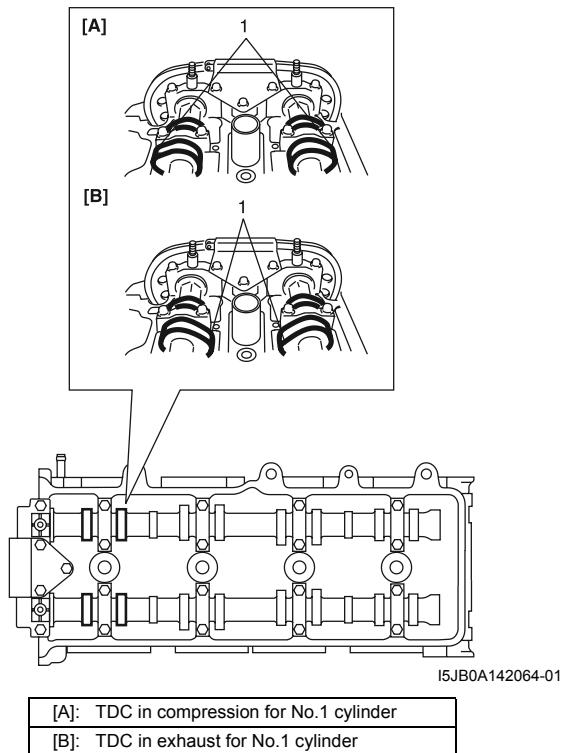


Valve Lash (Clearance) Inspection

S5JB0A1424003

- 1) Remove negative cable at battery.
- 2) Remove cylinder head cover referring to “Cylinder Head Cover Removal and Installation: For J20 Engine”.
- 3) Using 17 mm wrench, turn crankshaft pulley (1) clockwise until index (2) of cylinder block and index (3) of crankshaft pulley (1) are aligned.
- 4) Check whether cam position (1) of No.1 cylinder is at the specified position [A] as shown in figure. If cam position is [B], locate cam position to [A] by turning crankshaft one rotation.



- 5) Check valve lashes with thickness gauge (4) according to the following procedure.
 - a) Check valve lashes of cylinder No.1.
 - b) Turn crankshaft pulley by 180° clockwise.
 - c) Check valve lashes of cylinder No.3.
 - d) In the same manner as b) – c), check valve lashes of cylinder No.4 then cylinder No.3.
- If valve lash is out of specification, record valve lash and adjust it to specification by replacing shim.

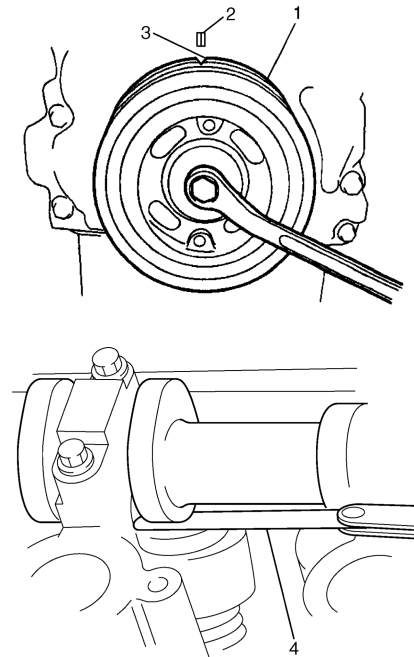
Valve clearance specification

When cold (Coolant temperature is 15 – 25 °C (59 – 77 °F)):

- Intake: 0.18 – 0.22 mm (0.007 – 0.009 in.)
- Exhaust: 0.28 – 0.32 mm (0.011 – 0.013 in.)

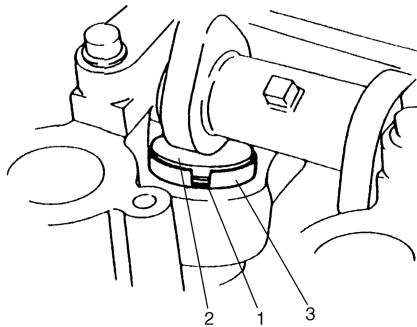
When hot (Coolant temperature is 60 – 68 °C (140 – 154 °F)):

- Intake: 0.21 – 0.27 mm (0.008 – 0.011 in.)
- Exhaust: 0.30 – 0.36 mm (0.012 – 0.014 in.)



Replacement of Shim

- 1) Close the valve whose shim (2) is to be replaced by turning crankshaft, then turn tappet (3) till its cut section (1) faces inside as shown in the figure.

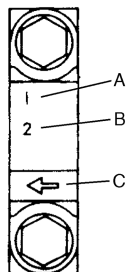


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- 2) Lift down the valve by turning crankshaft to 360°.
- 3) Hold tappet at that position using special tool as follows.
 - a) Remove its housing bolts.
 - b) Check housing No. and select special tool corresponding to housing No., referring to "Special tool selection table".

Special tool selection table

No. on camshaft housing	Embossed mark on special tool
I2, I3, I4, I5	IN
E2, E3, E4, E5	EX



I5JB0A142066-01

A: I: Intake side or E: Exhaust side
B: Position from timing chain side
C: Pointing to timing chain side

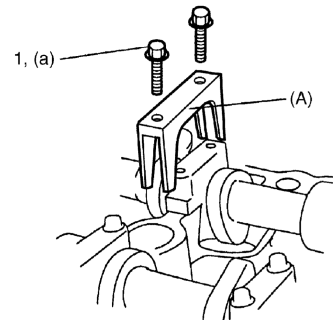
- c) Hold down the tappet so as not to contact the shim by installing special tool on camshaft housing with housing bolt (1) tighten housing bolts to specified torque.

Special tool

(A): 09916-66510

Tightening torque

Camshaft housing bolts (a): 11 N·m (1.1 kgf-m, 8.0 lb-ft) for tightening of special tool

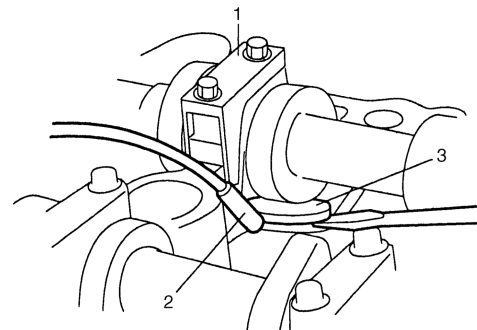


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- 4) Turn camshaft by approximately 90° clockwise and remove shim (3).

▲ WARNING

Never put in the hand between camshaft and tappet.



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1. Special tool	2. Magnet
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1D-74 Engine Mechanical: For J20 Engine

- 5) Using a micrometer (2), measure the thickness of the removed shim (1), and determine replacement shim by calculating the thickness of new shim with the following formula and table.

Shim thickness specification

Intake side:

$$A = B + C - 0.20 \text{ mm (0.008 in.)}$$

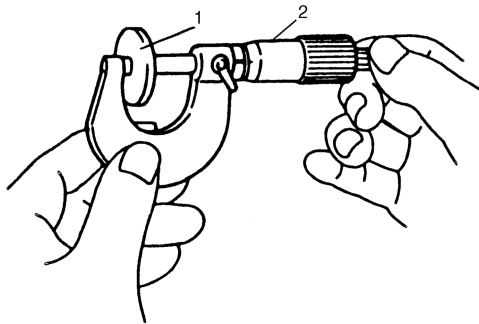
Exhaust side:

$$A = B + C - 0.30 \text{ mm (0.012 in.)}$$

A: Thickness of new shim

B: Thickness of removed shim

C: Measured valve clearance



I2RHOB140014-01

For example of intake side:

When thickness of removed shim is 2.40 mm (0.094 in.), and measured valve clearance is 0.45 mm (0.018 in.).

$$A = 2.40 \text{ mm (0.094 in.)} + 0.45 \text{ mm (0.018 in.)} - 0.20 \text{ mm (0.008 in.)} = 2.65 \text{ mm (0.104 in.)}$$

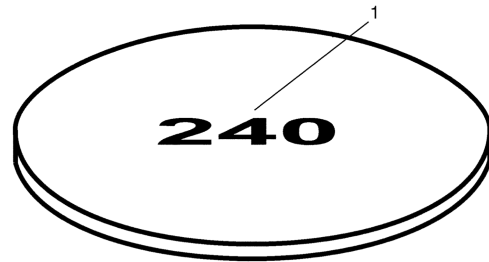
Calculated thickness of new shim = 2.65 mm (0.104 in.)

- 6) Select new shim No. (1) with a thickness as close as possible to calculated value.

Available new shims No.

Thickness mm (in.)	Shim No.	Thickness mm (in.)	Shim No.
2.175 (0.0856)	218	2.600 (0.1024)	260
2.200 (0.0866)	220	2.625 (0.1033)	263
2.225 (0.0876)	223	2.650 (0.1043)	265
2.250 (0.0886)	225	2.675 (0.1053)	268
2.275 (0.0896)	228	2.700 (0.1063)	270
2.300 (0.0906)	230	2.725 (0.1073)	273
2.325 (0.0915)	233	2.750 (0.1083)	275
2.350 (0.0925)	235	2.775 (0.1093)	278
2.375 (0.0935)	238	2.800 (0.1102)	280
2.400 (0.0945)	240	2.825 (0.1112)	283
2.425 (0.0955)	243	2.850 (0.1122)	285
2.450 (0.0965)	245	2.875 (0.1132)	288
2.475 (0.0974)	248	2.900 (0.1142)	290
2.500 (0.0984)	250	2.925 (0.1152)	293
2.525 (0.0994)	253	2.950 (0.1161)	295
2.550 (0.1004)	255	2.975 (0.1171)	298
2.575 (0.1014)	258	3.000 (0.1181)	300

- 7) Install new shim facing shim No. side with tappet.

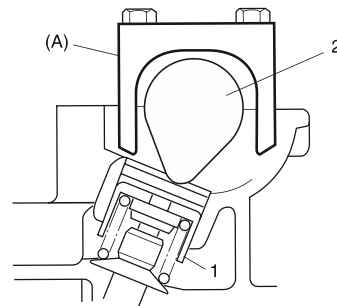


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- 8) Lift valve by turning crankshaft counterclockwise (in opposite direction against above Step 4)) and remove special tool.

Special tool

(A): 09916-66510



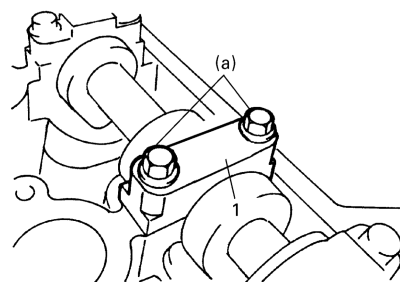
I3RMOA140006-01

1. Tappet	2. Camshaft
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- 9) Install camshaft housing (1) and tighten bolts to specified torque.

Tightening torque

Camshaft housing bolt (a): 11 N·m (1.1 kgf·m, 8.0 lb·ft)



I2RHOB140149-01

- 10) Turn crankshaft pulley more than 4 rotations.
 11) Check valve clearance again after adjusting it.
 12) After checking and adjusting all valves.
 13) Install cylinder head cover referring to "Cylinder Head Cover Removal and Installation: For J20 Engine".

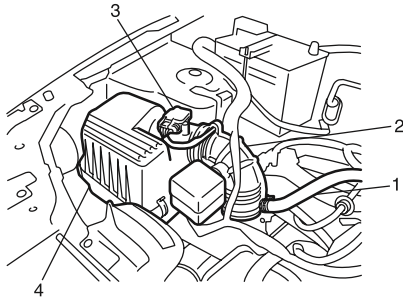
Repair Instructions

Air Cleaner Assembly Removal and Installation

S5JB0A1426044

Removal

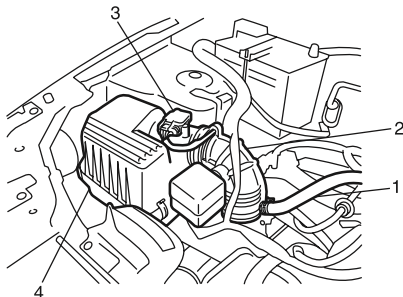
- 1) Disconnect breather hose (1) from air cleaner outlet hose (2).
- 2) Remove air cleaner outlet hose (2).
- 3) Disconnect MAF sensor connector (3).
- 4) Remove air cleaner case (4).



I5JB0A142003-01

Installation

- 1) Install air cleaner case (4).
- 2) Connect MAF sensor connector (3).
- 3) Install air cleaner outlet hose (2).
- 4) Connect breather hose (1) to air cleaner outlet hose (2).



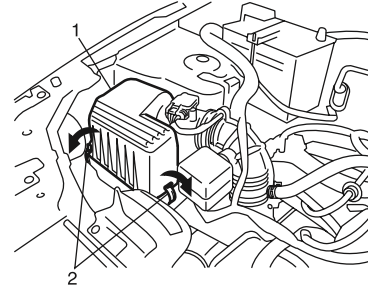
I5JB0A142003-01

Air Cleaner Filter Removal and Installation

S5JB0A1426002

Removal

- 1) Remove air cleaner upper case (1) from lower case after hooking clamps (2) from upper case.
- 2) Remove air cleaner filter.



I5JB0A142004-01

Installation

Reverse removal procedure for installation.

Air Cleaner Filter Inspection and Cleaning

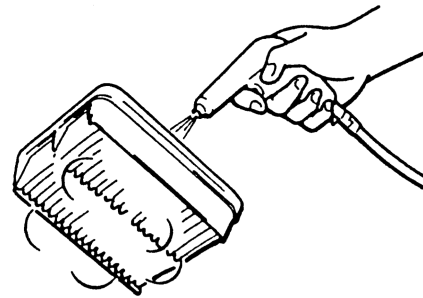
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Inspection

Check air cleaner filter for dirt.

Cleaning

Blow off dust by compressed air from air outlet side of element.



I2RH01140007-01