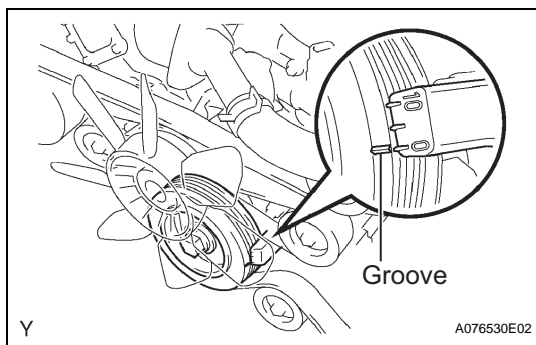
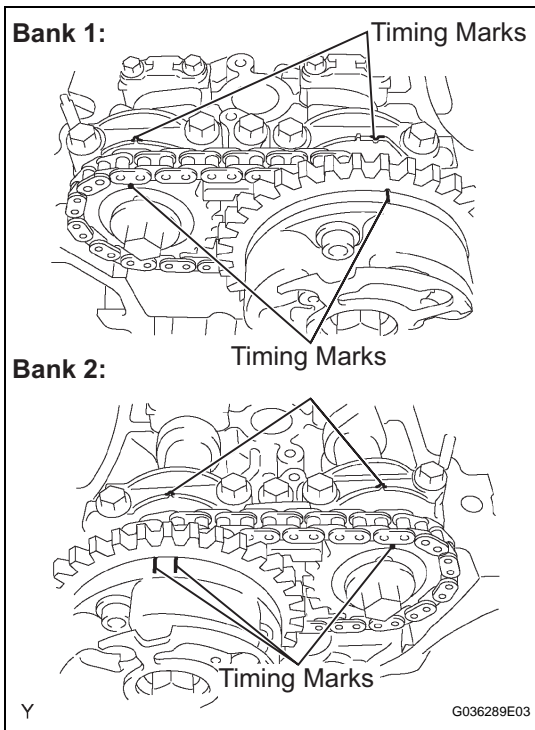


VALVE CLEARANCE

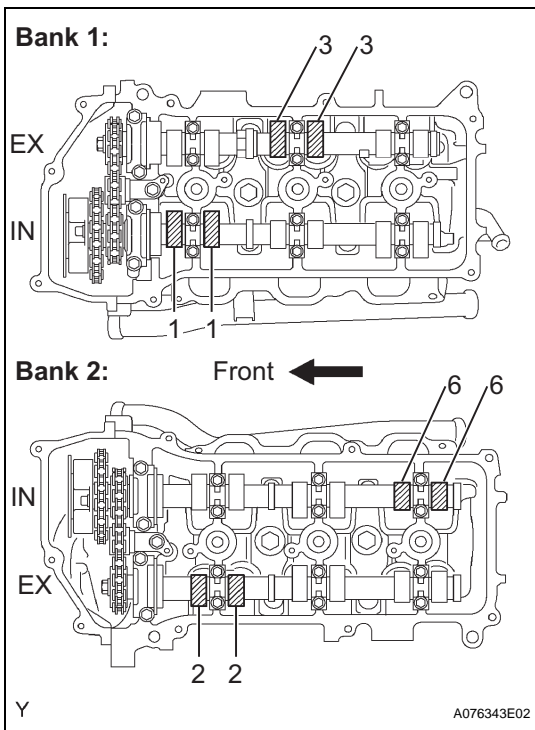
ADJUSTMENT

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. DRAIN ENGINE COOLANT (See page [CO-3](#))
3. REMOVE V-BANK COVER (See page [ES-428](#))
4. REMOVE AIR CLEANER ASSEMBLY (See page [ES-429](#))
5. REMOVE THROTTLE BODY BRACKET (See page [FU-11](#))
6. REMOVE OIL BAFFLE PLATE (See page [FU-11](#))
7. REMOVE NO. 1 SURGE TANK STAY (See page [FU-11](#))
8. REMOVE NO. 2 SURGE TANK STAY (See page [FU-12](#))
9. REMOVE INTAKE AIR SURGE TANK (See page [FU-12](#))
10. REMOVE IGNITION COIL ASSEMBLY (See page [IG-8](#))
11. REMOVE CYLINDER HEAD COVER SUB-ASSEMBLY (See page [EM-40](#))
12. REMOVE CYLINDER HEAD COVER SUB-ASSEMBLY LH (See page [EM-40](#))
13. SET NO. 1 CYLINDER TO TDC/COMPRESSION
 - (a) Turn the crankshaft pulley until its groove and the "0" timing mark of the timing chain cover are aligned.



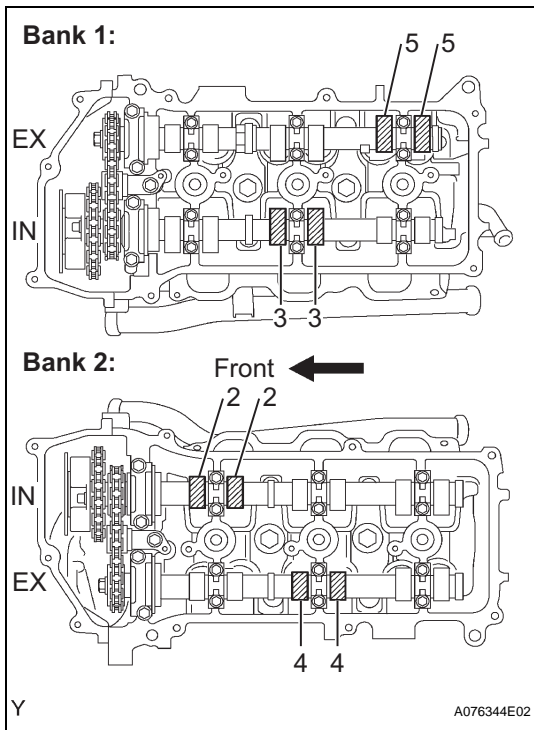


- (b) Check that the timing marks of the camshaft timing gears are aligned with the timing marks of the bearing caps as shown in the illustration. If not, turn the crankshaft 1 complete revolution (360°) and align the timing marks above.

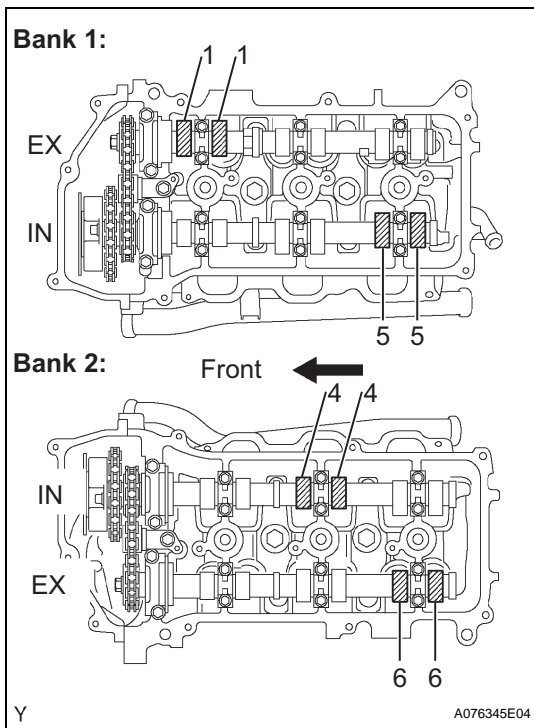


14. INSPECT VALVE CLEARANCE

- (a) Check the valves indicated in the illustration.
- (1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.
- Valve clearance (Cold):**
Intake 0.15 to 0.25 mm (0.006 to 0.010 in.)
Exhaust 0.29 to 0.39 mm (0.011 to 0.015 in.)
- (2) Record any out-of-specification valve clearance measurements. They will be used later to determine the required replacement valve lifter.



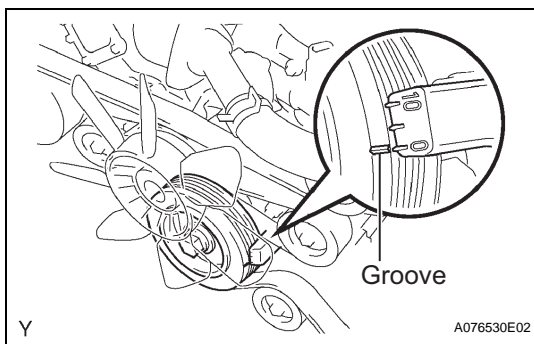
- (b) Turn the crankshaft 240° clockwise, and check the valves indicated in the illustration.
- Using a feeler gauge, measure the clearance between the valve lifter and camshaft.
Valve clearance (Cold):
Intake 0.15 to 0.25 mm (0.006 to 0.010 in.)
Exhaust 0.29 to 0.39 mm (0.011 to 0.015 in.)
 - Record any out-of-specification valve clearance measurements. They will be used later to determine the required replacement valve lifter.

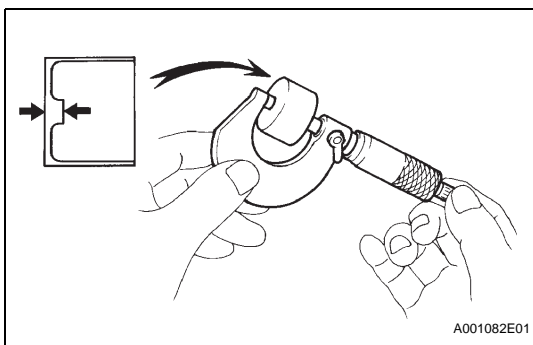
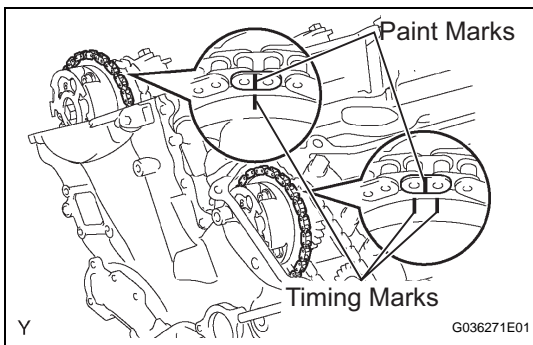
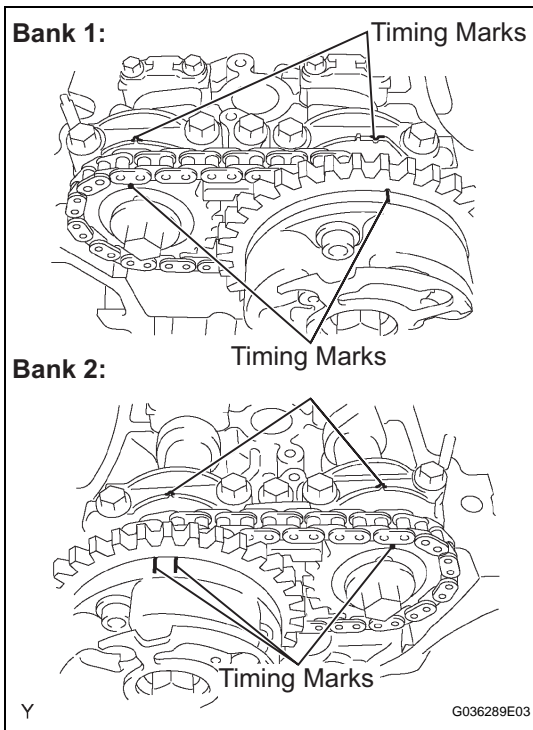


- (c) Turn the crankshaft 240° clockwise, and check the valves indicated in the illustration.
- Using a feeler gauge, measure the clearance between the valve lifter and camshaft.
 - Valve clearance (Cold):**
Intake 0.15 to 0.25 mm (0.006 to 0.010 in.)
Exhaust 0.29 to 0.39 mm (0.011 to 0.015 in.)
 Record any out-of-specification valve clearance measurements. They will be used later to determine the required replacement valve lifter.

15. ADJUST VALVE CLEARANCE

- Set the No. 1 cylinder to TDC/compression.
 - Turn the crankshaft pulley until its groove and the "0" timing mark of the timing chain cover are aligned.





- (2) Check that the timing marks of the camshaft timing gears are aligned with the timing marks of the bearing caps as shown in the illustration. If not, turn the crankshaft 1 complete revolution (360°) and align the timing marks as above.

- (3) Place paint marks on the No. 1 chain links corresponding to the timing marks of the camshaft timing gears.
- Remove the No. 1 chain tensioner assembly.
 - Remove the No. 2 camshaft.
 - Remove the No. 2 chain tensioner assembly.
 - Remove the camshaft.
 - Remove the No. 4 camshaft sub-assembly.
 - Remove the No. 3 chain tensioner assembly.
 - Remove the No. 3 camshaft sub-assembly.
 - Remove the valve lifters.
 - Determine the replacement valve lifter size according to the following formulas and charts:
 - Using a micrometer, measure the thickness of the removed lifter.
 - Calculate the thickness of a new lifter so that the valve clearance comes within the specified value.
- T:**
Thickness of removed lifter
- A:**
Measured valve clearance
- N:**
Thickness of new lifter
- Intake:**
 $N = T + (A - 0.20 \text{ mm (0.008 in.)})$
- Exhaust:**
 $N = T + (A - 0.34 \text{ mm (0.013 in.)})$

- (3) Select a new lifter with a thickness as close as possible to the calculated value.

HINT:

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.).

Valve Lifter Selection Chart (Exhaust)

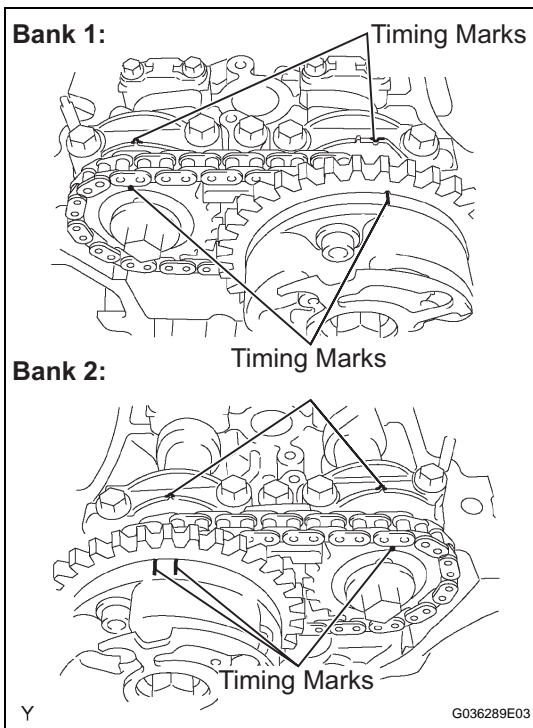
Measured Clearance mm(in.)	Installed Lifter Thickness mm(in.)	Valve Lifter Selection Chart (Exhaust)															
		0.000 - 0.020 (0.0000 - 0.0008)	0.021 - 0.040 (0.0016 - 0.016)	0.041 - 0.060 (0.0016 - 0.0024)	0.061 - 0.080 (0.0024 - 0.0031)	0.081 - 0.100 (0.0032 - 0.0039)	0.101 - 0.120 (0.0040 - 0.0047)	0.121 - 0.140 (0.0048 - 0.0055)	0.141 - 0.160 (0.0056 - 0.0063)	0.161 - 0.180 (0.0063 - 0.0071)	0.181 - 0.200 (0.0071 - 0.0079)	0.201 - 0.220 (0.0079 - 0.0087)	0.221 - 0.240 (0.0087 - 0.0094)	0.241 - 0.260 (0.0095 - 0.0102)	0.261 - 0.280 (0.0103 - 0.0110)	0.281 - 0.289 (0.0111 - 0.0114)	0.291 - 0.410 (0.0154 - 0.0161)
5.060 (0.1992)																12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.080 (0.2000)																16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.100 (0.2008)																18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.120 (0.2016)												6				18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.140 (0.2024)													8 8			20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.160 (0.2031)													8 10 10			22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.180 (0.2039)													8 10 12 12			24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.200 (0.2047)													8 10 12 14 14			26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.210 (0.2051)													6 8 10 12 14 16			28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.220 (0.2055)													8 10 12 14 16 16			28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.230 (0.2059)													6 8 10 12 14 16 18			30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.240 (0.2063)													8 10 12 14 16 18 18			30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.250 (0.2067)													6 8 10 12 14 16 18 20			32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.260 (0.2071)													8 10 12 14 16 18 20 20			32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.270 (0.2075)													6 8 10 12 14 16 18 20 22			34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.280 (0.2079)													8 10 12 14 16 18 20 22 22			34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.290 (0.2083)													6 8 10 12 14 16 18 20 22 24			36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.300 (0.2087)													8 10 12 14 16 18 20 22 24 24			36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.310 (0.2091)													6 8 10 12 14 16 18 20 22 24 26			38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.320 (0.2094)													8 10 12 14 16 18 20 22 24 26 26			38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.330 (0.2098)													6 8 10 12 14 16 18 20 22 24 26 28			40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.340 (0.2102)													8 10 12 14 16 18 20 22 24 26 28 28			40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.350 (0.2106)													6 8 10 12 14 16 18 20 22 24 26 28 30			42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.360 (0.2110)													8 10 12 14 16 18 20 22 24 26 28 30 30			42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.370 (0.2114)													6 8 10 12 14 16 18 20 22 24 26 28 30 32			44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.380 (0.2118)													8 10 12 14 16 18 20 22 24 26 28 30 32 32			44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.390 (0.2122)													6 8 10 12 14 16 18 20 22 24 26 28 30 32 34			46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.400 (0.2126)													8 10 12 14 16 18 20 22 24 26 28 30 32 34 34			46 48 50 52 54 56 58 60 62 64 66 68 70 72	
5.410 (0.2130)													8 10 12 14 16 18 20 22 24 26 28 30 32 34 36			48 50 52 54 56 58 60 62 64 66 68 70 72 74	
5.420 (0.2134)													10 12 14 16 18 20 22 24 26 28 30 32 34 36 36			48 50 52 54 56 58 60 62 64 66 68 70 72	
5.430 (0.2138)													10 12 14 16 18 20 22 24 26 28 30 32 34 36 38			50 52 54 56 58 60 62 64 66 68 70 72 74	
5.440 (0.2142)													12 14 16 18 20 22 24 26 28 30 32 34 36 38 38			50 52 54 56 58 60 62 64 66 68 70 72	
5.450 (0.2146)													12 14 16 18 20 22 24 26 28 30 32 34 36 38 40			52 54 56 58 60 62 64 66 68 70 72 74	
5.460 (0.2150)													14 16 18 20 22 24 26 28 30 32 34 36 38 40 40			52 54 56 58 60 62 64 66 68 70 72	
5.470 (0.2154)													14 16 18 20 22 24 26 28 30 32 34 36 38 40 42			54 56 58 60 62 64 66 68 70 72 74	
5.480 (0.2157)													16 18 20 22 24 26 28 30 32 34 36 38 40 42 42			54 56 58 60 62 64 66 68 70 72	
5.490 (0.2161)													16 18 20 22 24 26 28 30 32 34 36 38 40 42 44			56 58 60 62 64 66 68 70 72 74	
5.500 (0.2165)													18 20 22 24 26 28 30 32 34 36 38 40 42 44 44			56 58 60 62 64 66 68 70 72	
5.510 (0.2169)													18 20 22 24 26 28 30 32 34 36 38 40 42 44 46			58 60 62 64 66 68 70 72 74	
5.520 (0.2173)													20 22 24 26 28 30 32 34 36 38 40 42 44 46 46			58 60 62 64 66 68 70 72	
5.530 (0.2177)													20 22 24 26 28 30 32 34 36 38 40 42 44 46 48			60 62 64 66 68 70 72 74	
5.540 (0.2181)													22 24 26 28 30 32 34 36 38 40 42 44 46 48 48			60 62 64 66 68 70 72	
5.550 (0.2185)													22 24 26 28 30 32 34 36 38 40 42 44 46 48 50			62 64 66 68 70 72 74	
5.560 (0.2189)													24 26 28 30 32 34 36 38 40 42 44 46 48 50 50			62 64 66 68 70 72	
5.580 (0.2197)													26 28 30 32 34 36 38 40 42 44 46 48 50 52 52			64 66 68 70 72	
5.600 (0.2205)													28 30 32 34 36 38 40 42 44 46 48 50 52 54 54			66 68 70 72	
5.620 (0.2213)													30 32 34 36 38 40 42 44 46 48 50 52 54 56 56			68 70 72	
5.640 (0.2220)													32 34 36 38 40 42 44 46 48 50 52 54 56 58 58			70 72	
5.660 (0.2228)													34 36 38 40 42 44 46 48 50 52 54 56 58 60 60			72	
5.680 (0.2236)													36 38 40 42 44 46 48 50 52 54 56 58 60 62 62				
5.700 (0.2244)													38 40 42 44 46 48 50 52 54 56 58 60 62 64 64				
5.720 (0.2252)													40 42 44 46 48 50 52 54 56 58 60 62 64 66 66				
5.740 (0.2260)													42 44 46 48 50 52 54 56 58 60 62 64 66 68 68				



HINT:

New lifter thickness [mm (in.)]

Lifter No.	Thickness	Lifter No.	Thickness	Lifter 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)		



- (k) Install the No. 3 camshaft sub-assembly.
- (l) Install the No. 3 chain tensioner assembly.
- (m) Install the No. 4 camshaft sub-assembly.
- (n) Install the camshaft.
- (o) Install the No. 2 chain tensioner assembly.
- (p) Install the No. 2 camshaft.
- (q) Install the No. 1 chain tensioner assembly.
 - (1) Check that the timing marks of the camshaft timing gears are aligned with the timing marks of the bearing cap as shown in the illustration.

- 16. **INSTALL CYLINDER HEAD COVER SUB-ASSEMBLY LH** (See page [EM-57](#))
- 17. **INSTALL CYLINDER HEAD COVER SUB-ASSEMBLY** (See page [EM-58](#))
- 18. **INSTALL IGNITION COIL ASSEMBLY** (See page [IG-8](#))
- 19. **INSTALL INTAKE AIR SURGE TANK** (See page [FU-17](#))
- 20. **INSTALL NO. 2 SURGE TANK STAY** (See page [FU-19](#))
- 21. **INSTALL NO. 1 SURGE TANK STAY** (See page [FU-19](#))
- 22. **INSTALL OIL BAFFLE PLATE** (See page [FU-19](#))
- 23. **INSTALL THROTTLE BODY BRACKET** (See page [FU-19](#))
- 24. **INSTALL AIR CLEANER ASSEMBLY** (See page [ES-431](#))
- 25. **ADD ENGINE COOLANT** (See page [CO-3](#))
- 26. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)
- 27. **CHECK FOR ENGINE COOLANT LEAKAGE** (See page [CO-4](#))

28. INSPECT IGNITION TIMING (See page [EM-1](#))
29. INSTALL V-BANK COVER (See page [ES-431](#))