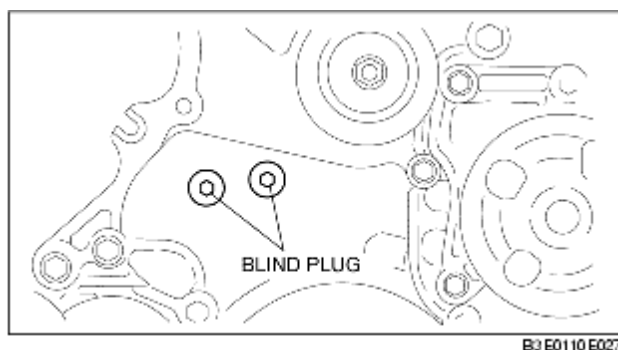


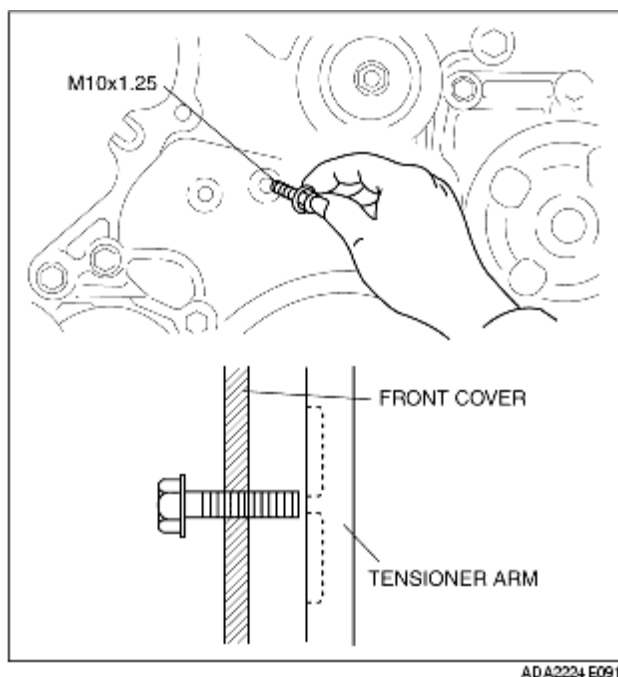
VALVE CLEARANCE ADJUSTMENT

B3E011012111E02

1. Remove the engine front cover blind plug shown in the figure.

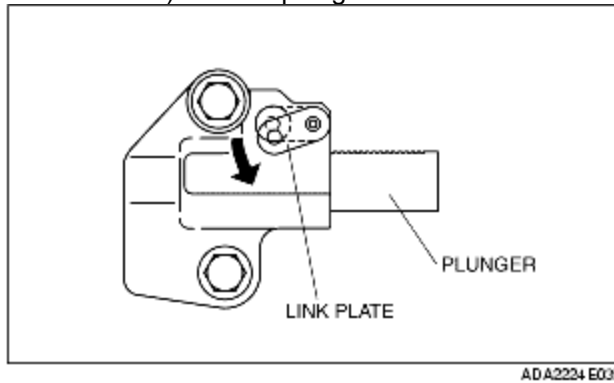


2. Insert a bolt (**M10×1.25, length 25 mm {0.98 in} or more**) into the service hole on the right side by hand as shown in the figure until it stops on the tensioner arm. Then rotate the bolt back out approx. halfway so that it sits slightly in front of the tensioner arm.

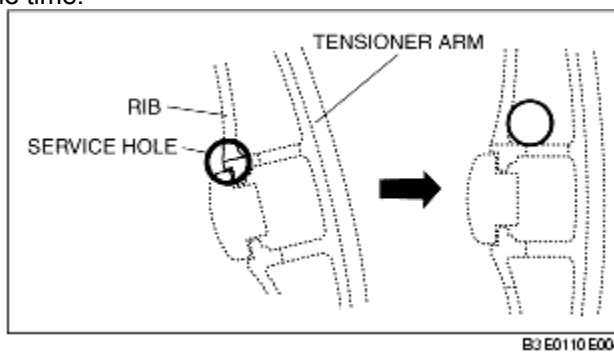


3. Release tension on the timing chain.

- (1) Press down the link plate of the chain tensioner from the service hole on the left side using the thin flathead screwdriver (precision screwdriver). Then rotate the crank pulley backwards (counterclockwise) with the plunger lock released.



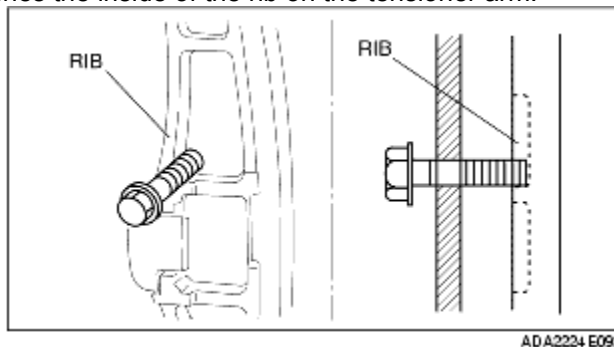
- (2) When the timing chain loosens, shift the tensioner arm to the position shown in the figure at the same time.



Note

- The timing chain presses the tensioner arm by the rotation of the crank pulley backwards (counterclockwise).

- (3) Rotate the bolt (**M10×1.25**) installed to the front cover by hand and insert it to the position where it catches the inside of the rib on the tensioner arm.

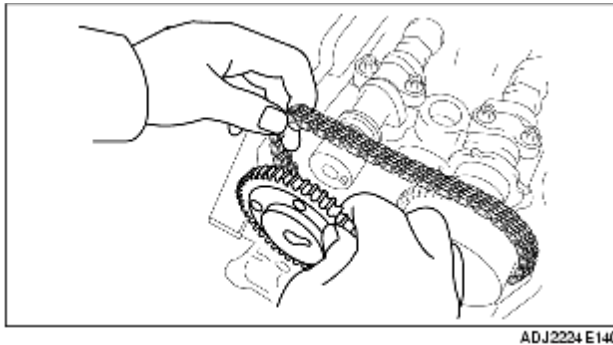


Note

- Fix the tensioner arm by inserting the bolt and rotate it to the right six to seven times until it reaches to the position shown in the figure.

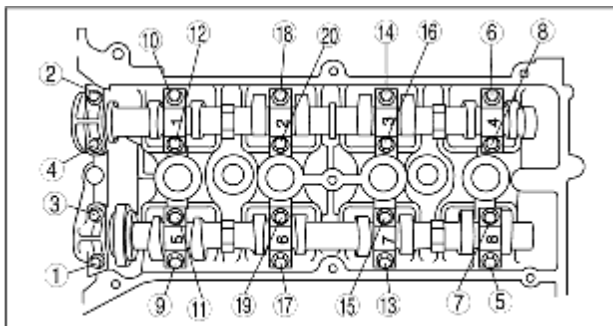
4. Fix the camshaft using a wrench on the cast hexagon.

5. Remove the camshaft sprocket installation bolt.
6. Remove the timing sprocket on the exhaust side with the timing chain positioned out of the way.



ADJ2234 E140

7. Loosen the camshaft cap installation bolt in two to three passes in the order shown in the figure, and remove the camshaft caps.



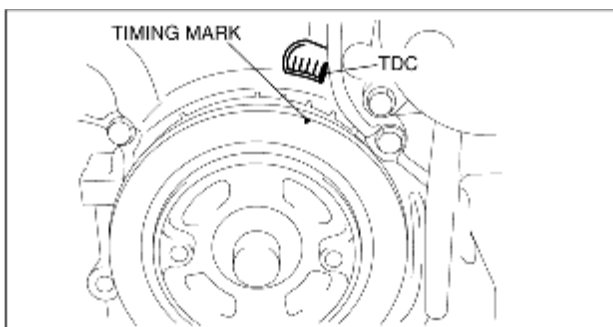
ADJ2234 E008

8. Remove the intake and exhaust side camshafts.
9. Remove the tappets.
10. Select a proper tappet according to the result of the valve clearance inspection and install it.

Tappet to be selected : thickness of the removed tappet + measured valve clearance - standard valve clearance

**Standard valve clearance [Engine cold]
0.27-0.33 mm {0.0107-0.0129 in}**

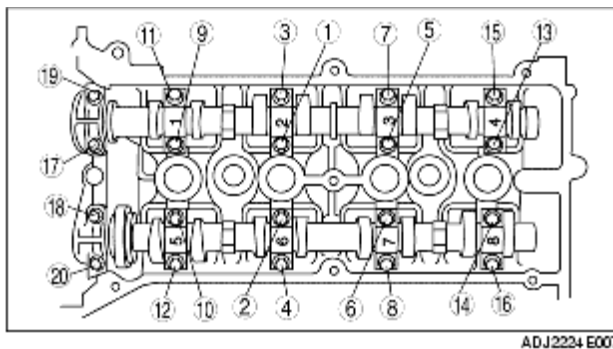
11. Align the timing marks on the crank pulley and the front cover, and then align the No.1 cylinder to the TDC.



ADA2234 E141

12. Install the intake and exhaust camshafts with the No.1 cylinder so that it is near TDC of the compression stroke.

13. Install the camshaft cap to the position shown in the figure, and temporarily tighten the No.2 and No.7 camshaft installation bolts.



14. Tighten the camshaft installation bolts in two to three passes uniformly in the order shown in the figure.

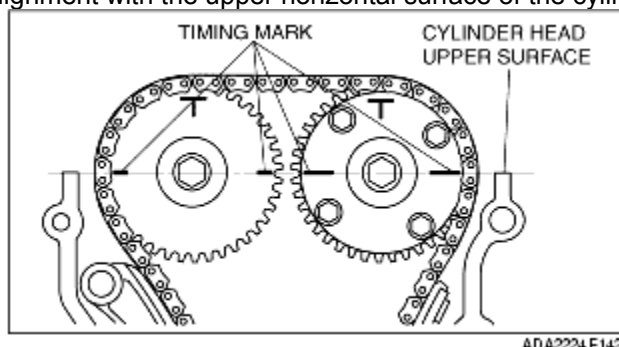
Tightening torque

11.3-14.2 N·m {1.16-1.44 kgf·m, 8.4-10.4ft·lbf}

15. Install the exhaust camshaft sprocket and the timing chain at the same time.



- Align the sprocket timing marks on the intake and exhaust camshafts so that they form a straight line in alignment with the upper horizontal surface of the cylinder head.



16. Hold the exhaust camshaft using a wrench on the cast hexagon.

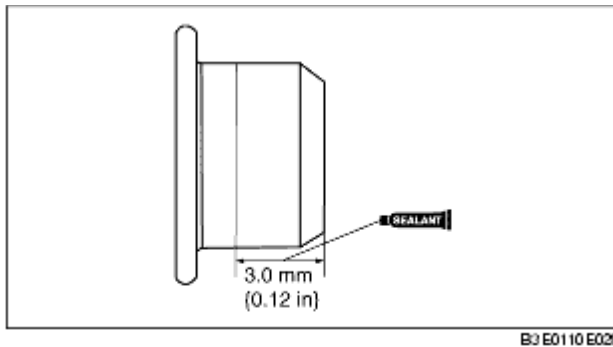
17. Tighten the camshaft sprocket installation bolt.

Tightening torque

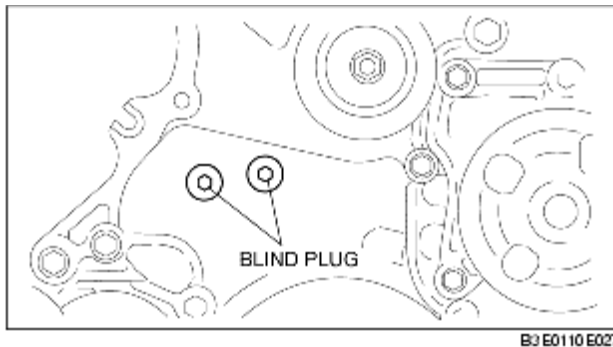
49.6-60.8 N·m {5.06-6.19 kgf·m, 36.6-44.8 ft·lbf}

18. Remove the bolt (M10×1.25) holding the tensioner arm.

19. Verify that there is no slack in the timing chain, and then verify that the marks on the camshaft sprocket and the crank pulley are aligned.
20. Inspect the valve timing by rotating the crankshaft clockwise twice.
21. Apply silicone sealant as shown in the figure.



22. Install the engine front cover blind plug.

**Tightening torque****3.0-5.0 N·m {31-50 kgf·cm, 26.6-44.2 in·lbf}**