



Timing Drive Components

[Printable View \(1832 KB\)](#)

Special Tool(s)

 ST2804-A	Compressor, Valve Spring 303-1039
 ST2807-A	Locking Tool, Camshaft Phaser Sprocket 303-1046

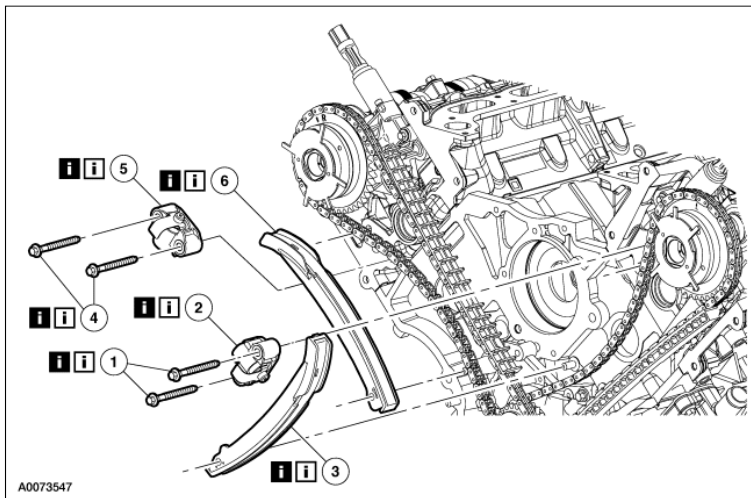
Material

Item	Specification
Motorcraft SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP (US); Motorcraft SAE 5W-20 Super Premium Motor Oil CXO-5W20-LSP12 (Canada); or equivalent	WSS-M2C930-A
Hydraulic Chain Tensioner Retaining Clip 1L3Z-6P250-AA	—

1. Remove the engine front cover. For additional information, refer to [Engine Front Cover](#) in this section.
2. Remove the camshaft roller followers. For additional information, refer to [Camshaft Roller Follower and Hydraulic Lash Adjuster](#) in this section.
3. Remove the parts in the order indicated in the following illustrations and tables.

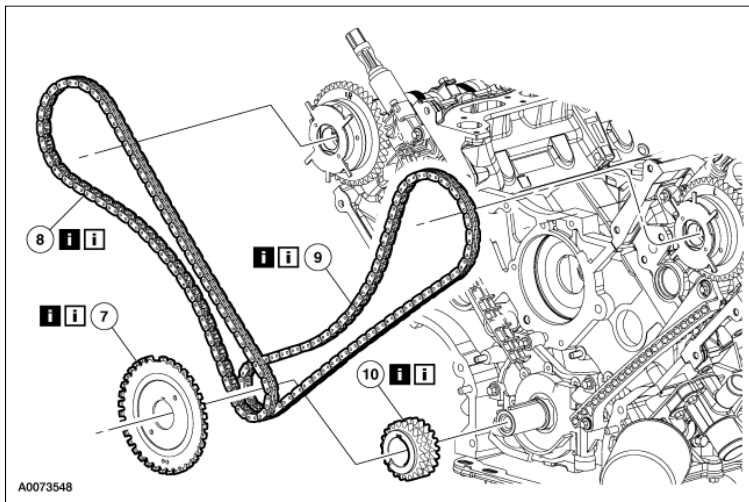
To remove individual parts, only carry out the listed steps:

Part	Steps
Timing gears, chain and tensioners	1-16
Variable camshaft timing (VCT) housing	1-26

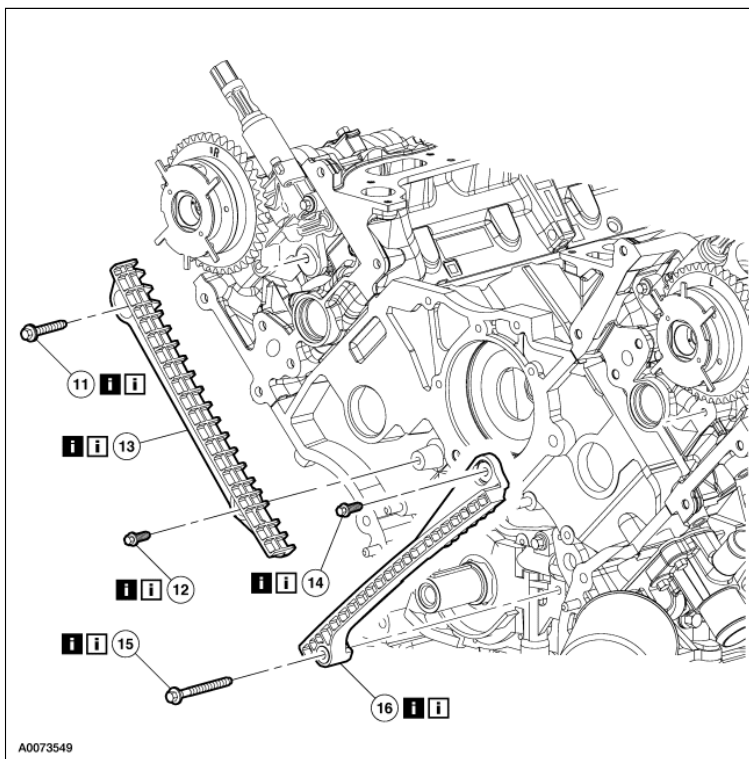


Item	Part Number	Description
1	N606543	LH timing chain tensioner bolts (2 req'd) Removal Note Installation Note
2	6M269	LH timing chain tensioner Removal Note Installation Note
3	6M274	LH timing chain tensioner arm Removal Note Installation Note
4	N606543	RH timing chain tensioner bolts (2 req'd) Removal Note Installation Note
5	6L266	RH timing chain tensioner Removal Note Installation Note
6	6K255	RH timing chain tensioner arm Removal Note

Installation Note

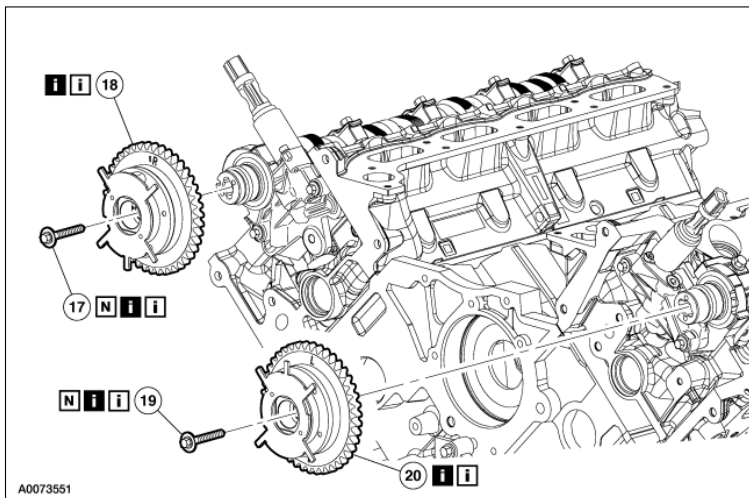


Item	Part Number	Description
7	W500301	Ignition pulse wheel Removal Note Installation Note
8	6268	RH timing chain Removal Note Installation Note
9	6268	LH timing chain Removal Note Installation Note
10	6306	Crankshaft sprocket Removal Note Installation Note

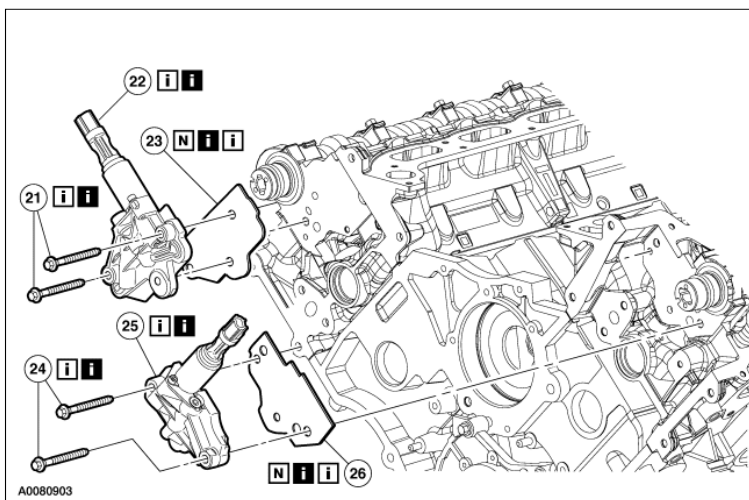


Item	Part Number	Description
11	W503282	RH timing chain guide bolt Removal Note Installation Note

12	N605892	RH timing chain guide bolt Removal Note Installation Note
13	6M256	RH timing chain guide Removal Note Installation Note
14	N605892	LH timing chain guide bolt Removal Note Installation Note
15	N606527	LH timing chain guide bolt Removal Note Installation Note
16	6B274	LH timing chain guide Removal Note Installation Note



Item	Part Number	Description
17	6279	RH camshaft phaser sprocket assembly bolt Removal Note Installation Note
18	6C524	RH camshaft phaser sprocket assembly Removal Note Installation Note
19	6279	LH camshaft phaser sprocket assembly bolt Removal Note Installation Note
20	6C524	LH camshaft phaser sprocket assembly Removal Note Installation Note



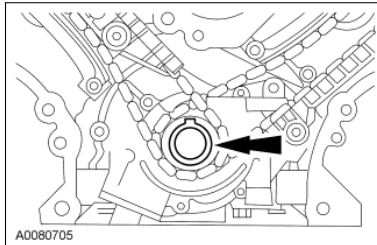
Item	Part Number	Description
21	W701520	RH variable camshaft timing (VCT) housing assembly bolts (2 req'd) Removal Note

		Installation Note
22	6C260	RH VCT housing assembly Removal Note Installation Note
23	—	RH VCT housing gasket Removal Note Installation Note
24	W701520	LH VCT housing assembly bolts (2 req'd) Removal Note Installation Note
25	6C261	LH VCT housing assembly Removal Note Installation Note
26	—	LH VCT housing gasket Removal Note Installation Note

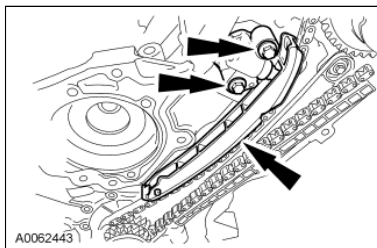
4. To install, reverse the removal procedure.

Items 1-16: Timing Drive Components Removal Note

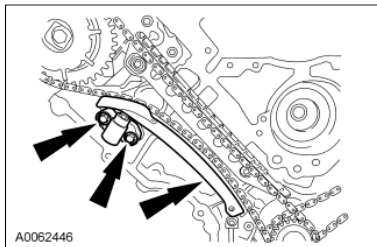
1. Position the crankshaft keyway at the 12 o'clock position.



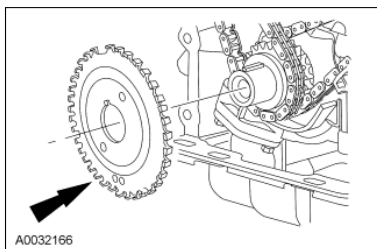
2. Remove the bolts, the LH timing chain tensioner and tensioner arm.



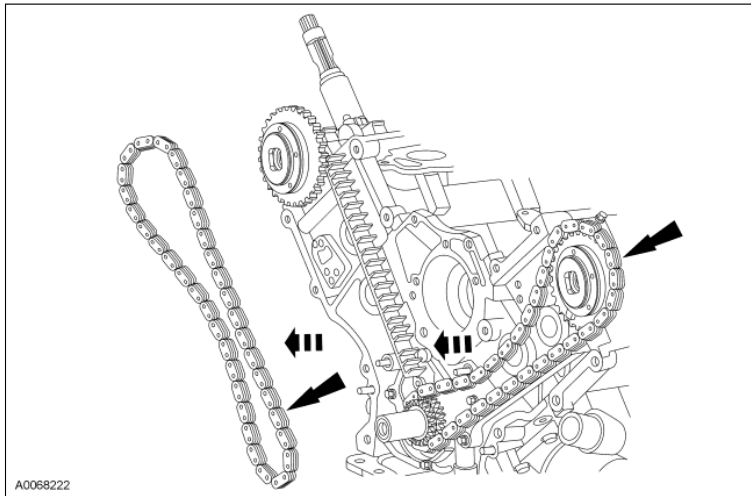
3. Remove the bolts, the RH timing chain tensioner and tensioner arm.



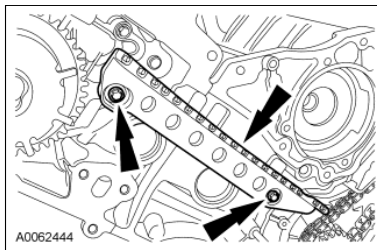
4. Remove the ignition pulse wheel from the crankshaft.



5. Remove the RH and LH timing chains and the crankshaft sprocket.
- Remove the RH timing chain from the camshaft sprocket.
 - Remove the RH timing chain from the crankshaft sprocket.
 - Remove the LH timing chain from the camshaft sprocket.
 - Remove the LH timing chain and crankshaft sprocket.



6. Remove both timing chain guides.
 - Remove the bolts.
 - Remove both timing chain guides.



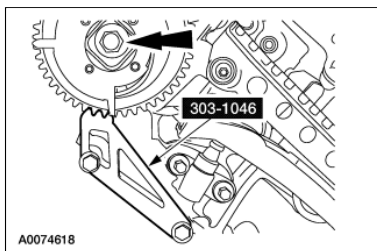
Items 17-20: LH and RH Camshaft Phaser Sprocket Assembly and Bolt Removal Note

1. **NOTICE:** Only use hand tools to remove the camshaft phaser sprocket assembly or damage may occur to the camshaft or camshaft phaser unit.

NOTICE: Damage to the camshaft phaser sprocket assembly will occur if mishandled or used as a lifting or leveraging device.

Using the special tool, remove the bolt and the RH camshaft phaser sprocket assembly.

- Discard the bolt and washer.

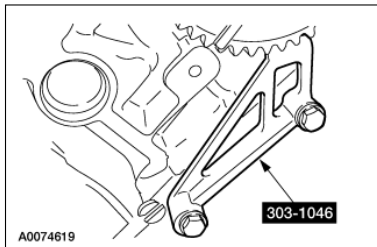


2. **NOTICE:** Only use hand tools to remove the camshaft phaser sprocket assembly or damage may occur to the camshaft or camshaft phaser unit.

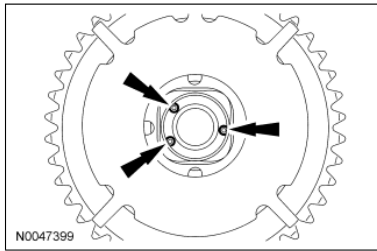
NOTICE: Damage to the camshaft phaser sprocket assembly will occur if mishandled or used as a lifting or leveraging device.

Using the special tool, remove the bolt and the LH camshaft phaser sprocket assembly.

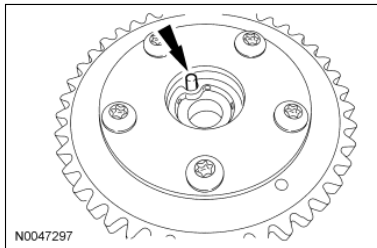
- Discard the bolt and washer.



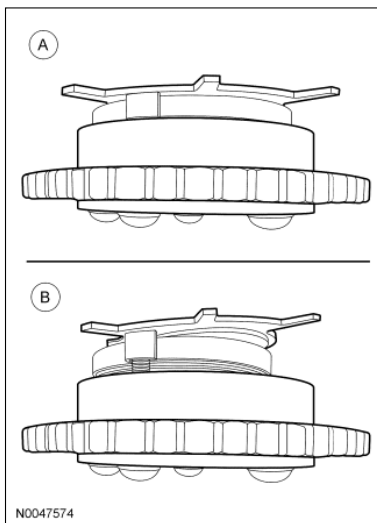
3. Inspect the front of the camshaft phaser and sprocket for missing or damaged roll pins.
 - If the roll pins are missing or damaged, a new camshaft phaser and sprocket must be installed.



4. Inspect the rear of the camshaft phaser and sprocket for a deformed or damaged location pin.
 - If the location pin is deformed or damaged, a new camshaft phaser and sprocket must be installed.

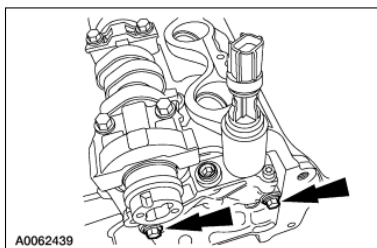


5. Visually inspect the camshaft phaser and sprocket for squareness (A). If the trigger wheel or spring is deformed or damaged (B), install a new camshaft phaser and sprocket.



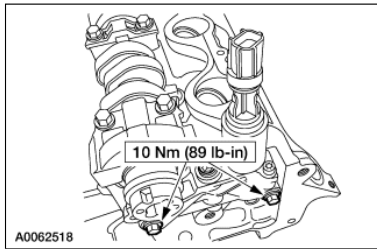
Items 21-26: Variable Camshaft Timing (VCT) Housing and Bolts Removal Note

1. Remove the bolts and the variable camshaft timing housing.
 - Discard the gasket.



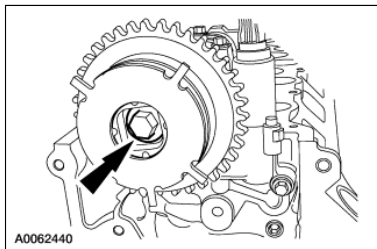
Items 21-26: Variable Camshaft Timing (VCT) Housing and Bolts Installation Note

1. Install a new gasket, the variable camshaft timing housing and the bolts.



Items 17-20: RH and LH Camshaft Phaser Sprocket Assembly and Bolt Installation Note

1. Install the camshaft variable timing sprocket assembly and loosely install a new bolt and washer.

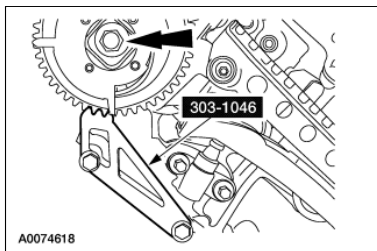


2. **NOTICE:** Only use hand tools to install the camshaft phaser sprocket assembly or damage may occur to the camshaft or camshaft phaser unit.

NOTICE: Damage to the camshaft phaser sprocket assembly will occur if mishandled or used as a lifting or leveraging device.

Using the special tool, tighten the bolt in two stages:

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

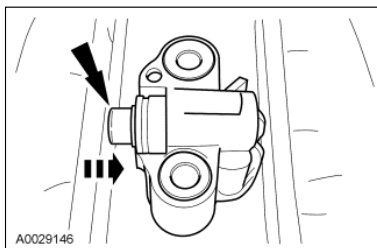


3. Repeat the previous steps for the LH camshaft phaser sprocket.

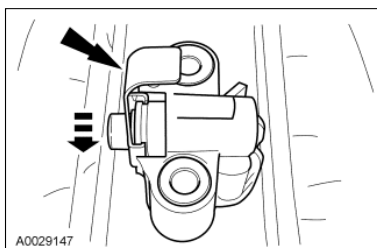
Items 1-16: Timing Drive Components Installation Note

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

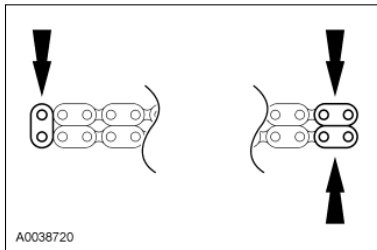
Compress the tensioner plunger, using a vice.



2. Install a retaining clip on the tensioner to hold the plunger in during installation.

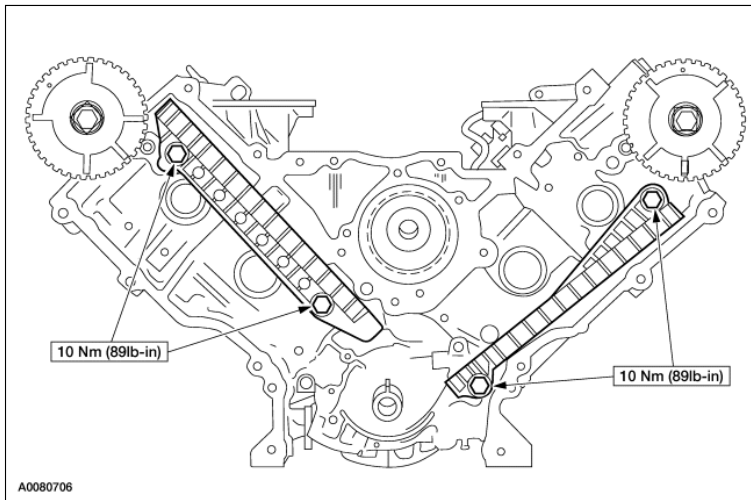


3. Remove the tensioner from the vise.
4. If the copper links are not visible, mark two links on one end and one link on the other end, and use as timing marks.

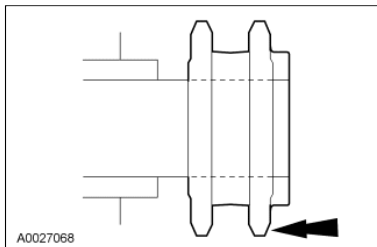


5. **NOTE:** Crankshaft keyway must be positioned at the 12 o'clock position.

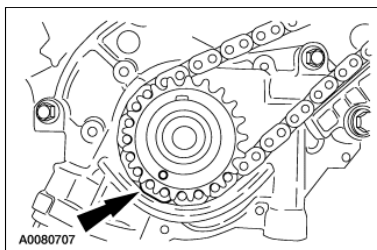
Install the timing chain guides.



6. Install the crankshaft sprocket, making sure the flange faces forward.

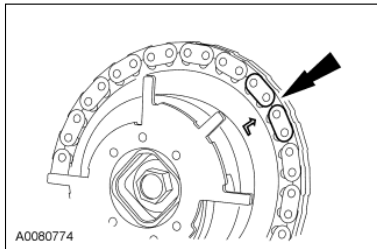


7. Position the lower end of the LH (inner) timing chain on the crankshaft sprocket, aligning the timing mark on the outer flange of the crankshaft sprocket with the single copper (marked) link on the chain.



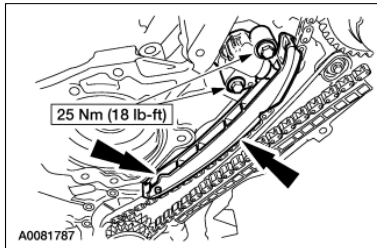
8. **NOTE:** Make sure the upper half of the timing chain is below the tensioner arm dowel.

Position the timing chain on the camshaft sprocket with the camshaft sprocket timing mark positioned between the two copper (marked) chain links.

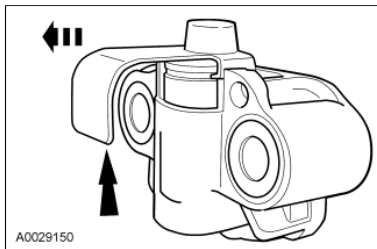


9. **NOTE:** The LH timing chain tensioner arm has a bump near the dowel hole for identification.

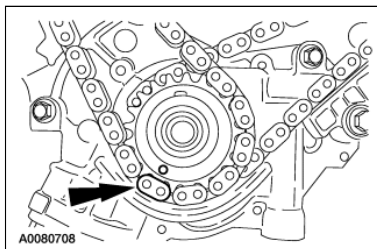
Position the LH timing chain tensioner arm on the dowel pin and install the LH timing chain tensioner.



10. Remove the retaining clip from the LH timing chain tensioner.

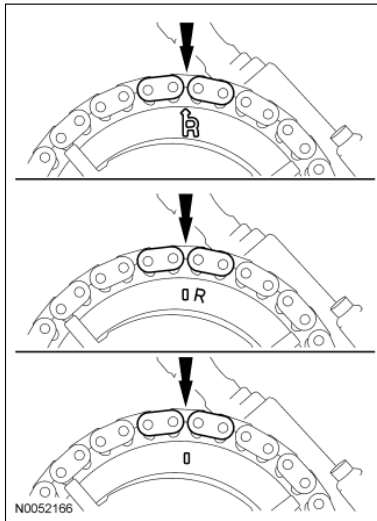


11. Position the lower end of the RH (outer) timing chain on the crankshaft sprocket, aligning the timing mark on the sprocket with the single copper (marked) chain link.



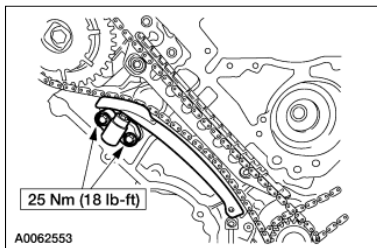
12. **NOTE:** The lower half of the timing chain must be positioned above the tensioner arm dowel.

Position the RH timing chain on the camshaft sprocket. Make sure the camshaft sprocket timing mark is positioned between the two copper (marked) chain links.

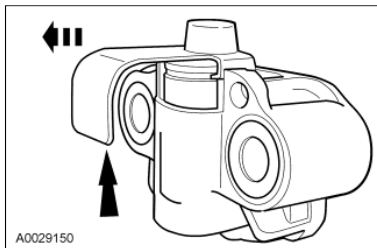


13. **NOTE:** The camshaft phaser and sprocket will be stamped with one of the illustrated timing marks for the RH camshaft.

Position the RH timing chain tensioner arm on the dowel pin and install the RH timing chain tensioner.

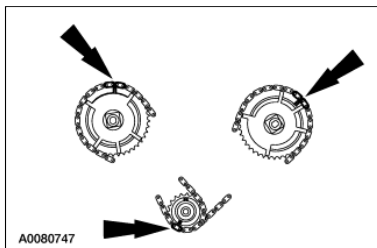


14. Remove the retaining clip from the RH timing chain tensioner.



15. **NOTE:** Both camshaft phaser sprockets are identical, refer to the R timing mark to identify the RH camshaft phaser sprocket and the L timing mark to identify the LH camshaft phaser sprocket.

As a post-check, verify correct alignment of all timing marks. Make sure the R and L timing marks on the sprockets correspond with the above note.



16. Install the crankshaft sensor ring on the crankshaft.

