

SECTION 303-01B: Engine — 5.4L (4V)
IN-VEHICLE REPAIR

2004 Expedition/Navigator Workshop Manual
Procedure revision date: 06/23/2003

Timing Drive Components

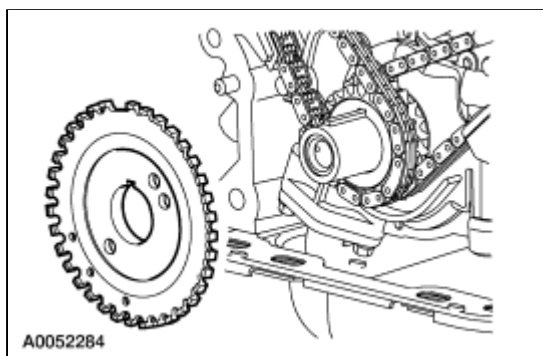
Special Tool(s)

 ST1681-A	Alignment Plate, Camshaft 303-445 (T93P-6256-A)
 ST1335-A	Holding Tool, Crankshaft 303-448 (T93P-6303-A)

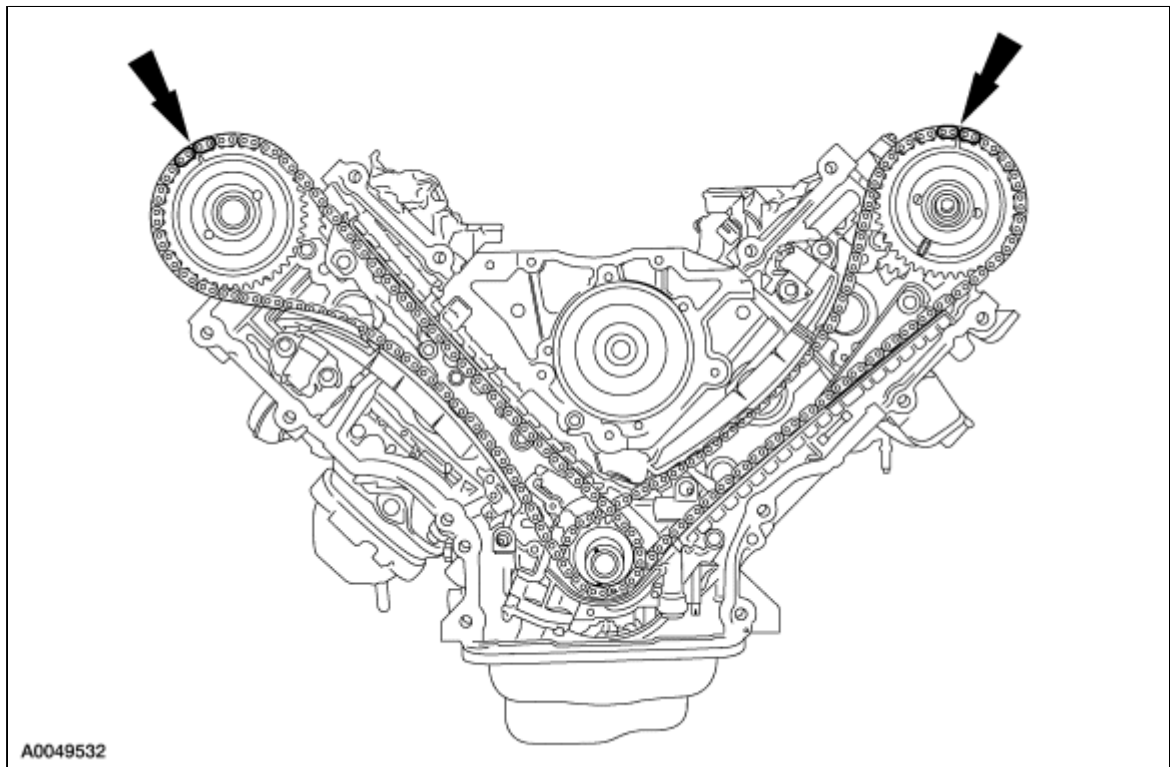
Removal


⚠ CAUTION: Since the engine is not free-wheeling, if the crankshaft or the camshafts are moved in any manner during removal and installation, the crankshaft and the camshafts must be re-synchronized.

1. Remove the engine front cover. For additional information, refer to [Engine Front Cover](#) in this section.
2. Remove the crankshaft sensor ring from the crankshaft.

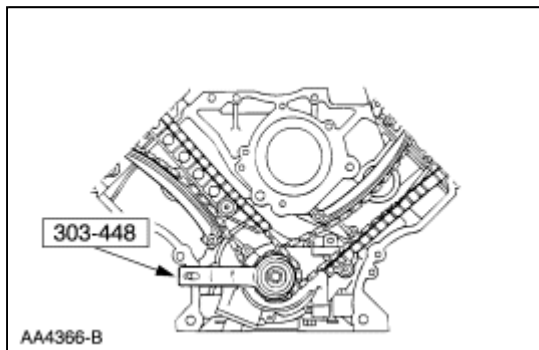


3. Rotate the crankshaft until the timing mark on the RH camshaft sprocket is approximately at the 11 o'clock position, and the timing mark on the LH camshaft sprocket is approximately at the 12 o'clock position.

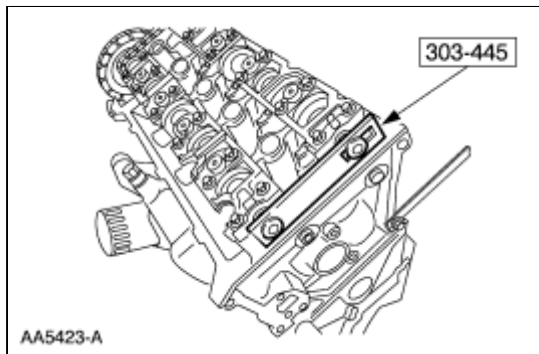


4.  **CAUTION:** Unless otherwise instructed, at no time when the timing chains are removed and the cylinder heads are installed is the crankshaft or the camshaft to be rotated. Severe piston and valve damage will occur.

Using the special tool, position the crankshaft as shown.

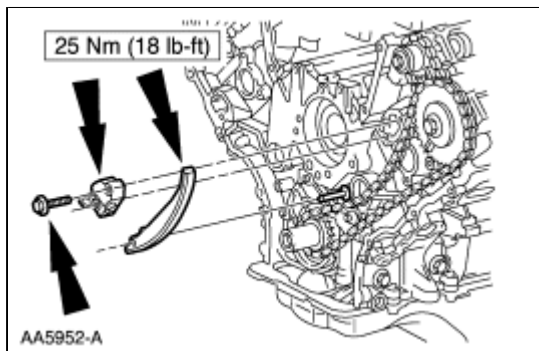


5. Install the special tool.



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

Remove the two bolts, the timing chain tensioner and tensioner arm.

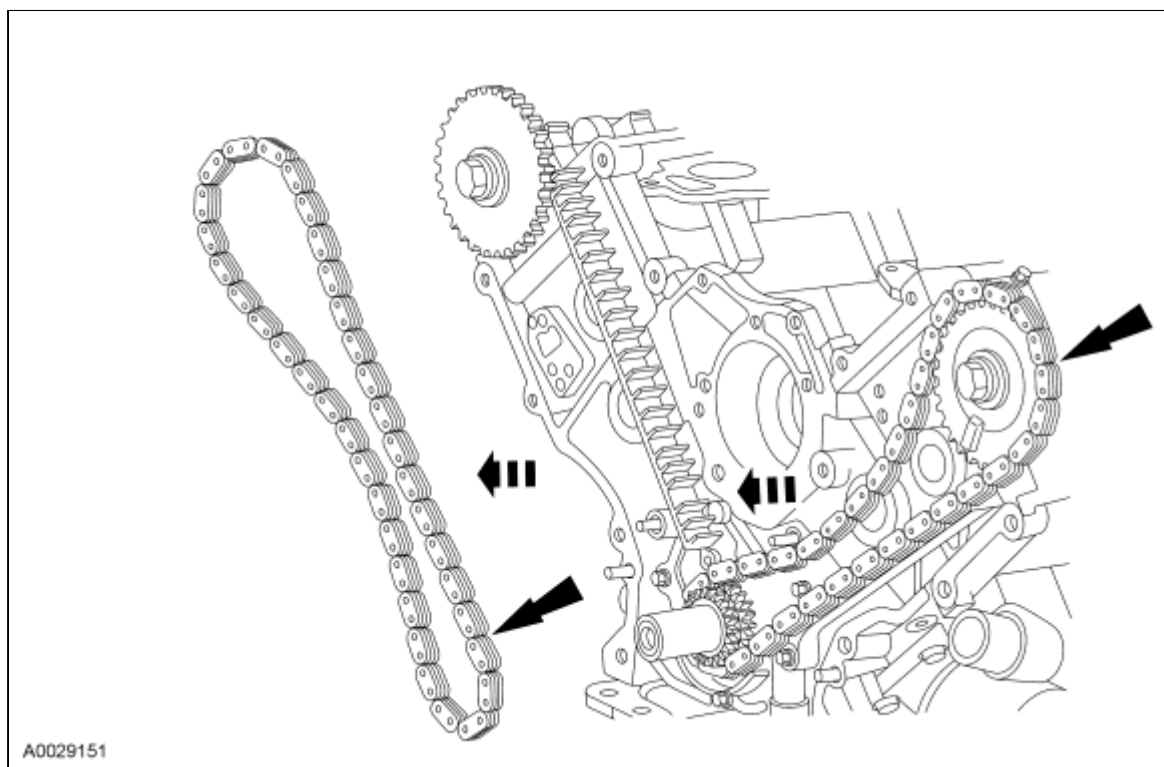


7. **CAUTION:** Unless otherwise instructed, at no time when the timing chains are removed and the cylinder heads are installed is the crankshaft or the camshaft to be rotated. Severe piston and valve damage will occur.

CAUTION: Do not remove the special tool from the camshafts.

Remove the LH and RH timing chains and the crankshaft sprockets.

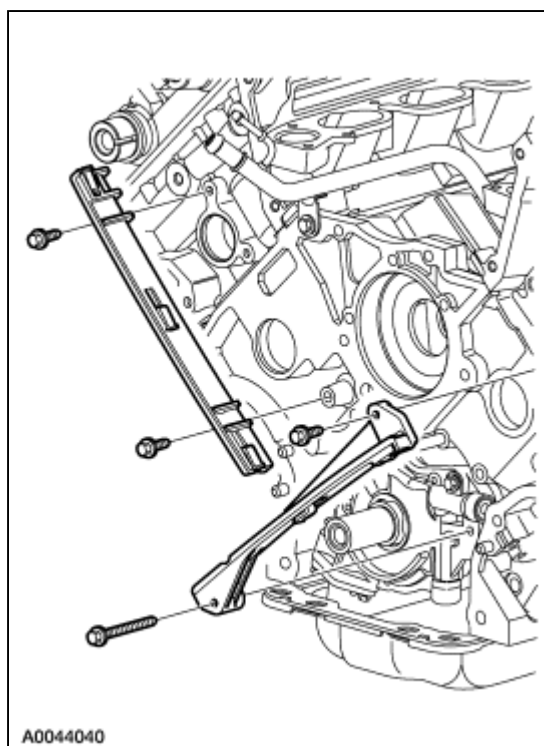
- Remove the special tool from the crankshaft.
- Remove the timing chains from the camshaft sprockets.
- Remove the right and left timing chains and the crankshaft sprocket from the crankshaft.




8.  **CAUTION:** The bolts are different lengths and must be returned to their original location.

NOTE: LH shown; RH similar.

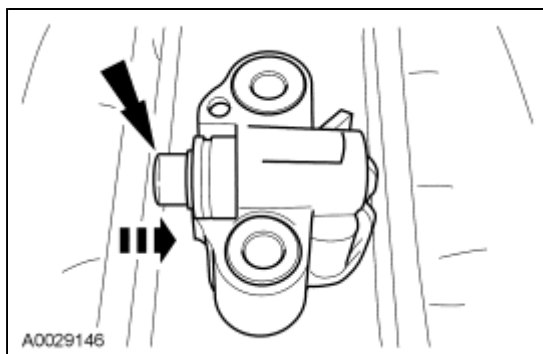
Remove the bolts and the timing chain guides.



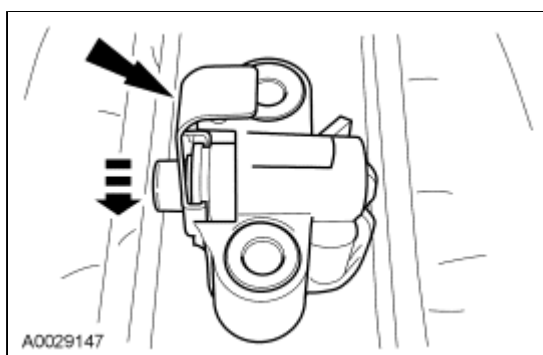
Installation

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

Compress the tensioner plunger, using the edge of a soft-jawed vise.

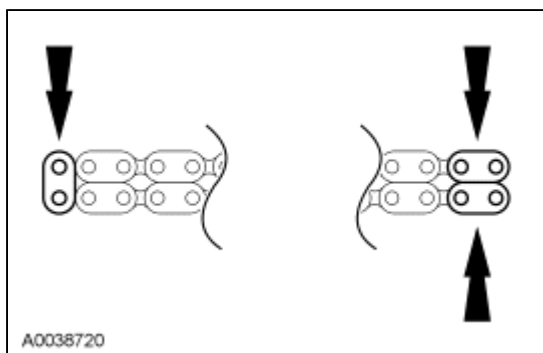


2. Install the tensioner retaining clip.
 - Remove the tensioner from the vise.

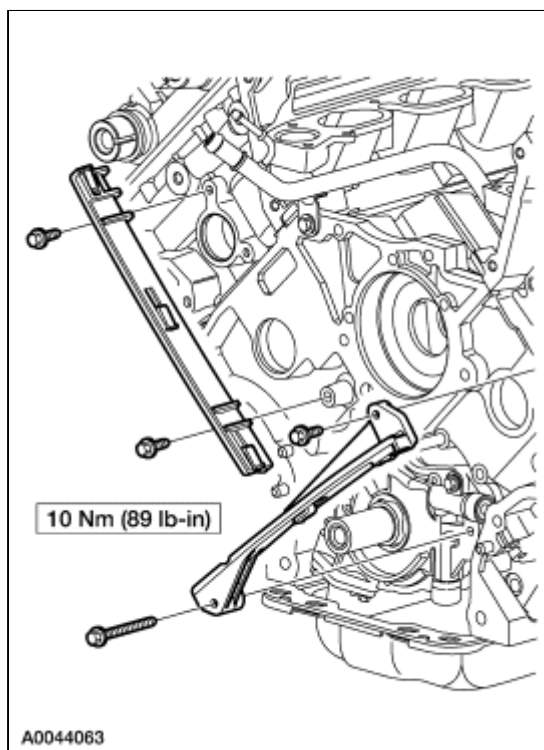


3. **NOTE:** There are 61 links in the timing chain.

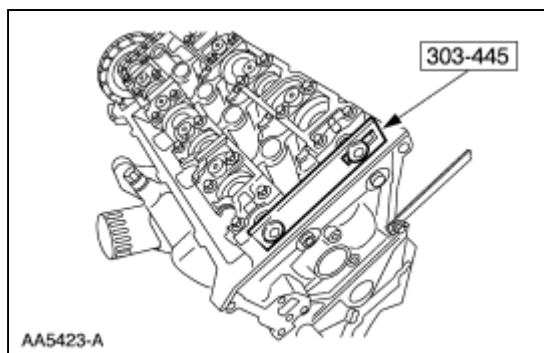
If the copper links are not visible, mark two links on one end and one link on the other end, and use as timing marks.



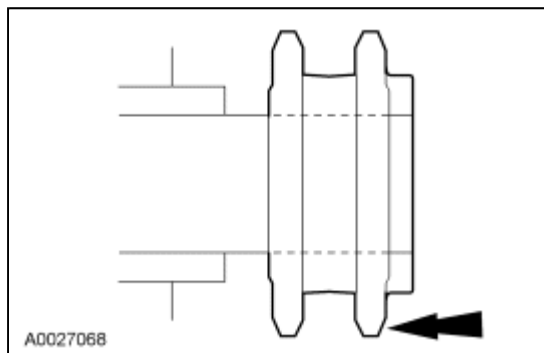
4. Install the timing chain guides.



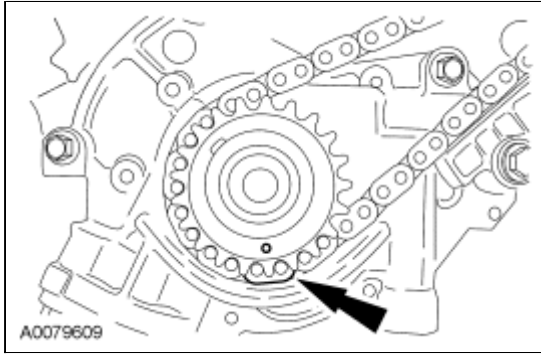
5. Remove the special tool.



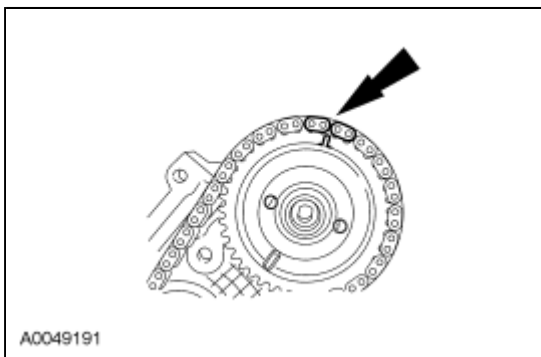
6. Position the crankshaft sprocket with the long hub facing outward.



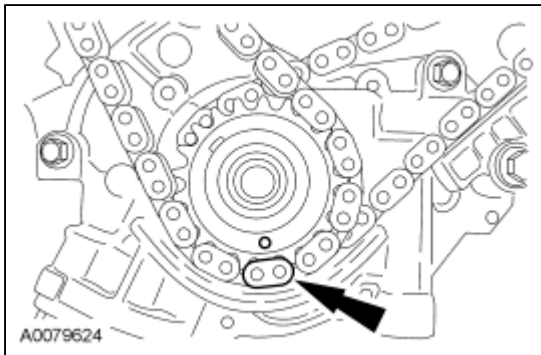
7. Install the LH timing chain onto the crankshaft sprocket, aligning the one copper (marked) link on the timing chain with the slot on the crankshaft sprocket.



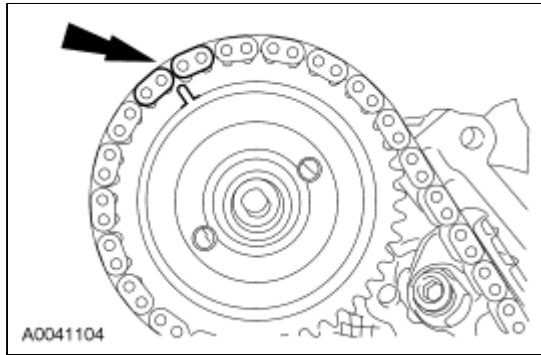
8. Position the LH timing chain on the camshaft sprocket with the two copper (marked) chain links and the camshaft sprocket timing mark aligned.



9. Position the RH (outer) timing chain on the crankshaft sprocket, aligning the copper (marked) link with the timing mark on the sprocket.

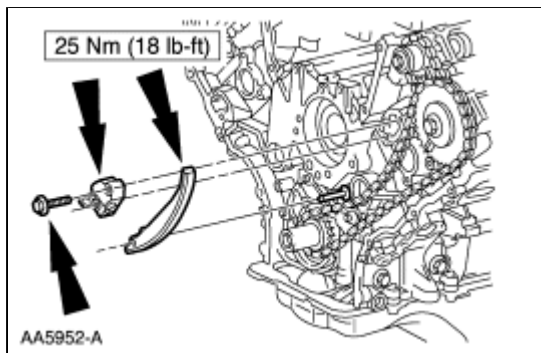


10. Position the RH timing chain on the camshaft sprocket. Make sure the two copper (marked) links align with the camshaft sprocket timing mark.

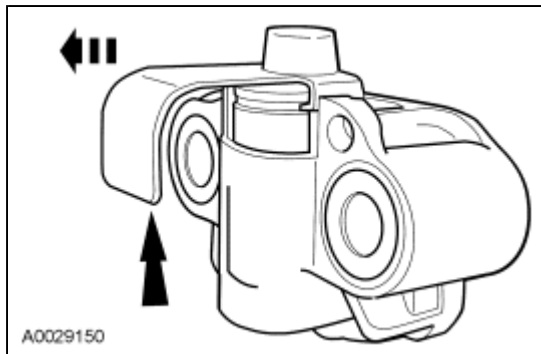


11. **NOTE:** LH shown; RH similar.

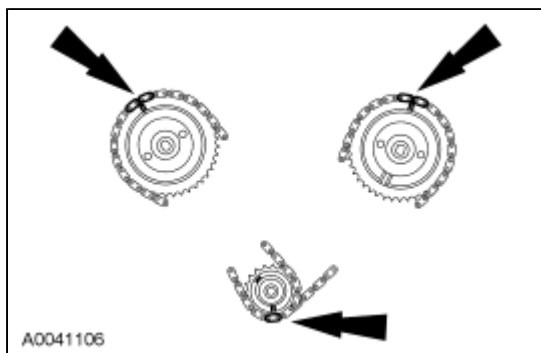
Position the tensioner arms and tensioners, and install the bolts.



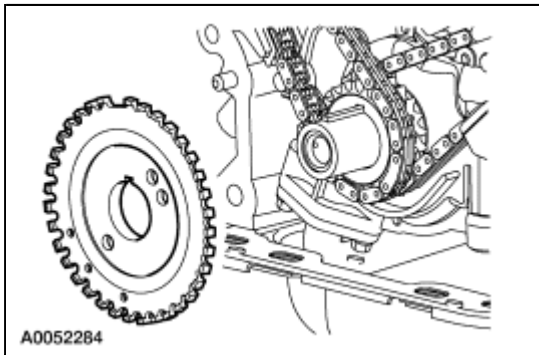
12. Remove the tensioner retaining clip.



13. As a post-check, verify correct alignment of all timing marks.



14. Remove the special tool.
15. Position the crankshaft sensor ring on the crankshaft.



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