

INSPECTION AND ADJUSTMENT OF VALVE CLEARANCES

VALVE CLEARANCES SERVICE STANDARDS

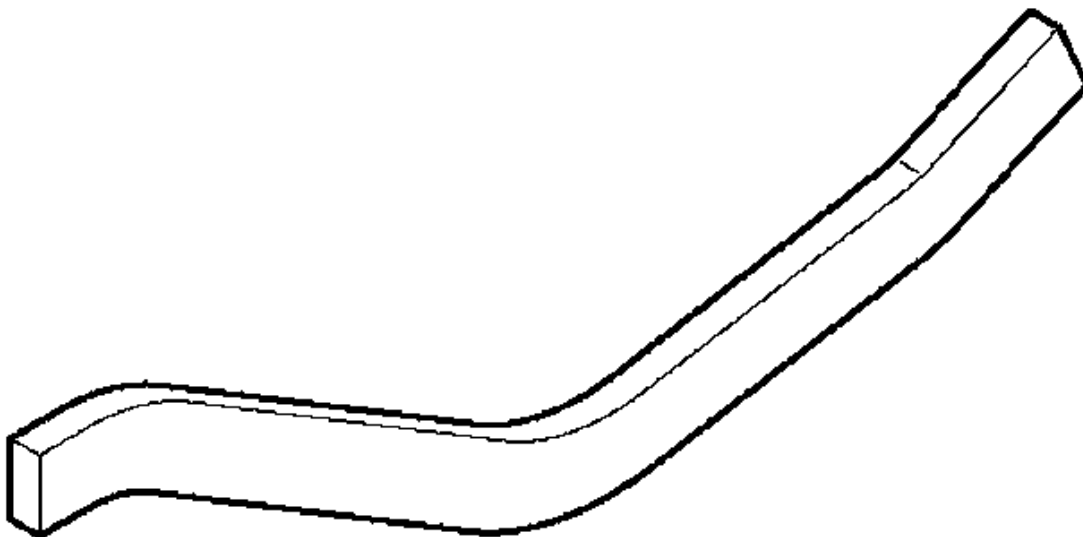
Service standards (Unit: mm {in.})					
Location	Maintenance item		Standard value	Limit	Remedy
-	Valve clearance (when cold)	Intake valve	0.4 {0.016}	-	Adjust
		Exhaust valve	0.5 {0.020}	-	

TIGHTENING TORQUE SPECIFICATIONS

Tightening torque (Unit: N.m {ft.lbs, kgf.m})			
Mark	Parts to be tightened	Tightening torque	Remarks
-	Lock nut (adjusting screw stopping)	20.6 {15,2.1}	-

SPECIAL TOOLS REFERENCE

Special tools			
Mark	Tool name and shape	Part No.	Application
	Cranking handle	MH063704	Turning the fan pulley



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Fig. 24: Cranking Handle

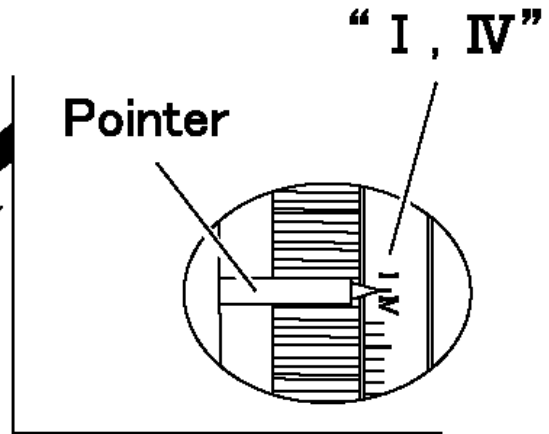
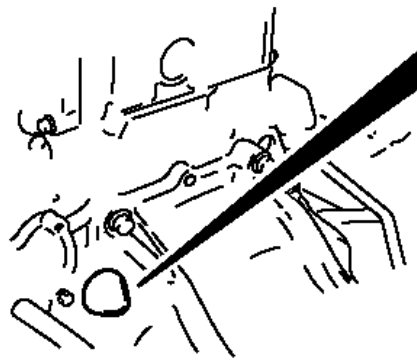
- Valve clearances should be checked and adjusted as follows while the engine is still cold.

Inspection

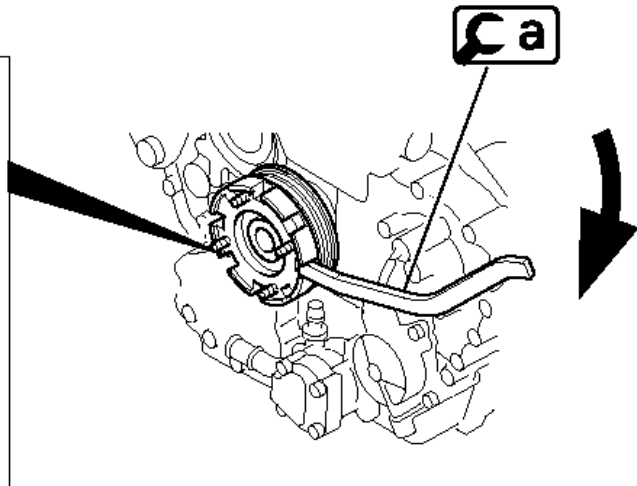
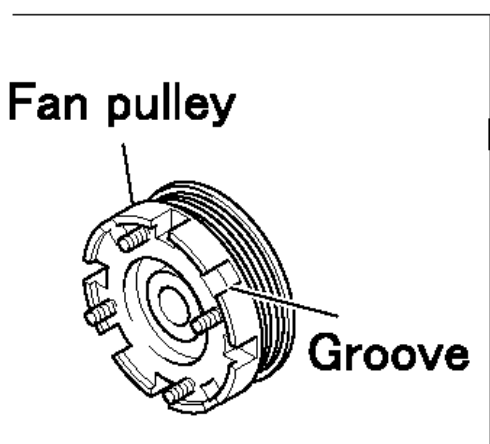
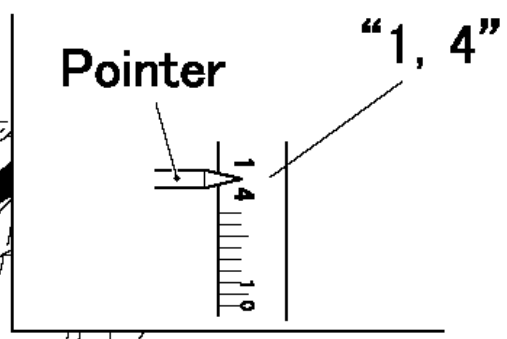
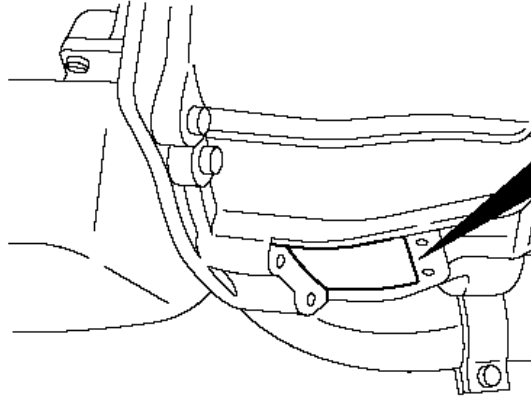
CAUTION: • **Never cut off the engine electronic control unit power supply when cranking the engine.**

- Remove the rocker cover.
- Disconnect the injector connector.
- Bring the No. 1 or No. 4 cylinder piston to the top dead center (TDC) on the compression stroke by the following procedure:
 - Hook onto the grooves in the fan pulley.
 - Turn the fan pulley in the illustrated direction to align the pointer with the "**I, IV**" or "**1**" to "**4**" mark on the flywheel.
 - This will place either the No. 1 or No. 4 cylinder piston at TDC on the compression stroke. The cylinder in which the rocker arms for both the intake and exhaust valves can be pushed down by hand by the valve clearance amounts has its piston at TDC. Rotate the engine by one full turn to switch the TDCs of the No. 1 and No. 4 cylinder pistons.

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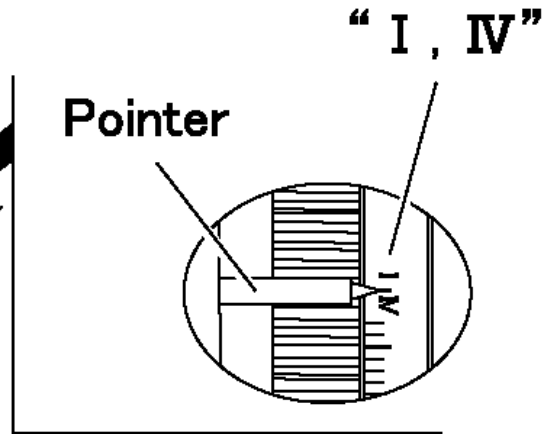
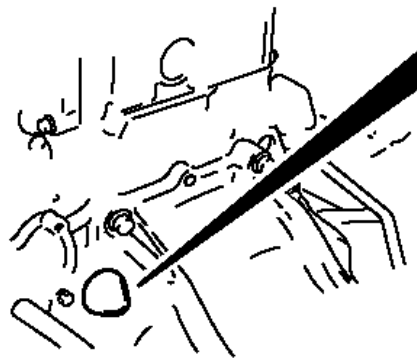


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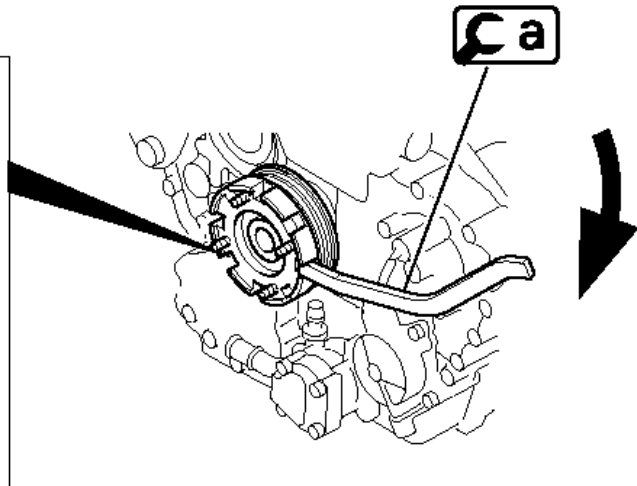
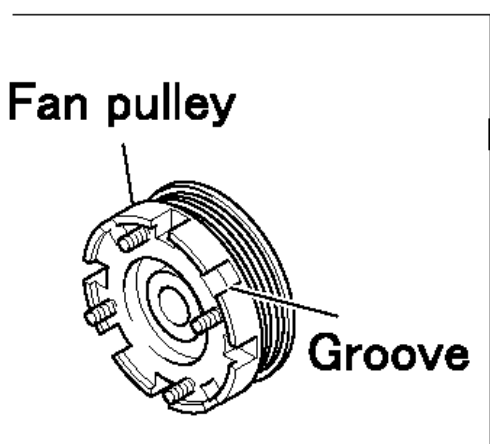
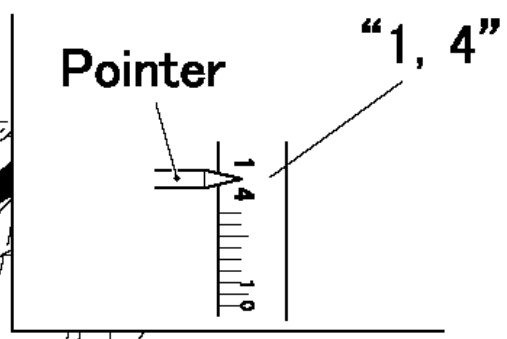
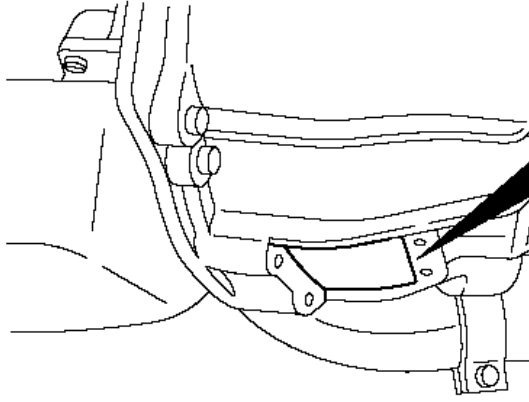


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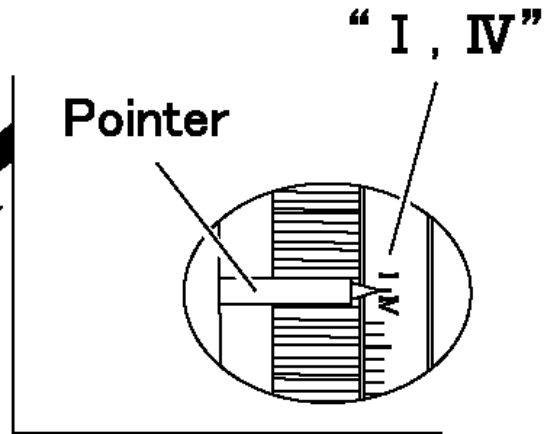
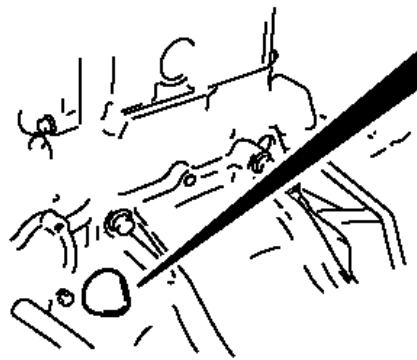


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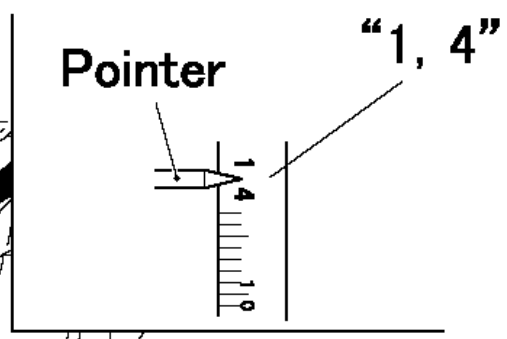
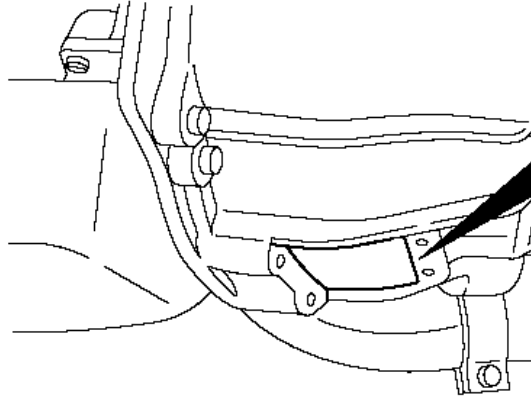


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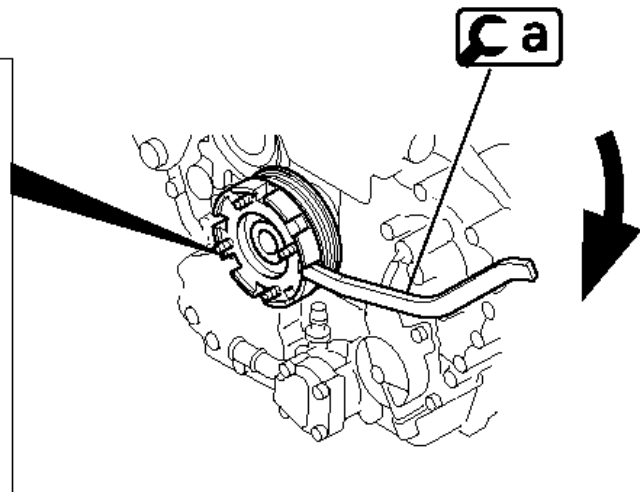
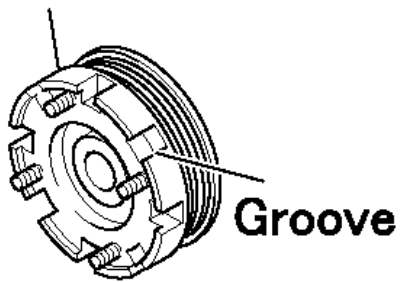
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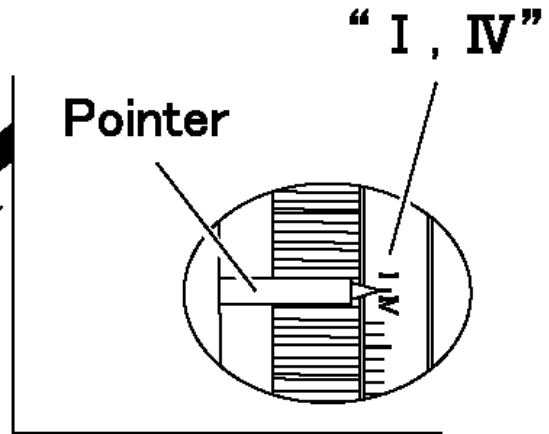
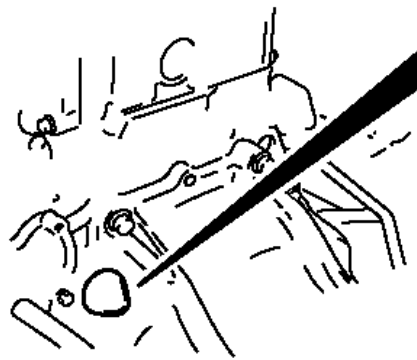


Fan pulley

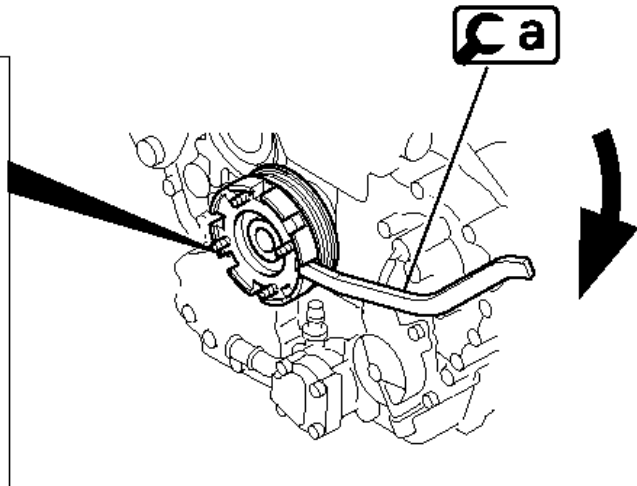
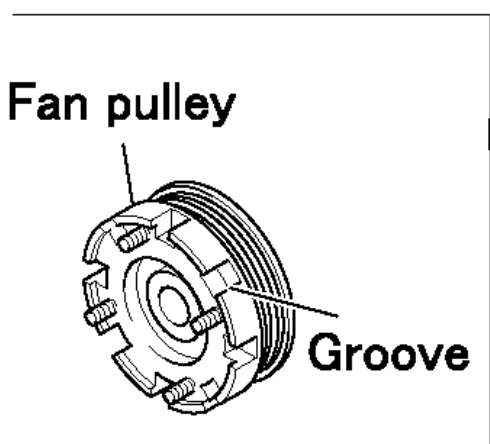
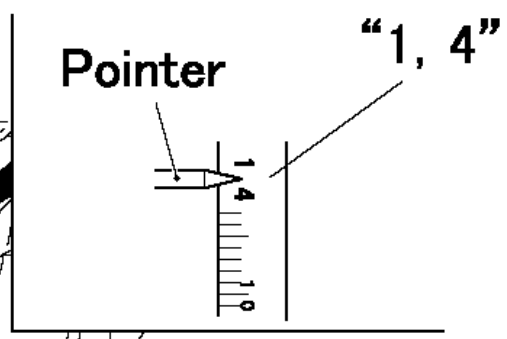
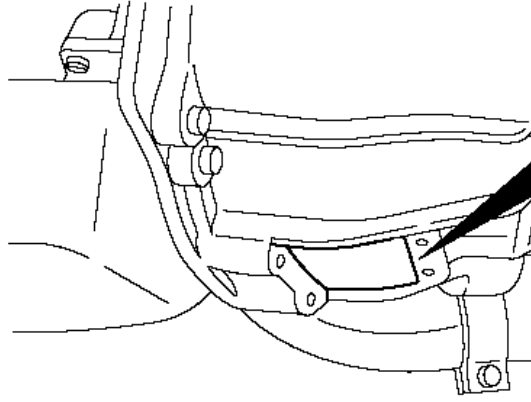


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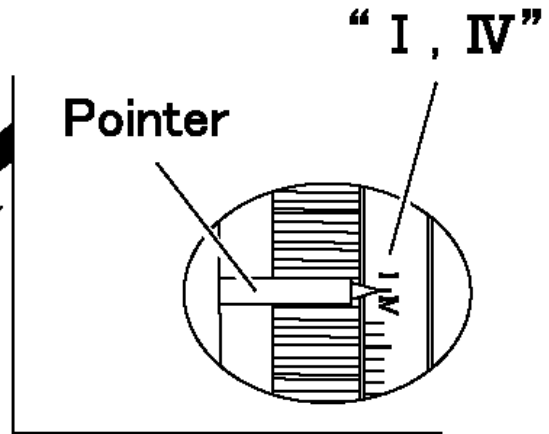
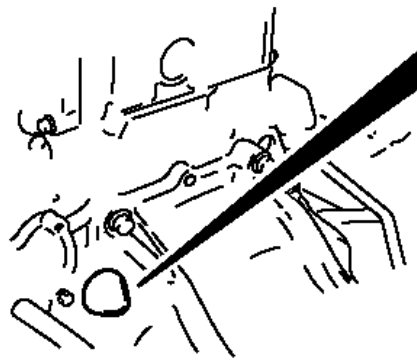


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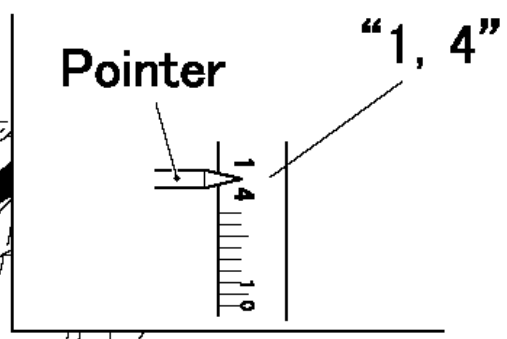
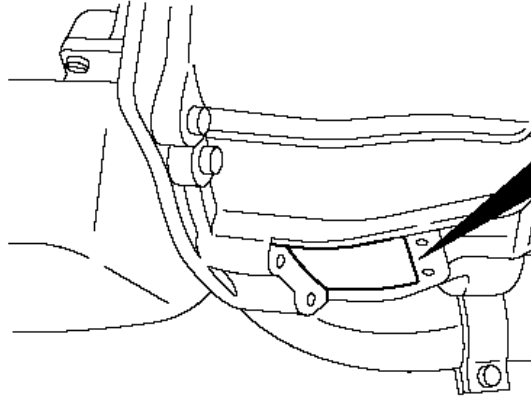


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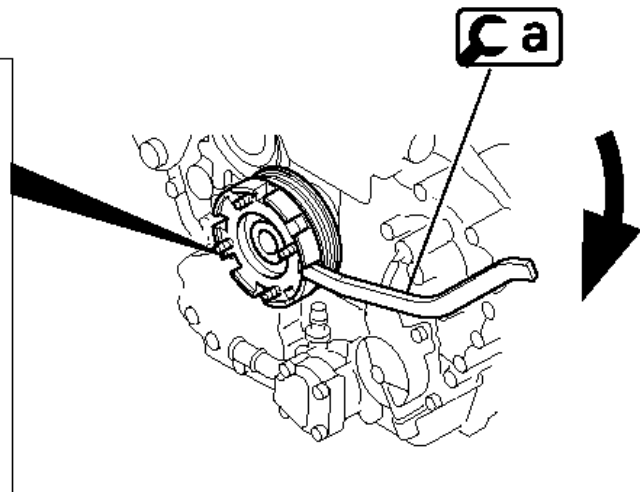
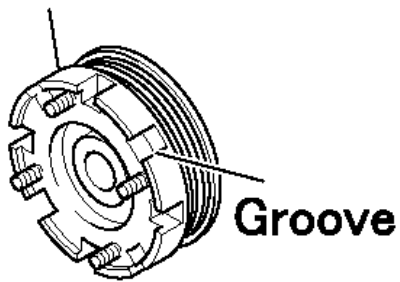
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Fan pulley



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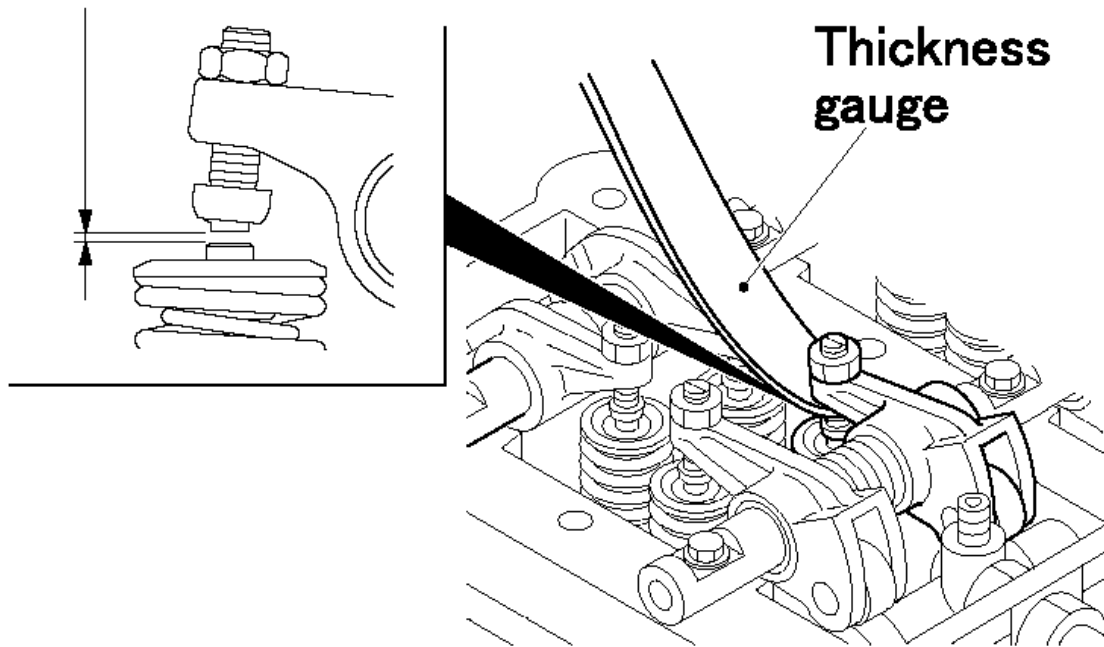
Fig. 25: Aligning Crankshaft Pulley For Adjusting Valve Clearances

- With the No. 1 or No. 4 cylinder piston at TDC, measure the clearance of the valves marked with a circle in the table below.

VALVE CLEARANCE ADJUSTMENT REFERENCE CHART

Cylinder No.	1		2		3		4	
	IN	EX	IN	EX	IN	EX	IN	EX
No. 1 cylinder piston at TDC on compression stroke	0	0	0	-	-	0	-	-
No. 4 cylinder piston at TDC on compression stroke	-	-	-	0	0	-	0	0

Valve clearance



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Fig. 26: Measuring Valve Clearance

- To insert the thickness gauge under the adjusting screw pad, push the pad at the bottom on one side with a flat-blade screwdriver or a similar tool. Insert the thickness gauge into the small space created under the other side of the pad, as shown in the illustration.

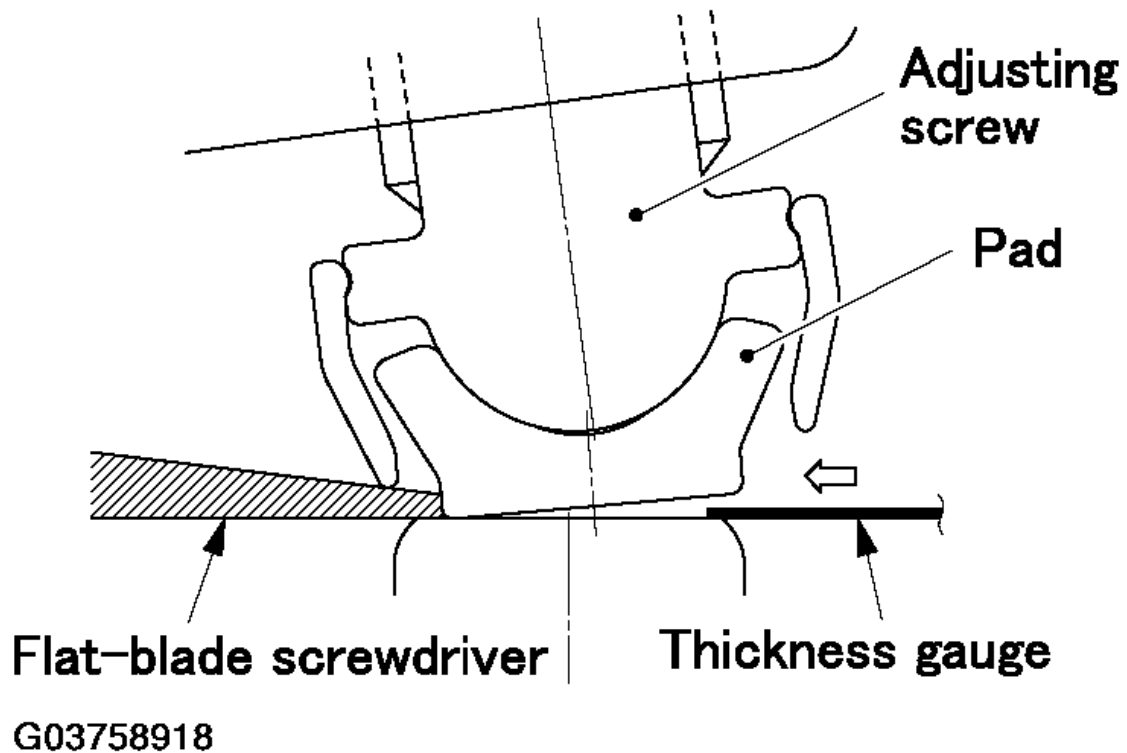
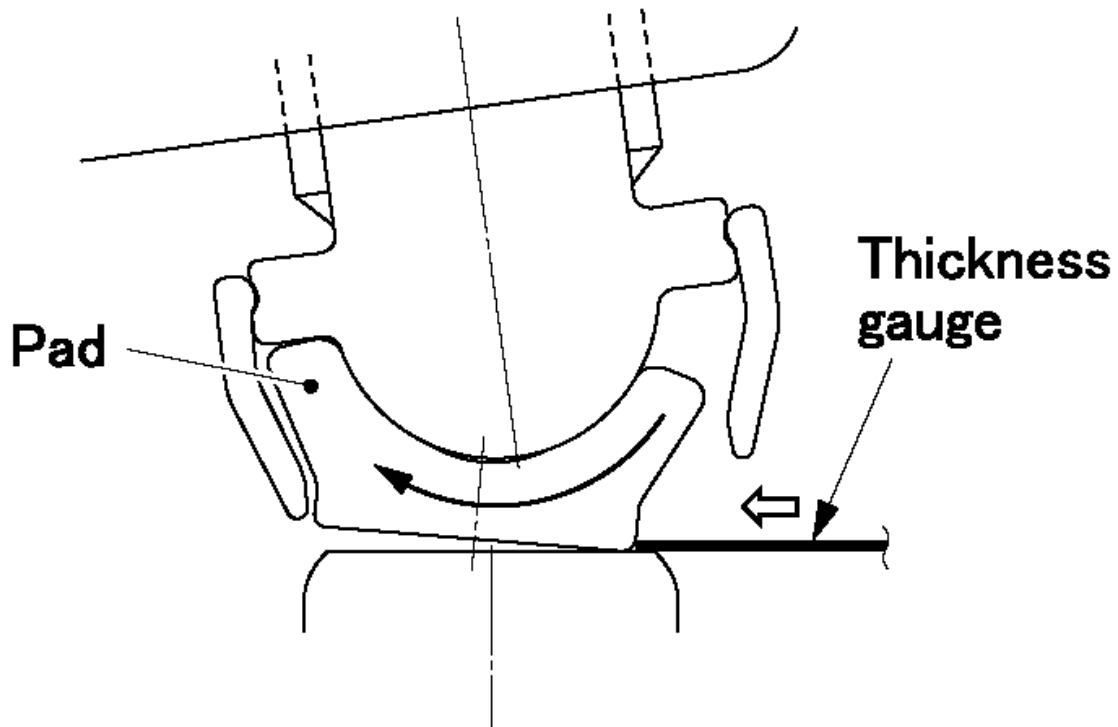


Fig. 27: Inserting Thickness Gauge

- The thickness gauge cannot be inserted under the adjusting screw pad without carrying out the above step, as the pad will block the thickness gauge as shown in the illustration.
- The thickness gauge must have a slight drag when taking measurements.
- If the thickness gauge can be moved without any resistance, the measurement will be incorrect.
- If the measurements are not within the standard value range, adjust the value clearance by the following procedures.

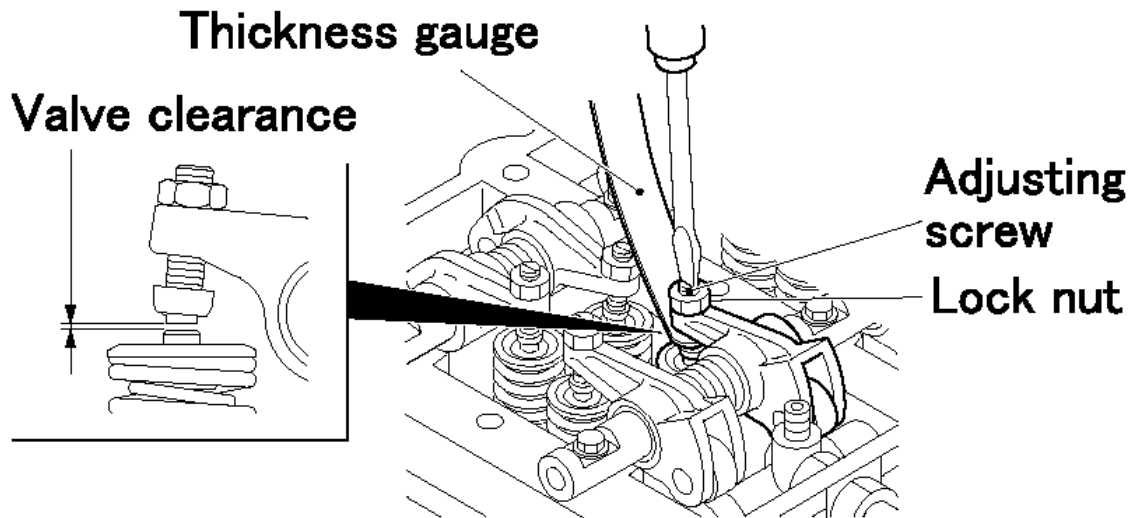


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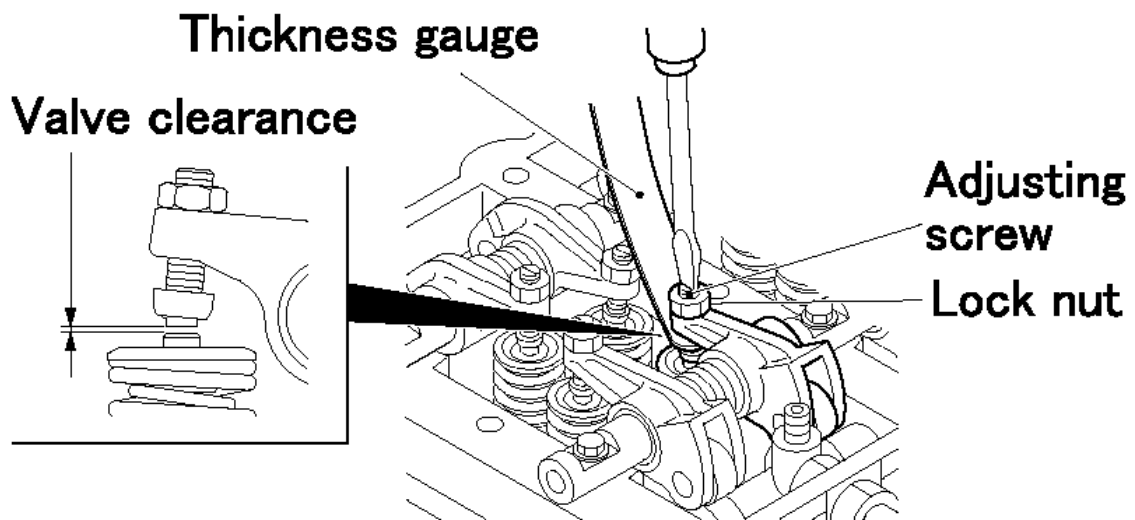
Fig. 28: Pad Blocking Thickness Gauge

Adjustment

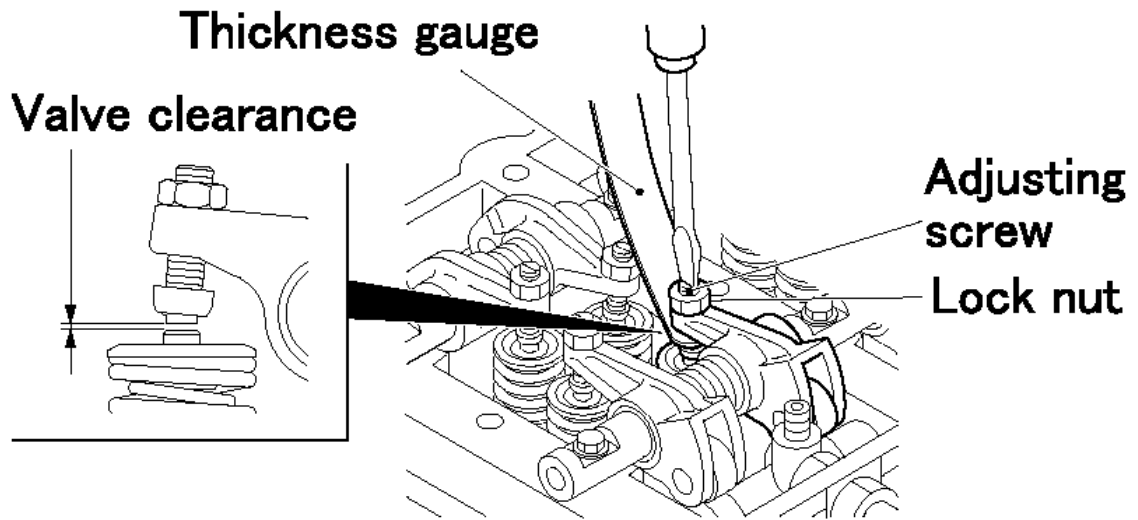
- Adjust the valve clearance by loosening the lock nut and rotating the adjusting screw so that the thickness gauge can only be moved with a slight drag.
- After the adjustment, hold the adjusting screw in position with a screwdriver and tighten the lock nut to the specified torque.
- Recheck the valve clearance with the thickness gauge, and readjust if the measurements are not within the specified value range.



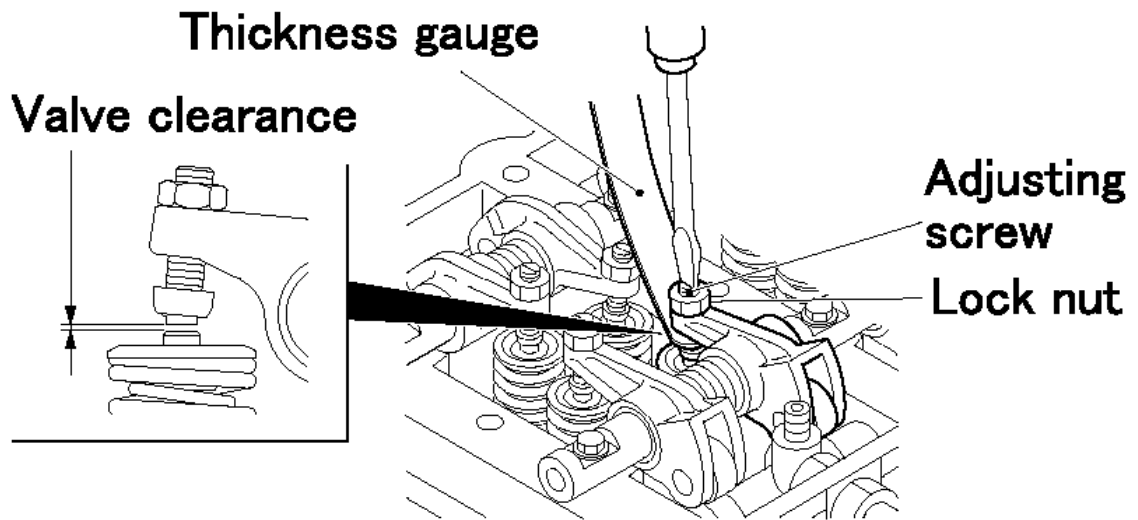
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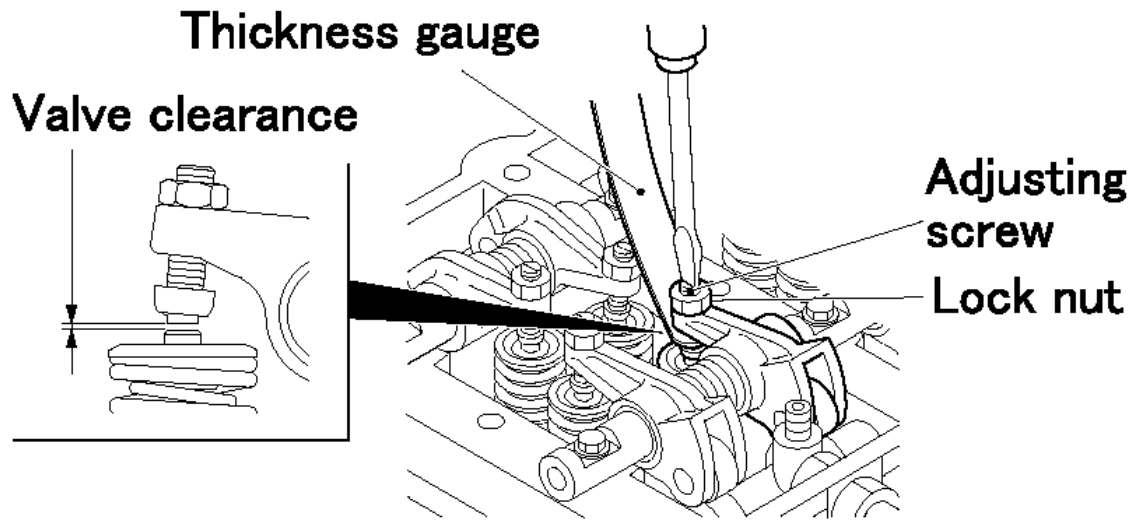
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[Fig. 29: Adjusting Valve Clearance](#)