

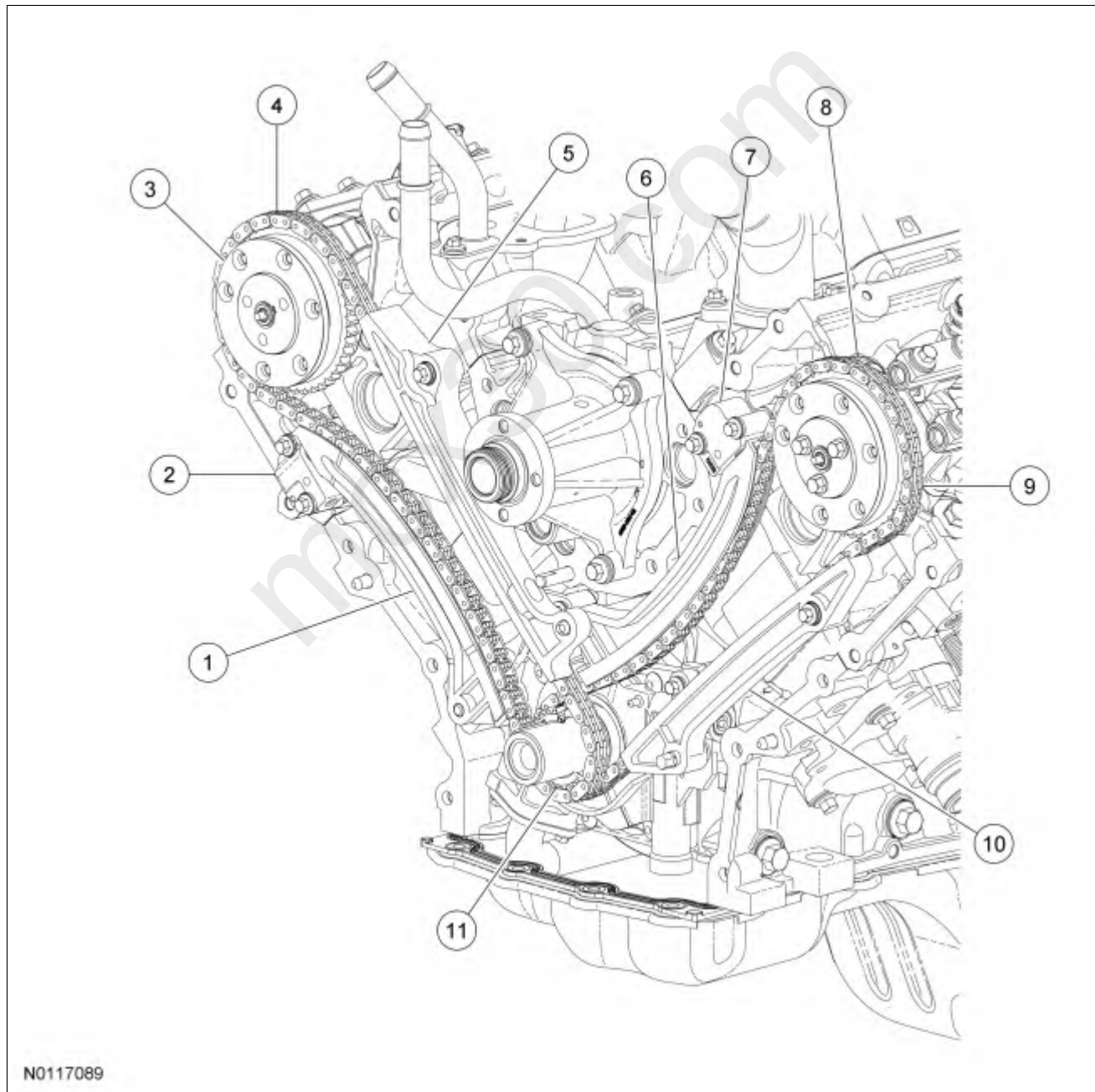
SECTION 303-01D: Engine — 6.2L (2V)
IN-VEHICLE REPAIR

2014 F-150 Workshop Manual
Procedure revision date: 10/25/2013

Timing Drive Components

Material

Item	Specification
Silicone Brake Caliper Grease and Dielectric Compound XG-3-A	ESE-M1C171-A



Item	Part Number	Description
1	6K255	RH timing chain tensioner arm
2	6L266	RH timing chain tensioner
3	6256	RH camshaft phaser and sprocket
4	6268	RH timing chain
5	6M256	RH timing chain guide
6	6K255	LH timing chain tensioner arm
7	6L266	LH timing chain tensioner
8	6268	LH timing chain
9	6256	LH camshaft phaser and sprocket
10	6B274	LH timing chain guide
11	6306	Crankshaft sprocket

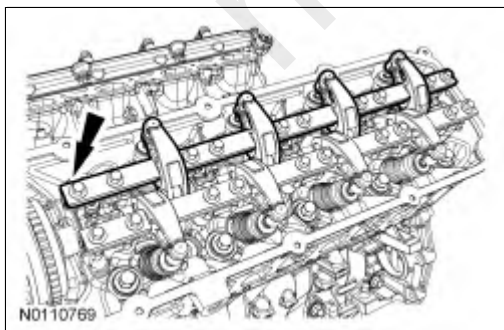
Removal

1. Remove the engine front cover. For additional information, refer to [Engine Front Cover](#) in this section.
2. Disconnect the 8 ignition wires from the lower 8 spark plugs.
3. **NOTICE:** Only use hand tools when removing or installing the spark plugs or damage can occur to the cylinder head or spark plug.

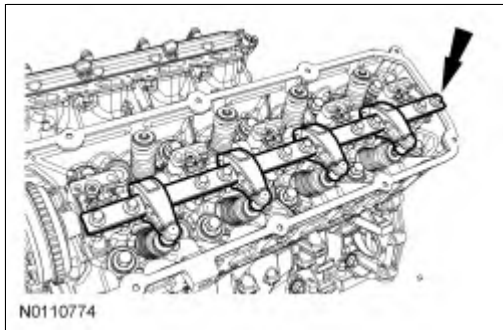
NOTE: Use compressed air to remove any foreign material from the spark plug well before removing the spark plugs.

Remove the lower 8 spark plugs.

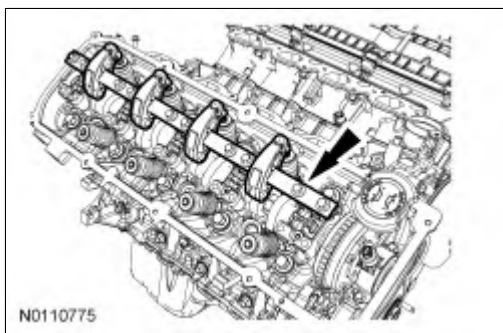
4. Rotate the engine clockwise until the No. 1 intake valve is open.
5. Remove the 10 bolts and the LH intake rocker arm shaft assembly.



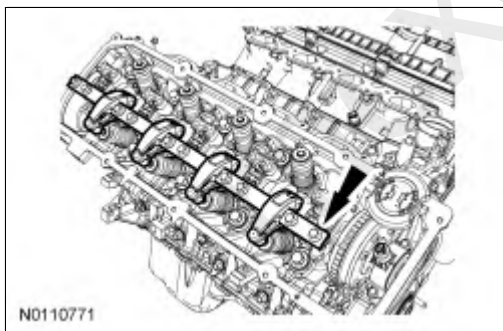
6. Rotate the engine clockwise until the No. 1 exhaust valve is open.
7. Remove the 10 bolts and the LH exhaust rocker arm shaft assembly.



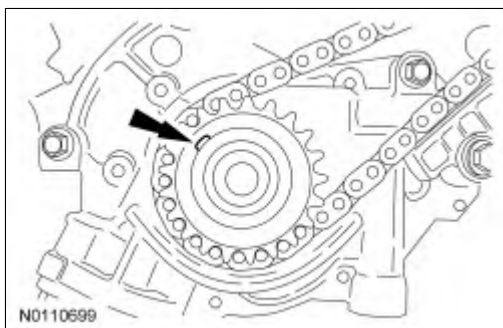
8. Rotate the engine clockwise until the No. 1 intake valve is closed.
9. Remove the 10 bolts and the RH intake rocker arm shaft assembly.



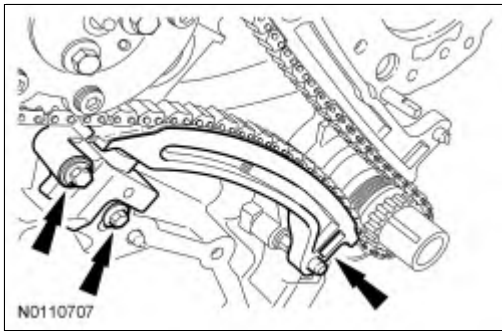
10. Rotate the engine clockwise until the No. 1 exhaust valve is closed.
11. Remove the 10 bolts and the RH exhaust rocker arm shaft assembly.



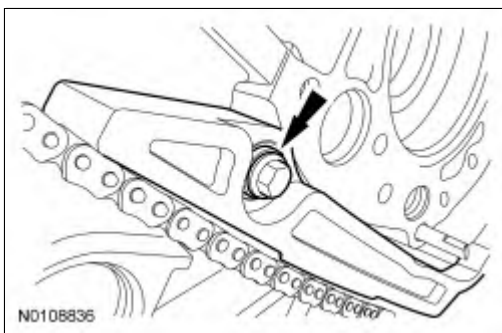
12. Position the crankshaft keyway at the 11 o'clock position.



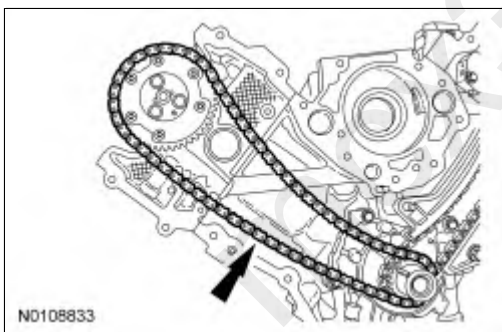
13. Remove the 2 bolts, the RH timing chain tensioner and tensioner arm.



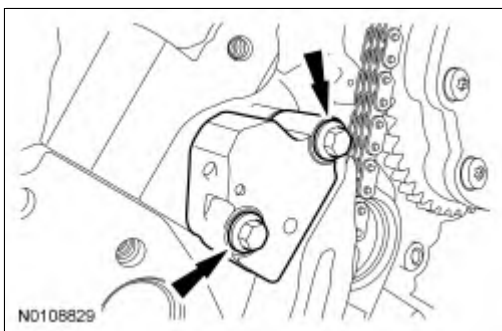
14. Remove the bolt and the RH timing chain guide.



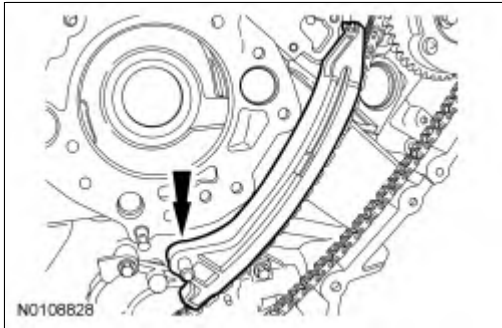
15. Remove the RH timing chain.



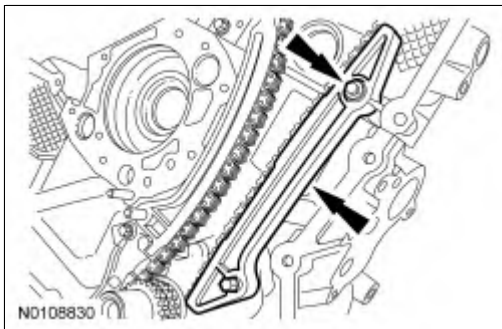
16. Remove the 2 bolts and the LH timing chain tensioner.



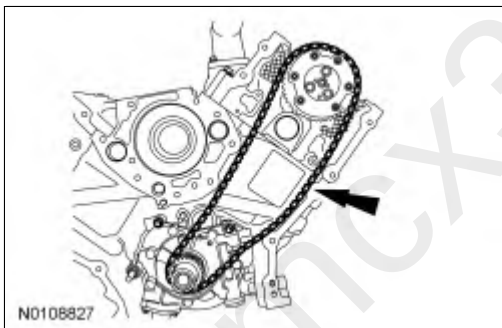
17. Remove the LH timing chain tensioner arm.



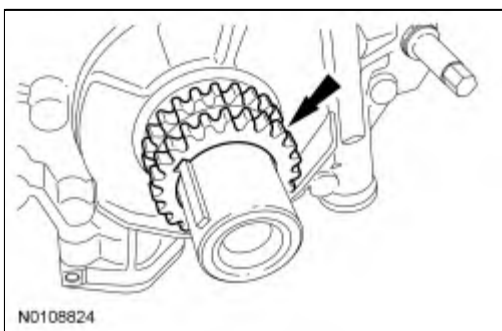
18. Remove the bolt and the LH timing chain guide.



19. Remove the LH timing chain.



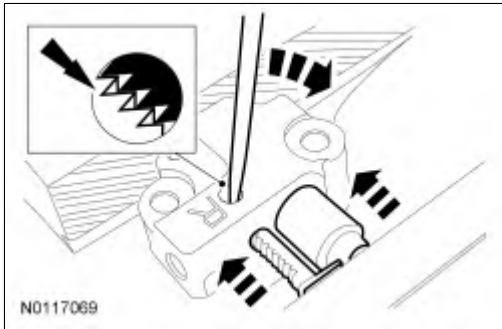
20. Remove the crankshaft sprocket.



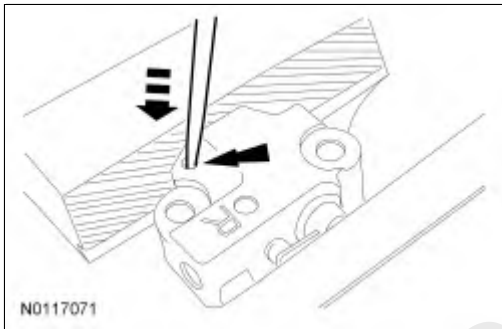
Installation

NOTICE: Timing chain procedures must be followed exactly or damage to valves and pistons will result.

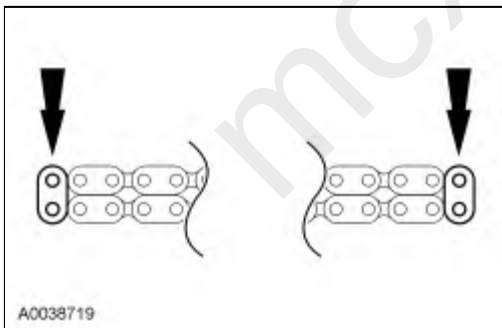
1. Using a small pick, carefully push the tensioner rack pawl retainer away from the rack pawl and compress the tensioner plunger and rack using a vise.



2. Install a small pick into the tensioner to hold the rack pawl and plunger in the seated position for tensioner installation.

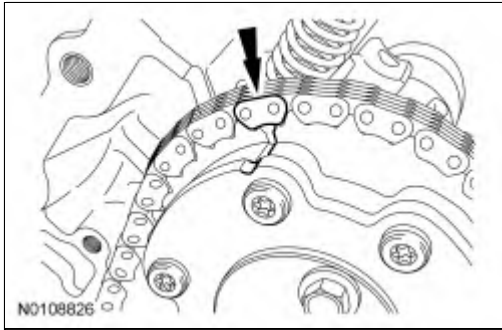


3. Remove the tensioner from the vise.
4. If the blue links are not visible, mark 2 links on each end, and use as timing marks.

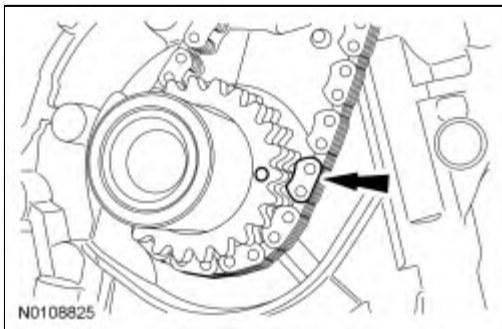


5. **NOTE:** Make sure the upper half of the timing chain is below the tensioner arm dowel and above the chain guide pin.

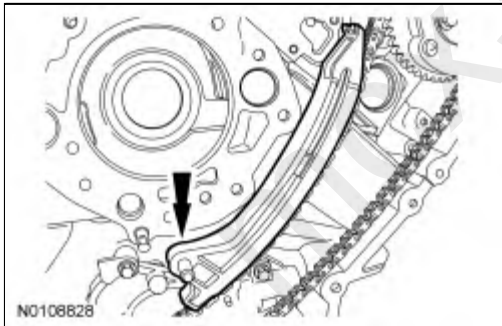
Position the upper end of the LH (inner) timing chain on the LH camshaft phaser and sprocket, aligning the timing mark on the outer flange of the camshaft phaser and sprocket with the single blue (marked) link on the chain.



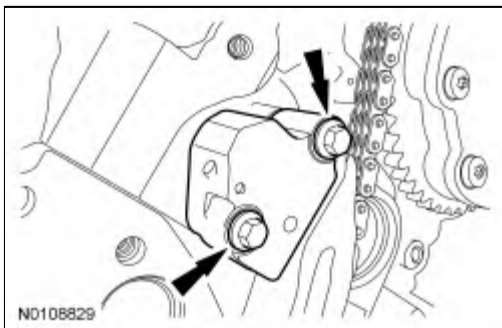
6. Position the lower end of the LH (inner) timing chain on the crankshaft sprocket, aligning the timing mark on the outer flange of the crankshaft sprocket with the single blue (marked) link on the chain and install the crankshaft sprocket onto the crankshaft and verify the crankshaft keyway is at the 11 o'clock position.



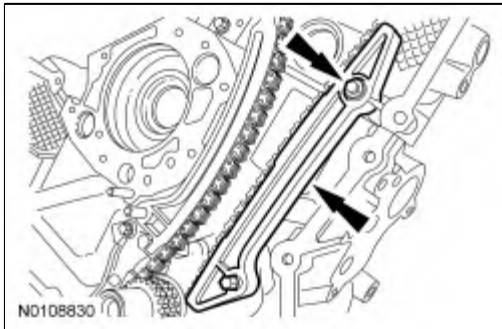
7. Install the LH timing chain tensioner arm.



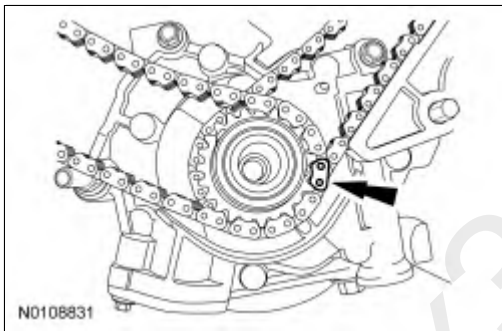
8. Position the LH timing chain tensioner and install the 2 bolts in 2 stages.
 - Stage 1: Tighten to 10 Nm (89 lb-in).
 - Stage 2: Tighten an additional 45 degrees.



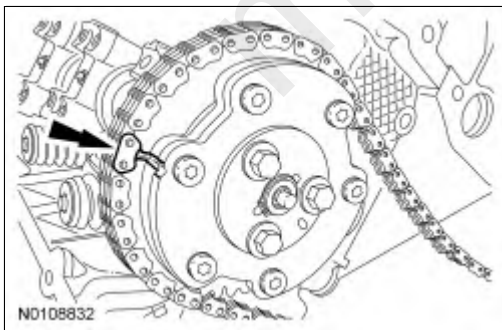
9. Position the LH timing chain guide and install the bolt in 2 stages.
- Stage 1: Tighten to 10 Nm (89 lb-in).
 - Stage 2: Tighten an additional 45 degrees.



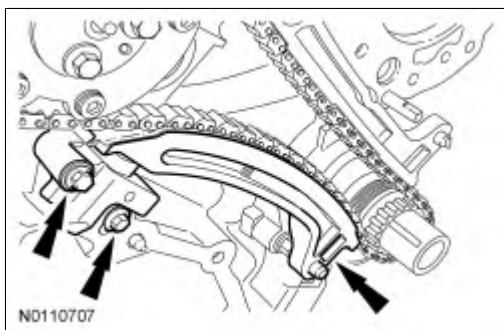
10. Remove the retaining clip from the LH timing chain tensioner.
11. Position the lower end of the RH (outer) timing chain on the crankshaft sprocket, aligning the timing mark on the sprocket with the single blue (marked) chain link.



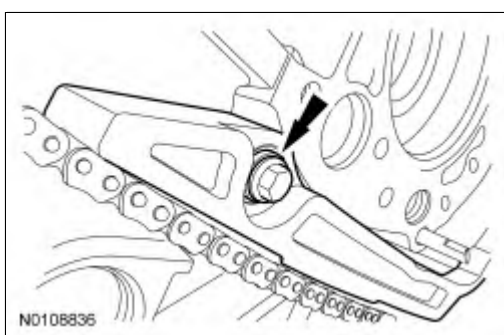
12. Position the upper end of the RH (outer) timing chain on the RH camshaft phaser and sprocket, aligning the timing mark on the outer flange of the camshaft phaser and sprocket with the single blue (marked) link on the chain.



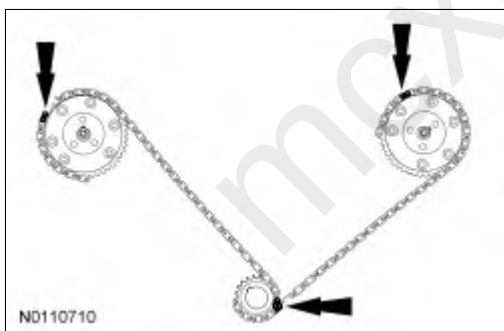
13. Position the RH timing chain tensioner arm on the dowel pin and the RH timing chain tensioner and install the 2 bolts in 2 stages.
- Stage 1: Tighten to 10 Nm (89 lb-in).
 - Stage 2: Tighten an additional 45 degrees.



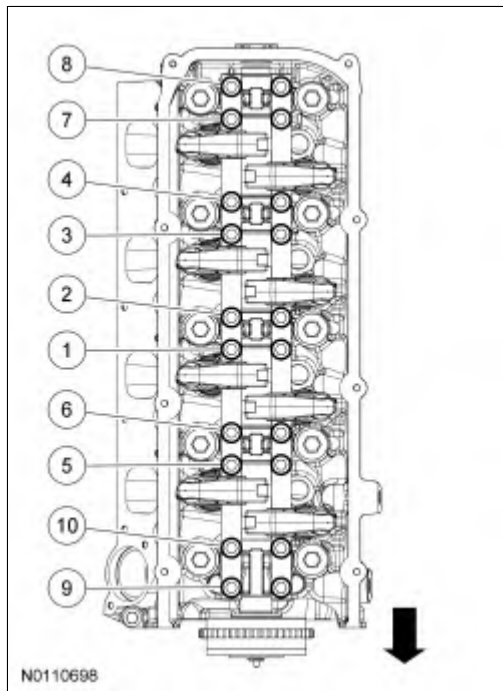
14. Position the RH timing chain guide and install the bolt in 2 stages.
 - Stage 1: Tighten to 10 Nm (89 lb-in).
 - Stage 2: Tighten an additional 45 degrees.



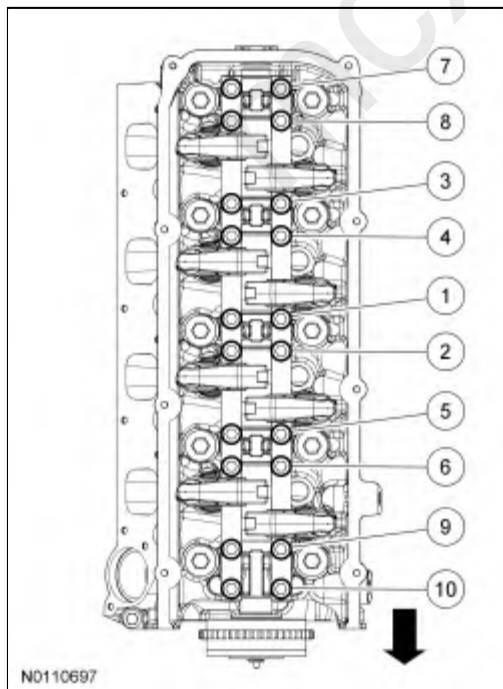
15. Remove the retaining clip from the RH timing chain tensioner.
16. As a post-check, verify correct alignment of all timing marks.



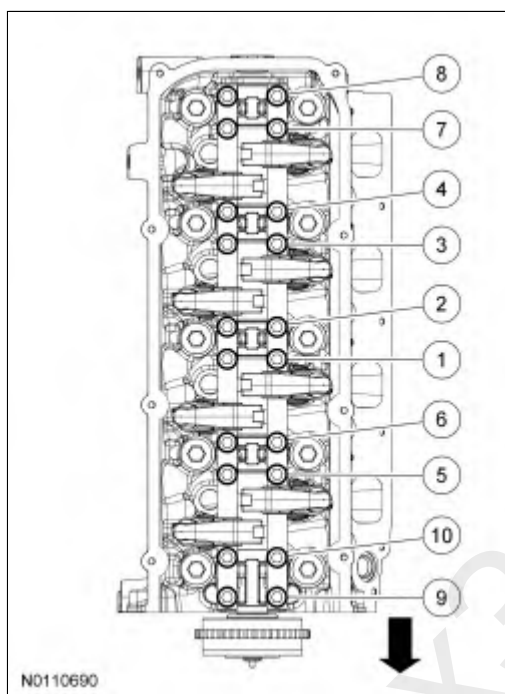
17. Lubricate the rocker arm shaft-to-valve tip and rocker arm-to-camshaft lobe contact area with clean engine oil prior to installation.
18. Rotate the engine clockwise until the No. 1 cylinder camshaft intake lobe is positioned so that the intake valve would be fully opened.
19. Position the LH intake rocker arm shaft assembly and install the bolts finger-tight.
20. Tighten the 10 LH intake rocker arm shaft assembly bolts in the sequence shown, in 3 stages.
 - Stage 1: Tighten to 10 Nm (89 lb-in).
 - Stage 2: Tighten to 20 Nm (177 lb-in).
 - Stage 3: Tighten an additional 60 degrees.



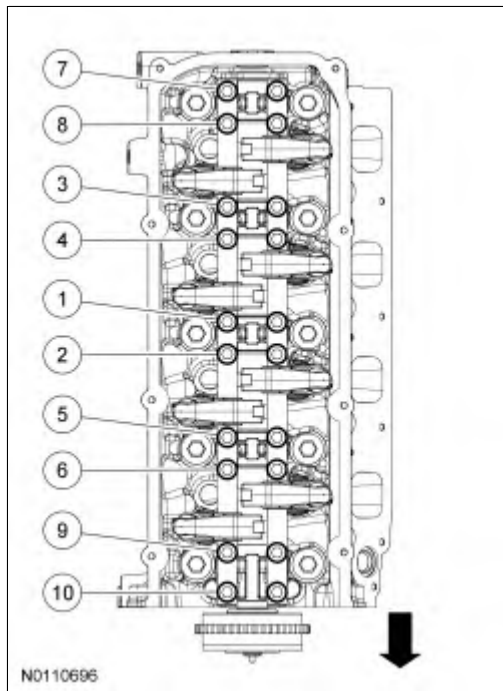
21. Rotate the engine clockwise until the No. 1 cylinder camshaft exhaust lobe is positioned so that the exhaust valve would be fully opened.
22. Position the LH exhaust rocker arm shaft assembly and install the bolts finger-tight.
23. Tighten the 10 LH exhaust rocker arm shaft assembly bolts in the sequence shown, in 3 stages.
 - Stage 1: Tighten to 10 Nm (89 lb-in).
 - Stage 2: Tighten to 20 Nm (177 lb-in).
 - Stage 3: Tighten an additional 60 degrees.



24. Rotate the engine clockwise until the No. 1 cylinder camshaft intake lobe is positioned so that the intake valve would be fully closed.
25. Position the RH intake rocker arm shaft assembly and install the bolts finger-tight.
26. Tighten the 10 RH intake rocker arm shaft assembly bolts in the sequence shown, in 3 stages.
 - Stage 1: Tighten to 10 Nm (89 lb-in).
 - Stage 2: Tighten to 20 Nm (177 lb-in).
 - Stage 3: Tighten an additional 60 degrees.



27. Rotate the engine clockwise until the No. 1 cylinder camshaft exhaust lobe is positioned so that the exhaust valve would be fully closed.
28. Position the RH exhaust rocker arm shaft assembly and install the bolts finger-tight.
29. Tighten the 10 RH exhaust rocker arm shaft assembly bolts in the sequence shown, in 3 stages.
 - Stage 1: Tighten to 10 Nm (89 lb-in).
 - Stage 2: Tighten to 20 Nm (177 lb-in).
 - Stage 3: Tighten an additional 60 degrees.



30. **NOTICE:** Only use hand tools when removing or installing the spark plugs or damage can occur to the cylinder head or spark plug.

Install the lower 8 spark plugs.

- Tighten to 18 Nm (159 lb-in).

31. Connect the 8 ignition wires to the lower 8 spark plugs.

- Apply a light coat of dielectric compound to the inside of the ignition wire boots prior to installation.

32. Install the engine front cover. For additional information, refer to [Engine Front Cover](#) in this section.

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