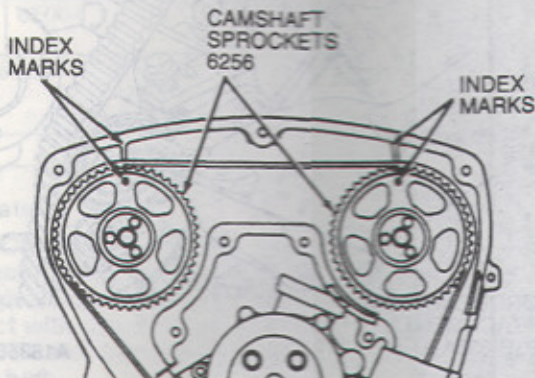


## IN-VEHICLE SERVICE (Continued)

19. Ensure index marks on camshaft pulleys align with marks on rear outer timing belt cover.



A12900-B

20. Route crankshaft position sensor wiring and connect with engine control sensor wiring (12A581).
21. Install center outer timing belt cover. Tighten retaining bolts to 16-23 N·m (12-17 lb-ft).
22. Install upper outer timing belt cover. Tighten retaining bolts to 16-23 N·m (12-17 lb-ft).
23. Install water pump pulley. Tighten retaining nut to 16-23 N·m (12-17 lb-ft).
24. Install single drive belt while rotating drive belt tensioner clockwise.
25. Install engine air inlet connector. Tighten bolts to 15-23 N·m (11-17 lb-ft).
26. Install front engine support damper.
27. Connect wiring to ignition control module (ICM)(12A199).
28. Install battery.
29. Connect battery cables.
30. Raise vehicle.
31. Install front fender splash shield.
32. Install RH front tire and wheel assembly. Tighten wheel hub bolt nuts to 115-142 N·m (85-105 lb-ft).
33. Lower vehicle.

## Camshaft

## SPECIAL SERVICE TOOL(S) REQUIRED

Description	Tool Number
Cam Seal Replacer	T89P-6256-A
Cam Seal Expander	T89P-6256-B
Cam Position Tool	T89P-6256-C

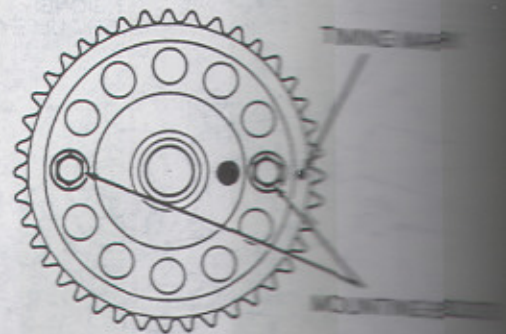
## Removal

1. Set engine to TDC on No. 1 cylinder.

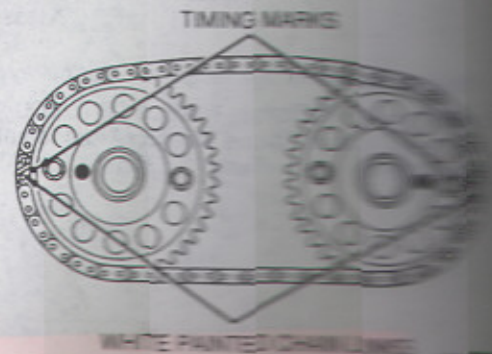
2. Remove intake manifold as outlined.
3. Remove timing belt and covers as outlined.
4. Remove valve covers as outlined.
5. Remove camshaft sprockets. Note location of dowel pin(s).
6. Remove upper inner timing belt cover.
- CAUTION: If cylinder head camshaft journal caps are not uniformly loosened, camshaft damage may result.**
7. Uniformly loosen cylinder head camshaft journal caps.
8. Remove cylinder head camshaft journal caps. Note position for installation.
9. Remove camshaft timing chain sprocket tensioner mounting bolts.
10. Remove camshafts together with timing chain sprocket tensioner (6K251).
11. Discard camshaft front seal (6K292).
12. Remove camshaft sprocket from camshaft.

## Installation

1. Align timing marks on camshaft sprocket with camshaft and install camshaft sprocket. Tighten retaining bolts to 14-18 N·m (10-13 lb-ft).

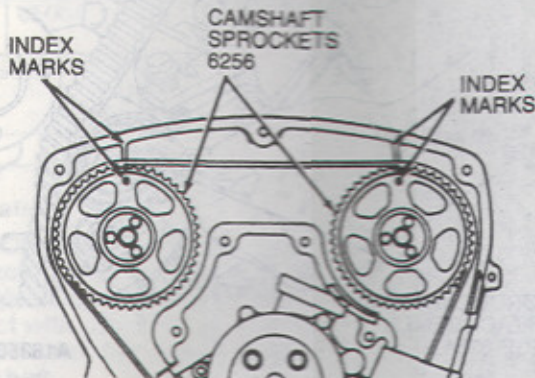


2. Install timing chain over camshaft sprocket. Align white painted link with timing mark on camshaft sprocket.



## IN-VEHICLE SERVICE (Continued)

19. Ensure index marks on camshaft pulleys align with marks on rear outer timing belt cover.



A12900-B

20. Route crankshaft position sensor wiring and connect with engine control sensor wiring (12A581).
21. Install center outer timing belt cover. Tighten retaining bolts to 16-23 N·m (12-17 lb-ft).
22. Install upper outer timing belt cover. Tighten retaining bolts to 16-23 N·m (12-17 lb-ft).
23. Install water pump pulley. Tighten retaining nut to 16-23 N·m (12-17 lb-ft).
24. Install single drive belt while rotating drive belt tensioner clockwise.
25. Install engine air inlet connector. Tighten bolts to 15-23 N·m (11-17 lb-ft).
26. Install front engine support damper.
27. Connect wiring to ignition control module (ICM)(12A199).
28. Install battery.
29. Connect battery cables.
30. Raise vehicle.
31. Install front fender splash shield.
32. Install RH front tire and wheel assembly. Tighten wheel hub bolt nuts to 115-142 N·m (85-105 lb-ft).
33. Lower vehicle.

## Camshaft

## SPECIAL SERVICE TOOL(S) REQUIRED

Description	Tool Number
Cam Seal Replacer	T89P-6256-A
Cam Seal Expander	T89P-6256-B
Cam Position Tool	T89P-6256-C

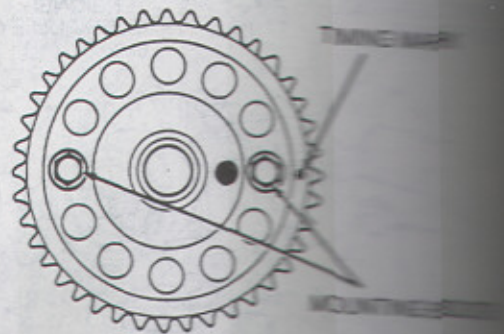
## Removal

1. Set engine to TDC on No. 1 cylinder.

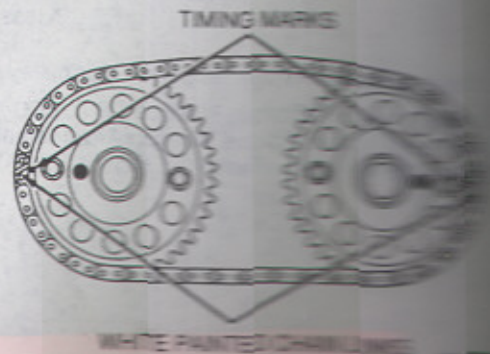
2. Remove intake manifold as outlined.
3. Remove timing belt and covers as outlined.
4. Remove valve covers as outlined.
5. Remove camshaft sprockets. Note location of dowel pin(s).
6. Remove upper inner timing belt cover.
- CAUTION: If cylinder head camshaft journal caps are not uniformly loosened, camshaft damage may result.**
7. Uniformly loosen cylinder head camshaft journal caps.
8. Remove cylinder head camshaft journal caps. Note position for installation.
9. Remove camshaft timing chain sprocket tensioner mounting bolts.
10. Remove camshafts together with timing chain sprocket tensioner (6K251).
11. Discard camshaft front seal (6K292).
12. Remove camshaft sprocket from camshaft.

## Installation

1. Align timing marks on camshaft sprocket with camshaft and install camshaft sprocket. Tighten retaining bolts to 14-18 N·m (10-13 lb-ft).

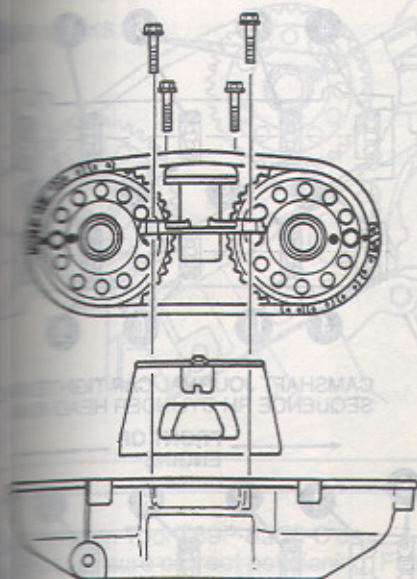


2. Install timing chain over camshaft sprocket. Align white painted link with timing mark on camshaft sprocket.



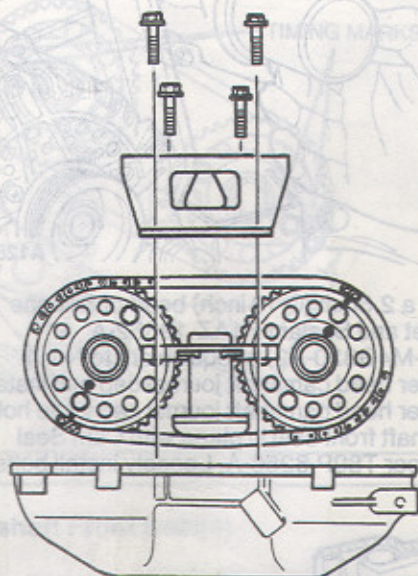
ENGINE SERVICE (Continued)

**LH and RH timing chain sprocket tensioners are not interchangeable.**



LH TIMING CHAIN SPROCKET TENSIONER 6K261

3. Rotate camshafts approximately 60 degrees counterclockwise. Set timing chain sprocket tensioner between camshaft sprockets and position camshafts on cylinder head.



RH TIMING CHAIN SPROCKET TENSIONER 6K261

A12892-B

**NOTE:** Arrows on cylinder head camshaft journal point to front of engine when installed.

Apply a thin coat of Engine Assembly Lubricant (EAL) 6679-D (ESR-M99C80-A) or equivalent to camshaft journals and install cylinder head camshaft journal caps 2 through 5. Loosely install camshaft journal cap retaining bolts. Install cylinder head camshaft journal caps in original location.

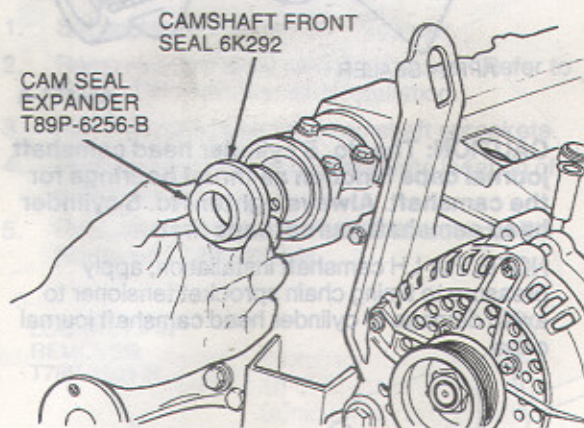
**Silicone Gasket and Sealant**  
Apply silicone gasket and sealant (GSE) 6682-A (WSE-M4G320-A2) or equivalent to the diameter of new camshaft front seal and mating area on cylinder head.

Install camshaft front seal with Cam Seal Expander T89P-6256-B and Cam Seal Replacer T89P-6256-A.

Install belt and engine front covers (6019).

Tighten covers. Tighten bolts to 9.8-16 N-m.

Reassemble manifold as outlined.



A12888-C