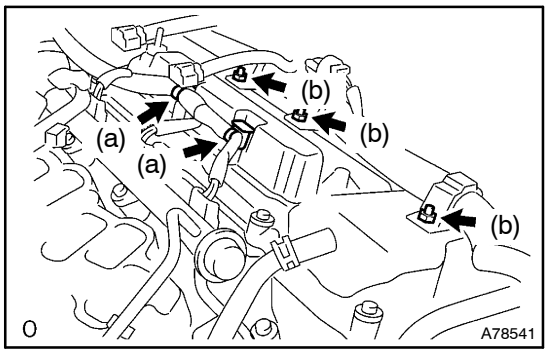
# VALVE CLEARANCE (3MZ–FE)

141RK–01

## ADJUSTMENT

1. DRAIN ENGINE COOLANT (See page 16–7)
2. REMOVE FR WIPER ARM LH (See page 66–7)
3. REMOVE FR WIPER ARM RH (See page 66–7)
4. REMOVE COWL TOP VENTILATOR LOUVER SUB–ASSY (See page 66–7)
5. REMOVE WINDSHIELD WIPER LINK ASSY (See page 66–7)
6. REMOVE COWL PANEL SUB–ASSY
7. REMOVE FRONT FENDER APRON SEAL RH
8. REMOVE FRONT SUSPENSION BRACE SUB–ASSY UPPER CENTER
9. REMOVE V–BANK COVER SUB–ASSY (See page 14–24)
10. REMOVE AIR CLEANER CAP SUB–ASSY
11. REMOVE EMISSION CONTROL VALVE SET (See page 14–24)
12. REMOVE INTAKE AIR SURGE TANK (See page 14–24)
13. REMOVE RADIATOR HOSE INLET
14. REMOVE IGNITION COIL ASSY

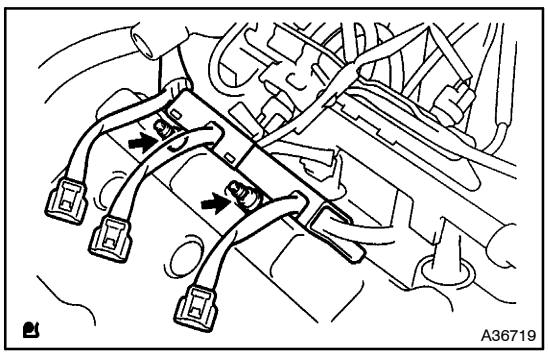



**15. REMOVE CYLINDER HEAD COVER SUB–ASSY**

(a) Remove the 2 engine wire harness clamps.

(b) Remove the 3 nuts and disconnect the engine wire harness.

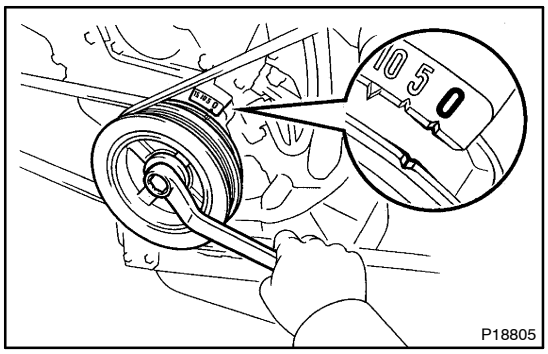
(c) Remove the 9 bolts and cylinder head cover.




**16. REMOVE CYLINDER HEAD COVER SUB–ASSY LH**

(a) Using an E6 torx socket wrench, remove the 2 bolts and disconnect the engine wire harness protector.

(b) Remove the 9 bolts and cylinder head cover.

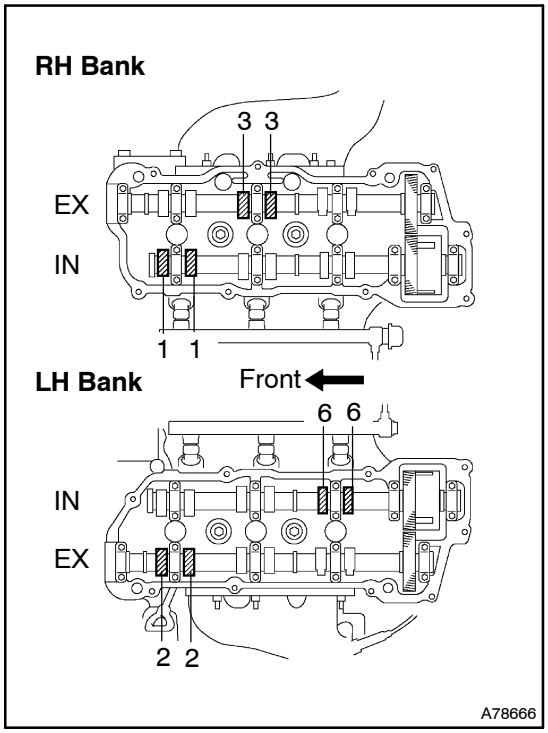



**17. INSPECT VALVE CLEARANCE**

(a) Turn the crankshaft pulley, and align the timing notch with timing mark 0 of the No. 1 timing belt cover.

(b) Check that the valve lifters on the cylinder No. 1 (IN and EX) are both loose.

If not, turn the crankshaft 1 revolution (360°) and align the mark as above.



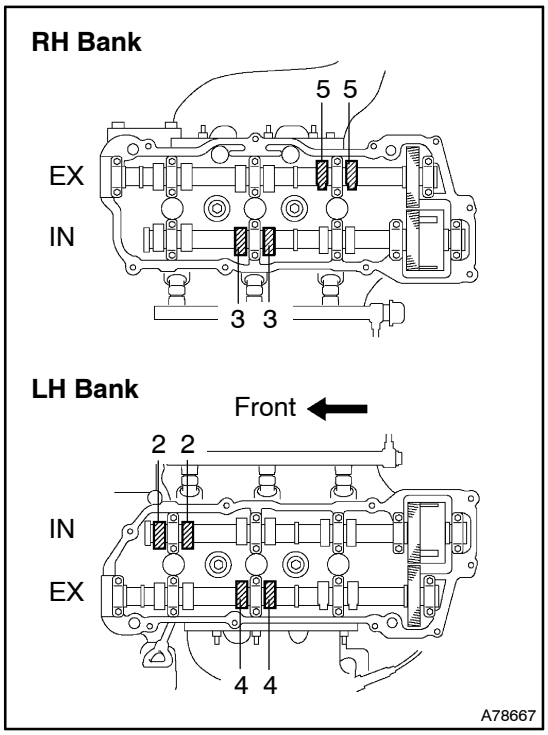

(c) Check the valves indicated in the illustration on the left.

(1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.

**Valve clearance (Cold):**

| Item | Specified Condition |
|---|---|
| Intake | 0.15 to 0.25 mm (0.006 to 0.010 in.) |
| Exhaust | 0.25 to 0.35 mm (0.010 to 0.014 in.) |

(2) Record valve clearance measurements that are out of the specified range. These measurements will be used later to determine the size of the adjustment shim to be installed.



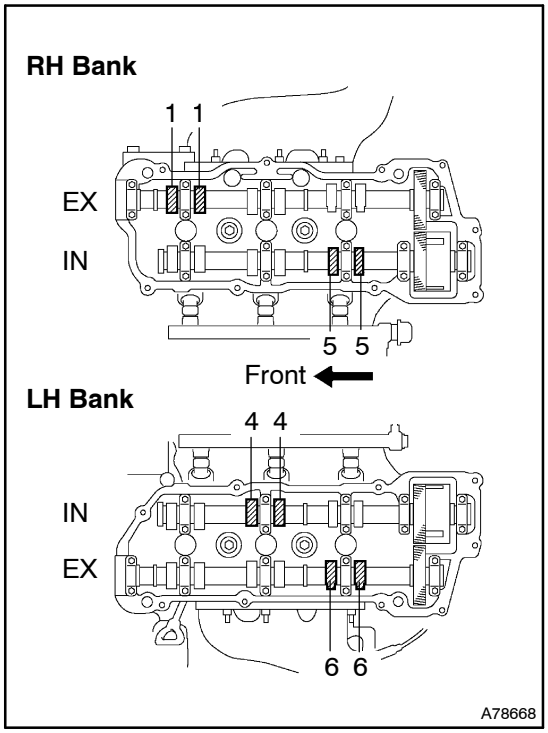

(d) Turn the crankshaft 2/3 of a revolution (240°), and check the valves indicated in the illustration on the left.

(1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.

**Valve clearance (Cold):**

| Item | Specified Condition |
|---|---|
| Intake | 0.15 to 0.25 mm (0.006 to 0.010 in.) |
| Exhaust | 0.25 to 0.35 mm (0.010 to 0.014 in.) |

(2) Record valve clearance measurements that are out of the specified range. These measurements will be used later to determine the size of the adjustment shim to be installed.



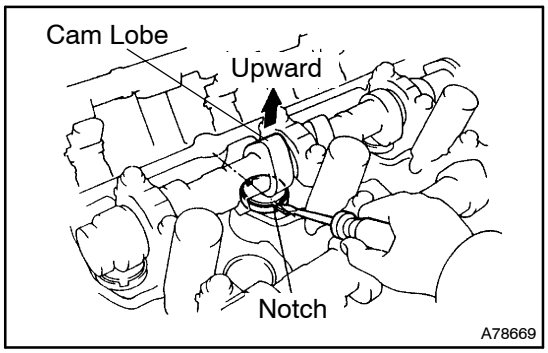

(e) Turn the crankshaft 2/3 of a revolution (240°), and check the valves indicated in the illustration on the left.

(1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.

**Valve clearance (Cold):**

| Item | Specified Condition |
|---|---|
| Intake | 0.15 to 0.25 mm (0.006 to 0.010 in.) |
| Exhaust | 0.25 to 0.35 mm (0.010 to 0.014 in.) |

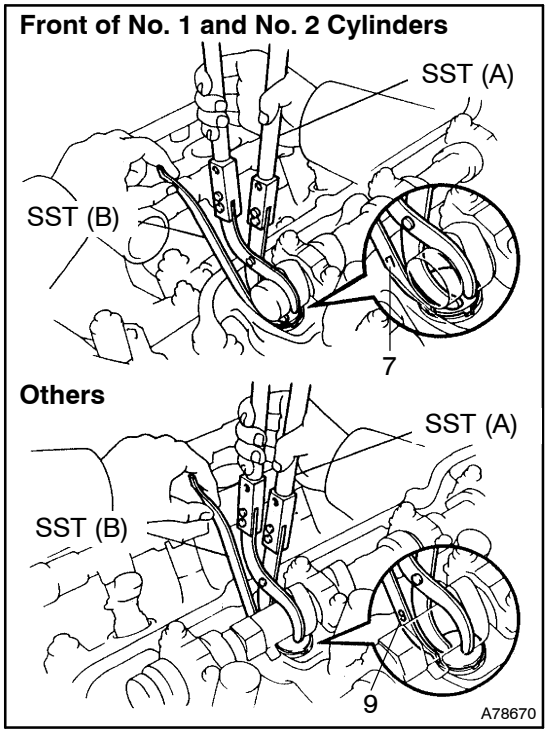
(2) Record valve clearance measurements that are out of the specified range. These measurements will be used later to determine the size of the adjustment shim to be installed.




**18. ADJUST VALVE CLEARANCE**

(a) Turn the camshaft so that the cam lobe faces upward.

(b) Turn the valve lifter with a screwdriver so that the notches are perpendicular to the camshaft.

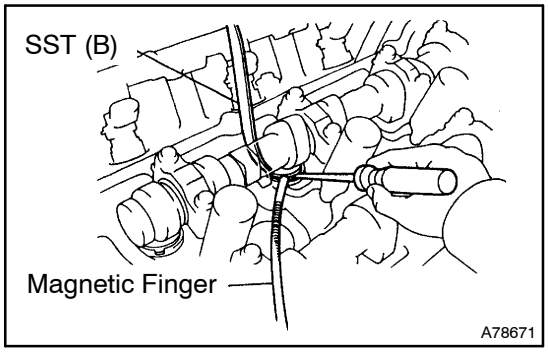



(c) Using SST (A), press down the valve lifter and place SST (B) between the camshaft and valve lifter. Remove SST (A).

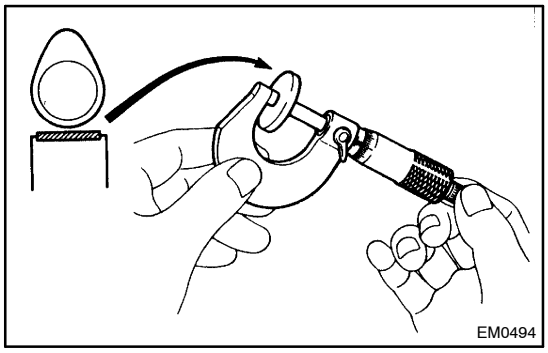
SST 09248–55040 (09248–05410, 09248–05420)

HINT:

- Apply SST (B) at a slight angle on the side marked with ”9” or ”7” at the position shown in the illustration.
- When SST (B) is inserted too deeply, it will get pinched by the shim. To prevent it from being stuck, insert it gently from the intake side at a slight angle.




(d) Using a small screwdriver and magnetic finger, remove the adjusting shim.




(e) Using a micrometer, measure the thickness of the removed shim.

(f) Calculate the thickness of a new shim so that the valve clearance comes within the specified value.

| | |
|---|---|
| A | Thickness of new shim |
| B | Thickness of used shim |
| C | Measured valve clearance |

**Specified value (Cold):**
**Intake A = B + (C – 0.20 mm (0.0079 in.))**
**Exhaust A = B + (C – 0.30 mm (0.0118 in.))**

(g) Select a new shim with a thickness as close as possible to the calculated values.

EXAMPLE (Intake):
Measured valve clearance = 0.45 mm (0.0177 in.)
0.45 mm (0.0177 in.) – 0.20 mm (0.0079 in.) = 0.25 mm (0.0098 in.)
(Measured – Specification = Excess clearance)
Used shim measurement = 2.80 mm (0.1102 in.)
0.25 mm (0.0098 in.) + 2.80 mm (0.1102 in.) = 3.05 mm (0.1201 in.)
(Excess clearance + Used shim = Ideal new shim)
Closest new shim = 3.05 mm (0.1201 in.)
Select No. 12 shim

HINT:

- Shims are available in 17 sizes in increments of 0.05 mm (0.0020 in.), from 2.50 mm (0.0984 in.) to 3.30 mm (0.1299 in.).
- Refer to the adjusting shim selection chart on the following 2 pages.

## Adjusting Shim Selection Chart (Intake)

| Measured clearance mm (in.) \ Installed shim thickness mm (in.) | 2.500 (0.0984) | 2.520 (0.0992) | 2.540 (0.1000) | 2.550 (0.1004) | 2.560 (0.1008) | 2.580 (0.1016) | 2.600 (0.1024) | 2.620 (0.1031) | 2.640 (0.1039) | 2.650 (0.1043) | 2.660 (0.1047) | 2.670 (0.1051) | 2.680 (0.1055) | 2.690 (0.1059) | 2.700 (0.1063) | 2.710 (0.1067) | 2.720 (0.1071) | 2.730 (0.1075) | 2.740 (0.1079) | 2.750 (0.1083) | 2.760 (0.1087) | 2.770 (0.1091) | 2.780 (0.1094) | 2.790 (0.1098) | 2.800 (0.1102) | 2.810 (0.1106) | 2.820 (0.1110) | 2.830 (0.1114) | 2.840 (0.1118) | 2.850 (0.1122) | 2.860 (0.1126) | 2.870 (0.1130) | 2.880 (0.1134) | 2.890 (0.1138) | 2.900 (0.1142) | 2.910 (0.1146) | 2.920 (0.1150) | 2.930 (0.1154) | 2.940 (0.1157) | 2.950 (0.1161) | 2.960 (0.1165) | 2.970 (0.1169) | 2.980 (0.1173) | 2.990 (0.1177) | 3.000 (0.1181) | 3.010 (0.1185) | 3.020 (0.1189) | 3.030 (0.1193) | 3.040 (0.1197) | 3.050 (0.1201) | 3.060 (0.1205) | 3.080 (0.1213) | 3.100 (0.1220) | 3.120 (0.1228) | 3.140 (0.1236) | 3.150 (0.1240) | 3.160 (0.1244) | 3.180 (0.1252) | 3.200 (0.1260) | 3.220 (0.1268) | 3.240 (0.1276) | 3.250 (0.1280) | 3.260 (0.1283) | 3.280 (0.1291) | 3.300 (0.1299) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 – 0.020 (0.0000 – 0.0008) |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 |
| 0.021 – 0.040 (0.0008 – 0.0016) |  |  |  |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 |
| 0.041 – 0.060 (0.0016 – 0.0024) |  |  |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 |
| 0.061 – 0.080 (0.0024 – 0.0031) |  |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 |
| 0.081 – 0.100 (0.0032 – 0.0039) |  |  |  | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 14 | 14 | 14 | 14 | 15 |
| 0.101 – 0.120 (0.0040 – 0.0047) |  |  | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 |
| 0.121 – 0.140 (0.0048 – 0.0055) |  | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 16 |
| 0.141 – 0.149 (0.0056 – 0.0059) |  | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 16 | 16 |
| 0.150 – 0.250 (0.0059 – 0.0098) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.251 – 0.260 (0.0099 – 0.0102) | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |
| 0.261 – 0.280 (0.0103 – 0.0110) | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |
| 0.281 – 0.300 (0.0111 – 0.0118) | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |
| 0.301 – 0.320 (0.0119 – 0.0126) | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 |  |  |  |  |
| 0.321 – 0.340 (0.0126 – 0.0134) | 4 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |
| 0.341 – 0.360 (0.0134 – 0.0142) | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |
| 0.361 – 0.380 (0.0142 – 0.0150) | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |
| 0.381 – 0.400 (0.0150 – 0.0157) | 5 | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |
| 0.401 – 0.420 (0.0158 – 0.0165) | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |
| 0.421 – 0.440 (0.0166 – 0.0173) | 6 | 6 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |
| 0.441 – 0.460 (0.0174 – 0.0181) | 6 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.461 – 0.480 (0.0181 – 0.0189) | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.481 – 0.500 (0.0189 – 0.0197) | 7 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.501 – 0.520 (0.0197 – 0.0205) | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.521 – 0.540 (0.0205 – 0.0213) | 8 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.541 – 0.560 (0.0213 – 0.0220) | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.561 – 0.580 (0.0221 – 0.0228) | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.581 – 0.600 (0.0229 – 0.0236) | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.601 – 0.620 (0.0237 – 0.0244) | 9 | 10 | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.621 – 0.640 (0.0244 – 0.0252) | 10 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.641 – 0.660 (0.0252 – 0.0260) | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.661 – 0.680 (0.0260 – 0.0268) | 10 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.681 – 0.700 (0.0268 – 0.0276) | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.701 – 0.720 (0.0276 – 0.0283) | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.721 – 0.740 (0.0284 – 0.0291) | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.741 – 0.760 (0.0292 – 0.0299) | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.761 – 0.780 (0.0300 – 0.0307) | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.781 – 0.800 (0.0307 – 0.0315) | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.801 – 0.820 (0.0315 – 0.0323) | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.821 – 0.840 (0.0323 – 0.0331) | 14 | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.841 – 0.860 (0.0331 – 0.0339) | 14 | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.861 – 0.880 (0.0339 – 0.0346) | 14 | 15 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.881 – 0.900 (0.0347 – 0.0354) | 15 | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.901 – 0.920 (0.0355 – 0.0362) | 15 | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.921 – 0.940 (0.0363 – 0.0370) | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.941 – 0.960 (0.0370 – 0.0378) | 16 | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.961 – 0.980 (0.0378 – 0.0386) | 16 | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.981 – 1.000 (0.0386 – 0.0394) | 17 | 17 | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.001 – 1.020 (0.0394 – 0.0402) | 17 | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.021 – 1.040 (0.0402 – 0.0409) | 17 | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.041 – 1.050 (0.0410 – 0.0413) | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Intake valve clearance (Cold):**
**0.15 to 0.25 mm (0.006 to 0.010 in.)**

EXAMPLE:
The 2.800 mm (0.1102 in.) shim is installed, and the measured clearance is 0.450 mm (0.0177 in.). Replace the 2.800 mm (0.1102 in.) shim with a new No. 12 shim.

New shim thickness mm (in.)

| Shim No. | Thickness | Shim No. | Thickness |
|---|---|---|---|
| 1 | 2.500 (0.0984) | 10 | 2.950 (0.1161) |
| 2 | 2.550 (0.1004) | 11 | 3.000 (0.1181) |
| 3 | 2.600 (0.1024) | 12 | 3.050 (0.1201) |
| 4 | 2.650 (0.1043) | 13 | 3.100 (0.1220) |
| 5 | 2.700 (0.1063) | 14 | 3.150 (0.1240) |
| 6 | 2.750 (0.1083) | 15 | 3.200 (0.1260) |
| 7 | 2.800 (0.1102) | 16 | 3.250 (0.1280) |
| 8 | 2.850 (0.1122) | 17 | 3.300 (0.1299) |
| 9 | 2.900 (0.1142) | | |

HINT:
A shim's thickness is written on its face in millimeters.

V00719

## Adjusting Shim Selection Chart (Exhaust)

| Measured clearance mm (in.) / Installed shim thickness mm (in.) | 2.500 (0.0984) | 2.520 (0.0992) | 2.540 (0.1000) | 2.550 (0.1004) | 2.560 (0.1008) | 2.580 (0.1016) | 2.600 (0.1024) | 2.620 (0.1031) | 2.640 (0.1039) | 2.650 (0.1043) | 2.660 (0.1047) | 2.670 (0.1051) | 2.680 (0.1055) | 2.690 (0.1059) | 2.700 (0.1063) | 2.710 (0.1067) | 2.720 (0.1071) | 2.730 (0.1075) | 2.740 (0.1079) | 2.750 (0.1083) | 2.760 (0.1087) | 2.770 (0.1091) | 2.780 (0.1094) | 2.790 (0.1098) | 2.800 (0.1102) | 2.810 (0.1106) | 2.820 (0.1110) | 2.830 (0.1114) | 2.840 (0.1118) | 2.850 (0.1122) | 2.860 (0.1126) | 2.870 (0.1130) | 2.880 (0.1134) | 2.890 (0.1138) | 2.900 (0.1142) | 2.910 (0.1146) | 2.920 (0.1150) | 2.930 (0.1154) | 2.940 (0.1157) | 2.950 (0.1161) | 2.960 (0.1165) | 2.970 (0.1169) | 2.980 (0.1173) | 2.990 (0.1177) | 3.000 (0.1181) | 3.010 (0.1185) | 3.020 (0.1189) | 3.030 (0.1193) | 3.040 (0.1197) | 3.050 (0.1201) | 3.060 (0.1205) | 3.080 (0.1213) | 3.100 (0.1220) | 3.120 (0.1228) | 3.140 (0.1236) | 3.150 (0.1240) | 3.160 (0.1244) | 3.180 (0.1252) | 3.200 (0.1260) | 3.220 (0.1268) | 3.240 (0.1276) | 3.250 (0.1280) | 3.260 (0.1283) | 3.280 (0.1291) | 3.300 (0.1299) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 – 0.020 (0.0000 – 0.0008) | | | | | | | | | | | | | | | | | |1|1|1|1|1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|8|8|8|8|9|9|10|10|10|10|11|11|
| 0.021 – 0.040 (0.0008 – 0.0016) | | | | | | | | | | | | | | | |1|1|1|1|1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|8|8|8|9|9|9|10|10|10|11|11|11|12|
| 0.041 – 0.060 (0.0016 – 0.0024) | | | | | | | | | | | | | |1|1|1|1|1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|8|8|8|9|9|9|10|10|10|11|11|11|12|12|
| 0.061 – 0.080 (0.0024 – 0.0031) | | | | | | | | | | | |1|1|1|1|1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|9|9|9|10|10|10|11|11|11|12|12|12|
| 0.081 – 0.100 (0.0032 – 0.0039) | | | | | | | | | |1|1|1|1|1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|9|9|10|10|10|10|11|11|12|12|12|12|13|
| 0.101 – 0.120 (0.0040 – 0.0047) | | | | | | | | |1|1|1|1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|10|10|10|10|11|11|12|12|12|12|13|13|
| 0.121 – 0.140 (0.0048 – 0.0055) | | | | | | | |1|1|1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|10|10|10|11|11|11|12|12|12|13|13|13|14|
| 0.141 – 0.160 (0.0056 – 0.0063) | | | | | | |1|1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|10|10|10|11|11|11|12|12|12|13|13|13|14|14|
| 0.161 – 0.180 (0.0063 – 0.0071) | | | | | |1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|11|11|11|12|12|12|13|13|13|14|14|14|
| 0.181 – 0.200 (0.0071 – 0.0079) | | | |1|1|1|1|1|2|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|11|11|12|12|12|12|13|13|14|14|14|14|15|
| 0.201 – 0.220 (0.0079 – 0.0087) | | |1|1|1|1|1|2|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|12|12|12|12|13|13|14|14|14|14|15|15|
| 0.221 – 0.240 (0.0087 – 0.0094) | |1|1|1|1|1|2|2|2|3|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|12|12|12|13|13|13|14|14|14|15|15|15|16|
| 0.241 – 0.249 (0.0095 – 0.0098) | |1|1|1|1|2|2|2|3|3|3|3|4|4|4|4|4|5|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|12|12|12|13|13|13|14|14|14|15|15|15|16|16|
| 0.250 – 0.350 (0.0098 – 0.0138) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.351 – 0.360 (0.0138 – 0.0142) |2|3|3|3|3|4|4|5|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|15|15|15|15|16|16|17|17|17|17|17| |
| 0.361 – 0.380 (0.0142 – 0.0150) |2|3|3|3|4|4|4|5|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|15|15|15|16|16|16|17|17|17|17|17| |
| 0.381 – 0.400 (0.0150 – 0.0157) |3|3|4|4|4|4|5|5|6|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|15|15|16|16|16|16|17|17|17|17|17| | |
| 0.401 – 0.420 (0.0158 – 0.0165) |3|4|4|4|4|5|5|6|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|16|16|16|16|17|17|17|17| | | | |
| 0.421 – 0.440 (0.0166 – 0.0173) |4|4|4|5|5|5|6|6|6|7|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|16|16|16|17|17|17|17|17| | | | | |
| 0.441 – 0.460 (0.0174 – 0.0181) |4|4|5|5|5|6|6|6|7|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|16|16|16|17|17|17|17|17| | | | | | |
| 0.461 – 0.480 (0.0181 – 0.0189) |4|5|5|5|6|6|6|7|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|17|17|17|17|17| | | | | | | |
| 0.481 – 0.500 (0.0189 – 0.0197) |5|5|6|6|6|6|7|7|8|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|17|17|17|17|17| | | | | | | | |
| 0.501 – 0.520 (0.0197 – 0.0205) |5|6|6|6|6|7|7|8|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17| | | | | | | | | | |
| 0.521 – 0.540 (0.0205 – 0.0213) |6|6|6|7|7|7|8|8|8|9|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17| | | | | | | | | | | |
| 0.541 – 0.560 (0.0213 – 0.0220) |6|6|7|7|7|8|8|8|9|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17| | | | | | | | | | | | |
| 0.561 – 0.580 (0.0221 – 0.0228) |6|7|7|7|8|8|8|9|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17| | | | | | | | | | | | | |
| 0.581 – 0.600 (0.0229 – 0.0236) |7|7|8|8|8|8|9|9|10|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | |
| 0.601 – 0.620 (0.0237 – 0.0244) |7|8|8|8|8|9|9|10|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | |
| 0.621 – 0.640 (0.0244 – 0.0252) |8|8|8|9|9|9|10|10|10|11|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | |
| 0.641 – 0.660 (0.0252 – 0.0260) |8|8|9|9|9|10|10|10|11|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | |
| 0.661 – 0.680 (0.0260 – 0.0268) |8|9|9|9|10|10|10|11|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | |
| 0.681 – 0.700 (0.0268 – 0.0276) |9|9|10|10|10|10|11|11|12|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | |
| 0.701 – 0.720 (0.0276 – 0.0283) |9|10|10|10|10|11|11|12|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.721 – 0.740 (0.0284 – 0.0291) |10|10|10|11|11|11|12|12|12|13|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.741 – 0.760 (0.0292 – 0.0299) |10|10|11|11|11|12|12|12|13|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.761 – 0.780 (0.0300 – 0.0307) |10|11|11|11|12|12|12|13|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.781 – 0.800 (0.0307 – 0.0315) |11|11|12|12|12|12|13|13|14|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.801 – 0.820 (0.0315 – 0.0323) |11|12|12|12|12|13|13|14|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.821 – 0.840 (0.0323 – 0.0331) |12|12|12|13|13|13|14|14|14|15|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.841 – 0.860 (0.0331 – 0.0339) |12|12|13|13|13|14|14|14|15|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.861 – 0.880 (0.0339 – 0.0346) |12|13|13|13|14|14|14|15|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.881 – 0.900 (0.0347 – 0.0354) |13|13|14|14|14|14|15|15|16|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.901 – 0.920 (0.0355 – 0.0362) |13|14|14|14|14|15|15|16|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.921 – 0.940 (0.0363 – 0.0370) |14|14|14|15|15|15|16|16|16|17|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.941 – 0.960 (0.0370 – 0.0378) |14|14|15|15|15|16|16|16|17|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.961 – 0.980 (0.0378 – 0.0386) |14|15|15|15|16|16|16|17|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.981 – 1.000 (0.0386 – 0.0394) |15|15|16|16|16|16|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.001 – 1.020 (0.0394 – 0.0402) |15|16|16|16|16|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.021 – 1.040 (0.0402 – 0.0409) |16|16|16|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.041 – 1.060 (0.0410 – 0.0417) |16|16|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.061 – 1.080 (0.0418 – 0.0425) |16|17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.081 – 1.100 (0.0426 – 0.0433) |17|17|17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.101 – 1.120 (0.0433 – 0.0441) |17|17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.121 – 1.140 (0.0441 – 0.0449) |17|17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.141 – 1.150 (0.0449 – 0.0453) |17| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Exhaust valve clearance (Cold):**
**0.25 to 0.35 mm (0.010 to 0.014 in.)**

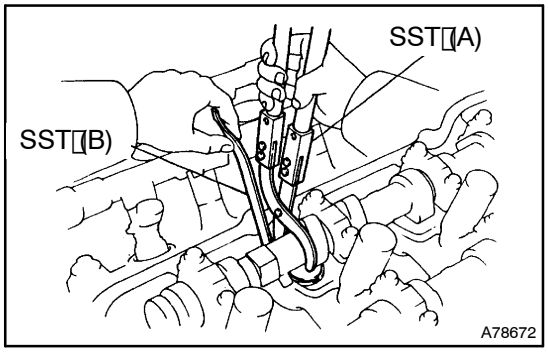
EXAMPLE:
The 2.800 mm (0.1102 in.) shim is installed, and the measured clearance is 0.450 mm (0.0177 in.). Replace the 2.800 mm (0.1102 in.) shim with a new No. 10 shim.

New shim thickness mm (in.)

| Shim No. | Thickness | Shim No. | Thickness |
|---|---|---|---|
| 1 | 2.500 (0.0984) | 10 | 2.950 (0.1161) |
| 2 | 2.550 (0.1004) | 11 | 3.000 (0.1181) |
| 3 | 2.600 (0.1024) | 12 | 3.050 (0.1201) |
| 4 | 2.650 (0.1043) | 13 | 3.100 (0.1220) |
| 5 | 2.700 (0.1063) | 14 | 3.150 (0.1240) |
| 6 | 2.750 (0.1083) | 15 | 3.200 (0.1260) |
| 7 | 2.800 (0.1102) | 16 | 3.250 (0.1280) |
| 8 | 2.850 (0.1122) | 17 | 3.300 (0.1299) |
| 9 | 2.900 (0.1142) | | |

HINT:
A shim's thickness is written on its face in millimeters.

V00720

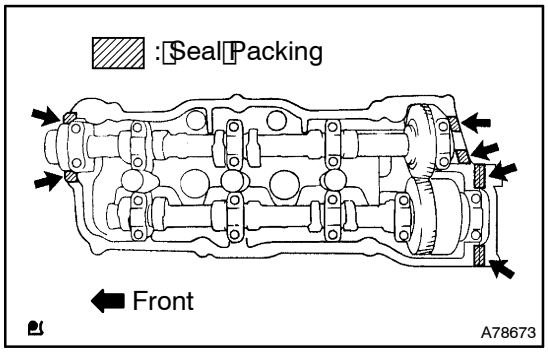



(h) Place a new adjusting shim on the valve lifter with the imprinted number facing down.

(i) Press down the valve lifter with SST (A), and remove SST (B).

SST 09248–55040 (09248–05410, 09248–05420)

(j) Recheck the valve clearance.




**19. INSTALL CYLINDER HEAD COVER SUB–ASSY**

(a) Install the gasket to the cylinder head cover.

(b) Apply seal packing to the cylinder head, as shown in the illustration.

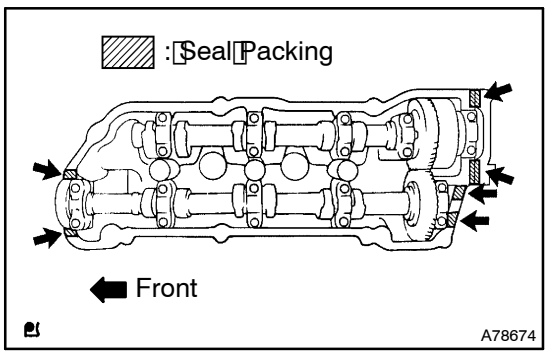
**Seal packing: Part No. 08826–00080 or equivalent**

**NOTICE:**

- **Remove any oil from the contact surface.**
- **Install the cylinder head cover within 3 minutes after applying seal packing.**
- **Do not start the engine for at least 2 hours after installing.**

(c) Install the cylinder head cover with the 9 bolts. Tighten the bolts uniformly in several steps.

**Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)**




**20. INSTALL CYLINDER HEAD COVER SUB–ASSY LH**

(a) Install the gasket to the cylinder head cover.

(b) Apply seal packing to the cylinder head, as shown in the illustration.

**Seal packing: Part No. 08826–00080 or equivalent**

**NOTICE:**

- **Remove any oil from the contact surface.**
- **Install the cylinder head cover within 3 minutes after applying seal packing.**
- **Do not start the engine for at least 2 hours after installing.**

(c) Install the cylinder head cover with the 9 bolts. Tighten the bolts uniformly in several steps.

**Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)**

**21. INSTALL IGNITION COIL ASSY**
**Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)**

**22. INSTALL RADIATOR HOSE INLET**

**23. INSTALL INTAKE AIR SURGE TANK (See page 14–24)**

**24. INSTALL EMISSION CONTROL VALVE SET (See page 14–24)**

**25. INSTALL AIR CLEANER CAP SUB–ASSY**

**26. CONNECT VACUUM HOSES (See page 14–24)**

**27. INSTALL V–BANK COVER SUB–ASSY (See page 14–24)**

**28. INSTALL FRONT SUSPENSION BRACE SUB–ASSY UPPER CENTER**
**Torque: 80 N·m (816 kgf·cm, 59 ft.·lbf)**

**29. INSTALL COWL PANEL SUB–ASSY**

30. INSTALL WINDSHIELD WIPER LINK ASSY (See page 66–7)
31. INSTALL COWL TOP VENTILATOR LOUVER SUB–ASSY (See page 66–7)
32. INSTALL FR WIPER ARM LH (See page 66–7)
33. INSTALL FR WIPER ARM RH (See page 66–7)
34. ADD ENGINE COOLANT (See page 16–7)
35. CHECK FOR ENGINE COOLANT LEAKS (See page 16–1)