
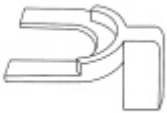




Cylinder Head

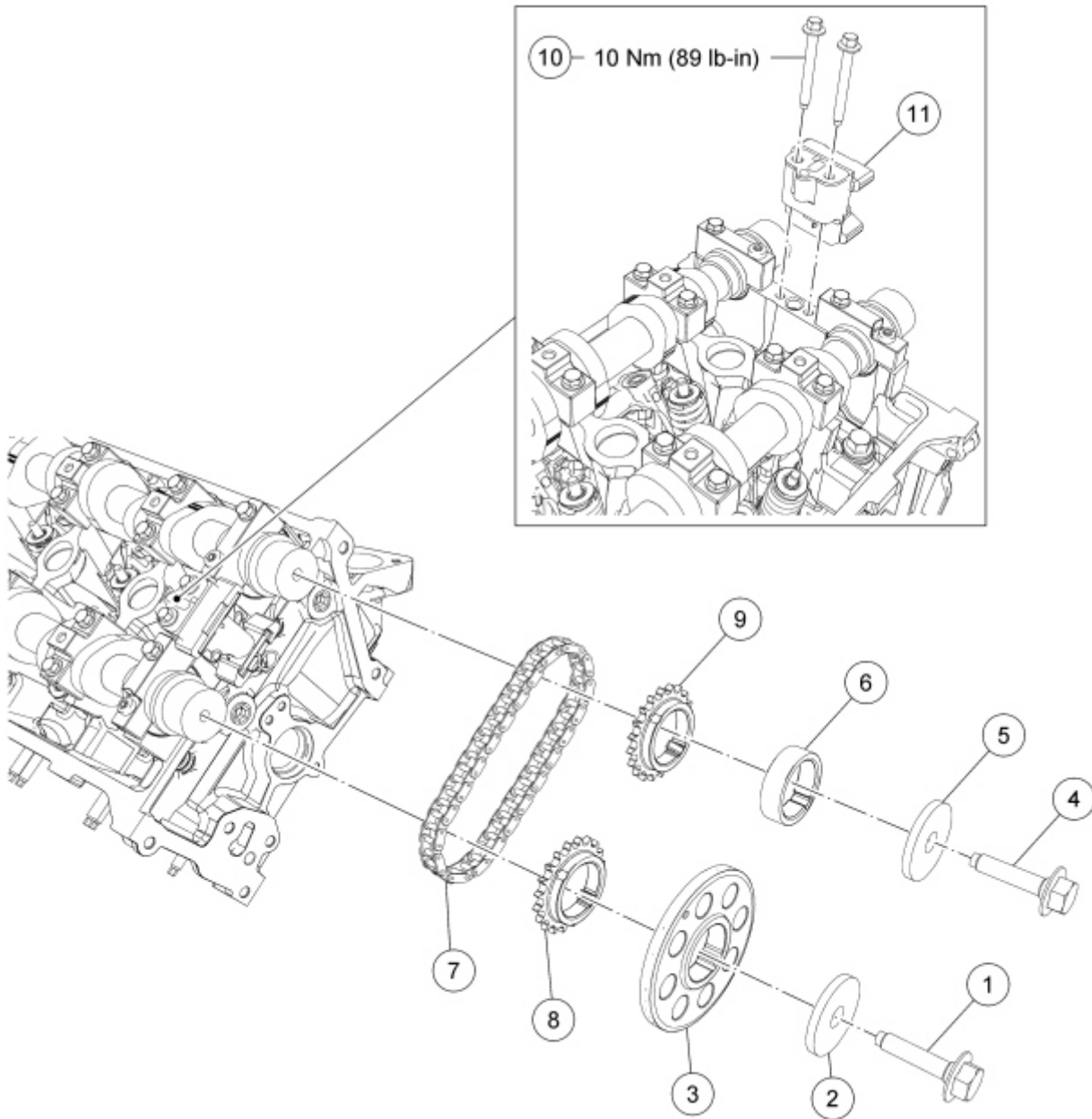
Special Tool(s)

 <p>ST1718-A</p>	Compressor, Valve Spring 303-452 (T93P-6565-AR)
 <p>ST1331-A</p>	Compressor Spacer, Valve Spring 303-382 (T91P-6565-AH)
 <p>ST1715-A</p>	Holding Tool, Camshaft 303-446 (T93P-6256-AHR)
 <p>ST1332-A</p>	Installer, Valve Stem Oil Seal 303-383 (T91P-6571-A)

Material

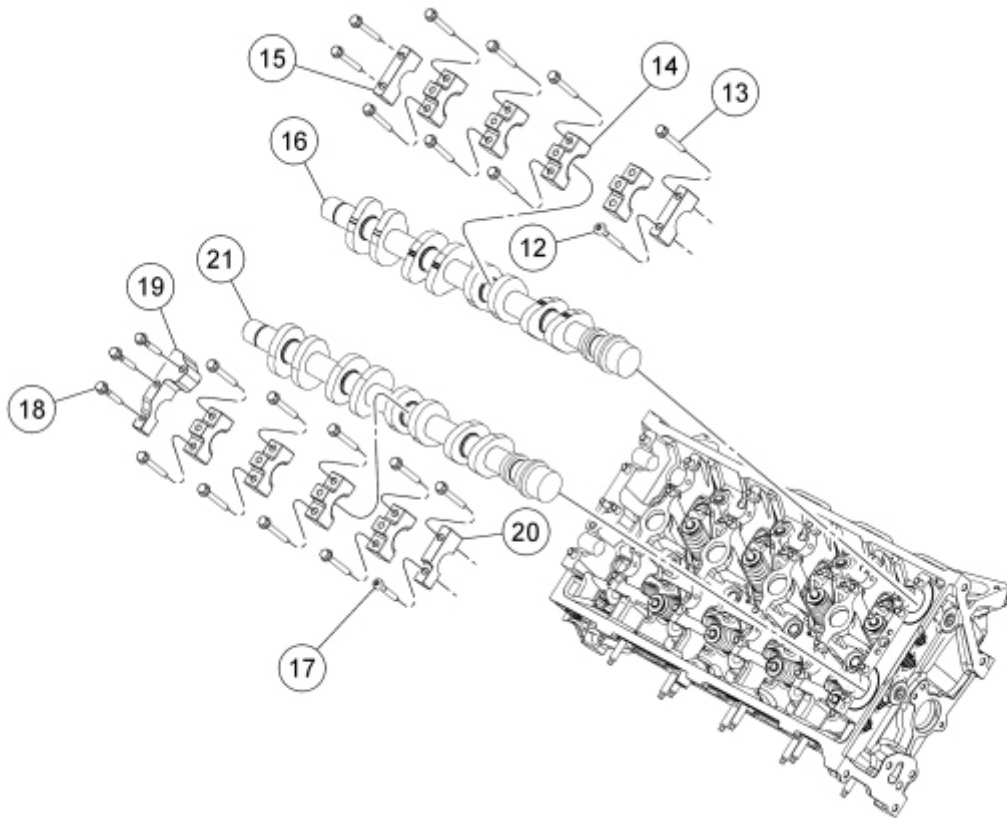
Item	Specification
Motorcraft® SAE 5W-50 Full Synthetic Motor Oil XO-5W50-QGT or equivalent	WSS-M2C931-B

Cylinder Head (View 1 of 3)



N0049451

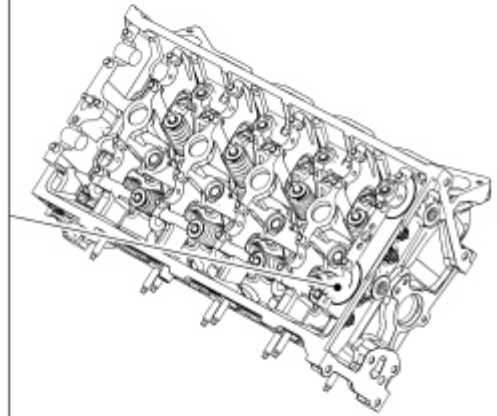
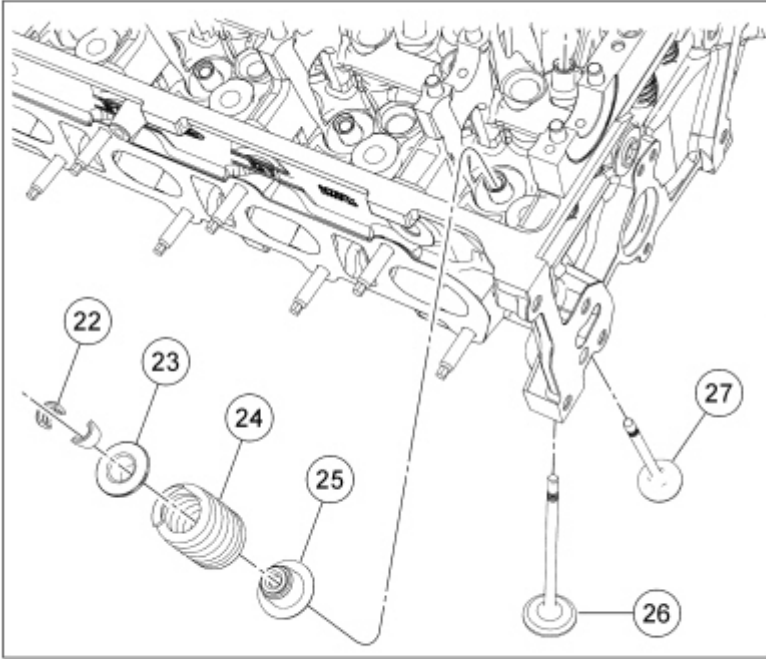
Item	Part Number	Description
1	N811085	Camshaft drive sprocket bolt
2	N806164	Camshaft drive sprocket washer
3	6C252 RH/ 6C253 LH	Camshaft drive sprocket
4	N811085	Camshaft drive sprocket bolt
5	N806164	Camshaft drive sprocket washer
6	6265	Camshaft drive sprocket spacer
7	6268	Secondary timing chain
8	6256	Exhaust camshaft drive sprocket
9	6256	Intake camshaft drive sprocket
10	W500304 RH/ W500215 LH	Secondary timing chain tensioner bolt (2 required)
11	6C270 RH/ 6C271 LH	Secondary timing chain tensioner



N0071923

Item	Part Number	Description
12	W710990	Intake camshaft bearing cap bolt
13	N807352	Intake/exhaust camshaft bearing cap bolt (22 required)
14	6B277	Intake/exhaust camshaft bearing cap (8 required)
15	6B277	Intake camshaft bearing cap (2 required)
16	6A270 RH/ 6A271 LH	Intake camshaft
17	W710991	Exhaust camshaft bearing cap bolt
18	W705438	Exhaust camshaft bearing cap bolt
19	6B278	Exhaust camshaft bearing cap
20	6B278	Exhaust camshaft bearing cap
21	6A272 RH/ 6A273 LH	Exhaust camshaft

Cylinder Head (View 3 of 3)



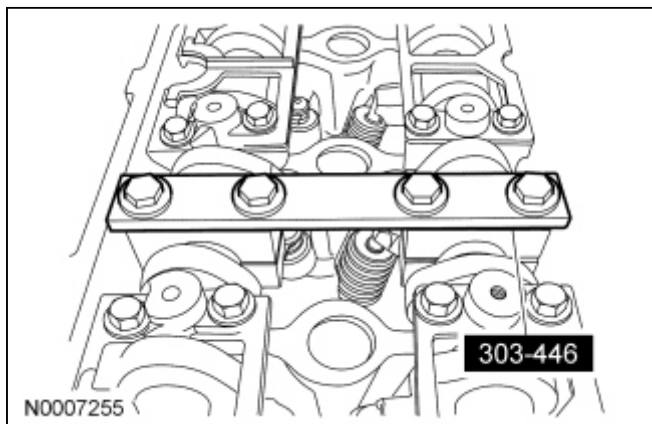
N0071924

Item	Part Number	Description
22	6518	Retainer key (32 required)
23	6514	Valve spring retainer (16 required)
24	6513	Valve spring
25	6A517	Valve seal
26	6507	Intake valve
27	6505	Exhaust valve

Disassembly

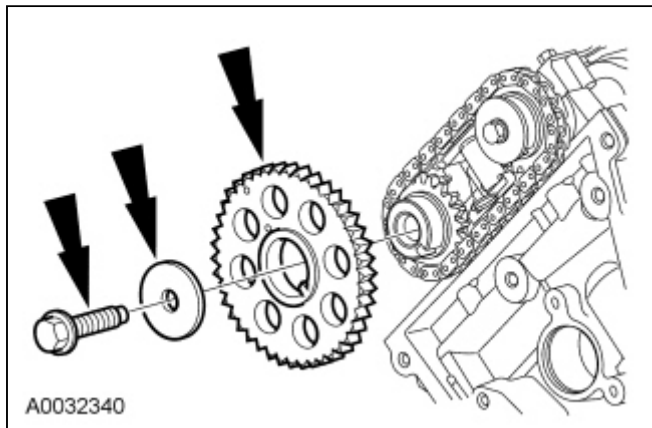
1. **NOTICE:** Before disassembly begins, mark the valve position on the face of each valve being removed. The valves must be reinstalled into their original positions or damage to the engine may occur.

Install the Camshaft Holding Tool.



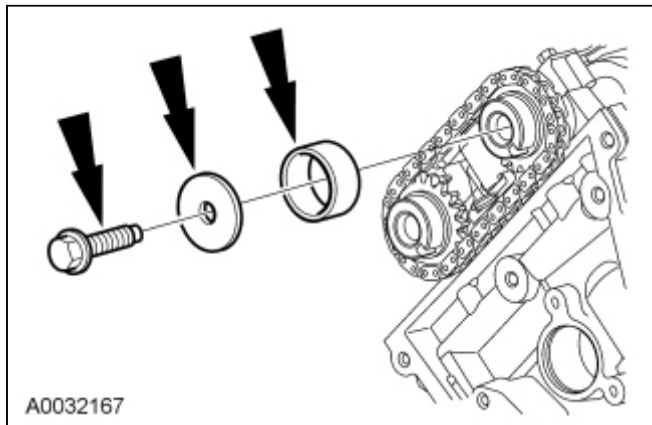
2. **NOTE:** RH shown, LH similar.

Remove the bolt, washer and camshaft drive sprocket.

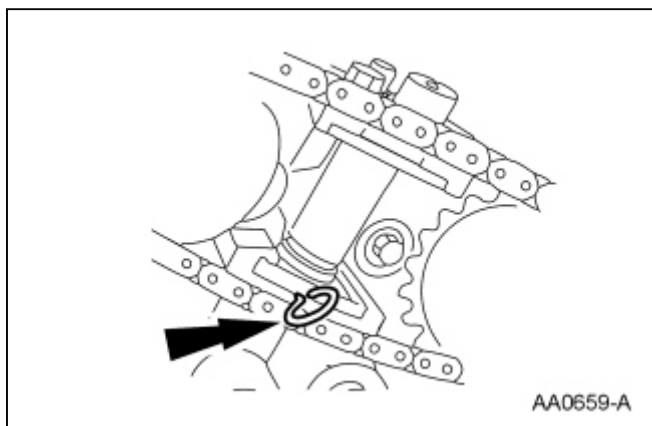


3. **NOTE:** RH shown, LH similar.

Remove the bolt, washer and spacer.

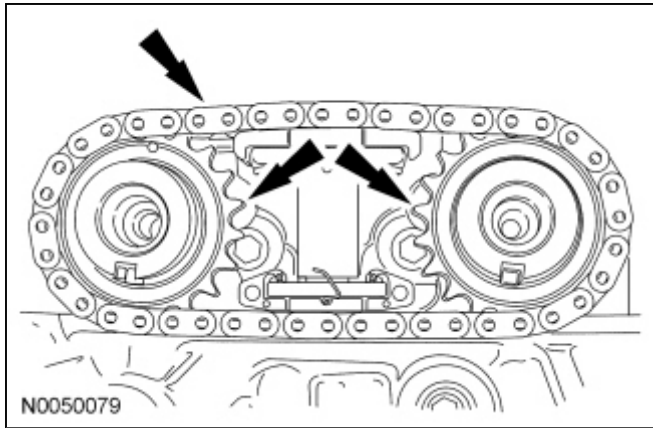


4. Compress the secondary timing chain tensioner and install a lockpin.



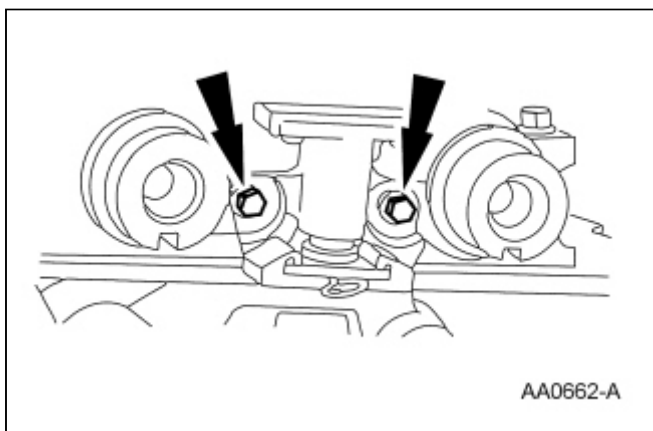
5. **NOTE:** LH shown, RH similar.

Remove the timing chain and the 2 camshaft sprockets.

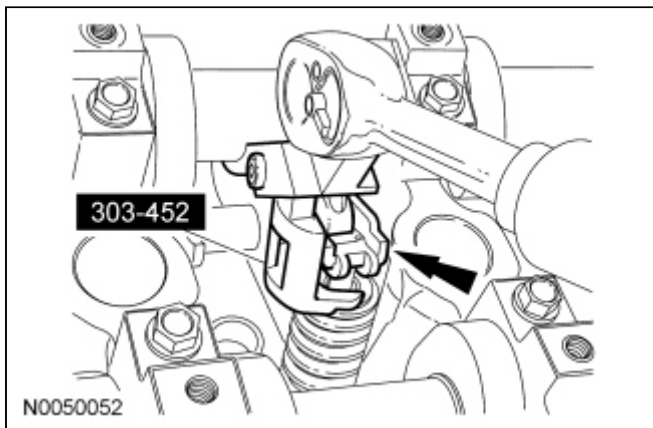


6. **NOTE:** LH shown, RH similar.

Remove the 2 bolts and the secondary timing chain tensioner.

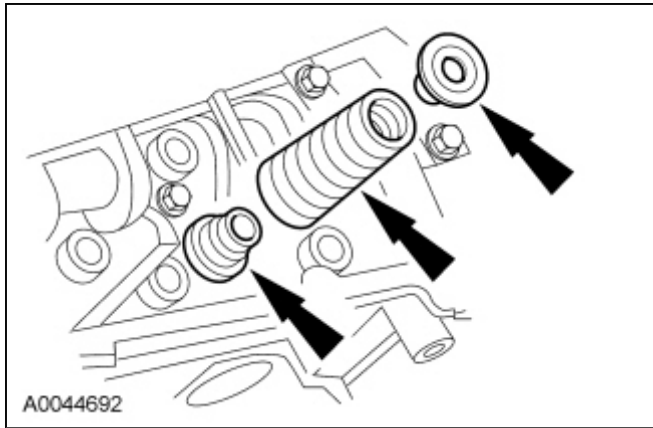


7. Using the Valve Spring Compressor, compress the valve spring and remove the retainer keys.



8. Remove the valve, spring retainer, valve spring and the valve seal.

- Discard the valve seal.
- Remove the valve.

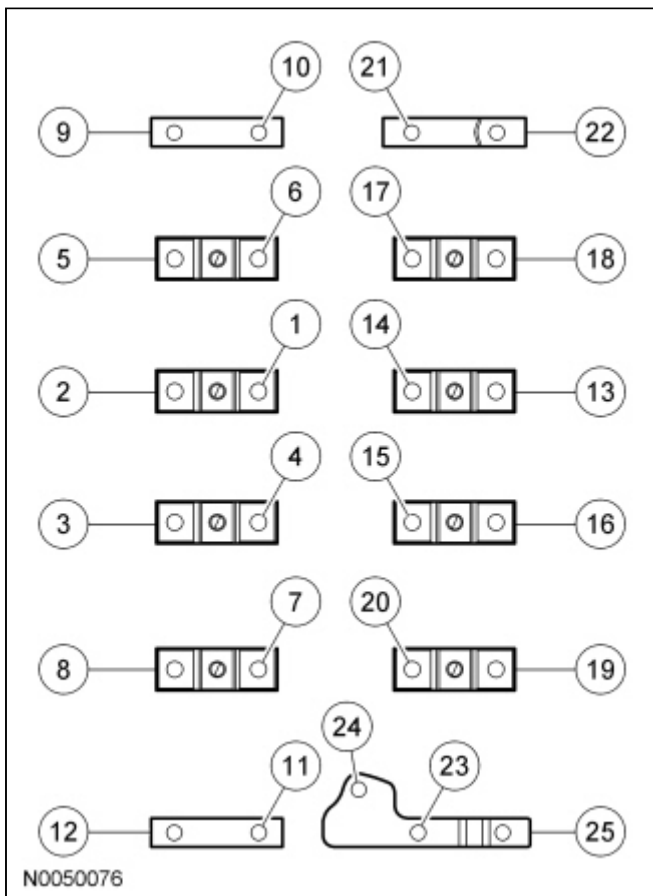


9. Repeat the previous 2 steps and remove all of the retainer keys, spring retainers, valve springs, valve seals and valves.
10. **NOTICE:** The camshaft bearing cap bolts vary in length and head design and must be installed in their original positions. Camshaft bearing caps are not interchangeable and must be installed in their original positions or damage to the engine may occur.

NOTE: The camshaft bearing cap with 3 bolts is located at the front of the LH cylinder head and at the rear of the RH cylinder head.

Remove the camshaft bearing cap bolts in the sequence shown.

- Remove the camshaft bearing caps.
- Remove the camshafts.

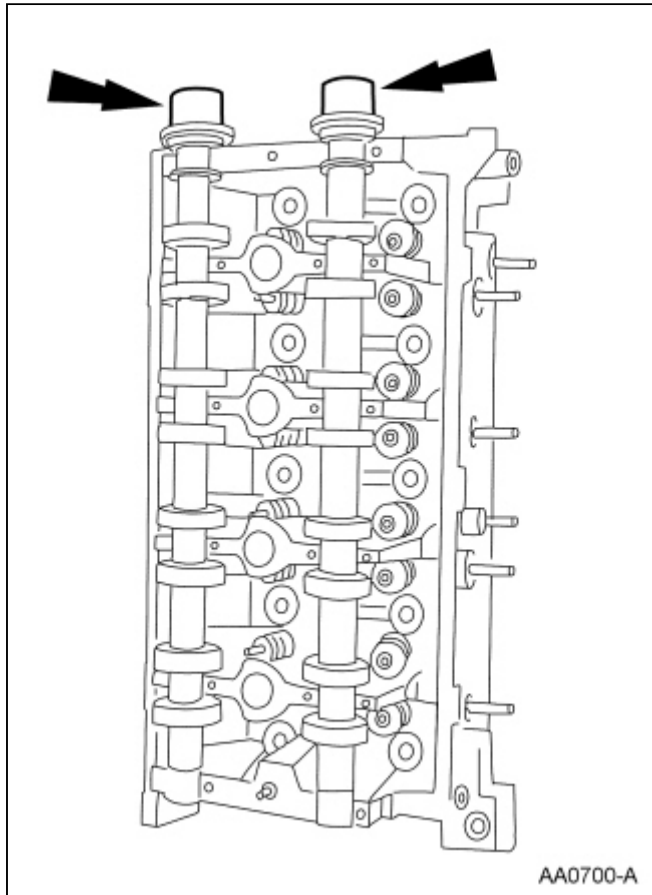


Assembly

1. **NOTE:** Lubricate the camshafts with clean engine oil prior to installation.

NOTE: RH shown, LH similar.

Install the camshafts.



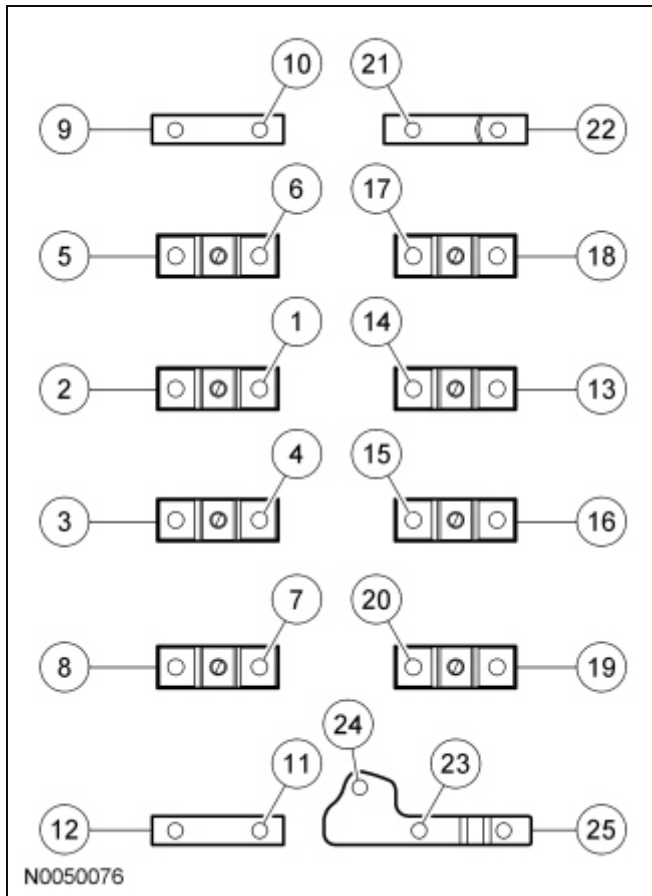
2. **NOTICE:** The camshaft bearing cap bolts vary in length and head design and must be installed in their original positions. Camshaft bearing caps are not interchangeable and must be installed in their original positions or damage to the engine may occur.

NOTE: The camshaft bearing cap with 3 bolts is located at the front of the LH cylinder head and at the rear of the RH cylinder head.

NOTE: Lubricate the camshaft bearing cap bearing surfaces with clean engine oil prior to installation.

Install the camshaft bearing caps.

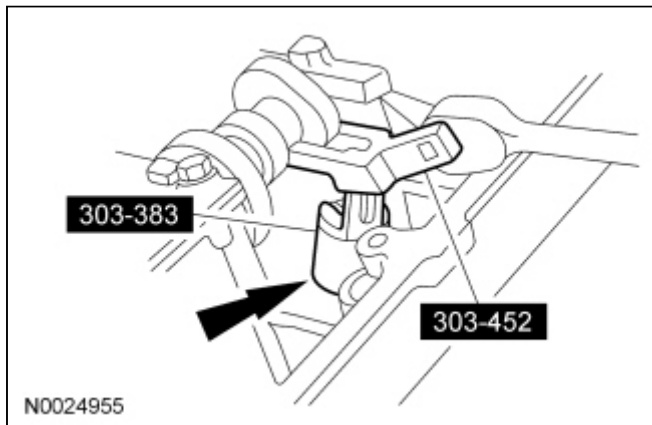
- Install the bearing cap bolts and tighten in the sequence shown to 10 Nm (89 lb-in).



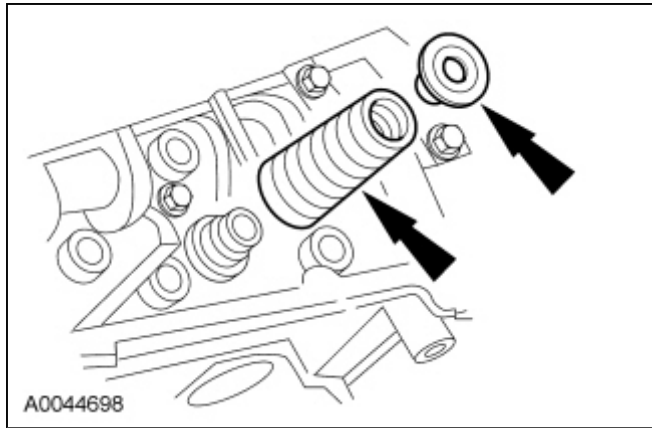
3. **NOTE:** Lubricate the valve seal and valve stem with clean engine oil prior to installation.

Using the Valve Stem Oil Seal Installer and the Valve Spring Compressor, install a new valve seal.

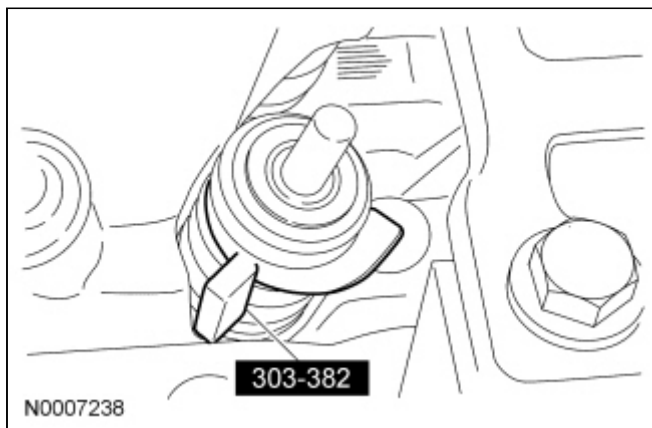
- Repeat step to install all of the new valve seals.



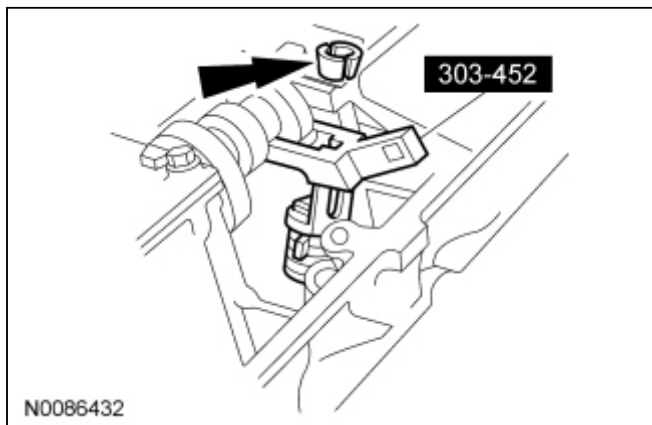
4. Position the valve, the valve spring and the spring retainer into the cylinder head.



5. Install the Valve Spring Compressor Spacer between the valve spring coils to protect the valve seal from damage.



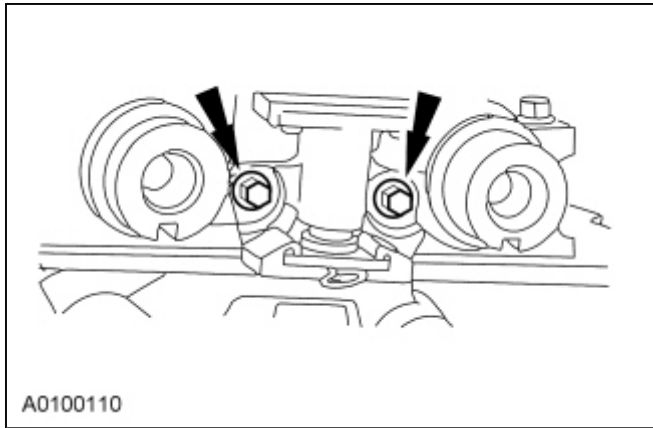
6. Using the Valve Spring Compressor, compress the valve spring and install the retainer keys.



7. Repeat the previous 3 steps and install all of the valves, valve springs, valve spring retainers and retainer keys.
8. **NOTE:** LH shown, RH similar.

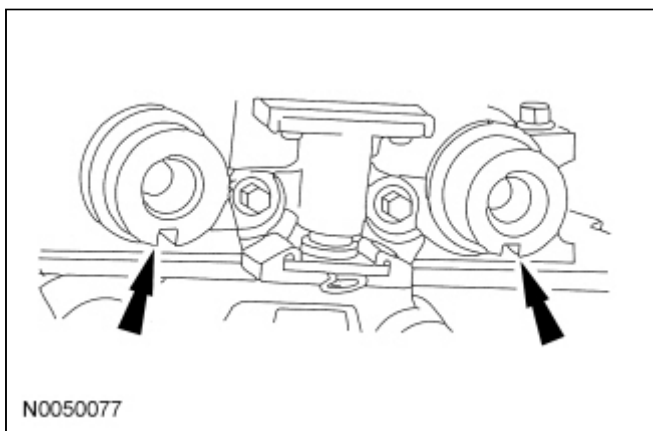
Install the secondary timing chain tensioner and the bolts.

- Tighten to 10 Nm (89 lb-in).



9. **NOTE:** LH shown, RH similar.

Index the keyways on the camshafts to the 6 o'clock position.

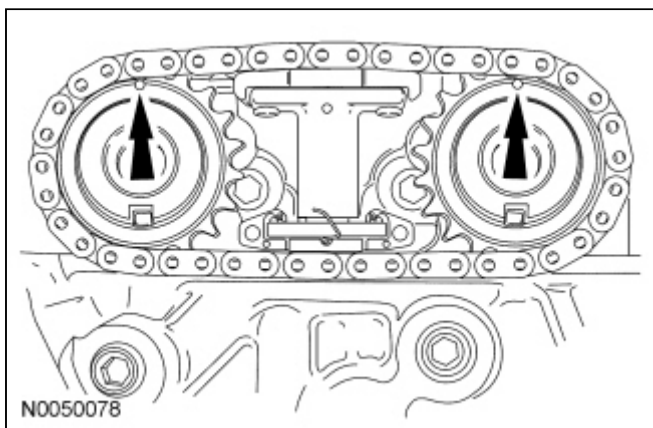


10. **NOTICE:** Timing marks must be at the 12 o'clock position or damage to the engine may occur.

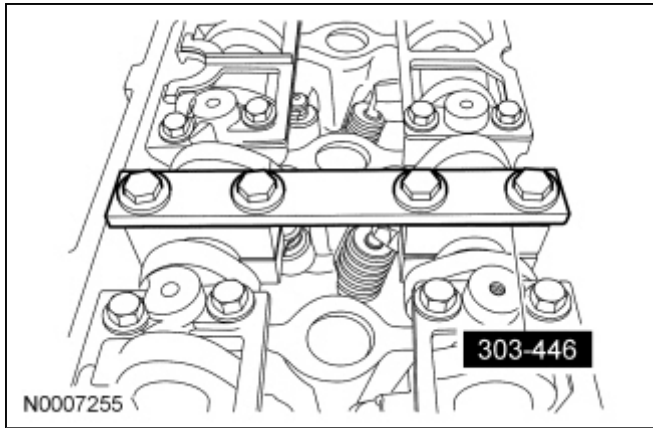
NOTE: LH shown, RH similar.

Install the camshaft sprockets and the chain as an assembly.

- Remove the lockpin from the secondary timing chain tensioner.

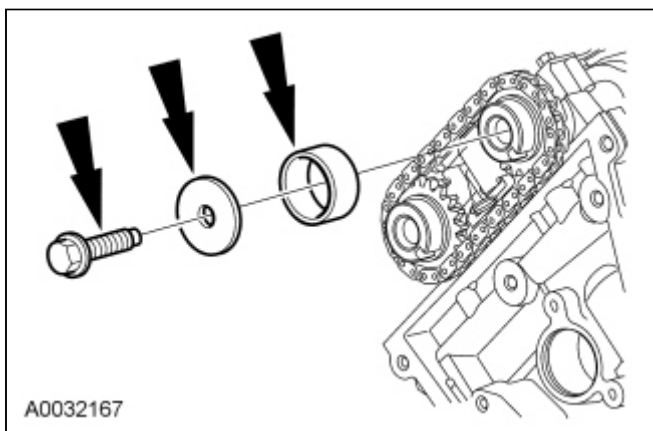


11. Install the Camshaft Holding Tool.



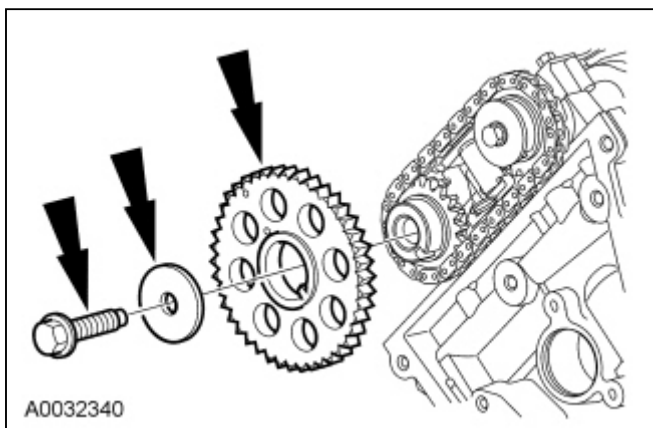
12. **NOTE:** RH shown, LH similar.

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



13. **NOTE:** RH shown, LH similar.

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



14. **NOTE:** RH shown, LH similar.

Tighten the bolts in 2 stages:

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

