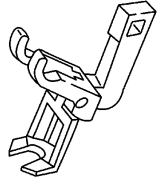
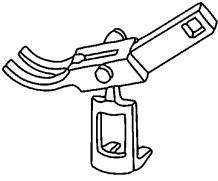
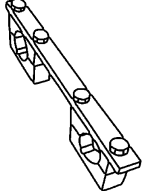
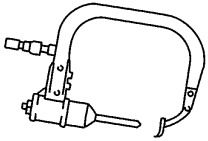
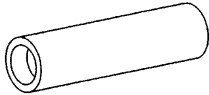


# DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES

## Cylinder Head


### Special Tool(s)


 <p>ST2373-A</p>	<p>Compressor, Valve Spring (Exhaust Side) 303-567 (T97P-6565-AH)</p>
 <p>ST1718-A</p>	<p>Compressor, Valve Spring (Intake Side) 303-452 (T93P-6565-AR)</p>
 <p>ST1715-A</p>	<p>Holding Tool, Camshaft 303-446 (T93P-6256-AHR)</p>
 <p>ST1716-A</p>	<p>Air Operated Valve Spring Holder 134-R0207 or equivalent</p>
 <p>ST1332-A</p>	<p>Installer, Valve Stem Oil Seal 303-383 (T91P-6571-A)</p>

### Material

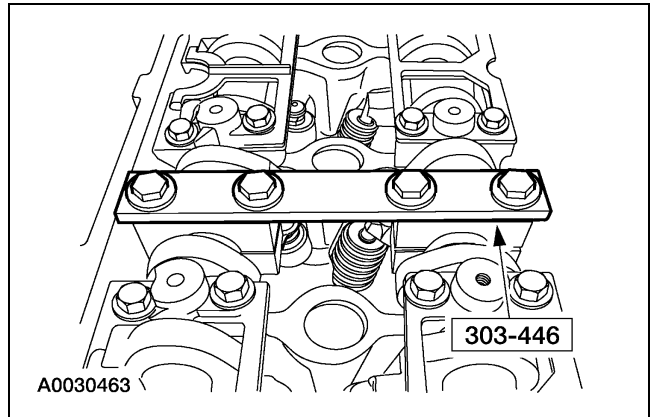
Item	Specification
<p>Super Premium SAE 5W-20 Engine Oil XO-5W20-QSP or equivalent</p>	<p>WSS-M2C153-H</p>

### Disassembly

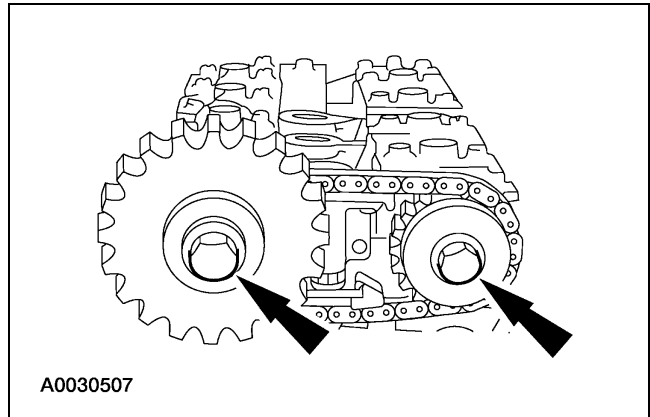
-  **CAUTION:** Do not place the cylinder head (6049) flat on the bench; the valves will bend.

 **CAUTION:** Before disassembly begins, mark the valve position on the face of each valve being removed. The valves must be re-installed into the same positions.

Install the special tool.

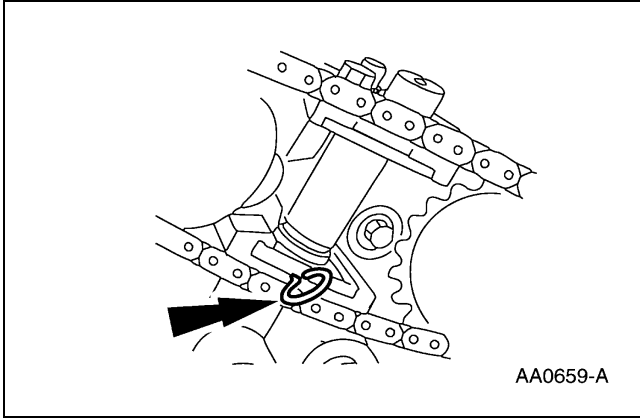


- Remove the exhaust camshaft sprocket and the intake camshaft bolt, washer and spacer.

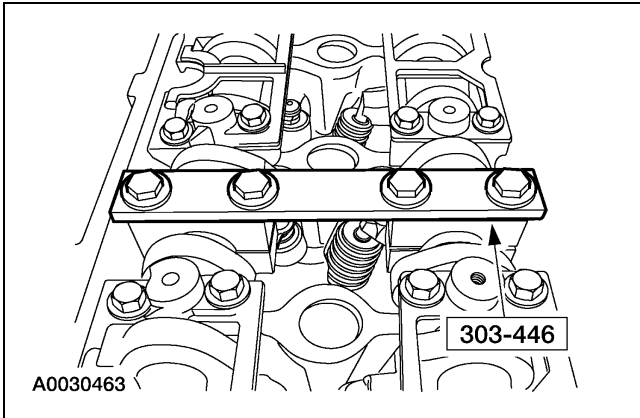


**DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES (Continued)**

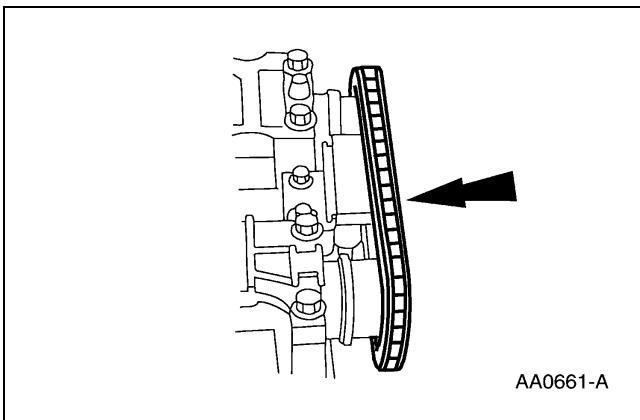
3. Compress the tensioner (6L266) and install a lock pin.



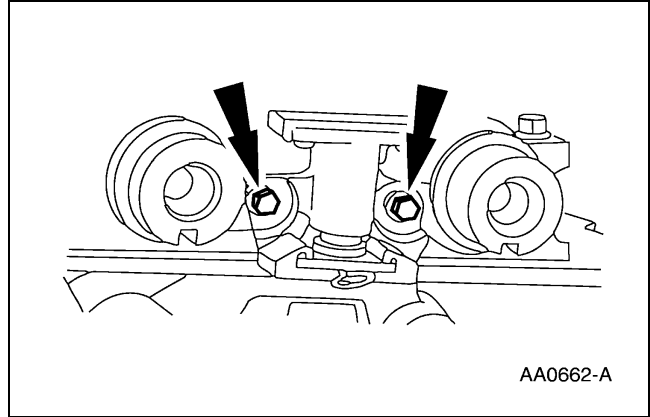
4. Remove the special tool.



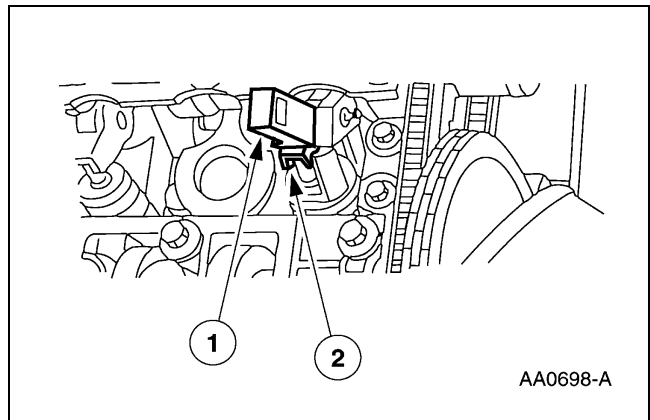
5. Remove the timing chain (6268) and the camshaft sprocket (6256).



6. **NOTE:** LH tensioner is shown, RH tensioner is similar.  
Remove the tensioner.

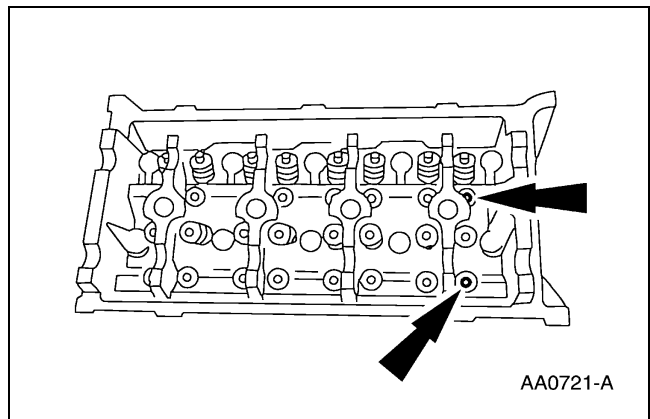


7. Remove the roller followers on the base circle.
  - 1 Install the special tool on the valve spring.
  - 2 Compress the tool and remove the roller follower.




8. Repeat the previous step for the remaining roller followers.

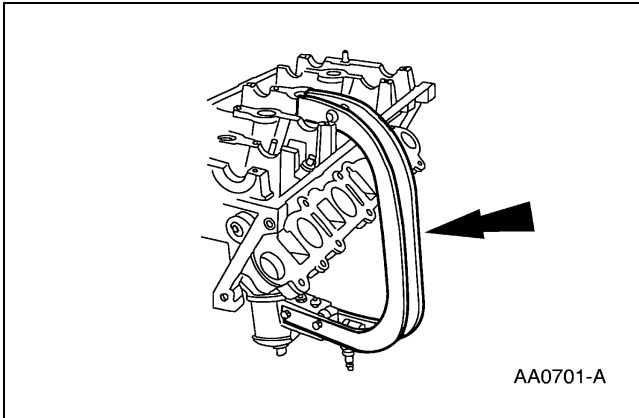
9. Remove the hydraulic lash adjusters.



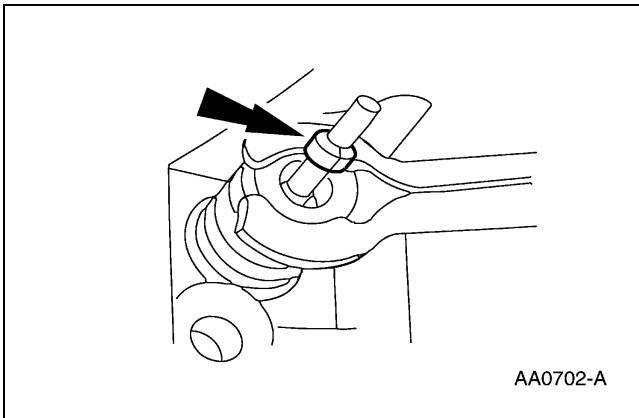
## DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES (Continued)

10.  **CAUTION:** Make sure the tool is seated correctly on the valve spring. Apply a small amount of air at a time. This will prevent the tool from shifting and causing damage to the cylinder head.

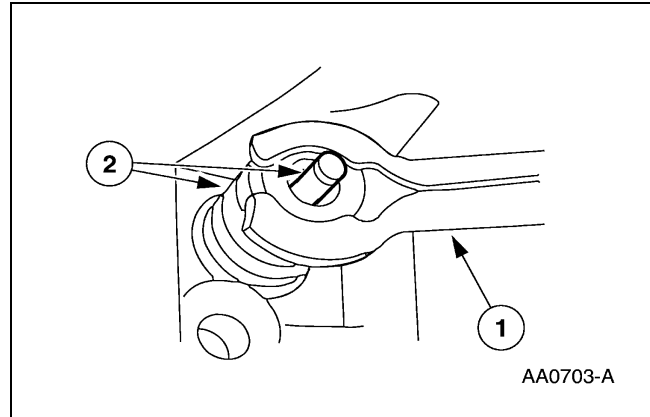
Install the air-operated spring compressor on the cylinder head.



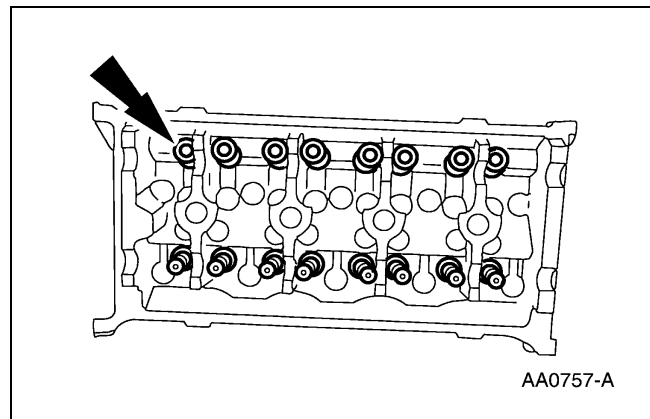
11. Compress the valve spring compressor and remove the key from the valves.




12. Remove the intake valves and the valve springs.
- 1 Release the pressure and remove the valve spring compressor.
  - 2 Remove the intake valves and the valve springs from the cylinder head.



13. Remove the valve stem seals.

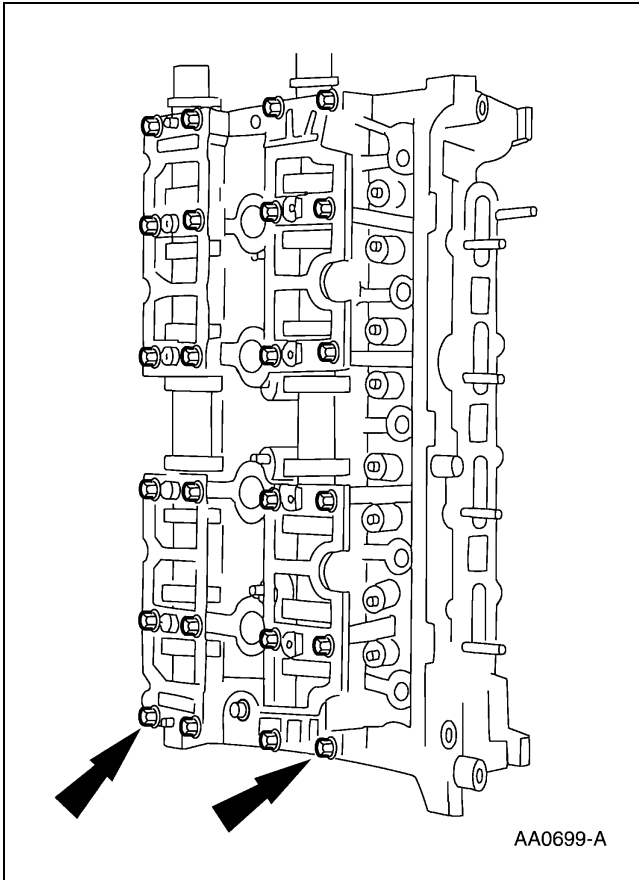


## DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES (Continued)

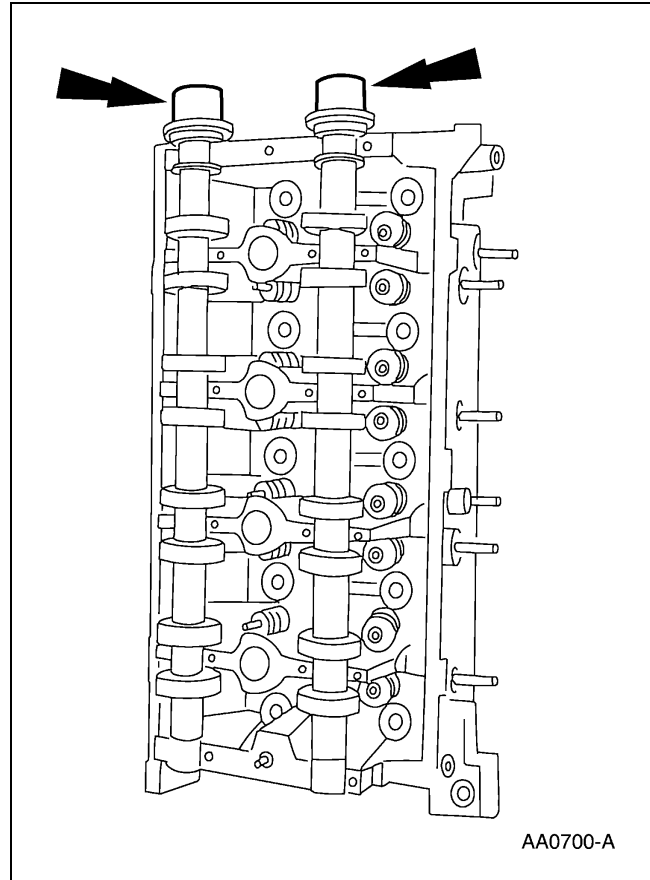
14.  **CAUTION:** The outer bolts on the outer cam bearing cap (exhaust) are longer and must be returned to the same location or engine damage may occur.

**NOTE:** Identify the camshaft-to-cylinder head location. Caps are not interchangeable.

Remove the bolts and the camshaft bearing cap assemblies.

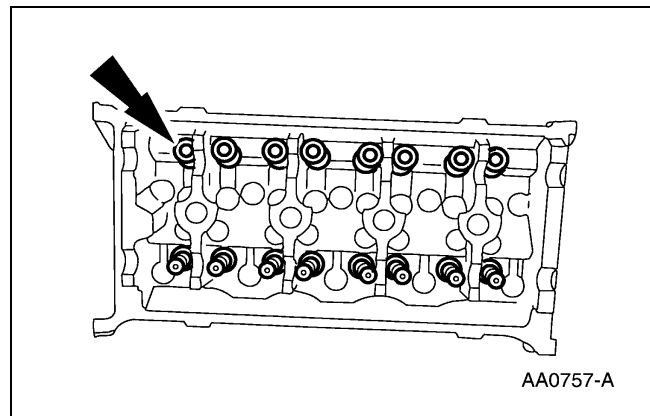


15. Remove the camshafts (6250).




### Assembly

1. Install the valve stem seals.

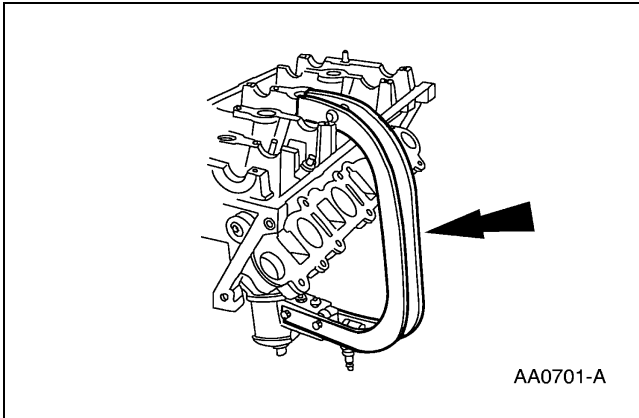


2. Install the valves and the valve springs.

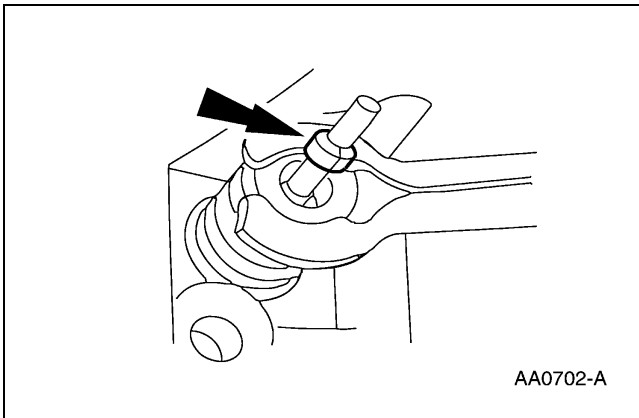
## DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES (Continued)

3.  **CAUTION:** Make sure the tool is seated correctly on the valve spring. Apply a small amount of air at a time. This will prevent the tool from shifting and causing damage to the cylinder head.

Install the air-operated spring compressor on the cylinder head.



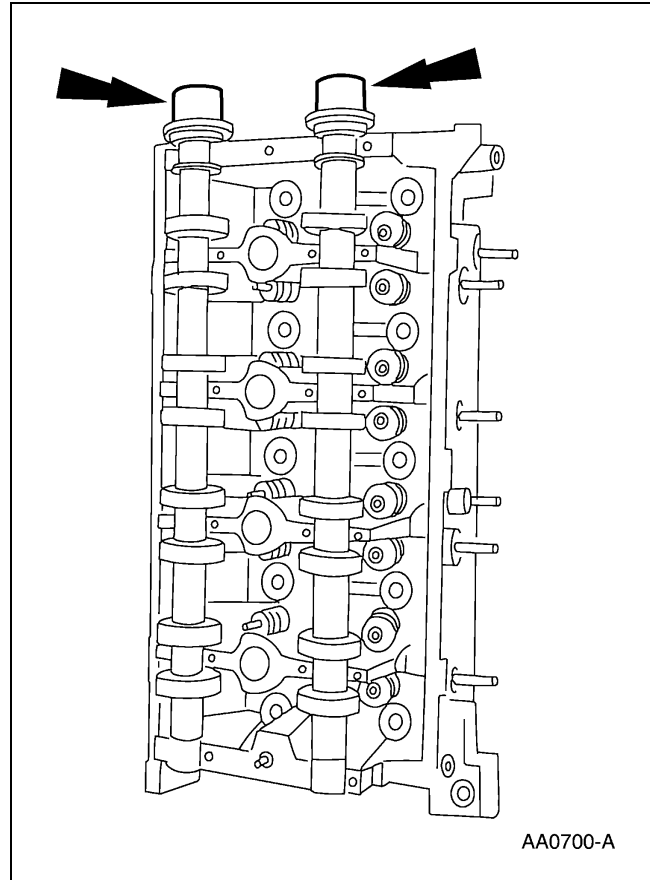
4. Compress the valve spring compressor and install the key on the valves.



5. **NOTE:** LH is shown, RH is similar.

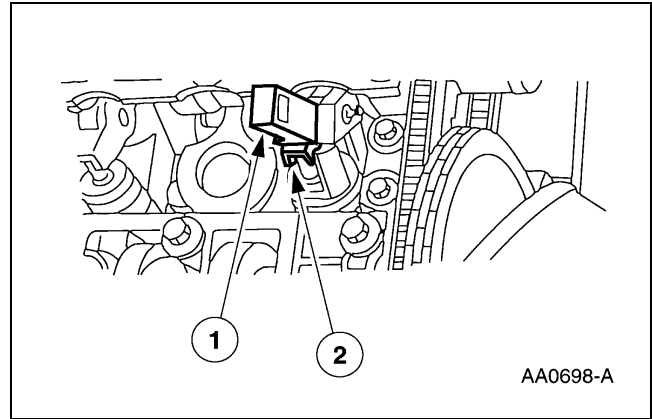
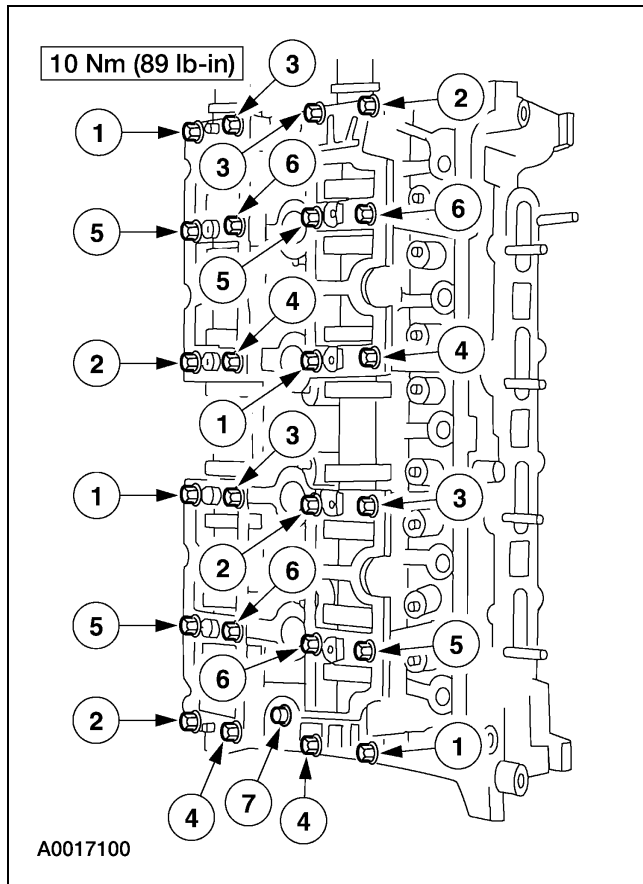
Install the camshafts.

- Lubricate the camshafts with clean engine oil.



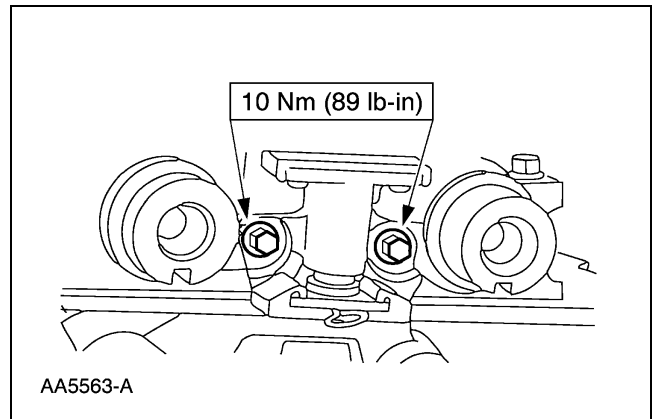
**DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES (Continued)**

6. Install the camshaft bearing cap assemblies.

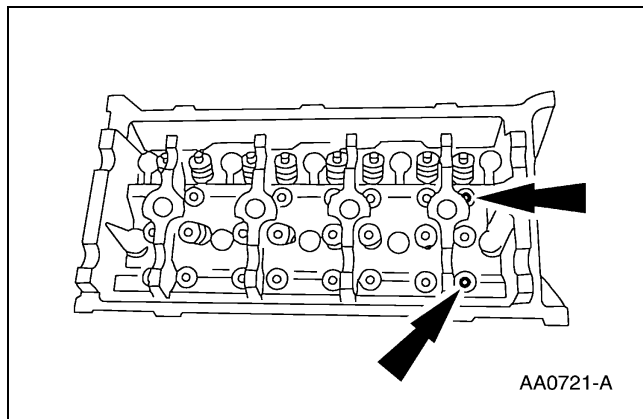


9. Repeat the previous step for the remaining roller followers.

10. **NOTE:** LH tensioner is shown, RH tensioner is similar.  
Install the tensioner.



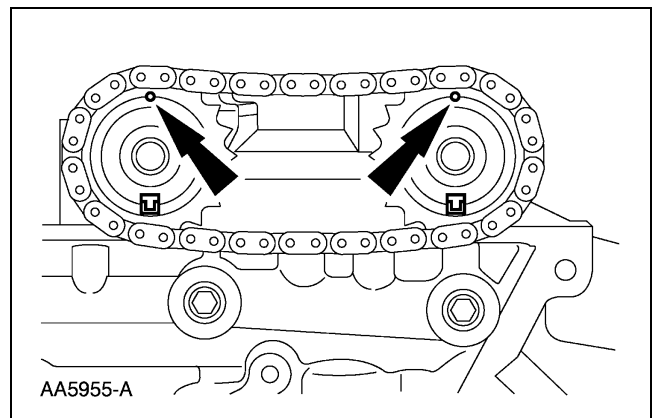
7. Install the hydraulic lash adjusters.



8. Install the roller followers.

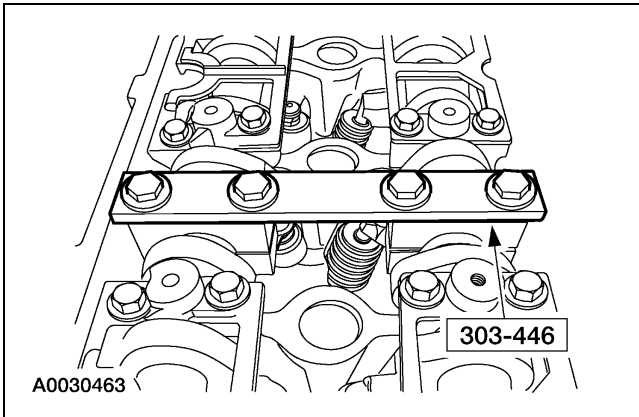
- 1 Install the special tool on the valve spring.
- 2 Compress the spring and install the roller follower.

11. **⚠ CAUTION: Timing marks must be at 12 o'clock and indexed at 6 o'clock.**  
Install the camshaft sprockets and the chain as an assembly.

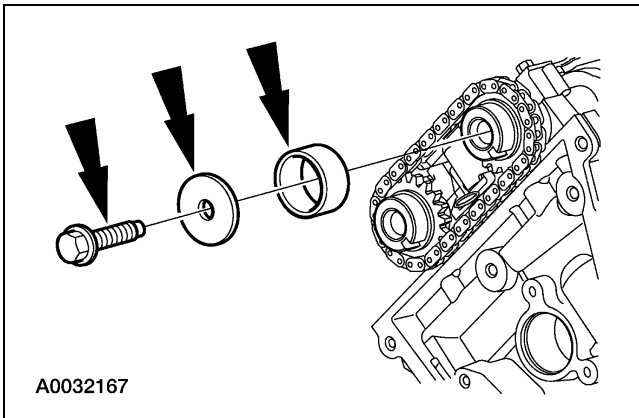


## DISASSEMBLY AND ASSEMBLY OF SUBASSEMBLIES (Continued)

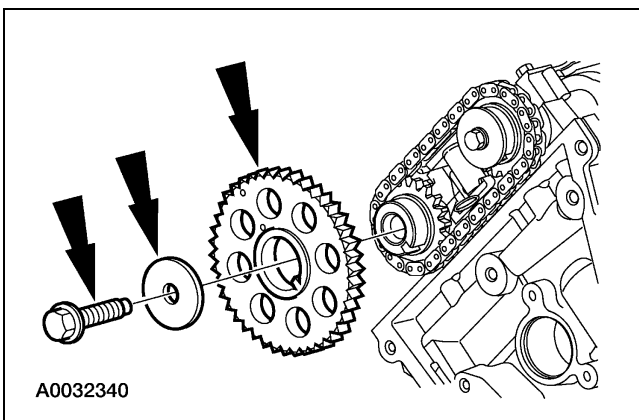
12. Install the special tool.



13. Install the camshaft spacer, washer and bolt, and hand-tighten the bolt.

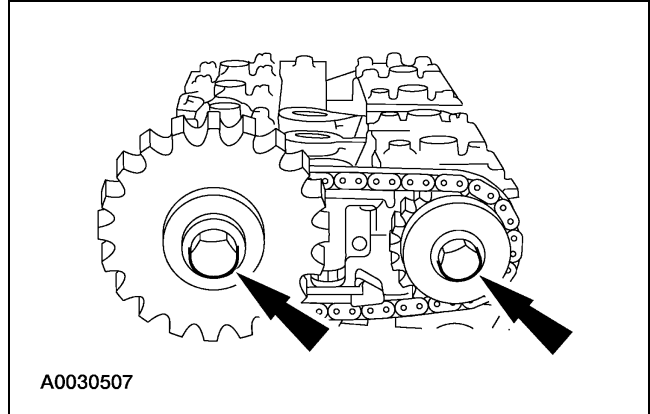


14. Install the camshaft sprocket, washer and bolt, and hand-tighten the bolt.



15. Tighten the bolts in two stages:

- Stage 1: Tighten to 40 Nm (30 lb-ft).
- Stage 2: Tighten and additional 90 degrees.



16. Remove the special tool.

