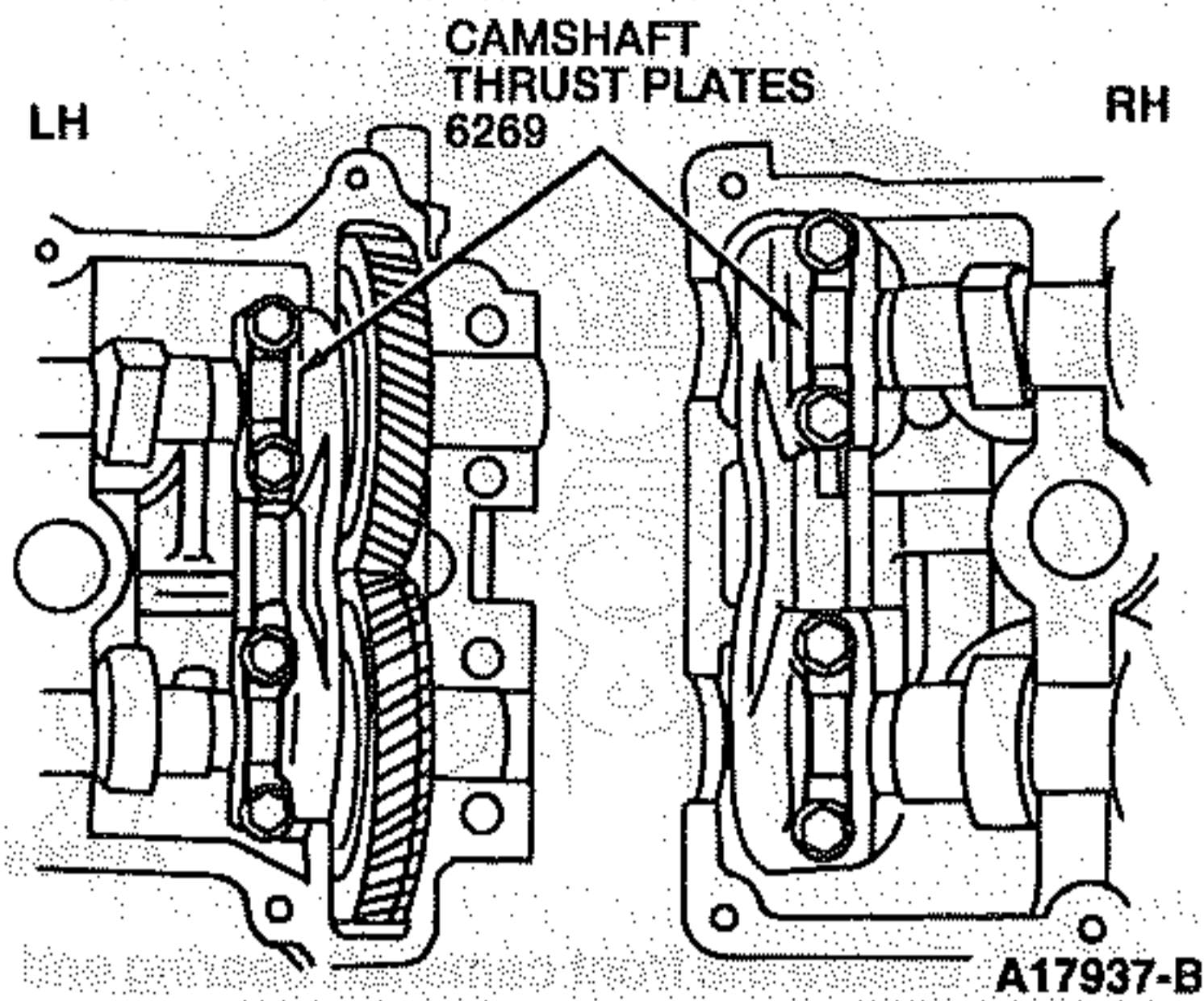


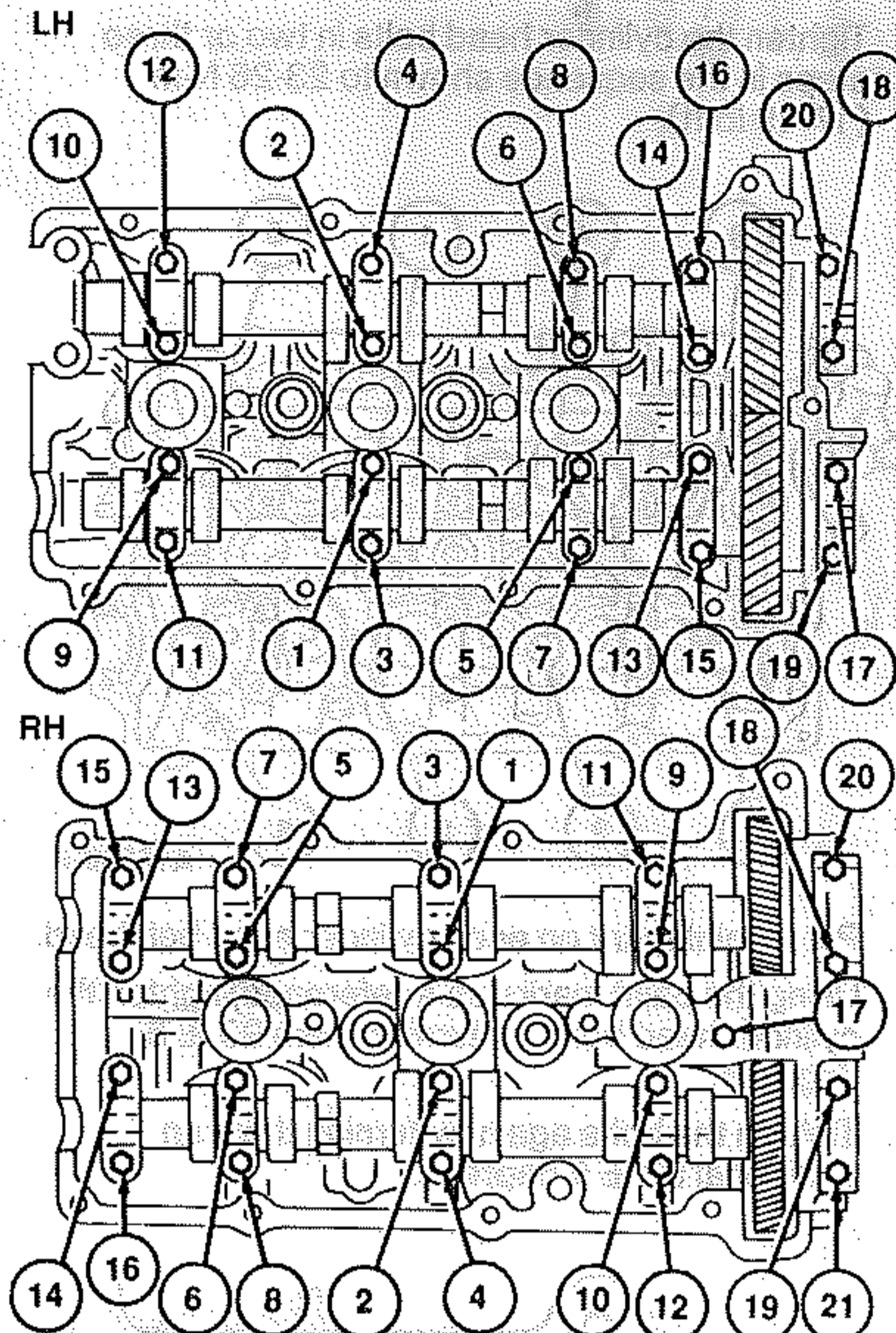
DISASSEMBLY AND ASSEMBLY (Continued)

68. Install the camshaft thrust plates. Tighten the camshaft thrust plate bolts until the camshaft thrust plates are seated against the cylinder head.



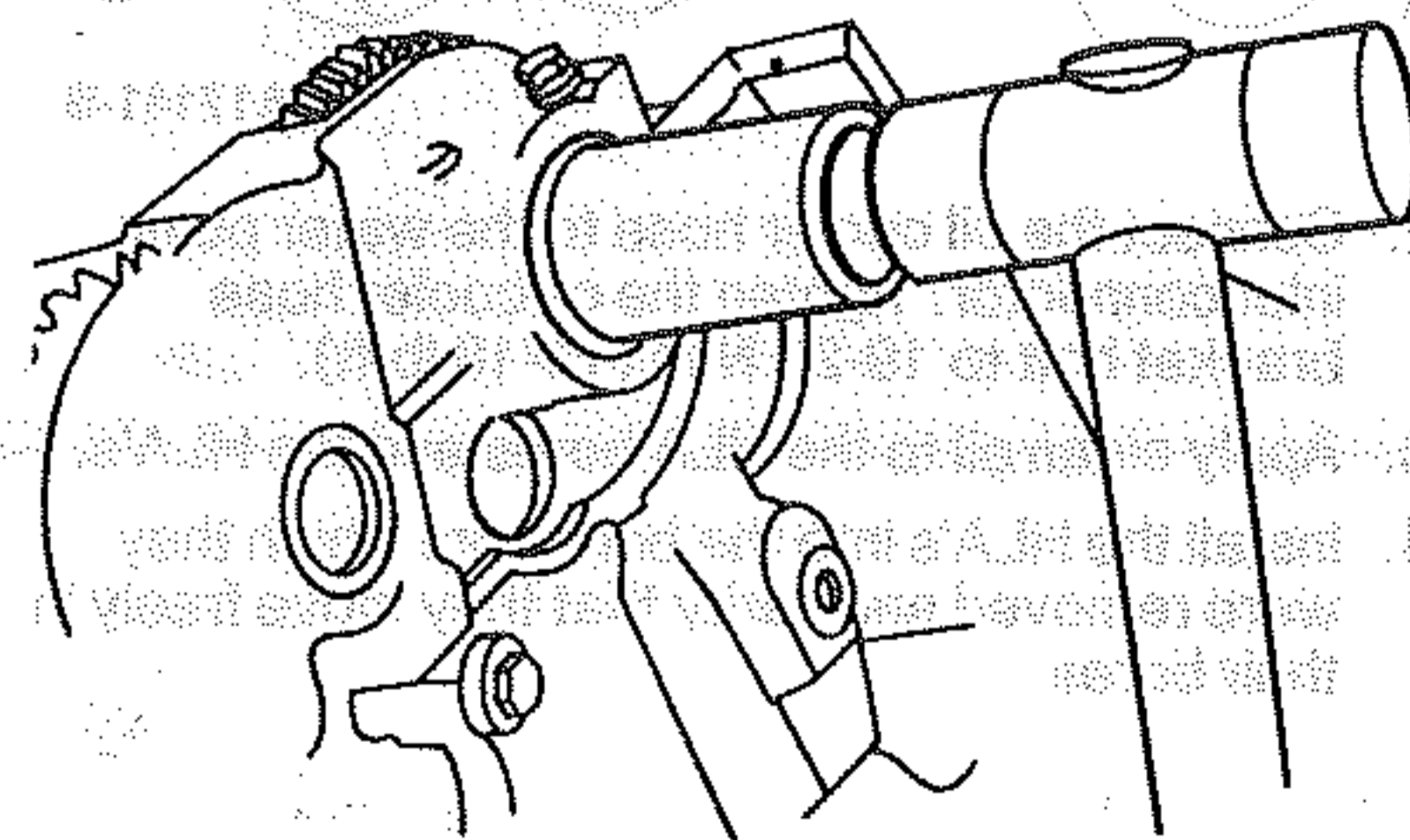
CAUTION: Do not install the camshaft bearing caps when the camshaft lobes are depressing any of the HLA's. Damage to the thrust journal support or camshaft may result.

69. Install the camshaft bearing caps and camshaft bearing end caps. The rear (RH) camshaft bearing caps are marked with numbers and the front (LH) camshaft bearing caps are marked with letters.
70. Tighten the camshaft bearing cap bolts (6L293), camshaft thrust plate bolts and camshaft bearing end caps in five or six equal steps, in the sequence shown, to 11-14 N·m (8-10 lb-ft).



A16566-D

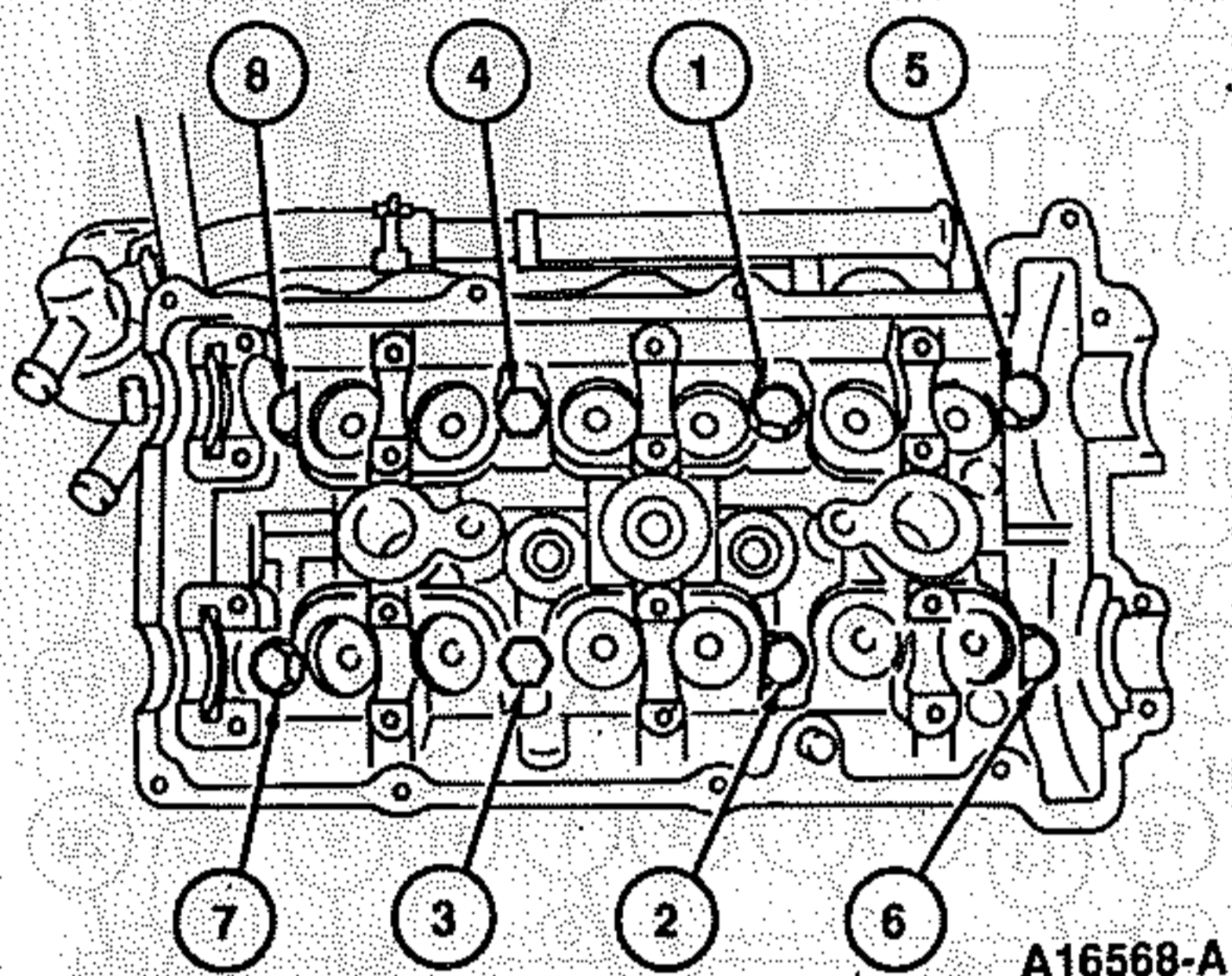
71. Apply a light coating of engine oil to the camshaft oil seal and the cylinder head.
72. Use a suitable socket and a hammer to install the camshaft oil seal. Camshaft oil seal protrusion should measure 0-0.5mm (0-0.020 inch). Repeat for each camshaft oil seal.



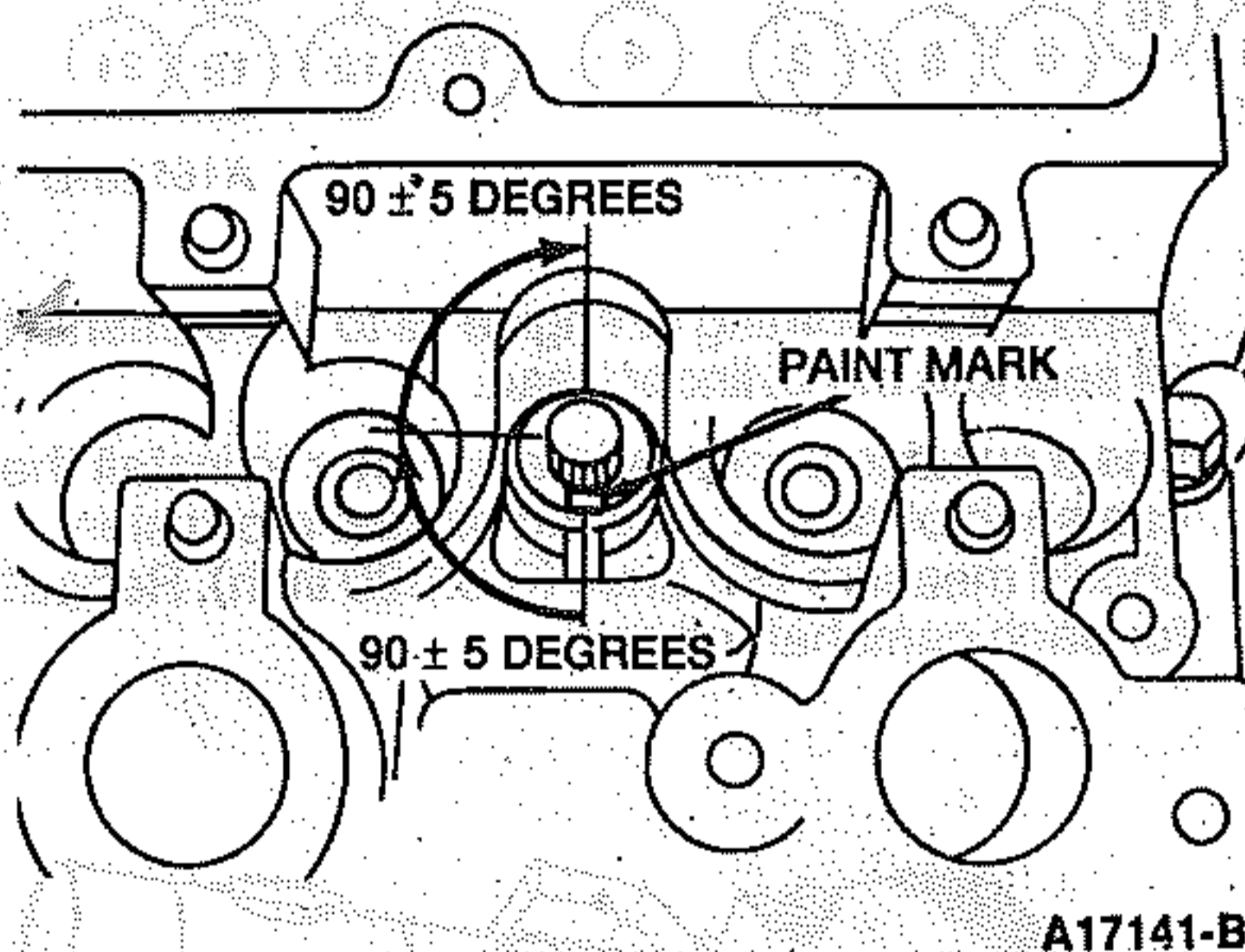
A17938-A

DISASSEMBLY AND ASSEMBLY (Continued)

58. Tighten the cylinder head bolts in two or three steps in the sequence shown to 23-26 N·m (17-19 lb-ft).

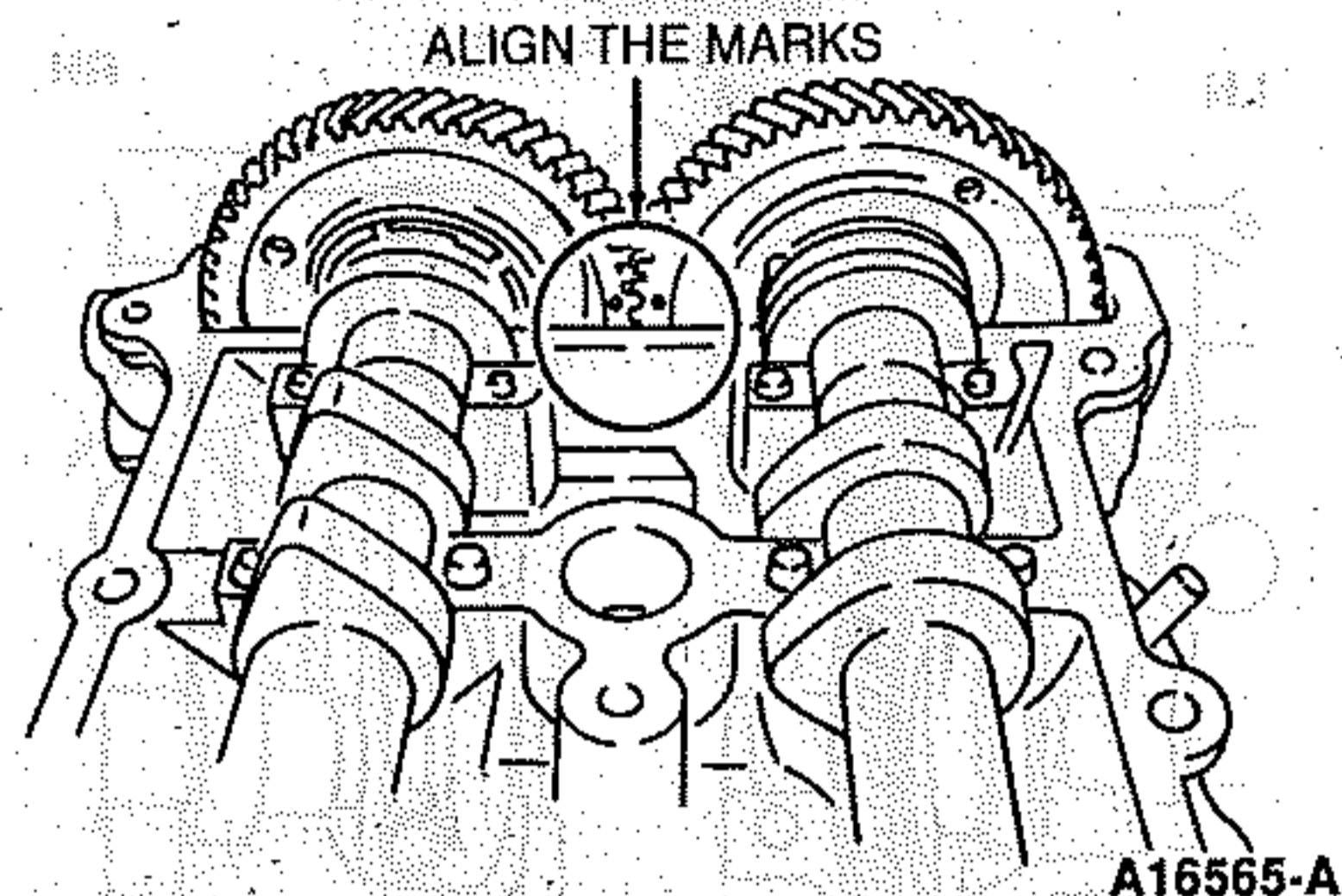


59. Put a paint mark on each cylinder head bolt head.
 60. Using the paint marks as a reference, tighten the cylinder head bolts by turning them 90 ± 5 degrees.
 61. Tighten the bolts again by turning them an additional 90 ± 5 degrees.



62. Connect the oil cooler hose to the water pump inlet connector. Tighten the oil cooler hose bracket bolt to 19-25 N·m (14-18 lb-ft).
 63. Apply clean oil to the HLA bores and the HLA's.
 64. Install the HLA's into the bore from which they were removed and verify that they move freely in their bores.

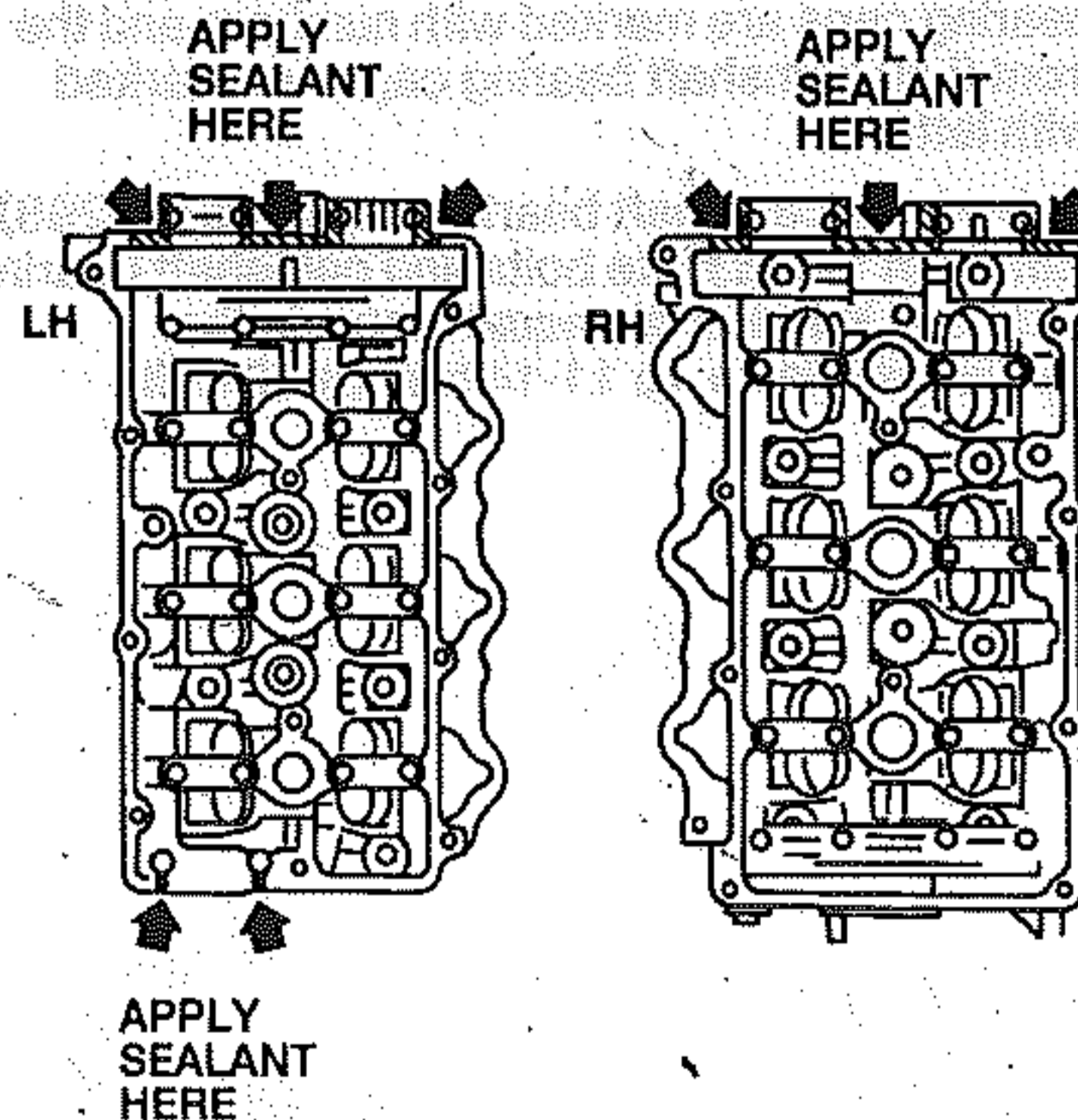
65. Apply clean engine oil to the camshaft journals and supports.
 66. Install the camshafts so the marks on the camshaft sprockets are aligned.



NOTE: Ensure the front camshaft bearing end cap and the cylinder head mating surfaces are free of old gasket material, dirt and oil.

CAUTION: Do not allow sealant to contact the camshafts.

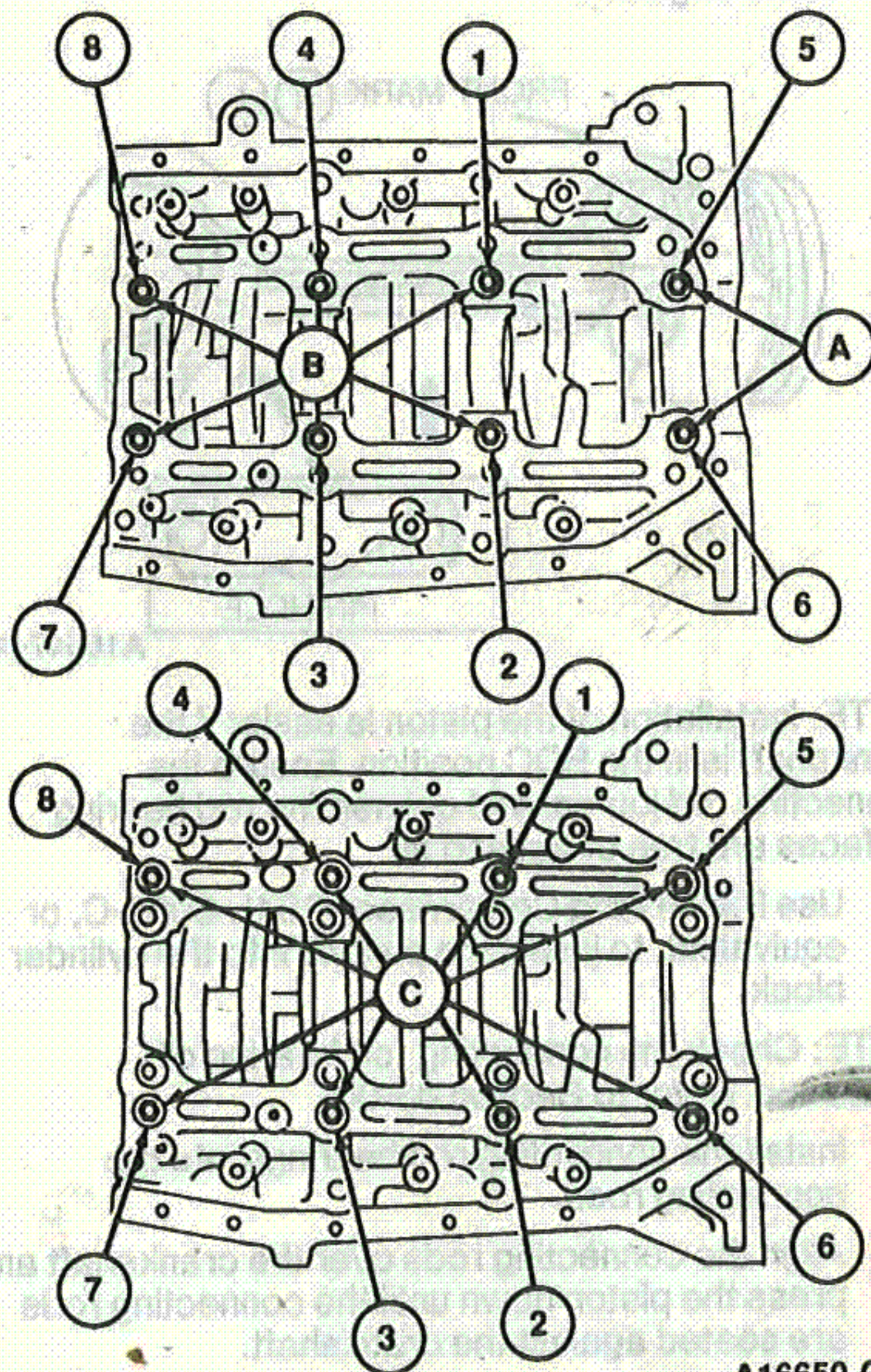
67. Apply a light coat of sealant to the areas shown.



DISASSEMBLY AND ASSEMBLY (Continued)

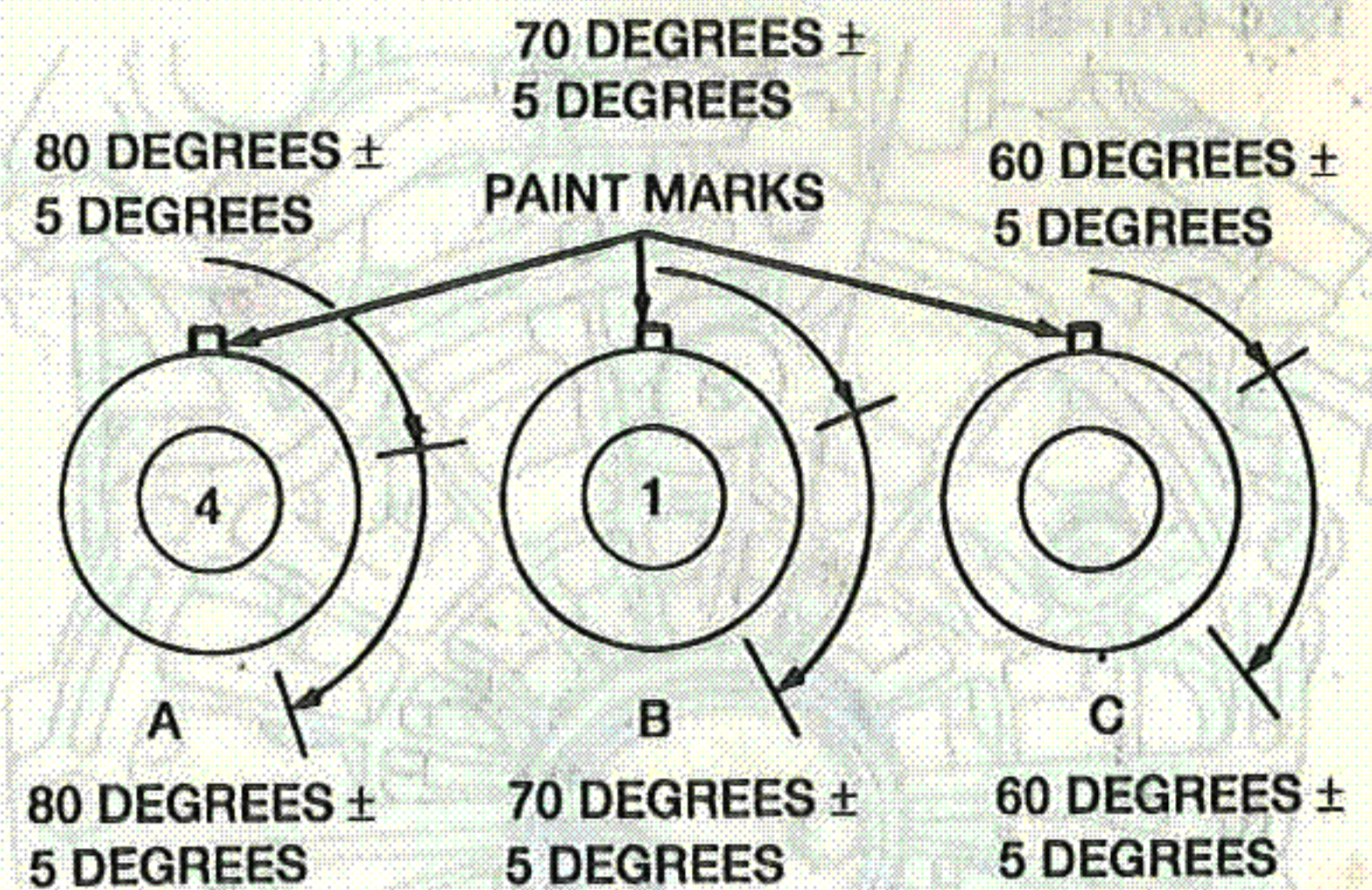
NOTE: A lower cylinder block bolts are marked with a 4 on the head. B lower cylinder block bolts are marked with a 1 on the head. C crankshaft main bearing cap studs (6345) are not marked.

11. Tighten lower cylinder block bolts A and B in two or three steps in the order shown to 23-25 N·m (17-19 lb-ft). Tighten lower cylinder block bolts C in two or three steps in the order shown to 18-21 N·m (13-15 lb-ft).

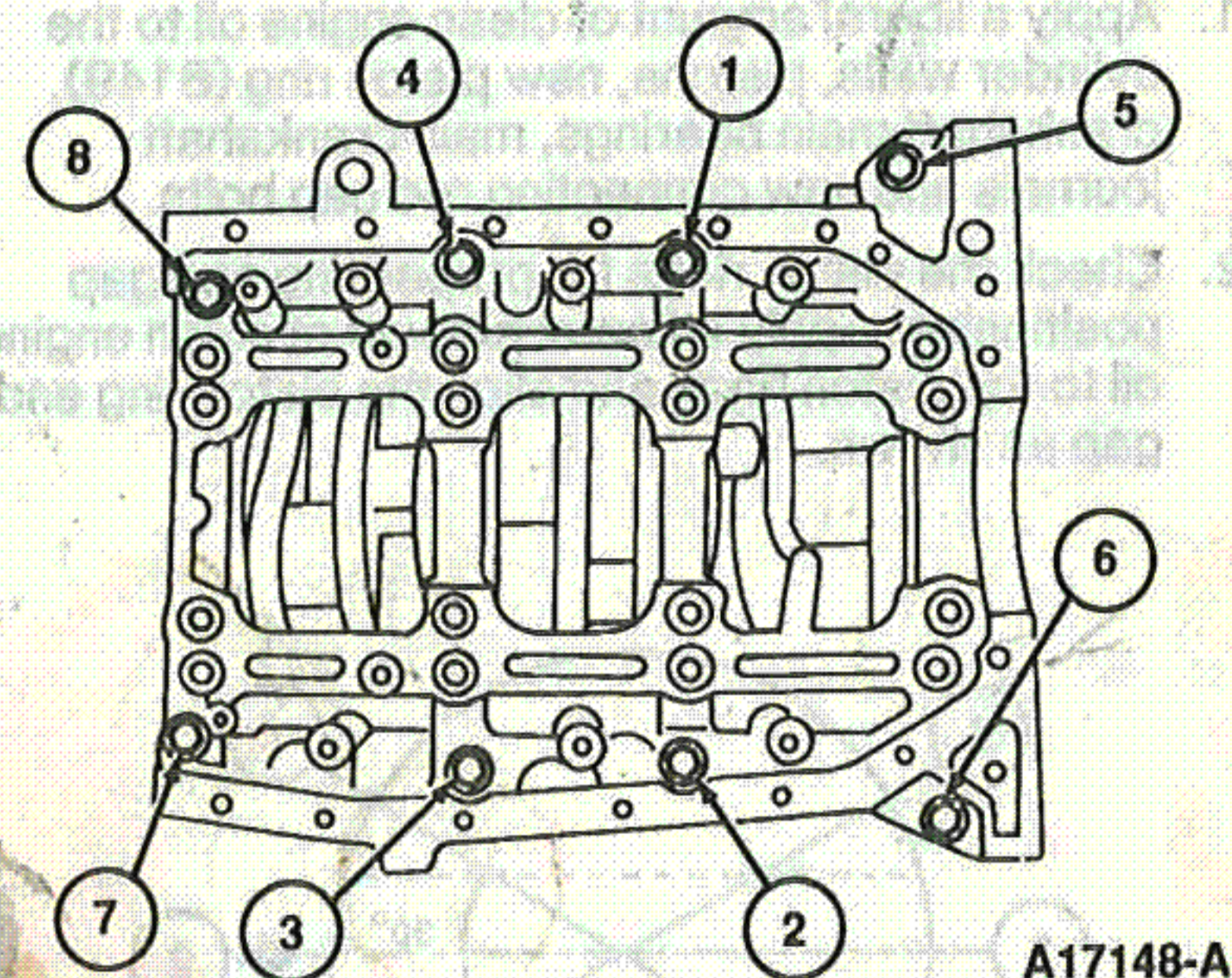


12. Paint a mark on each crankshaft main bearing cap bolt head.
13. Using the marks as a reference, tighten the lower cylinder block bolts A by turning them 80 ± 5 degrees.
14. Using the marks as a reference, tighten the lower cylinder block bolts B by turning them 70 ± 5 degrees.

15. Using the marks as a reference, tighten the lower cylinder block bolts C by turning them 60 ± 5 degrees.



16. Further tighten each lower cylinder block bolt, an additional time, by repeating steps 13-15.
17. Tighten the lower cylinder block bolts in the order shown to 19-21 N·m (14-15 lb-ft).

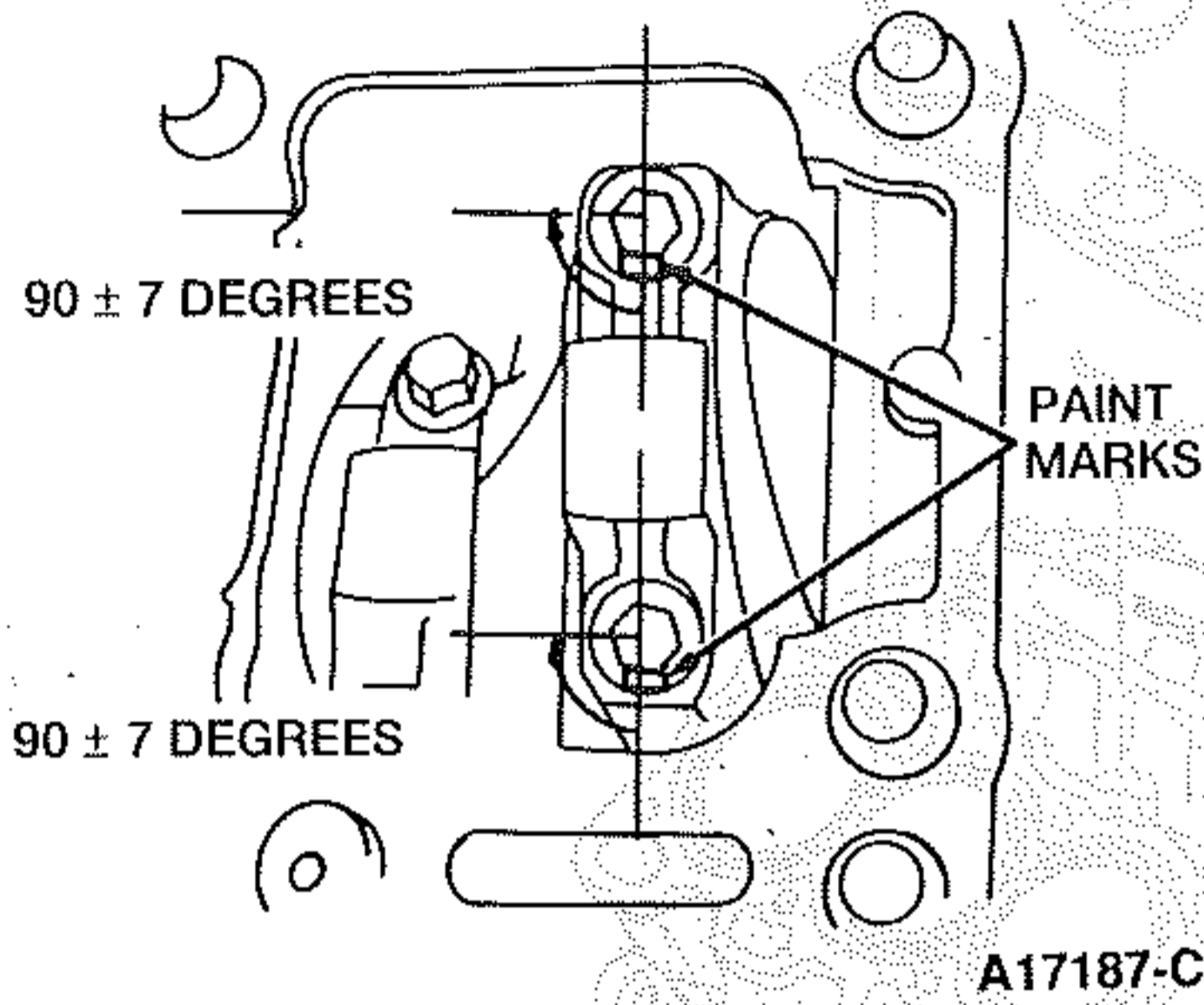


18. Check the crankshaft end play. Refer to Section 03-00.
19. Apply a small amount of clean engine oil to the lip of the new crankshaft rear oil seal.

| Item | Part Number | Description |
|------|-------------|------------------------------------|
| 1 | | Top Ring (Part of 6149) |
| 2 | | Piston Pin (Part of 6100) |
| 3 | | Second Ring (Part of 6149) |
| 4 | | Oil Ring Lower Half (Part of 6149) |
| 5 | | Oil Ring Upper Half (Part of 6149) |

DISASSEMBLY AND ASSEMBLY (Continued)

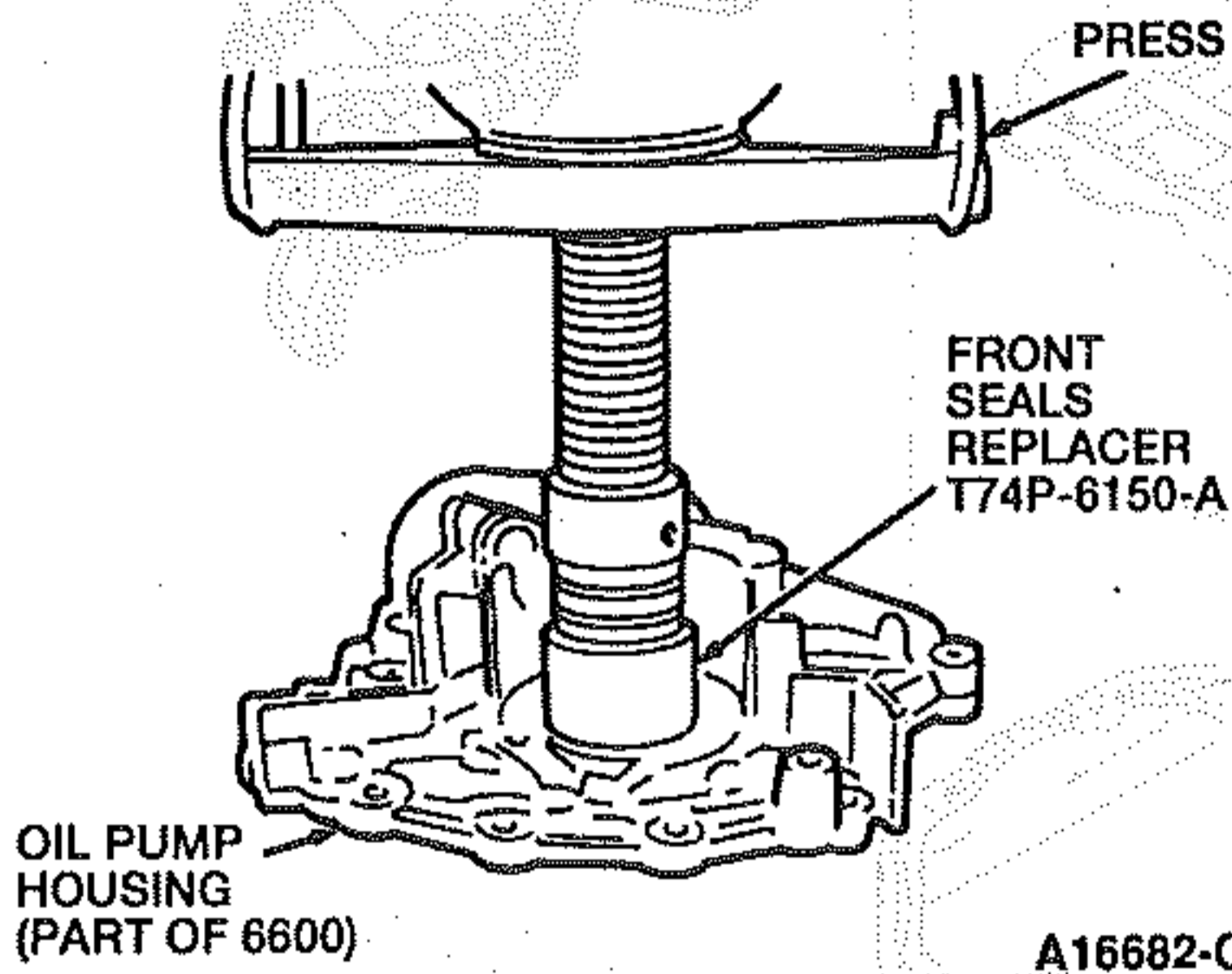
31. Use the marks as a reference and tighten the connecting rod cap bolts by turning them 90 ± 7 degrees.



32. Apply clean engine oil to the oil pump housing and the new crankshaft front seal.

NOTE: Crankshaft front seal protrusion should measure 0-0.7mm (0-0.021 inch).

33. Use a press and Front Seals Replacer T74P-6150-A to press the new crankshaft front seal into the oil pump housing.

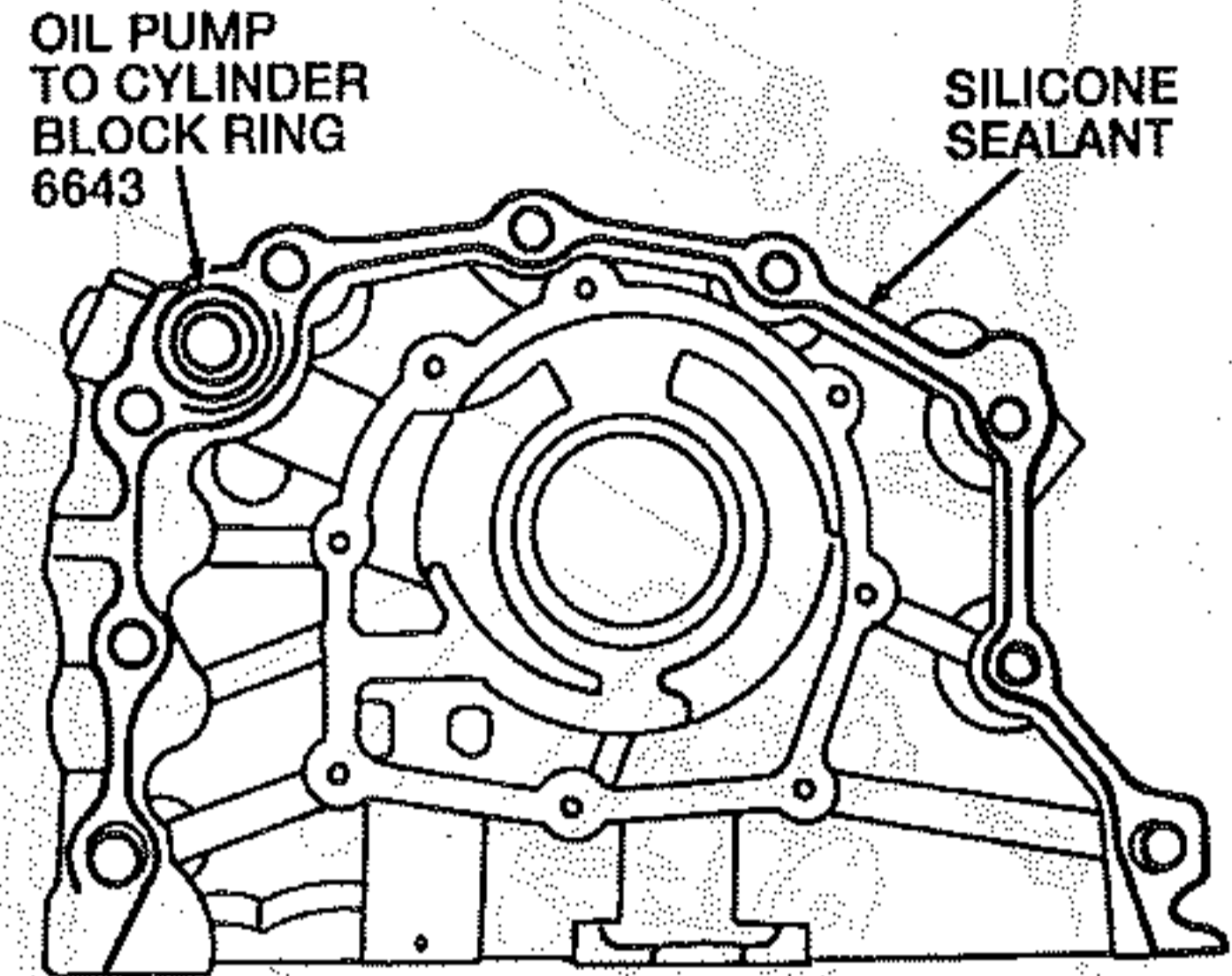


34. Apply clean engine oil to the new oil pump to cylinder block ring.

NOTE: Ensure that the oil pump housing mating surface is free of dirt and oil.

35. Install a new oil pump to cylinder block ring onto the oil pump.

36. Apply a continuous bead of silicone sealant to the oil pump housing mating surface and install the oil pump housing.



| Part No. | Description | QTY | UNIT |
|----------|---------------------------------|-----|------|
| 6600-01 | Oil Pump Housing | 1 | EA |
| 6643-01 | Oil Pump to Cylinder Block Ring | 1 | EA |

| Part No. | Description | QTY | UNIT |
|----------|---------------------------------|-----|------|
| 6600-01 | Oil Pump Housing | 1 | EA |
| 6643-01 | Oil Pump to Cylinder Block Ring | 1 | EA |