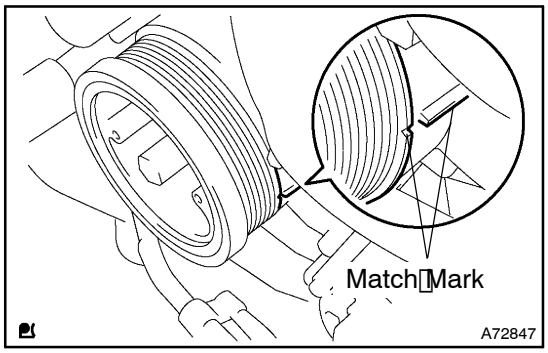
VALVE CLEARANCE (1KD–FTV)

1411J–01

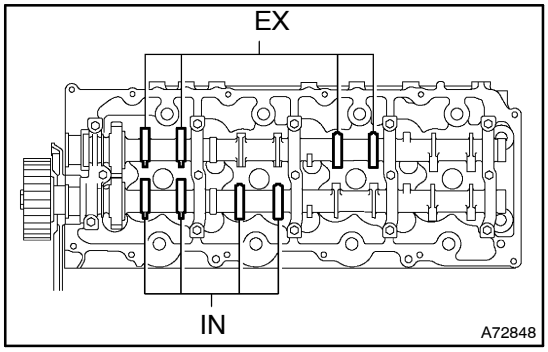
ADJUSTMENT

1. **REMOVE ENGINE UNDER COVER SUB–ASSY NO.1**
(a) Remove the 4 bolts and engine under cover No. 1.
2. **REMOVE INTERCOOLER PROTECTOR (See page 13–30)**
3. **REMOVE INTERCOOLER ASSY (See page 10–31)**
4. **REMOVE AIR HOSE NO.1**
5. **REMOVE VACUUM SWITCHING VALVE ASSY NO.1 (See page 10–31)**
6. **REMOVE DIESEL THROTTLE BODY ASSY (See page 10–31)**
7. **REMOVE CYLINDER HEAD COVER SUB–ASSY NO.2 (See page 14–223)**
8. **REMOVE INJECTION PIPE (See page 11–106)**
9. **REMOVE CYLINDER HEAD COVER SUB–ASSY (See page 11–106)**
10. **REMOVE INJECTOR ASSY (See page 11–106)**



11. **SET NO. 1 CYLINDER TO TDC/COMPRESSION**
(a) Align the match marks of the crankshaft pulley and timing gear case cover by rotating the crankshaft in clockwise direction.

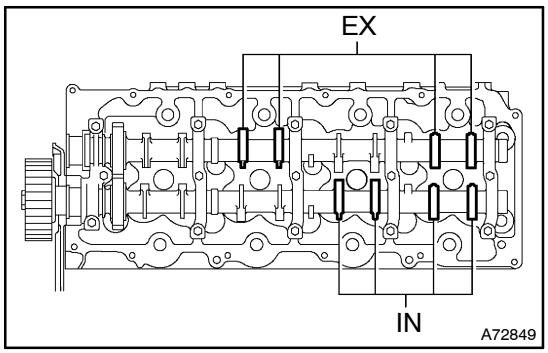
HINT:
Make sure that both two cam–nose on intake side and exhaust side of the cylinder No. 1 face upward.



12. **INSPECT VALVE CLEARANCE**
(a) Check only the valves indicated.
(1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.
(2) Record the out–of specification valve clearance measurements. They will be used later to determine the required replacement valve lifter.

Valve clearance (Cold):
Intake 0.20 – 0.30 mm (0.0079 – 0.0118 in.)
Exhaust 0.35 – 0.45 mm (0.0138 – 0.0177 in.)

(b) Turn the crankshaft in 360 ° to set the No. 4 cylinder to TDC/ compression.



(c) Check only the valves indicated.
(1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.
(2) Record the out–of specification valve clearance measurements. They will be used later to determine the required replacement valve lifter.

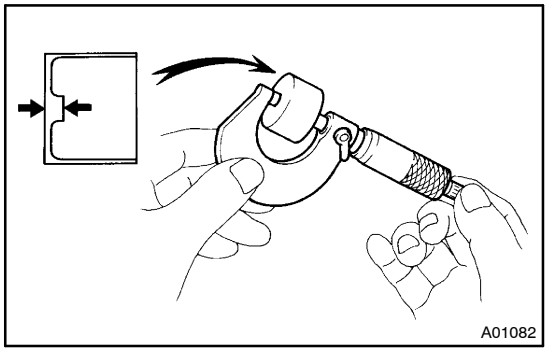
Valve clearance (Cold):
Intake 0.20 – 0.30 mm (0.0079 – 0.0118 in.)
Exhaust 0.35 – 0.45 mm (0.0138 – 0.0177 in.)

13. ADJUST VALVE CLEARANCE

(a) Drain coolant. (See page 16–50)
(b) Remove the 11 clips and radiator support seal upper.
(c) Remove the wire harness from the fan shroud (COLD AREA).
(d) Remove the radiator reserve tank.
  (1) Remove the radiator reserve tank hose.
  (2) Remove the 3 bolts and radiator reserve tank.
(e) Remove the radiator hose No. 1.
(f) Remove the V belt. (See page 14–189)

HINT:
Loosen the 4 nuts for the fan w/ fluid coupling assy in advance.

(g) Remove the fan shroud.
  (1) Remove the oil cooler inlet hose and outlet hose from the hose clamp. (AT TRANSMISSION)
  (2) Remove the 4 nuts for the fan w/ fluid coupling assy as well as 2 bolts for the fan shroud.
  (3) Remove the fan w/ fluid coupling assy together with the fan shroud.
(h) Remove the fan pulley.
(i) Remove the timing belt No. 1 cover. (See page 14–214)
(j) Remove the timing belt. (See page 14–214)
(k) Remove the camshaft timing pulley. (See page 14–223)
(l) Remove the timing belt idler sub–assy No. 1. (See page 14–223)
(m) Remove the timing belt No. 2 cover. (See page 14–223)
(n) Remove the camshaft and camshaft No. 2. (See page 14–223)



(o) Remove the valve lifters.
(p) Using a micrometer, measure the thickness of the removed lifter.
(q) Calculate the thickness of a new lifter so that the valve clearance comes within the specified value.

A	Thickness of new lifter
B	Thickness of used lifter
C	Measured valve clearance

Valve clearance (Cold):
Intake A = B + (C – 0.25 mm (0.0098 in.))
Exhaust A = B + (C – 0.40 mm (0.00158 in.))

(r) Select a new lifter with a thickness as close as possible to the calculated values.

HINT:
Valve lifters 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.).

(s) Install the selected valve lifter.

Valve Lifter Selection Chart (Exhaust)

Measure clearance mm (in.) \ Installed lifter thickness mm (in.)	5.060 (0.1992)	5.080 (0.2000)	5.100 (0.2008)	5.120 (0.2016)	5.140 (0.2024)	5.160 (0.2031)	5.180 (0.2039)	5.200 (0.2047)	5.210 (0.2051)	5.220 (0.2055)	5.230 (0.2059)	5.240 (0.2063)	5.250 (0.2067)	5.260 (0.2071)	5.270 (0.2075)	5.280 (0.2079)	5.290 (0.2083)	5.300 (0.2087)	5.310 (0.2091)	5.320 (0.2094)	5.330 (0.2098)	5.340 (0.2102)	5.350 (0.2106)	5.360 (0.2110)	5.370 (0.2114)	5.380 (0.2118)	5.390 (0.2122)	5.400 (0.2126)	5.410 (0.2130)	5.420 (0.2134)	5.430 (0.2138)	5.440 (0.2142)	5.450 (0.2146)	5.460 (0.2150)	5.470 (0.2154)	5.480 (0.2157)	5.490 (0.2161)	5.500 (0.2165)	5.510 (0.2169)	5.520 (0.2173)	5.530 (0.2177)	5.540 (0.2181)	5.550 (0.2185)	5.560 (0.2189)	5.570 (0.2193)	5.580 (0.2197)	5.590 (0.2201)	5.600 (0.2205)	5.620 (0.2213)	5.640 (0.2220)	5.660 (0.2228)	5.680 (0.2236)	5.700 (0.2244)	5.720 (0.2252)	5.740 (0.2260)
0.000 - 0.020 (0.0000 - 0.0008)																																06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	24	26	28	30	32	34	36
0.021 - 0.040 (0.0008 - 0.0016)																														06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	26	28	30	32	34	36	38
0.041 - 0.060 (0.0016 - 0.0024)																												06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	28	30	32	34	36	38	40
0.061 - 0.080 (0.0024 - 0.0031)																										06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	30	32	34	36	38	40	42
0.081 - 0.100 (0.0032 - 0.0039)																								06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	32	34	36	38	40	42	44
0.101 - 0.120 (0.0040 - 0.0047)																						06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	34	36	38	40	42	44	46
0.121 - 0.140 (0.0048 - 0.0055)																				06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	36	38	40	42	44	46	48
0.141 - 0.160 (0.0056 - 0.0063)																		06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	38	40	42	44	46	48	50
0.161 - 0.180 (0.0063 - 0.0071)																06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	40	42	44	46	48	50	52
0.181 - 0.200 (0.0071 - 0.0079)														06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	42	44	46	48	50	52	54
0.201 - 0.220 (0.0079 - 0.0087)												06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	44	46	48	50	52	54	56
0.221 - 0.240 (0.0087 - 0.0094)										06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	46	48	50	52	54	56	58
0.241 - 0.260 (0.0095 - 0.0102)								06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	48	50	52	54	56	58	60
0.261 - 0.280 (0.0103 - 0.0110)							06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	50	52	54	56	58	60	62
0.281 - 0.300 (0.0111 - 0.0118)						06	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	52	54	56	58	60	62	64
0.301 - 0.320 (0.0119 - 0.0126)					06	08	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	54	56	58	60	62	64	66
0.321 - 0.340 (0.0126 - 0.0134)					08	10	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	56	58	60	62	64	66	68
0.341 - 0.344 (0.0134 - 0.0135)				06	08	10	12	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	58	60	62	64	66	68
0.350 - 0.450 (0.0138 - 0.0177)																																																							
0.451 - 0.470 (0.0178 - 0.0185)	12	14	16	18	20	22	24	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	70	72	74			
0.471 - 0.490 (0.0185 - 0.0193)	14	16	18	20	22	24	26	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	72	74				
0.491 - 0.510 (0.0193 - 0.0201)	16	18	20	22	24	26	28	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	74					
0.511 - 0.530 (0.0201 - 0.0209)	18	20	22	24	26	28	30	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74						
0.531 - 0.550 (0.0209 - 0.0217)	20	22	24	26	28	30	32	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74							
0.551 - 0.570 (0.0217 - 0.0224)	22	24	26	28	30	32	34	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74									
0.571 - 0.590 (0.0225 - 0.0232)	24	26	28	30	32	34	36	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74											
0.591 - 0.610 (0.0233 - 0.0240)	26	28	30	32	34	36	38	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74													
0.611 - 0.630 (0.0241 - 0.0248)	28	30	32	34	36	38	40	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74															
0.631 - 0.650 (0.0248 - 0.0256)	30	32	34	36	38	40	42	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																	
0.651 - 0.670 (0.0256 - 0.0264)	32	34	36	38	40	42	44	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																			
0.671 - 0.690 (0.0264 - 0.0272)	34	36	38	40	42	44	46	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																					
0.691 - 0.710 (0.0272 - 0.0280)	36	38	40	42	44	46	48	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																							
0.711 - 0.730 (0.0280 - 0.0287)	38	40	42	44	46	48	50	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																									
0.731 - 0.750 (0.0288 - 0.0295)	40	42	44	46	48	50	52	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																											
0.751 - 0.770 (0.0296 - 0.0303)	42	44	46	48	50	52	54	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																													
0.771 - 0.790 (0.0304 - 0.0311)	44	46	48	50	52	54	56	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																															
0.791 - 0.810 (0.0311 - 0.0319)	46	48	50	52	54	56	58	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																																	
0.811 - 0.830 (0.0319 - 0.0327)	48	50	52	54	56	58	60	62	64	64	66	66	68	68	70	70	72	72	74	74																																			
0.831 - 0.850 (0.0327 - 0.0335)	50	52	54	56	58	60	62	64	66	66	68	68	70	70	72	72	74	74																																					
0.851 - 0.870 (0.0335 - 0.0343)	52	54	56	58	60	62	64	66	68	68	70	70	72	72	74	74																																							
0.871 - 0.890 (0.0343 - 0.0350)	54	56	58	60	62	64	66	68	70	70	72	72	74	74																																									
0.891 - 0.910 (0.0351 - 0.0358)	56	58	60	62	64	66	68	70	72	72	74	74																																											
0.911 - 0.930 (0.0359 - 0.0366)	58	60	62	64	66	68	70	72	74	74																																													
0.931 - 0.950 (0.0367 - 0.0374)	60	62	64	66	68	70	72	74																																															
0.951 - 0.970 (0.0374 - 0.0382)	62	64	66	68	70	72	74																																																
0.971 - 0.990 (0.0382 - 0.0390)	64	66	68	70	72	74																																																	
0.991 - 1.010 (0.0390 - 0.0398)	66	68	70	72	74																																																		
1.011 - 1.030 (0.0398 - 0.0406)	68	70	72	74																																																			
1.031 - 1.050 (0.0406 - 0.0413)	70	72	74																																																				
1.051 - 1.070 (0.0414 - 0.0421)	72	74																																																						
1.071 - 1.090 (0.0422 - 0.0429)	74																																																							

New Lifter Thickness mm (in.)

No.	Thickness	No.	Thickness	No.	Thickness
06	5.060 (0.1992)	30	5.300 (0.2087)	54	5.540 (0.2181)
08	5.080 (0.2000)	32	5.320 (0.2094)	56	5.560 (0.2189)
10	5.100 (0.2008)	34	5.340 (0.2102)	58	5.580 (0.2197)
12	5.120 (0.2016)	36	5.360 (0.2110)	60	5.600 (0.2205)
14	5.140 (0.2024)	38	5.380 (0.2118)	62	5.620 (0.2213)
16	5.160 (0.2031)	40	5.400 (0.2126)	64	5.640 (0.2220)
18	5.180 (0.2039)	42	5.420 (0.2134)	66	5.660 (0.2228)
20	5.200 (0.2047)	44	5.440 (0.2142)	68	5.680 (0.2236)
22	5.220 (0.2055)	46	5.460 (0.2150)	70	5.700 (0.2244)
24	5.240 (0.2063)	48	5.480 (0.2157)	72	5.720 (0.2252)
26	5.260 (0.2071)	50	5.500 (0.2165)	74	5.740 (0.2260)
28	5.280 (0.2079)	52	5.520 (0.2173)		

Exhaust valve clearance (Cold):
0.35 – 0.45 mm (0.0138 – 0.0177 in.)

EXAMPLE:
The 5.340 mm (0.2102 in.) lifter is installed, and the measured clearance is 0.480 mm (0.0189 in.). Replace the 5.340 mm (0.2102 in.) shim with a new No. 42 lifter.

A72845

Valve Lifter Selection Chart (Intake)

Measure clearance mm (in.) \ Installed lifter thickness mm (in.)	5.060 (0.1992)	5.080 (0.2000)	5.100 (0.2008)	5.120 (0.2016)	5.140 (0.2024)	5.160 (0.2031)	5.180 (0.2039)	5.200 (0.2047)	5.210 (0.2051)	5.220 (0.2055)	5.230 (0.2059)	5.240 (0.2063)	5.250 (0.2067)	5.260 (0.2071)	5.270 (0.2075)	5.280 (0.2079)	5.290 (0.2083)	5.300 (0.2087)	5.310 (0.2091)	5.320 (0.2094)	5.330 (0.2098)	5.340 (0.2102)	5.350 (0.2106)	5.360 (0.2110)	5.370 (0.2114)	5.380 (0.2118)	5.390 (0.2122)	5.400 (0.2126)	5.410 (0.2130)	5.420 (0.2134)	5.430 (0.2138)	5.440 (0.2142)	5.450 (0.2146)	5.460 (0.2150)	5.470 (0.2154)	5.480 (0.2157)	5.490 (0.2161)	5.500 (0.2165)	5.510 (0.2169)	5.520 (0.2173)	5.530 (0.2177)	5.540 (0.2181)	5.550 (0.2185)	5.560 (0.2189)	5.570 (0.2193)	5.580 (0.2197)	5.590 (0.2201)	5.600 (0.2205)	5.620 (0.2213)	5.640 (0.2220)	5.660 (0.2228)	5.680 (0.2236)	5.700 (0.2244)	5.720 (0.2252)	5.740 (0.2260)
0.000 - 0.020 (0.0000 - 0.0008)																	06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	40	42	44	46	48	50
0.021 - 0.040 (0.0008 - 0.0016)															06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	42	44	46	48	50	52
0.041 - 0.060 (0.0016 - 0.0024)													06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	44	46	48	50	52	54
0.061 - 0.080 (0.0024 - 0.0031)											06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	46	48	50	52	54	56
0.081 - 0.100 (0.0032 - 0.0039)									06	06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	48	50	52	54	56	58
0.101 - 0.120 (0.0040 - 0.0047)								06	08	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	50	52	54	56	58	60
0.121 - 0.140 (0.0048 - 0.0055)							06	08	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	52	54	56	58	60	62
0.141 - 0.160 (0.0056 - 0.0063)						06	08	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	54	56	58	60	62	64
0.161 - 0.180 (0.0063 - 0.0071)					06	08	10	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	56	58	60	62	64	66
0.181 - 0.200 (0.0071 - 0.0079)				06	08	10	12	14	16	16	18	18	20	20	22	22	24	24	26	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	58	60	62	64	66	68
0.200 - 0.300 (0.0079 - 0.0118)																																																							
0.301 - 0.320 (0.0119 - 0.0126)	12	14	16	18	20	22	24	26	28	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	70	72	74			
0.321 - 0.340 (0.0126 - 0.0134)	14	16	18	20	22	24	26	28	30	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	72	74				
0.341 - 0.360 (0.0134 - 0.0142)	16	18	20	22	24	26	28	30	32	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	74					
0.361 - 0.380 (0.0142 - 0.0150)	18	20	22	24	26	28	30	32	34	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74						
0.381 - 0.400 (0.0150 - 0.0157)	20	22	24	26	28	30	32	34	36	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74							
0.401 - 0.420 (0.0158 - 0.0165)	22	24	26	28	30	32	34	36	38	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74									
0.421 - 0.440 (0.0166 - 0.0173)	24	26	28	30	32	34	36	38	40	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74											
0.441 - 0.460 (0.0174 - 0.0181)	26	28	30	32	34	36	38	40	42	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74													
0.461 - 0.480 (0.0181 - 0.0189)	28	30	32	34	36	38	40	42	44	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74															
0.481 - 0.500 (0.0189 - 0.0197)	30	32	34	36	38	40	42	44	46	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																	
0.501 - 0.520 (0.0197 - 0.0205)	32	34	36	38	40	42	44	46	48	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																			
0.521 - 0.540 (0.0205 - 0.0213)	34	36	38	40	42	44	46	48	50	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																					
0.541 - 0.560 (0.0213 - 0.0220)	36	38	40	42	44	46	48	50	52	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																							
0.561 - 0.580 (0.0221 - 0.0228)	38	40	42	44	46	48	50	52	54	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																									
0.581 - 0.600 (0.0229 - 0.0236)	40	42	44	46	48	50	52	54	56	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																											
0.601 - 0.620 (0.0237 - 0.0244)	42	44	46	48	50	52	54	56	58	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																													
0.621 - 0.640 (0.0244 - 0.0252)	44	46	48	50	52	54	56	58	60	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																															
0.641 - 0.660 (0.0252 - 0.0260)	46	48	50	52	54	56	58	60	62	62	64	64	66	66	68	68	70	70	72	72	74	74																																	
0.661 - 0.680 (0.0260 - 0.0268)	48	50	52	54	56	58	60	62	64	64	66	66	68	68	70	70	72	72	74	74																																			
0.681 - 0.700 (0.0268 - 0.0276)	50	52	54	56	58	60	62	64	66	66	68	68	70	70	72	72	74	74																																					
0.701 - 0.720 (0.0276 - 0.0283)	52	54	56	58	60	62	64	66	68	68	70	70	72	72	74	74																																							
0.721 - 0.740 (0.0284 - 0.0291)	54	56	58	60	62	64	66	68	70	70	72	72	74	74																																									
0.741 - 0.760 (0.0292 - 0.0299)	56	58	60	62	64	66	68	70	72	72	74	74																																											
0.761 - 0.780 (0.0300 - 0.0307)	58	60	62	64	66	68	70	72	74	74																																													
0.781 - 0.800 (0.0307 - 0.0315)	60	62	64	66	68	70	72	74																																															
0.801 - 0.820 (0.0315 - 0.0323)	62	64	66	68	70	72	74																																																
0.821 - 0.840 (0.0323 - 0.0331)	64	66	68	70	72	74																																																	
0.841 - 0.860 (0.0331 - 0.0339)	66	68	70	72	74																																																		
0.861 - 0.880 (0.0339 - 0.0346)	68	70	72	74																																																			
0.881 - 0.900 (0.0347 - 0.0354)	70	72	74																																																				
0.901 - 0.920 (0.0355 - 0.0362)	72	74																																																					
0.921 - 0.940 (0.0363 - 0.0370)	74																																																						

New Lifter Thickness mm (in.)

No.	Thickness	No.	Thickness	No.	Thickness
06	5.060 (0.1992)	30	5.300 (0.2087)	54	5.540 (0.2181)
08	5.080 (0.2000)	32	5.320 (0.2094)	56	5.560 (0.2189)
10	5.100 (0.2008)	34	5.340 (0.2102)	58	5.580 (0.2197)
12	5.120 (0.2016)	36	5.360 (0.2110)	60	5.600 (0.2205)
14	5.140 (0.2024)	38	5.380 (0.2118)	62	5.620 (0.2213)
16	5.160 (0.2031)	40	5.400 (0.2126)	64	5.640 (0.2220)
18	5.180 (0.2039)	42	5.420 (0.2134)	66	5.660 (0.2228)
20	5.200 (0.2047)	44	5.440 (0.2142)	68	5.680 (0.2236)
22	5.220 (0.2055)	46	5.460 (0.2150)	70	5.700 (0.2244)
24	5.240 (0.2063)	48	5.480 (0.2157)	72	5.720 (0.2252)
26	5.260 (0.2071)	50	5.500 (0.2165)	74	5.740 (0.2260)
28	5.280 (0.2079)	52	5.520 (0.2173)		

Intake valve clearance (Cold):
0.20 – 0.30 mm (0.0079 – 0.00118 in.)

EXAMPLE:
The 5.250 mm (0.2067 in.) lifter is installed, and the measured clearance is 0.400 mm (0.0158 in.).
Replace the 5.250 mm (0.2067 in.) shim with a new No. 40 lifter.

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(t) Install the camshaft and camshaft No.2.
(See page 14–223)
(u) Install the timing belt No.2 cover. (See page 14–223)
(v) Install the timing belt idler sub–assy No.1.
(See page 14–223)
(w) Install the camshaft timing pulley. (See page 14–223)
(x) Install the timing belt. (See page 14–214)
(y) Install the timing belt No.1 cove.
(1) Install the timing belt No.1 cover with the 6 bolts.
Torque: 6 N·m (61 kgf·cm, 53 in.·lbf)
(2) Install the wire harness clamp.
(3) Install the water hose clamp with the bolt.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)
(z) Install the fan pulley.
(aa) Install the fan shroud.
(1) Temporarily place the fan shroud together with the fan w/ fluid coupling assy to the correct location inside the engine room.
(2) Install the fan shroud to the radiator with the 2 bolts.
Torque: 5 N·m (51 kgf·cm, 44 in.·lbf)
(3) Install the fan w/ fluid coupling assy to the water pump with the 4 nuts.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)
(4) Install the oil cooler inlet hose and outlet hose to the hose clamp. (AT TRANSMISSION)
(ab) Install the V belt. (See page 14–189)
(ac) Install the radiator hose No.1.
(ad) Install the radiator reserve tank.
(1) Install the radiator reserve tank with the 3 bolts.
Torque: 5 N·m (51 kgf·cm, 44 in.·lbf)
(2) Install the radiator reserve tank hose.
(ae) Install the wire harness to the fan shroud (COLD AREA).
(af) Install the radiator support seal upper with the 11 clips.

14. INSTALL INJECTOR ASSY (See page 11–117)
15. INSPECT FOR FUEL LEAKS
16. INSTALL CYLINDER HEAD COVER SUB–ASSY (See page 11–117)
17. INSTALL INJECTION PIPE (See page 11–117)
18. INSTALL CYLINDER HEAD COVER SUB–ASSY NO.2 (See page 14–223)
19. INSTALL DIESEL THROTTLE BODY ASSY (See page 10–31)
20. INSTALL VACUUM SWITCHING VALVE ASSY NO.1 (See page 10–31)
21. INSTALL AIR HOSE NO.1
22. INSTALL INTERCOOLER ASSY (See page 10–31)
23. INSTALL INTERCOOLER PROTECTOR
(a) Install the intercooler protector with the 5 bolts.
Torque: 6.0 N·m (61 kgf·cm, 53 in.·lbf)
24. ADD ENGINE COOLANT (See page 16–50)
25. CHECK FOR ENGINE COOLANT LEAKS
26. CHECK FUEL LEAK (See page 11–101)

27. INSTALL ENGINE UNDER COVER SUB–ASSY NO.1

(a) Install the engine under cover No.1 with the 4 bolts.
Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)