

Fig. 7: Measuring Valve Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. ADJUST VALVE CLEARANCE

- a. Set the No.1 cylinder to the TDC/compression (See procedure in step 2).
- b. Place matchmarks on the timing chain and camshaft timing sprockets.
- c. Rotate the crankshaft counterclockwise 40° from the TDC.

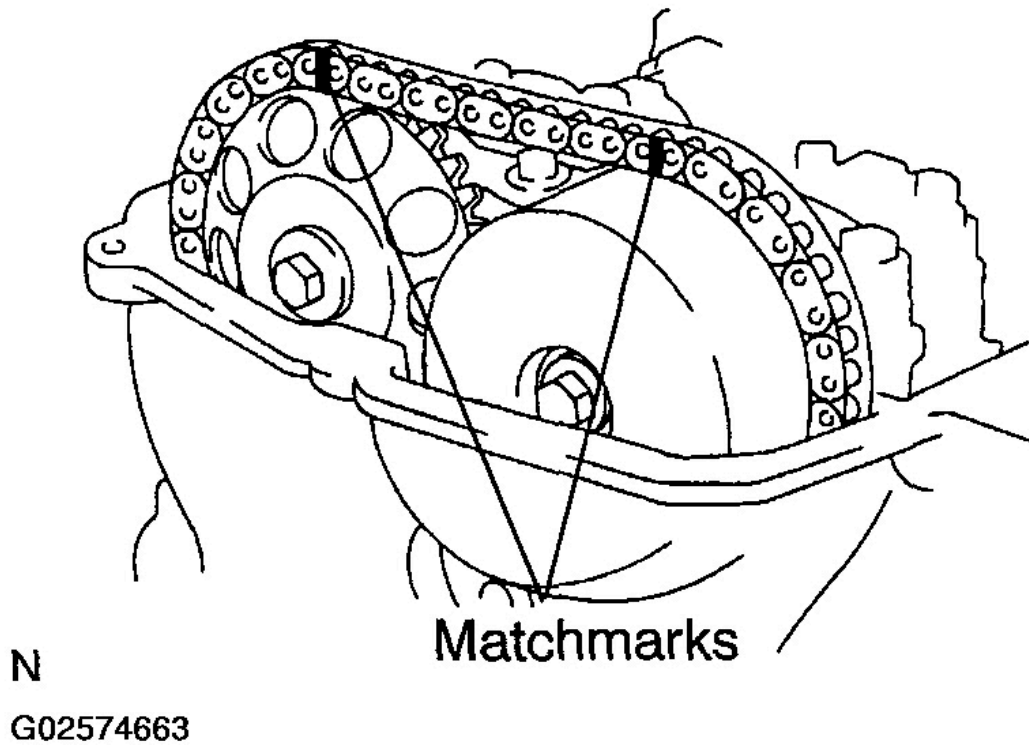


Fig. 8: Placing Matchmarks On Timing Chain And Camshaft Timing Sprockets
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Remove the plug from the timing chain cover.
- e. Using driver to hold the stopper plate of tensioner above the chain tensioner service hole.
- f. Turn the exhaust camshaft a little clockwise.
- g. Remove the driver from the chain tensioner service hole to lower the stopper plate, then insert the bar of 2 - 3 mm (0.08-0.12 in.).

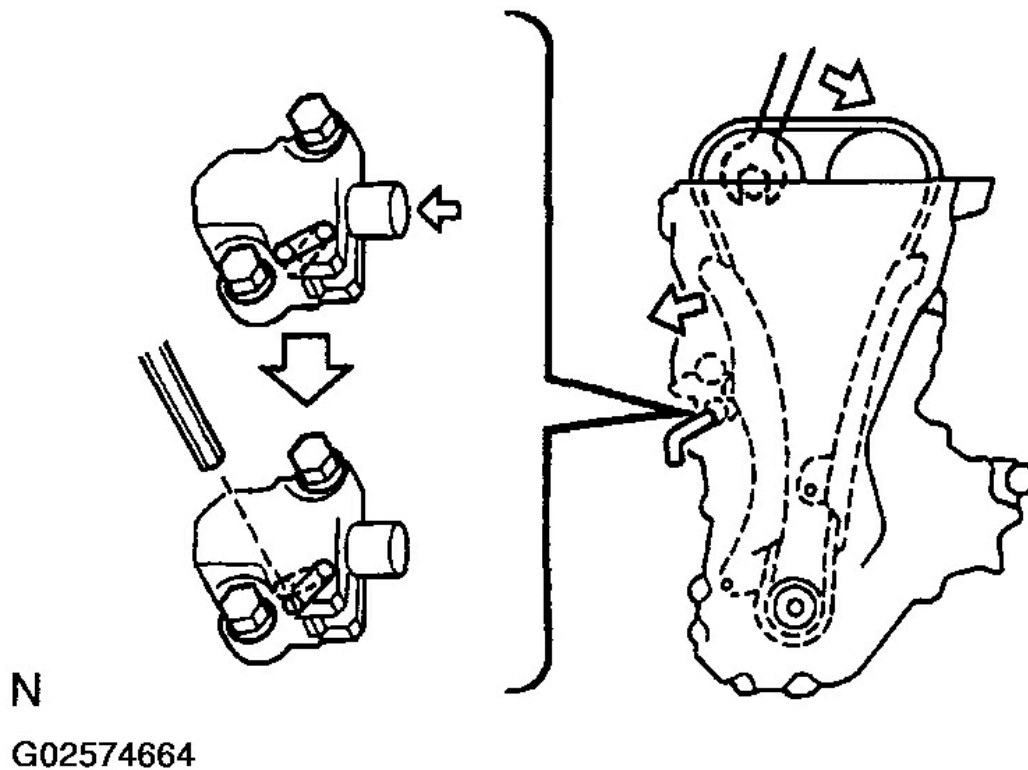


Fig. 9: Removing Plug From Timing Chain Cover
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- When the bar does not get inserted, turn the exhaust camshaft a little counterclockwise, then clockwise to insert it.
- Fix the bar with tape or others so that it does not be dropped off.

- h. Hold the hexagonal portion of camshaft with a wrench, and loosen the bolt for camshaft timing sprocket.
- i. Remove the 19 bolts, No. 1 and No. 2 camshaft bearing caps.
- j. Remove the bolt and valve timing sprocket with the chain.
- k. Hold the hexagonal portion of the camshaft with a wrench, and remove the bolt and valve timing controller assembly with the chain.

NOTE:

Do not disassembled the valve timing controller assembly.

- l. Remove the intake and exhaust camshaft assembly.

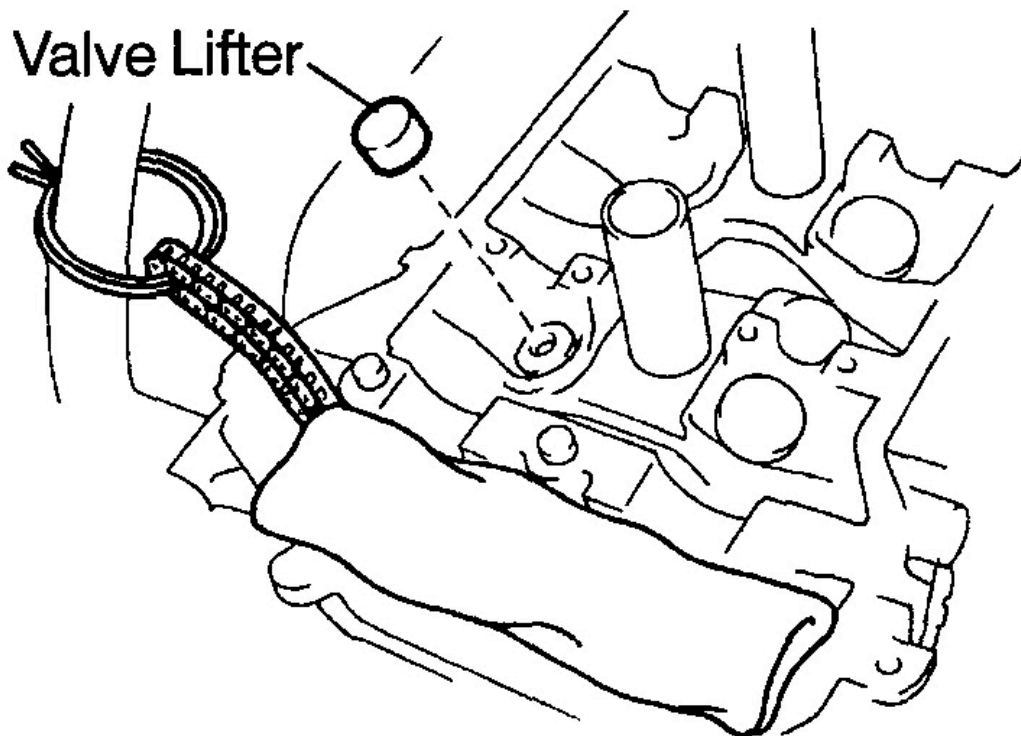
NOTE: When disconnect the timing chain from the camshaft timing sprocket, holding the timing chain.

m. Tie the timing chain with a string as shown in the illustration.

NOTE:

- Be careful not to drop anything inside the timing chain cover.
- Do not allow the chain to come into contact with water or dust.

n. Remove the valve lifters.



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Fig. 10: Tying Timing Chain With A String
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o. Determine the replacement valve lifter size according to these Formula or Charts:

- Using a micrometer, measure the thickness of the removed lifter.
- Calculate the thickness of a new lifter so the valve clearance comes within the specified value.

T..... Thickness of used lifter

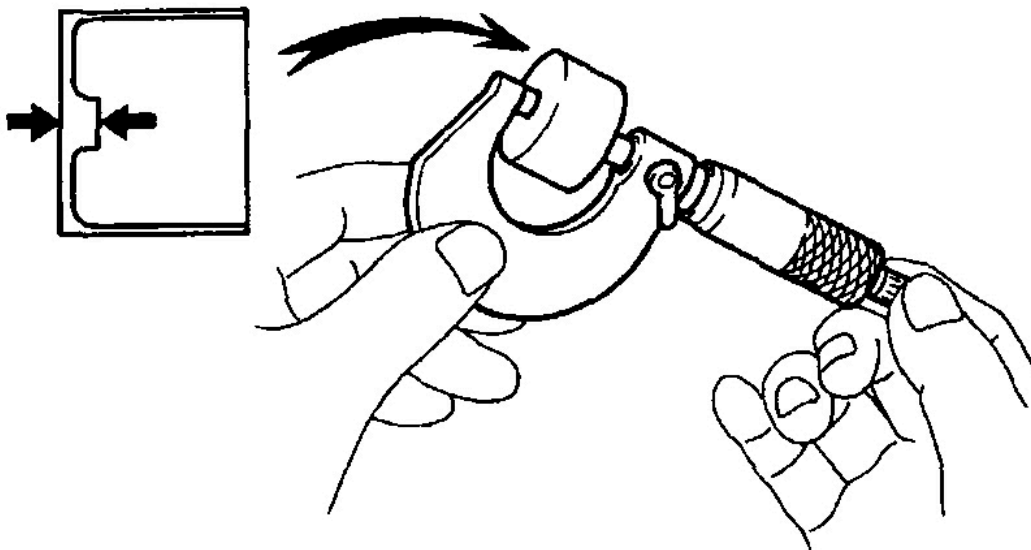
A..... Measured valve clearance

N..... Thickness of new lifter

Intake $N = T + (A - 0.20 \text{ mm (0.008 in.)})$

Exhaust $N = T + (A - 0.30 \text{ mm (0.012 in.)})$

- Select a new lifter with a thickness as close as possible to the calculated values.



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Fig. 11: Measuring Thickness

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NOTE: Lifter are available in 35 sizes in increments of 0.020 mm (0.0008 in.), from 5.060 mm (0.1992 in.) to 5.740 mm (0.2260 in.).

