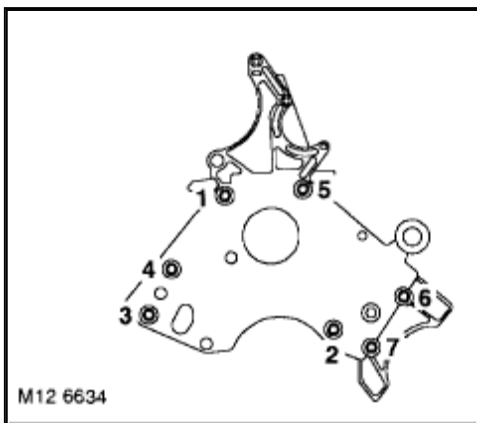
4. Fit tools LRT-12-196 to both front inlet camshaft gears and into the end of each exhaust camshaft. **CAUTION:** Special tools must be fitted when tightening or loosening gear retaining bolts, otherwise damage to camshafts may occur.
5. Rotate both front inlet camshaft gears fully clockwise as viewed from front of engine.
6. Using fingers only, fit timing belt to gears, starting at the crankshaft gear and working in an anti-clockwise direction, keeping the belt run as taut as possible and turning the camshaft gears only a minimum amount anti-clockwise to fit timing belt. **NOTE:** To prevent the timing belt from disengaging from the crankshaft gear when fitting, fit a suitable wedge between the belt and oil pump belt guard.



Zoom

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7. Position timing belt tensioner in vice, slowly compress tensioner plunger to align hole in plunger with drillings in tensioner body. Fit a suitable pin, **1.5 mm** in diameter, to retain plunger in tensioner body.
8. Clean tensioner bolts and apply Loctite 242 to first 3 threads.
9. Position an Allen key in tensioner backplate and hold tensioner pulley against timing belt.
10. With assistance, position tensioner, fit bolts and tighten to **25 Nm (18 ft. lbs.)**.
11. Release tensioner pulley and remove pin from tensioner.
12. Fit blanking rubber around tensioner.
13. Tighten front inlet camshaft gear bolts to **27 Nm (20 ft. lbs.)** . Tighten bolts a further **90°**
14. Remove tools LRT-12-196 from both inlet camshaft gears and exhaust camshafts.
15. Remove wedge from between [drive belt](#) and oil pump belt guard.
16. Clean exhaust camshaft front cap seal locations and fit new cap seals. **CAUTION:** The sealing edge of the cap seal and mating face must be clean and dry.
17. Position engine front mounting plate and manoeuvre plate into position.



M12 6634

Zoom

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18. Fit and tighten bolts in the sequence shown, M10 pillar bolts to **45 Nm (33 ft. lbs.)** , M12 bolts to **85 Nm (63 ft. lbs.)** .
19. Position engine lifting bracket, fit bolts securing lifting bracket and front mounting plate to cylinder block and RH cylinder head. Tighten M 10 bolts to **45 Nm (33 ft. lbs.)** and M8 bolt to **25 Nm (18 ft. lbs.)**.
20. Fit bolts securing IRD support bracket to front mounting plate and tighten to **45 Nm (33 ft. lbs.)**.
21. Clean end of dipstick tube.
22. Position dipstick tube to sump and cylinder block, fit bolt and tighten to **9 Nm (7 ft. lbs.)**.
23. Position A/C compressor to front mounting plate and cylinder block, align heat shield, fit and tighten bolts to **25 Nm (18 ft. lbs.)** .
24. Clean lower timing belt cover.
25. Position lower timing belt cover, fit and tighten bolts to **9 Nm (7 ft. lbs.)**.
26. Clean crankshaft pulley.
27. Fit crankshaft pulley to crankshaft gear and ensure that the indent on pulley locates over the lug on crankshaft gear.

28. Fit crankshaft pulley bolt and washer, position LRT-12-161 with LRT-12-199 into crankshaft pulley. Tighten pulley bolt to **160 Nm (118 ft. lbs.)** .
29. Remove special tool from crankshaft pulley, loosen bolt and remove LRT-12-161 from LRT12-199.
30. Clean ancillary drive belt tensioner.
31. Position ancillary belt tensioner, fit bolts and tighten to **25 Nm (18 ft. lbs.)**.
32. Clean LH and RH front timing belt covers.
33. Position LH and RH front timing belt covers, fit and tighten bolts to **4 Nm (3 ft. lbs.)**.
34. Clean idler pulley, position pulley to engine front mounting plate and tighten Allen bolt to **45 Nm (33 ft. lbs.)**.
35. Position alternator to front mounting plate.
36. Fit bolt and nut and bolt securing alternator to front mounting plate and tighten to **45 Nm (33 ft. lbs.)**.
37. Connect alternator multiplug.
38. Connect battery lead to alternator, fit and tighten nut to **8 Nm (6 ft. lbs.)** , fit terminal cover.
39. Position PAS pump to front mounting plate, fit and tighten bolts to **25 Nm (18 ft. lbs.)**.
40. Position PAS pipe to engine front mounting plate, fit and tighten bolt to **25 Nm (18 ft. lbs.)**.
41. Clean PAS pump pulley mating faces.
42. Position PAS pump pulley, fit and tighten Torx screws to **9 Nm (7 ft. lbs.)**.
43. Position lower engine steady to sump mounting, fit and tighten bolt to **100 Nm (74 ft. lbs.)**.
44. Tighten bolt securing lower engine steady to subframe to **100 Nm (74 ft. lbs.)**.
45. Clean LH rear timing belt cover.
46. Position LH rear timing belt cover, fit and tighten bolts to **4 Nm (3 ft. lbs.)**.
47. Fit RH road wheel and tighten nuts to **115 Nm (85 ft. lbs.)**.
48. Fit ancillary [drive belt](#).
49. Fill engine with oil.