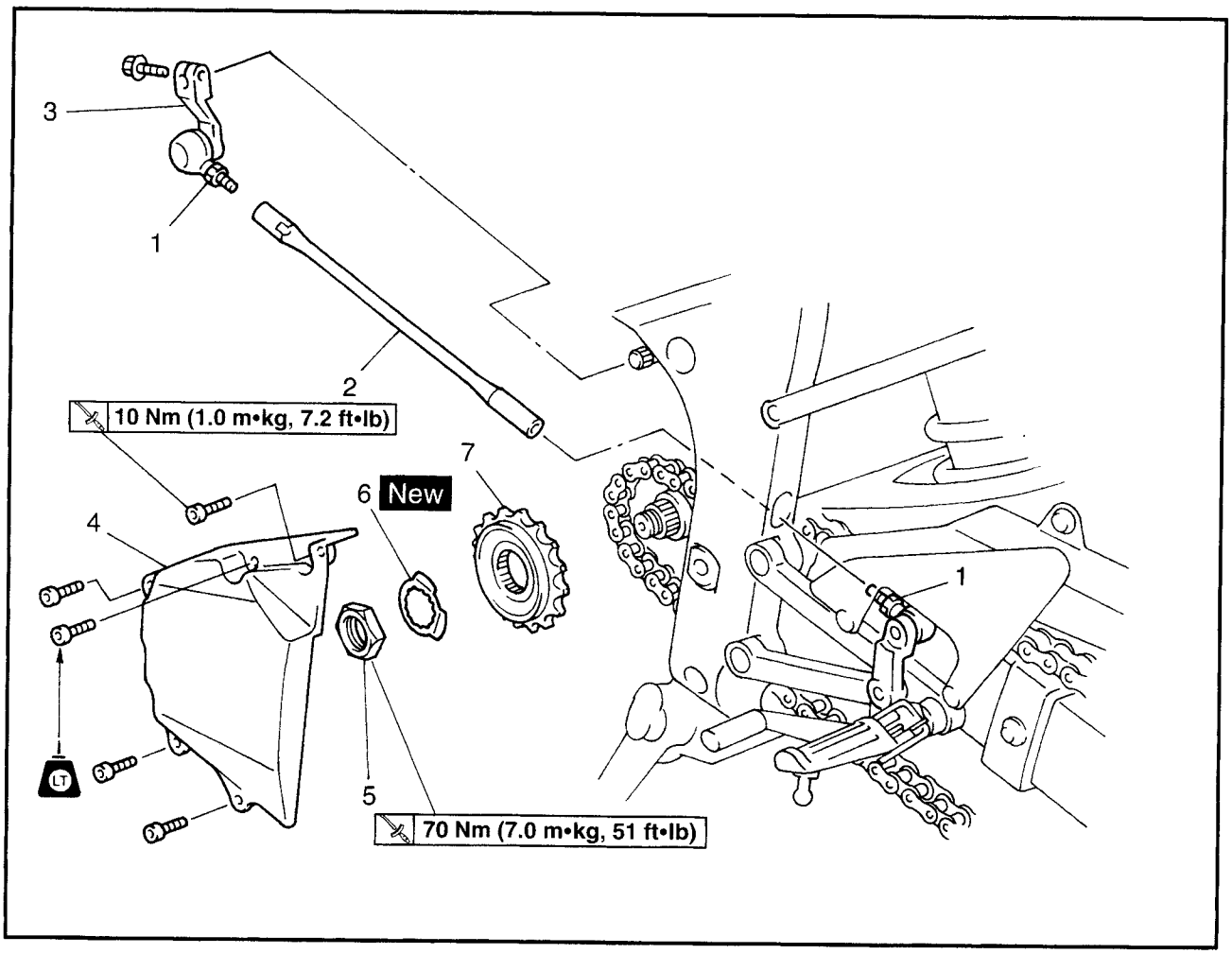
CHAPTER 4.
ENGINE OVERHAUL

EAS00190

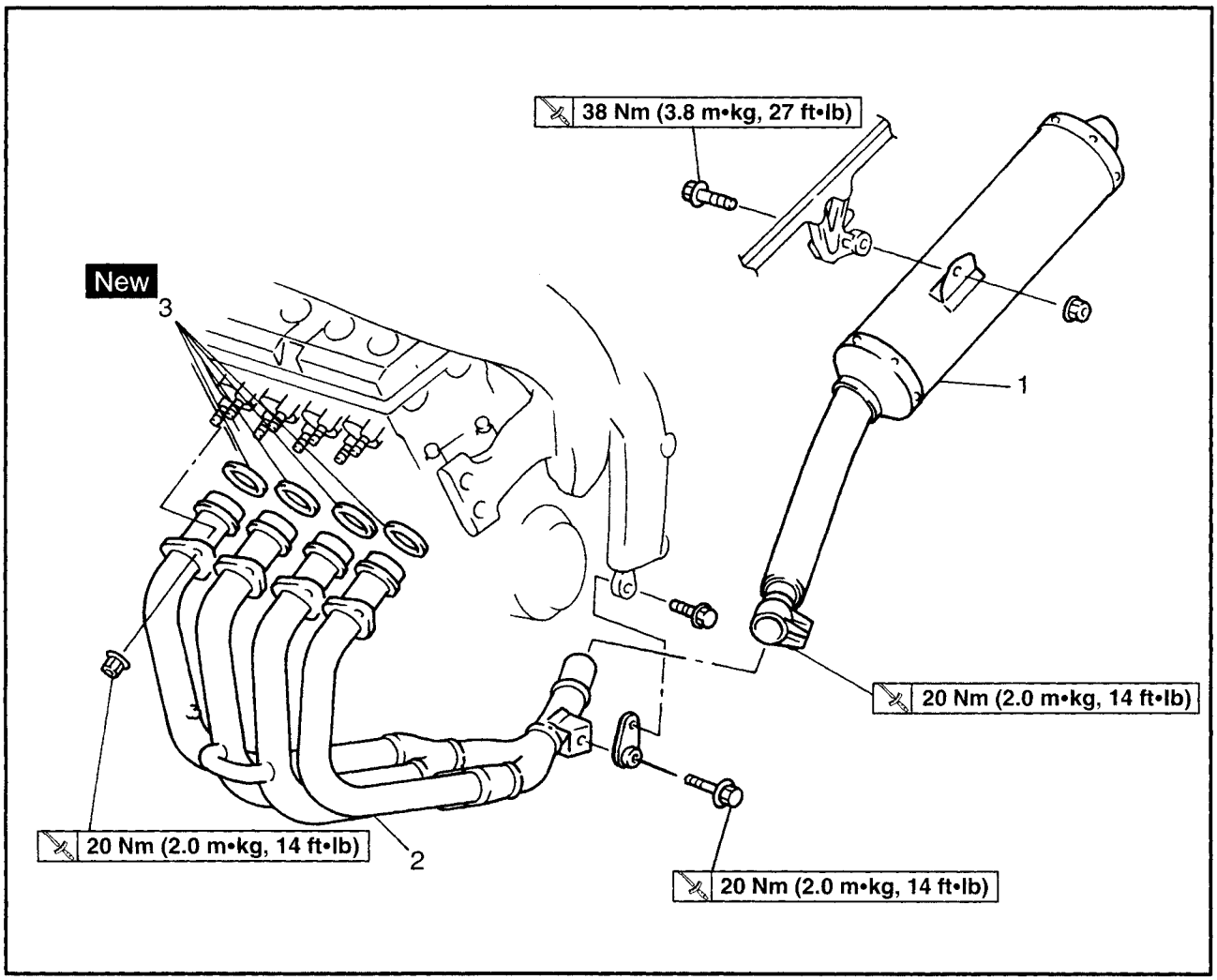
ENGINE OVERHAUL

ENGINE
DRIVE SPROCKET



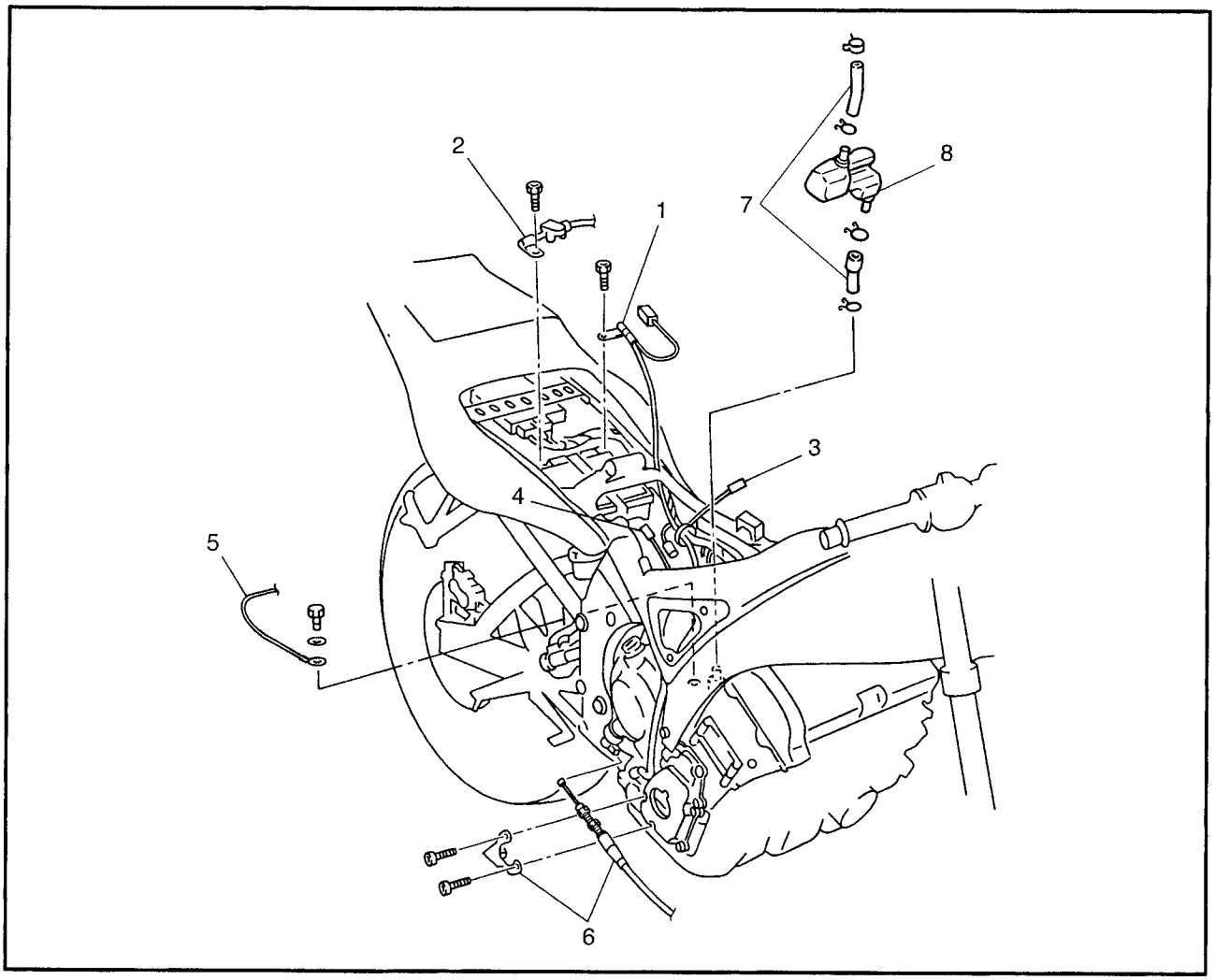
Order	Job/Part	Q'ty	Remarks
	Removing the drive sprocket		Remove the parts in the order listed.
	Reserve tank		Refer to "CHANGING THE COOLANT"
1	Locknut	2	
2	Shift rod	1	
3	Shift arm	1	
4	Drive sprocket cover	1	
5	Nut	1	
6	Lock washer	1	
7	Drive sprocket	1	
			For installation reverse the remove procedure.

EXHAUST ASSEMBLY

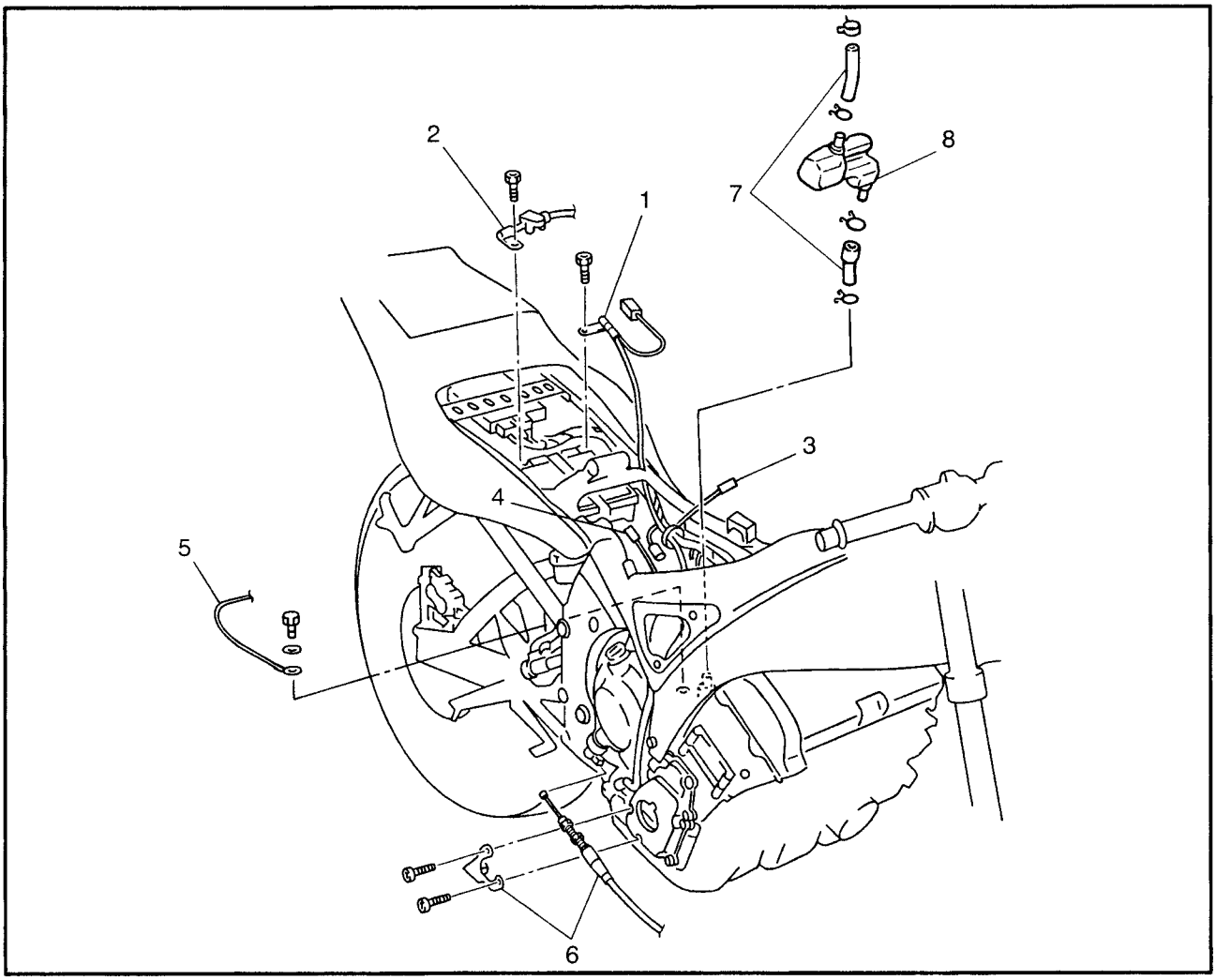


Order	Job/Part	Q'ty	Remarks
	Removing the exhaust assembly		Remove the parts in the order listed.
	Bottom cowling and side cowlings		Refer to "COWLINGS" in chapter 3
	Coolant		Drain. Refer to "CHANGING THE COOLANT" in chapter 3.
	Radiator assembly		Refer to "RADIATOR" in chapter 5.
1	Muffler	1	
2	Exhaust pipe assembly	1	
3	Exhaust pipe gasket	4	
			For installation reverse the removal procedure.

LEADS AND HOSES

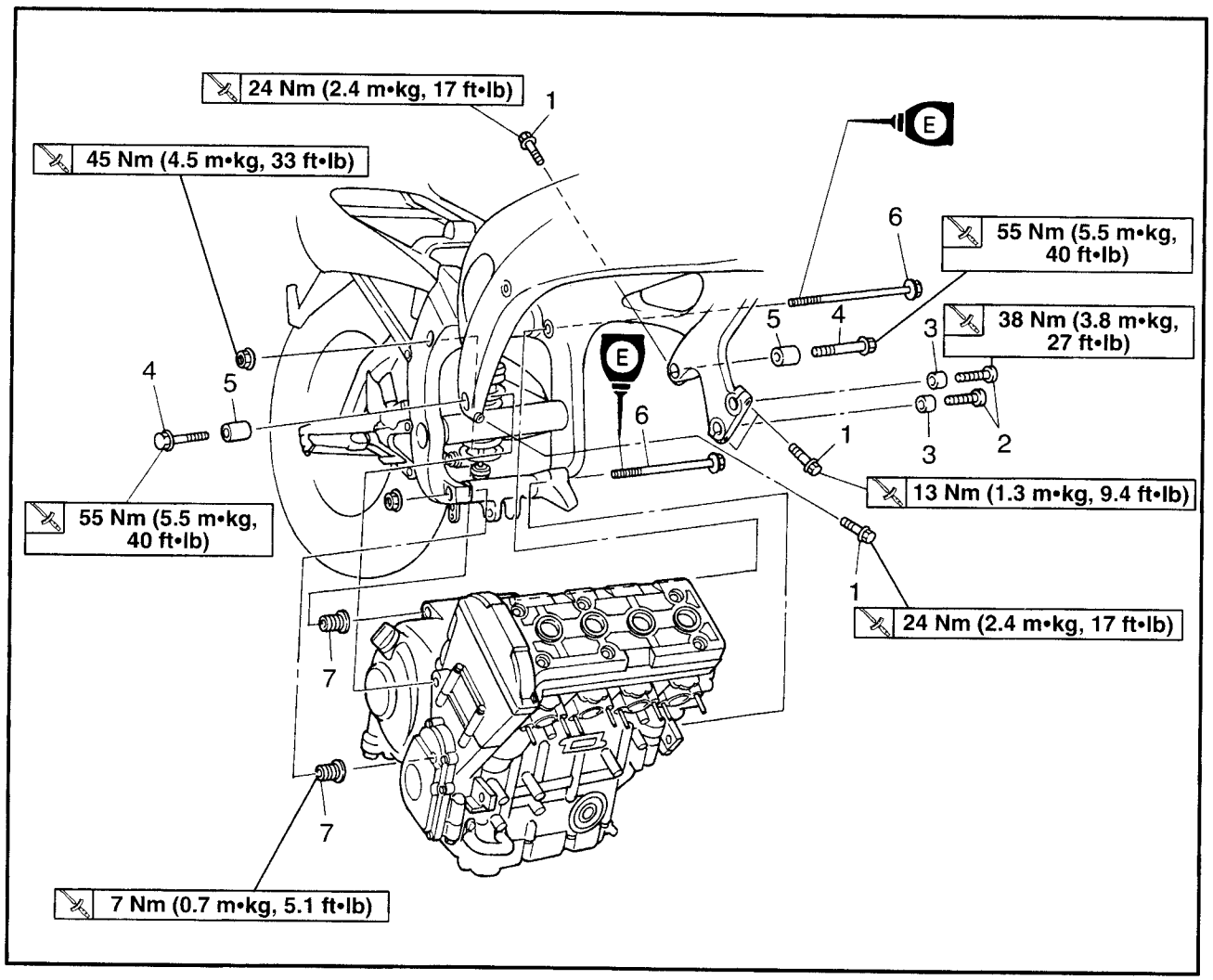


Order	Job/Part	Q'ty	Remarks
	Disconnecting the leads and hoses		Disconnect the parts in the order listed.
	Fuel tank		Refer to "FUEL TANK" in chapter 3.
	Air filter case		Refer to "AIR FILTER CASE AND IGNITION COILS" in chapter 3.
	Carburetor assembly and joints		Refer to "CARBURETORS" in chapter 6.
	Engine oil and oil filter cartridge		Drain. Refer to "CHANGING THE ENGINE OIL" in chapter 3.
	Oil cooler		Refer to "OIL COOLER" in chapter 5.

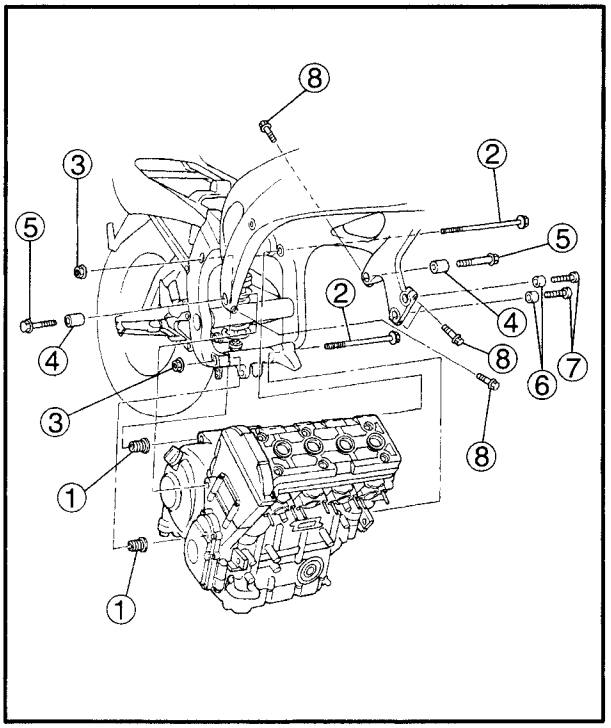


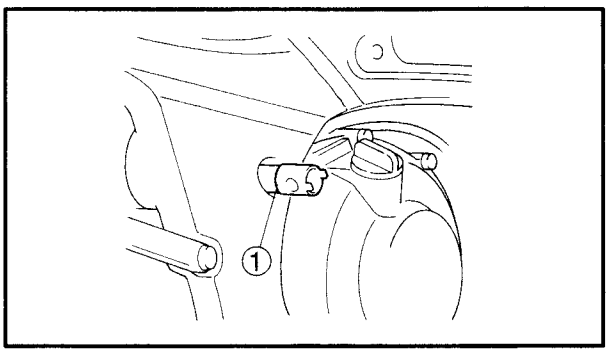
Order	Job/Part	Q'ty	Remarks
1	Battery negative lead	1	**CAUTION:**
2	Battery positive lead	1	**First, disconect the negative lead, then the positive lead.**
3	Startor coil assembly coupler	1	
4	Pickup coil coupler	1	
5	Engine earth	1	
6	Clutch wire and holder	1	
7	Crankcase breather hose	1	
8	Separator	1	For connecting reverse the discomecting procedure.

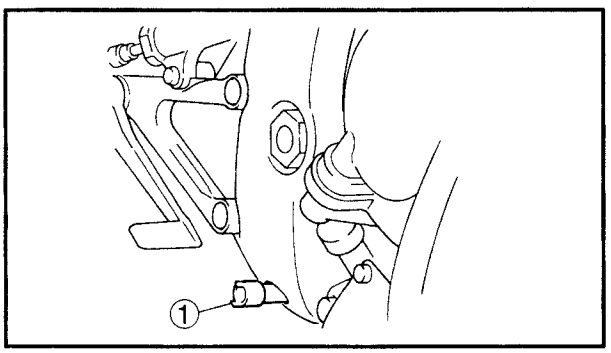
ENGINE

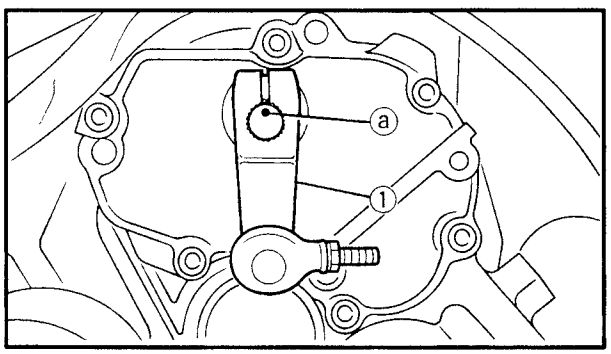


Order	Job/Part	Q'ty	Remarks
	Removing the engine		Remove The Parts In The Order Listed. **NOTE:** Place a suitable stand under the frame and engine.
1	Pinch bolts	4	Refer to "INSTALLING THE ENGINE".
2	Button head bolts	2	
3	Collars	2	
4	Front mounting bolts	2	
5	Collars	2	
6	Rear mounting bolts	2	
7	Engine mounting adjust bolts	2	**NOTE:** Use the point shaft wrench to loosen the engine mounting adjust bolt.
			For Installation, Reverse The Removal Procedure.









EAS00192

INSTALLING THE ENGINE

1. Install:
   - engine mounting adjust bolts ①
   - rear mounting bolts ②
   - self-locking nuts ③
   - collars ④
   - front mounting bolts ⑤
   - collars ⑥
   - button head bolts ⑦
   - pinch bolts ⑧

NOTE:

- Lubricate the rear mounting bolt threads with lithium soap base grease.
- Do not fully tighten the nuts and bolts.

2. Tighten:
   - self-locking nut — 45 Nm (4.5 m•kg, 33 ft•lb)
   - front mounting bolts — 55 Nm (5.5 m•kg, 40 ft•lb)
   - button head bolt — 38 Nm (3.8 m•kg, 27 ft•lb)
   - pinch bolt M8 — 24 Nm (2.4 m•kg, 17 ft•lb)
     M6 — 13 Nm (1.3 m•kg, 9.4 ft•lb)
   - engine adjusting bolts

NOTE:

Use the pivot shaft wrench ① to tighten the engine mounting adjust bolt to finger tightness.

	Pivot shaft wrench **90890-01471**

3. Install:
   - drive sprocket — 70 Nm (7.0 m•kg, 51 ft•lb)
4. Install:
   - drive sprocket cover — 10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE:

Refer to "CABLE ROUTING" in chapter 2.

5. Install:
   - shift arm ① — 10 Nm (1.0 m•kg, 7.2 ft•lb)

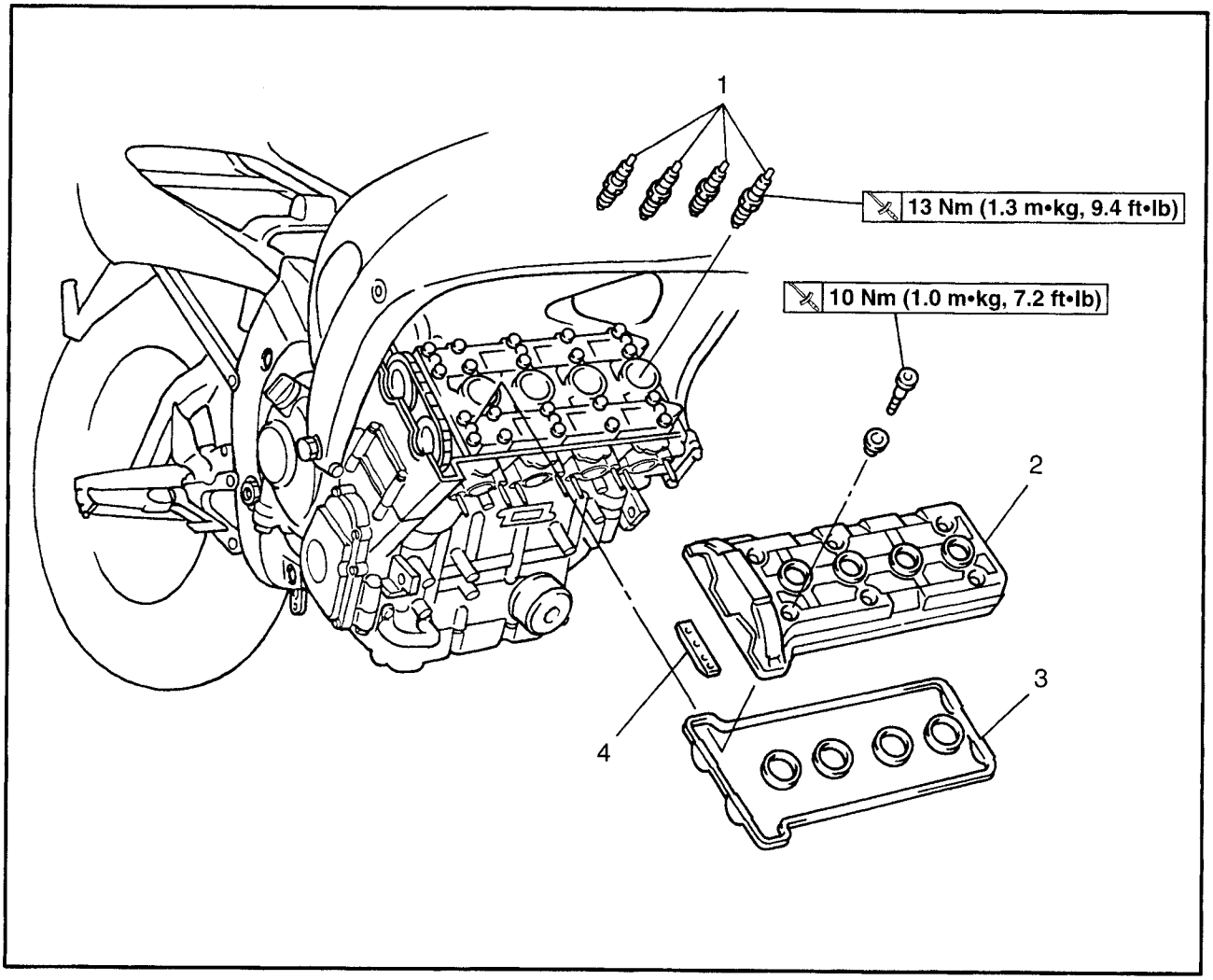
NOTE:

Align the punch mark ⓐ in the shift shaft with the slot in the shift arm.

EAS00194

CAMSHAFTS

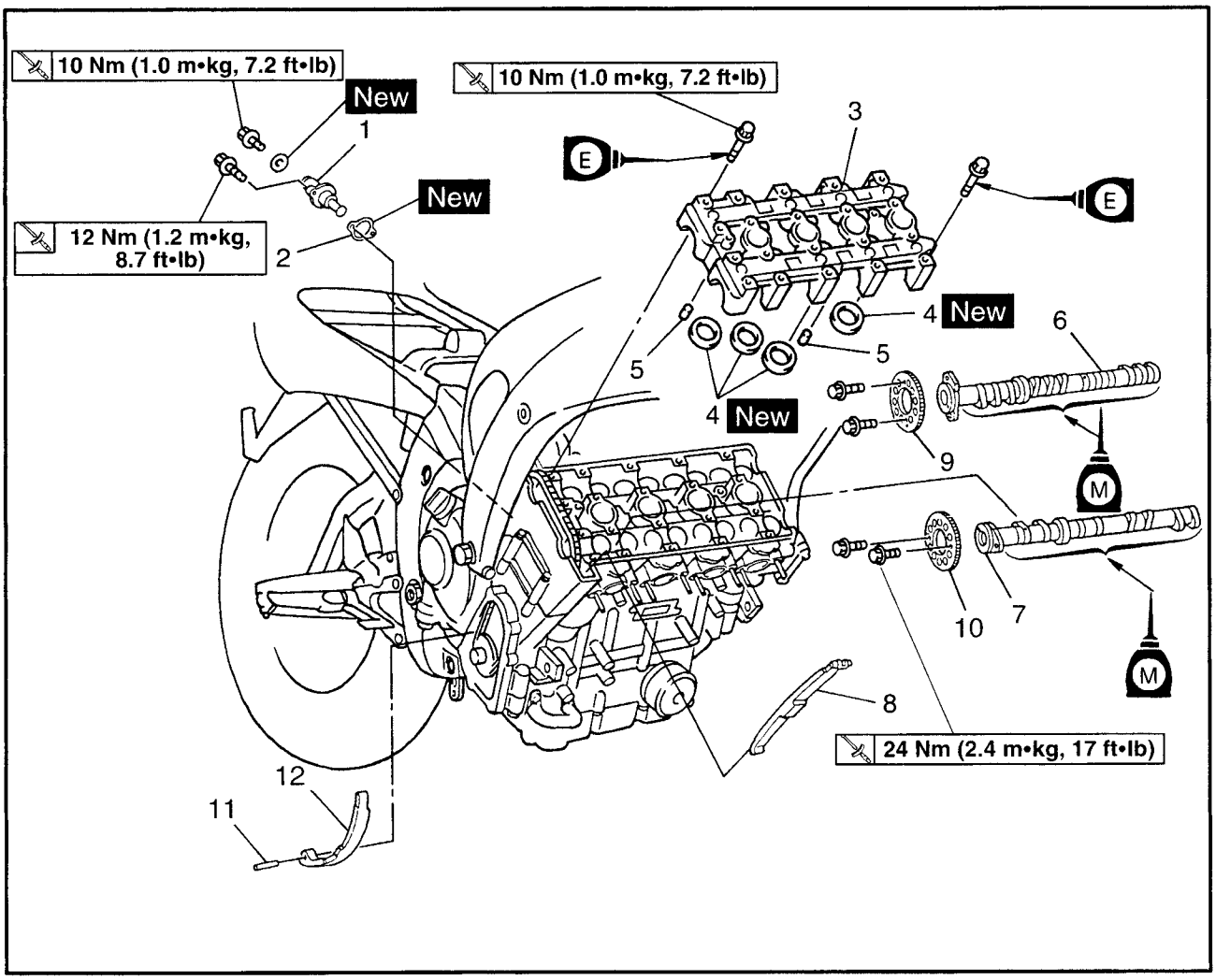
CYLINDER HEAD COVER



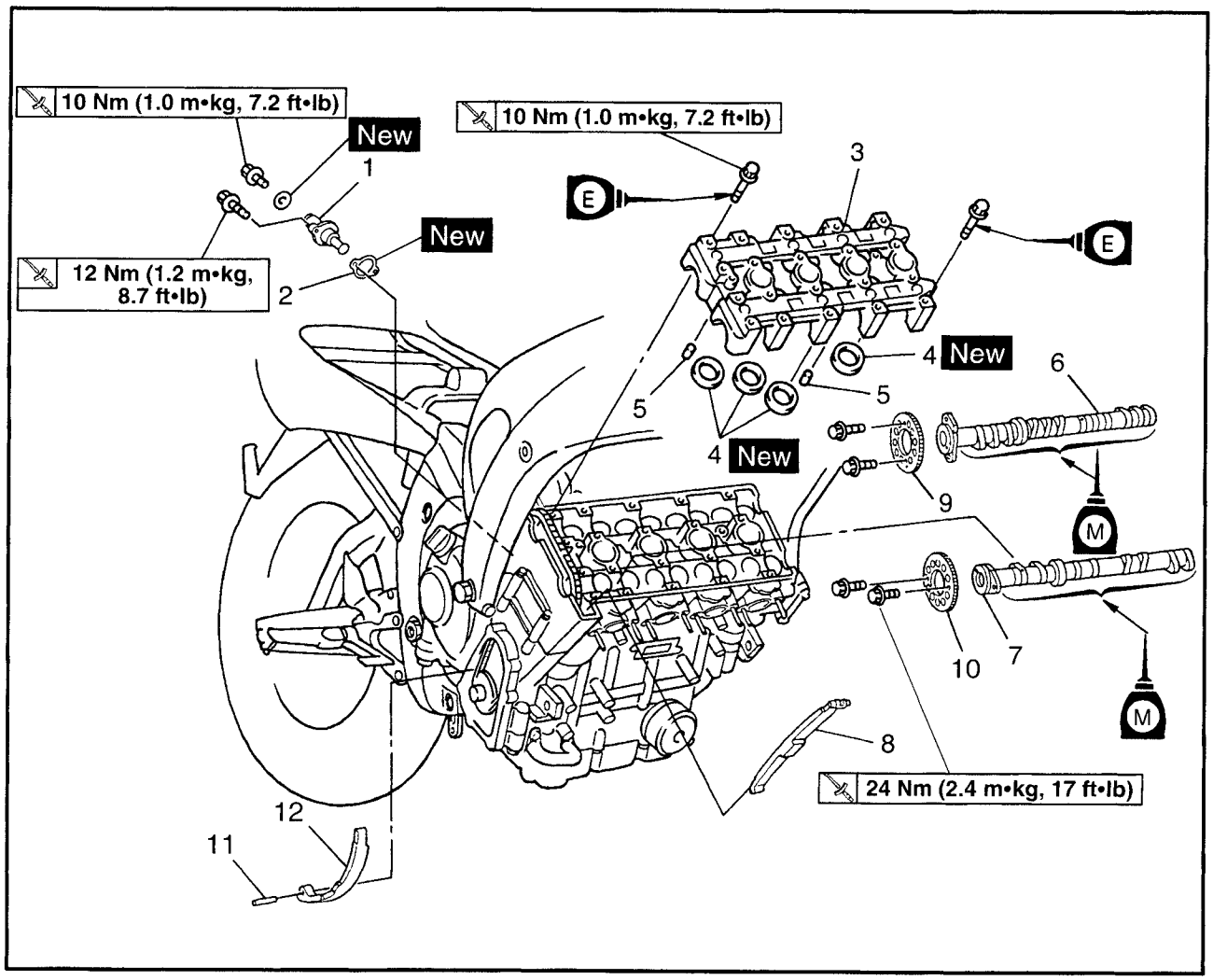
Order	Job/Part	Q'ty	Remarks
	Removing the cylinder head cover		Remove the parts in the order listed.
	Carburetor assembly		Refer to "CARBURETORS" in chapter 6.
	Radiator assembly		Refer to "RADIATOR" in chapter 5.
1	Spark plugs	4	
2	Cylinder head cover	1	
3	Cylinder head cover gasket	1	
4	Timing chain guide (top side)	1	
			For installation reverse the removal procedure.

EAS00196

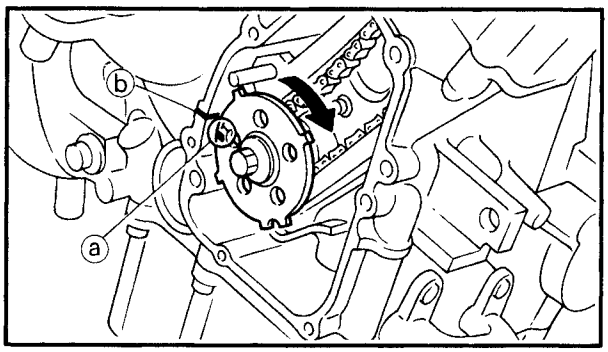
CAMSHAFTS



Order	Job/Part	Q'ty	Remarks
	Removing the camshafts Pickup coil rotor cover		Remove the parts in the order listed. Refer to "PICKUP COIL AND PICK UP COIL COVER".
1	Timing chain tensioner	1	
2	Timing chain tensioner gasket	1	Refer to "REMOVING/INSTALLING THE CAMSHAFTS".
3	Camshaft cap	1	
4	Camshaft cap gasket	4	**NOTE:**
5	Dowel pin	2	During removal, the dowel pins may still be connected to the camshaft cap.
6	Intake camshaft	1	
7	Exahust camshaft	1	Refer to "REMOVING/INSTALLING THE CAMSHAFT".
8	Timing chain guide (exhaust side)	1	



Order	Job/Part	Q'ty	Remarks
9	Intake camshaft sproket	1	Refer to "INSTALLING THE CAMSHAFTS".
10	Exhaust camshaft sproket	1	
11	Pin	1	
12	Timing chain guide (intake side)	1	
			For installation reverse the removal procedure.



EAS00198
REMOVING THE CAMSHAFTS

1. Align:
   - TDC mark on the pickup coil rotor (with the crankcase mating surface)

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a. Turn the crankshaft clockwise.
b. When piston #1 is at TDC on the compression stroke, align the mark ⓐ on the pickup coil rotor with the crankcase mating surface ⓑ.

NOTE:

TDC on the compression stroke can be found when the camshaft lobes are turned away from each other.

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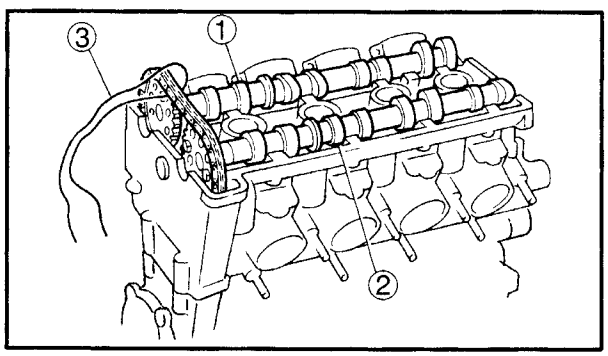
2. Remove:
   - timing chain tensioner
3. Remove:
   - camshaft cap
   - dowel pins

CAUTION:

To prevent damage to the cylinder head, camshafts or camshaft cap, loosen the camshaft cap bolts in stages and in a crisscross pattern, working from the outside in.

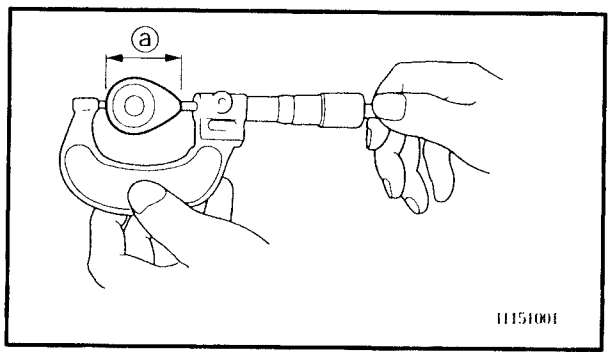


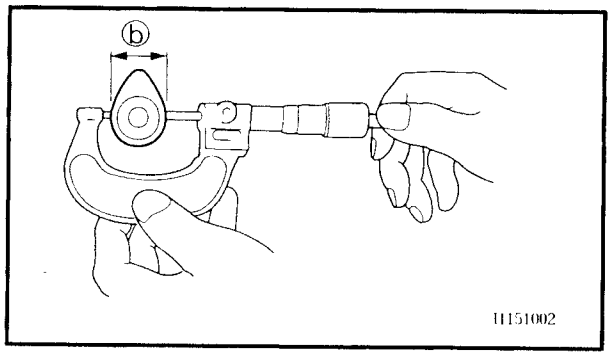
4. Remove:
   - intake camshaft ①
   - exhaust camshaft ②

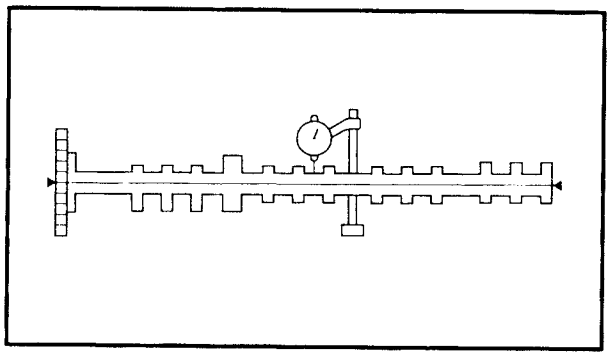
NOTE:

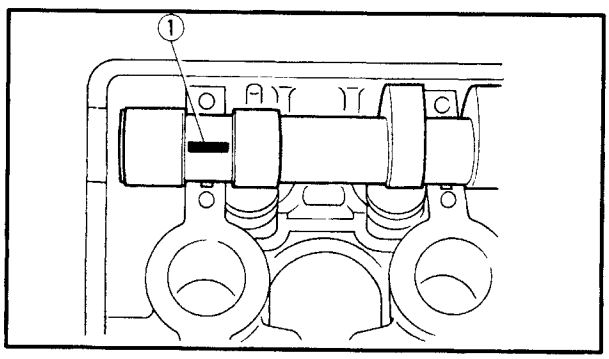
To prevent the timing chain from falling into the crankcase, fasten it with a wire ③.

5. Remove:
   - timing chain guide (exhaust side)









EAS00204

CHECKING THE CAMSHAFTS

1. Check:
   - camshaft lobes
     Blue discoloration/pitting/scratches → Replace the camshaft.
2. Measure:
   - camshaft lobe dimensions ⓐ and ⓑ
     Out of specification → Replace the camshaft.

Camshaft lobe dimensions limit
Intake camshaft
ⓐ 33.0 mm (1.3 in)
ⓑ 25.09 mm (0.99 in)
Exhaust camshaft
ⓐ 32.50 mm (1.28 in)
ⓑ 25.02 mm (0.99 in)

3. Measure:
   - camshaft runout
     Out of specification → Replace.

Max. camshaft runout
0.06 mm (0.0024 in)

4. Measure:
   - camshaft-journal-to-camshaft-cap clearance
     Out of specification → Measure the camshaft journal diameter.

Camshaft-journal-to-camshaftcap clearance
0.020 ~ 0.054 mm
(0.0008 ~ 0.0021 in)
<Limit>: 0.08 mm (0.0031 in)

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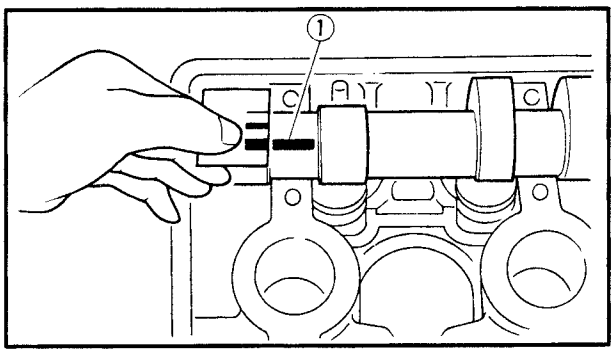
a. Install the camshaft into the cylinder head (without the dowel pins and camshaft caps).
b. Position a strip of Plastigauge® ① onto the camshaft journal as shown.
c. Install the dowel pins and camshaft caps.

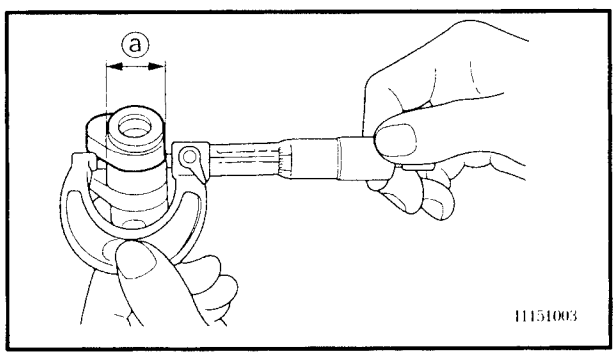


NOTE:

- Tighten the camshaft cap bolts in stages and in a crisscross pattern, working from the inner caps out.
- Do not turn the camshaft when measuring the camshaft-journal-to-camshaft-cap clearance with the Plastigauge®.

	Camshaft cap bolt **10 Nm (1.0 m•kg, 7.2 ft•lb)**

d. Remove the camshaft caps and then measure the width of the Plastigauge® ①.



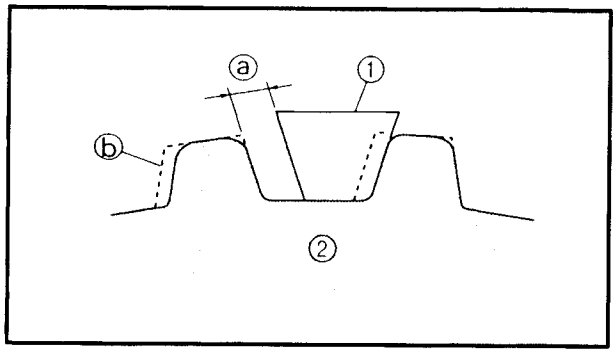
5. Measure:
   - camshaft journal diameter ⓐ
     Out of specification → Replace the camshaft.
     Within specification → Replace the cylinder head and the camshaft caps as a set.

	Camshaft journal diameter **22.967 ~ 22.980 mm** **(0.9042 ~ 0.9047 in)**

EAS00208

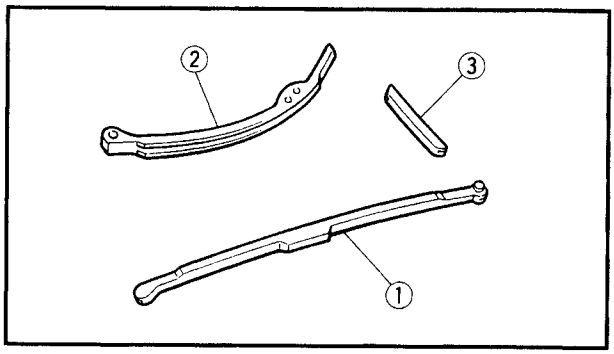
CHECKING THE CAMSHAFT SPROCKETS, AND TIMING CHAIN GUIDES

The following procedure applies to all of the camshaft sprockets and timing chain guides.

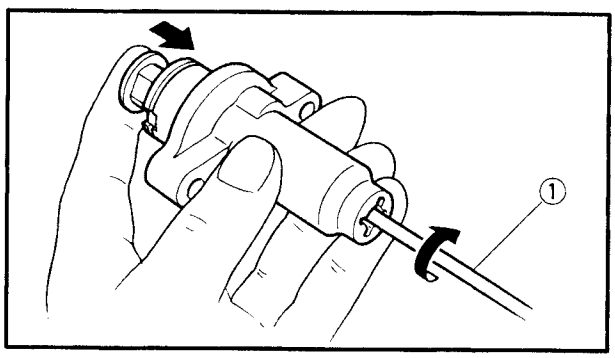


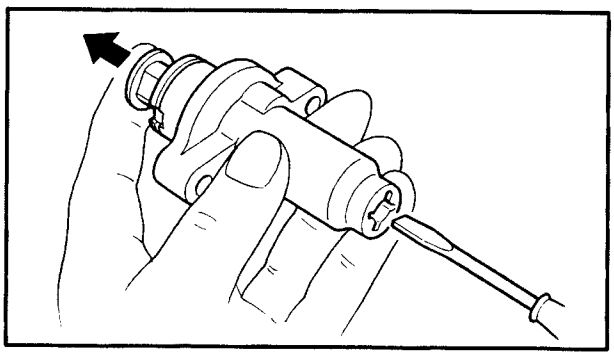
1. Check:
   • camshaft sprocket
   More than 1/4 tooth wear ⓐ → Replace the camshaft sprockets and the timing chain as a set.

ⓐ 1/4 tooth
ⓑ Correct
① Timing chain roller
② Camshaft sprocket



2. Check:
   • timing chain guide (exhaust side) ①
   • timing chain guide (intake side) ②
   • timing chain guide (top side) ③
   Damage/wear → Replace the defective part(-s).





CHECKING THE TIMING CHAIN TENSIONER

1. Check:
   • timing chain tensioner
   Cracks/damage/rough movement → Replace.

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a. Lightly press the timing chain tensioner rod into the timing chain tensioner housing by hand.

NOTE:

While pressing the timing chain tensioner rod, wind it clockwise with a thin screwdriver ① until it stops.

b. Remove the screwdriver and slowly release the timing chain tensioner rod.
c. Make sure that the timing chain tensioner rod comes out of the timing chain tensioner housing smoothly. If there is rough movement, replace the timing chain tensioner.

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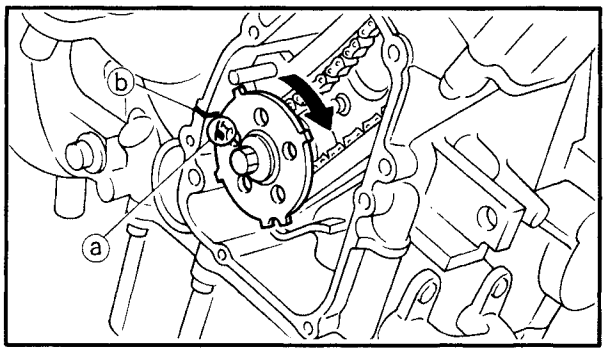

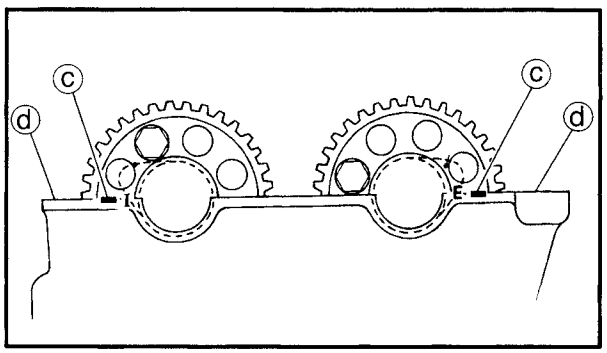

INSTALLING THE CAMSHAFTS

1. Install:
   - timing chain guide (intake side)
   - timing chain guide (exhaust side)
2. Install:
   - intake camshaft sprocket

     24 Nm (2.4 m•kg, 17 ft•lb)
   - exhaust camshaft sprocket

     24 Nm (2.4 m•kg, 17 ft•lb)

NOTE:

Cam sprocket timing mark is outside and align the cam sprocket hole to camshaft hole.

3. Install:
   - exhaust camshaft
   - intake camshaft
   - camshaft cap gasket
   - camshaft cap

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a. Turn the crankshaft clockwise.
b. When piston #1 is at TDC on the compression stroke, align the ⓐ mark on the pickup coil rotor with the crankcase mating surface ⓑ.
c. Install the timing chain onto both camshaft sprockets and then install the camshaft sprockets onto the camshafts.

CAUTION:

Do not turn the crankshaft when installing the camshaft to avoid damage or improper valve timing.

d. Install the exhaust and intake camshaft cap.

Camshaft cap bolt
10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE:

Make sure that the camshaft sprocket timing marks ⓒ are aligned with the cylinder head edge ⓓ
Out of alignment → Reinstall.

e. Remove the wire from the timing chain.

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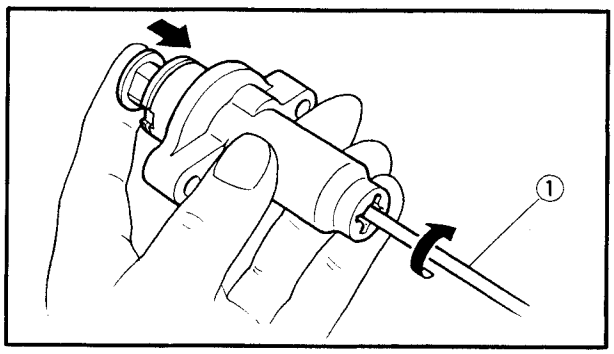

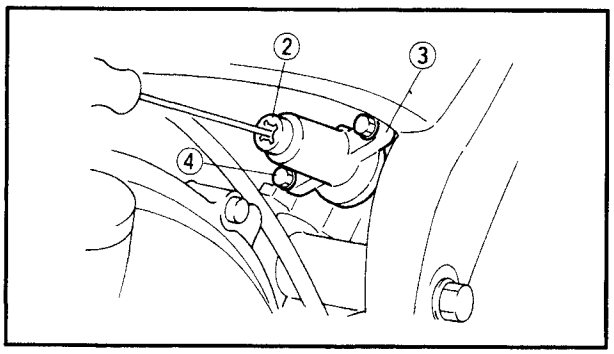

4. Install:
   • timing chain tensioner

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a. Lightly press the timing chain tensioner rod into the timing chain tensioner housing by hand.
b. While pressing the timing chain tensioner rod, wind it clockwise with a thin screwdriver ① until if stops.
C. With the screwdriver still inserted into the timing chain tensioner, install the timing chain tensioner ②, gasket, and float chamber air vent hose holder ③ onto the cylinder block. Then, tighten the timing chain tensioner bolts ④ to the specified torque.

⚠ WARNING

Always use a new gasket.

NOTE:

The "UP" mark on the timing chain tensioner should face up.

	Timing chain tensioner bolt **12 Nm (1.2 m•kg, 8.7 ft•lb)**

d. Remove the screwdriver, make sure that the timing chain tensioner rod releases, and tighten the cap bolt to the specified torque.

	Cap bolt **10 Nm (1.0 m•kg, 7.2 ft•lb)**

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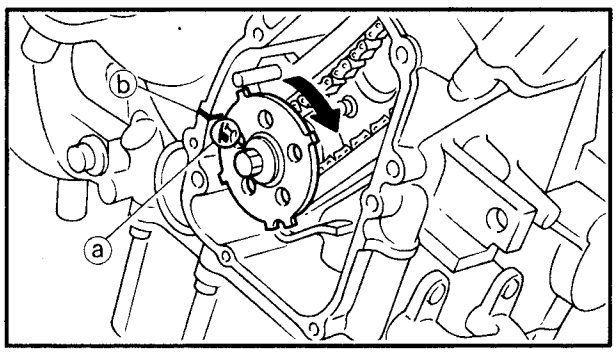
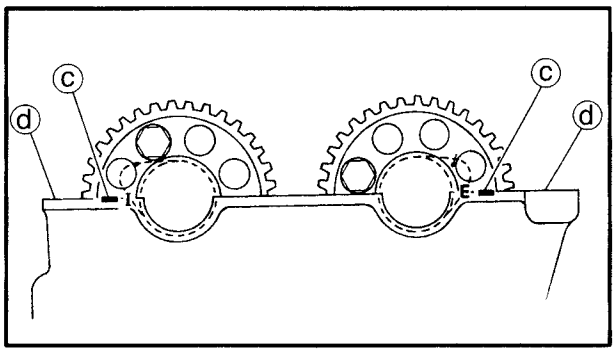
5. Turn:
   • crankshaft (several turns counterclockwise)





6. Check:
   - TDC mark ⓐ
     Make sure that the TDC mark is aligned with the crankcase mating surface ⓑ.
   - camshaft sprocket timing mark ⓒ
     Make sure that the camshaft sprocket timing mark is aligned with the cylinder head edge ⓓ
     Out of alignment → Adjust.
     Refer to the installation steps above.

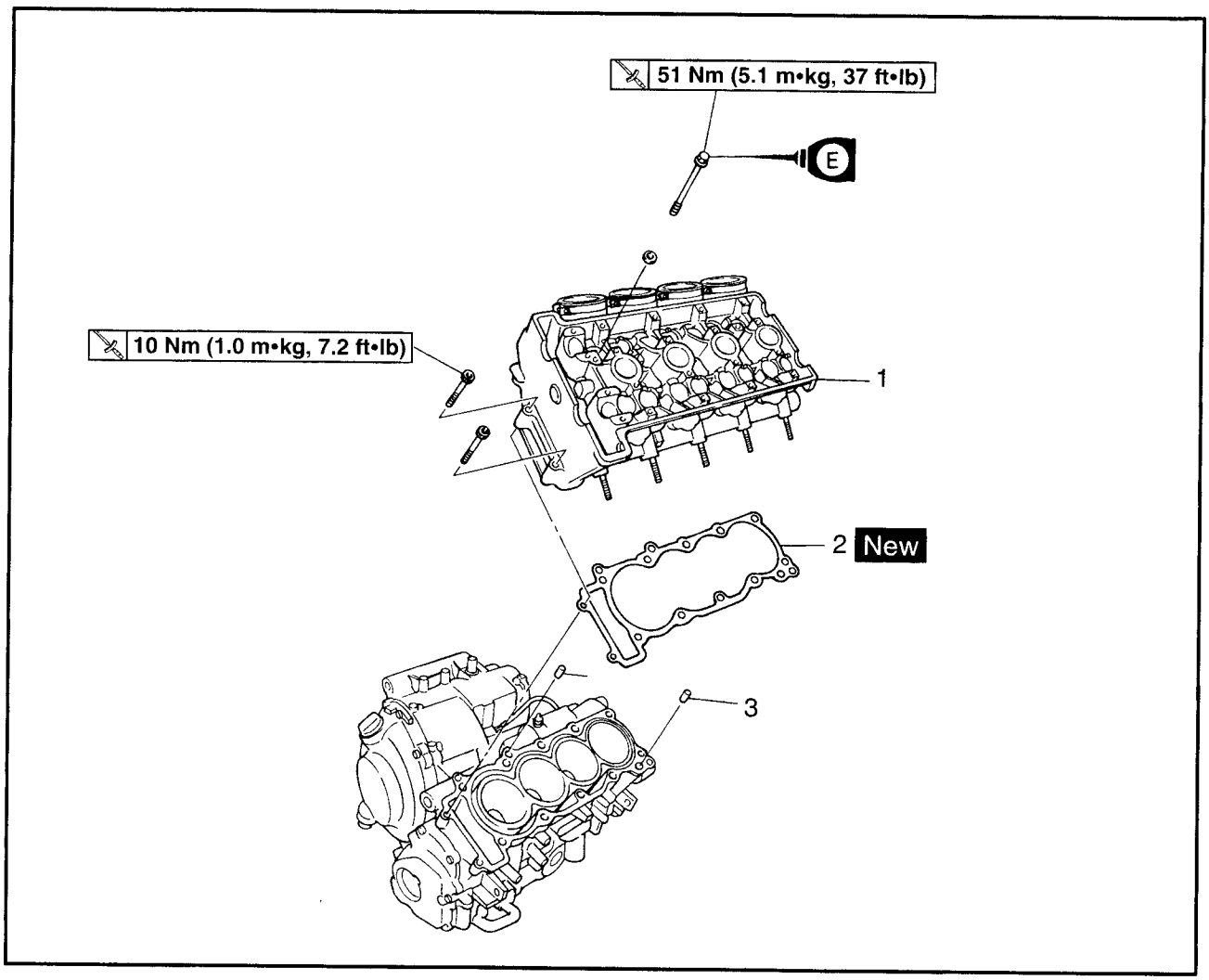
7. Measure:
   - valve clearance
     Out of specification → Adjust.
     Refer to "ADJUSTING THE VALVE CLEARANCE" in chapter 3.

8. Install:
   - cylinder head cover gasket
   - cylinder head cover

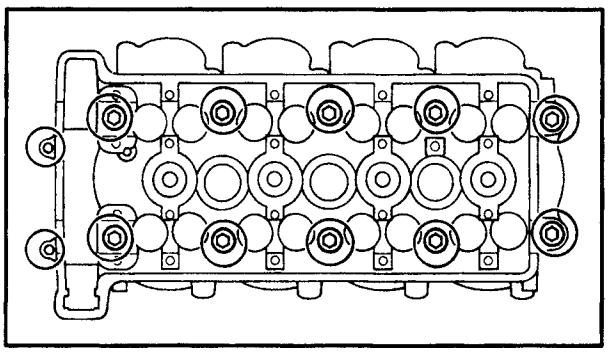
NOTE:

- Apply bond TB1541 onto the mating surfaces of the cylinder head cover and cylinder head cover gasket.
- Apply bond 1215B onto the mating surfaces of the cylinder head cover gasket and cylinder head.
- Tighten the cylinder head cover bolts in stages and in a crisscross pattern.

EAS00220
CYLINDER HEAD

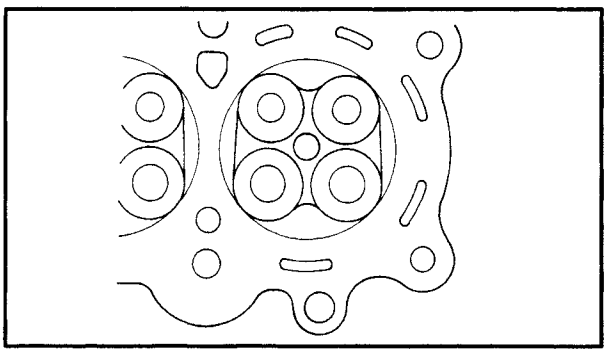


Order	Job/Part	Q'ty	Remarks
	Removing the cylinder head		Remove the parts in the order listed.
	Intake and exhaust camshafts		Refer to "CAMSHAFTS".
	Water hose		Disconnect
	Temp senser lead		Disconnect
	Front mounting bolt		Refer to "ENGINE".
1	Cylinder head	1	Refer to "REMOVING/INSTALLING THE CYLINDER HEAD".
2	Cylinder head gasket	1	
3	Dowel pin	2	
			For installation reverse the removal procedure.



EAS00223
REMOVING THE CYLINDER HEAD
1. Remove:
   • cylinder head bolts
   • cylinder head

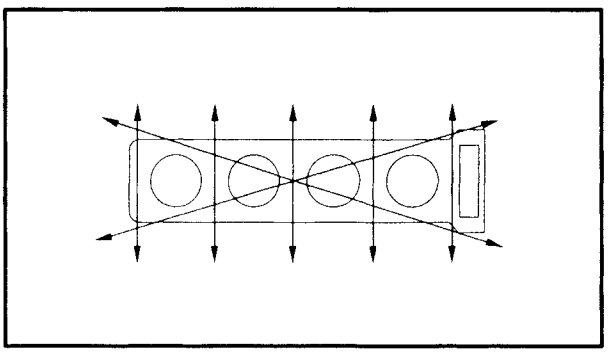
NOTE:
Loosen each bolt and nut 1/2 of a turn at a time, in stages and in a crisscross pattern. After all of the bolts and nuts are fully loosened, remove them.



EAS00229
CHECKING THE CYLINDER HEAD
1. Eliminate:
   • combustion chamber carbon deposits (with a rounded scraper)

NOTE:
Do not use a sharp instrument to avoid damaging or scratching:
• spark plug bore threads
• valve seats

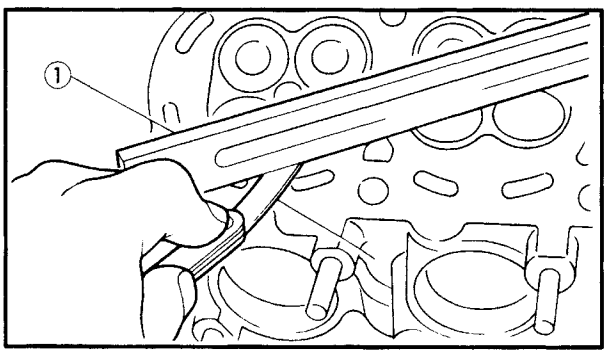
2. Check:
   • cylinder head
     Damage/scratches → Replace.
   • cylinder head water jacket
     Mineral deposits/rust → Eliminate.



3. Measure:
   • cylinder head warpage
     Out of specification → Resurface the cylinder head.

Max. cylinder head warpage
0.05 mm (0.002 in)

a. Place a straightedge ① and a thickness gauge ② across the cylinder head.
b. Measure the warpage.
c. If the limited in exceeded, resurface the cylinder head as follows.



d. Place a 400 ~ 600 grit wet sandpaper on the surface plate and resurface the cylinder head using a figure-eight sanding pattern.

NOTE:

To ensure an even surface, rotate the cylinder head several times.

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EAS00223

INSTALLING THE CYLINDER HEAD

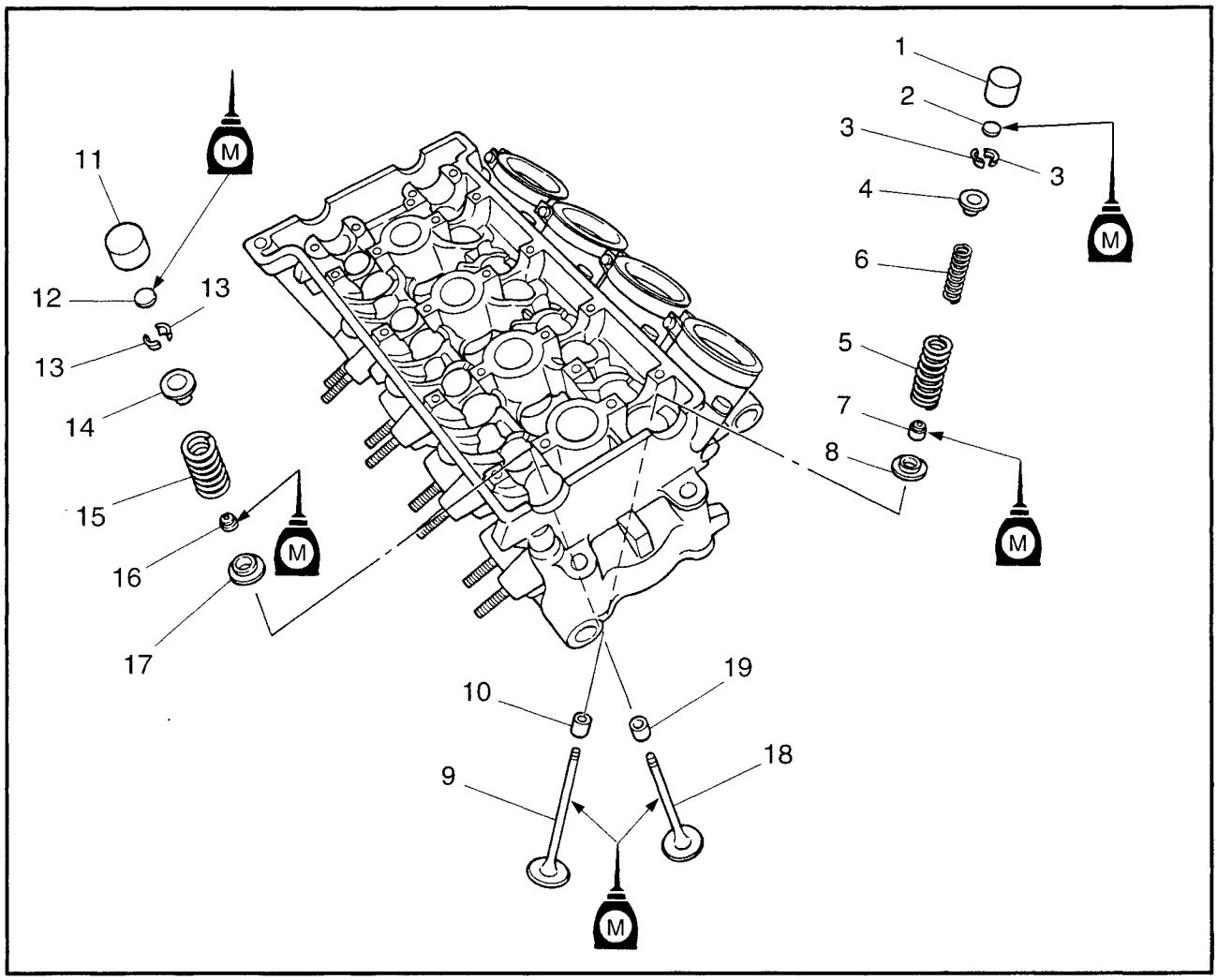
1. Install:
   - cylinder head gasket
   - cylinder head
   - cylinder headbolt

(M10)		**51 Nm (5.1 m•kg, 37 ft•lb)**
(M6)		**10 Nm (1.0 m•kg, 7.2 ft•lb)**

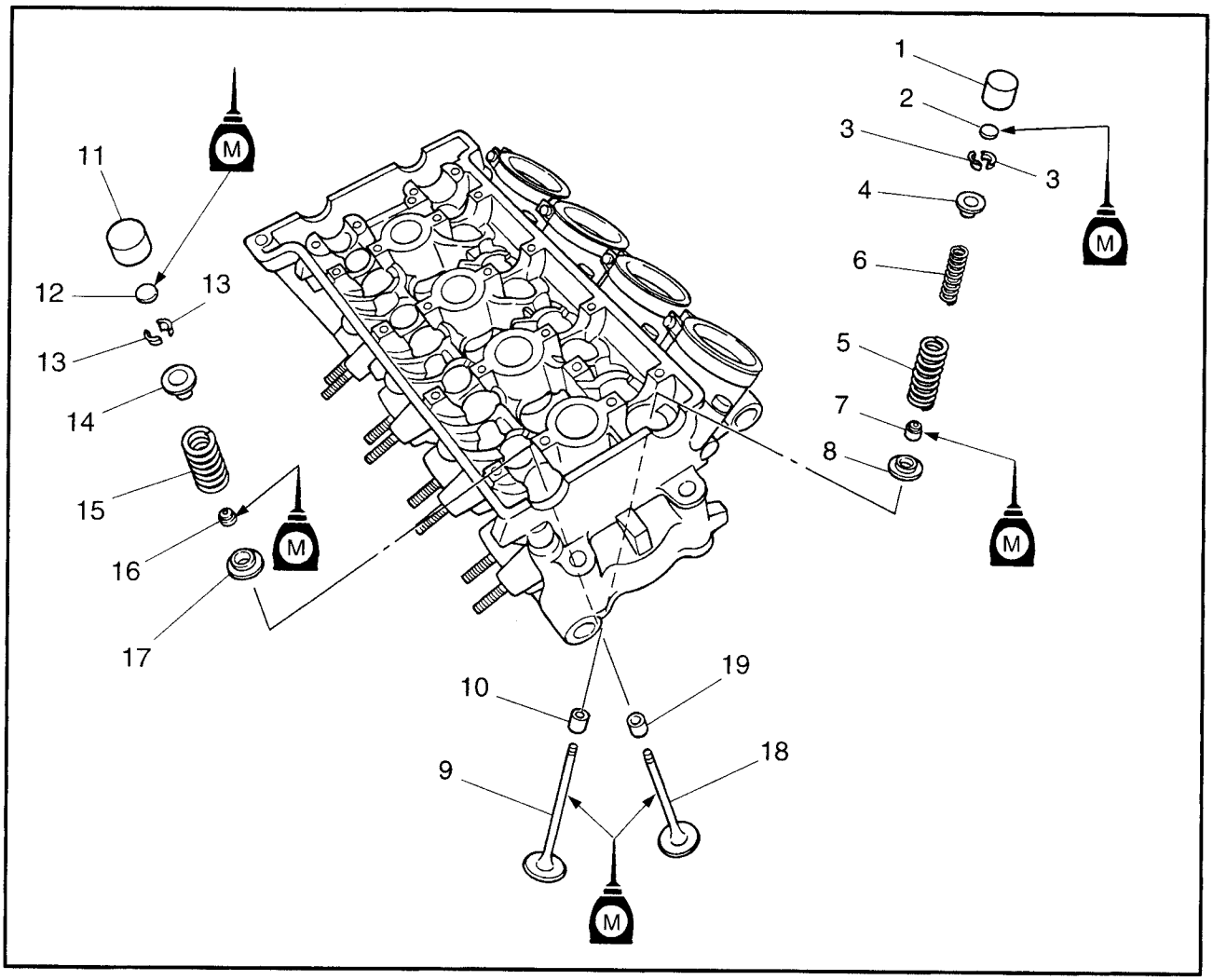
NOTE:

- Lubricate the cylinder head nuts with engine oil.
- Tighten the cylinder head nuts and bolts in two stages and in a crisscross pattern.

EAS00236
VALVES AND VALVE SPRINGS



Order	Job/Part	Q'ty	Remarks
	Removing the valves and valve springs		Remove the parts in the order listed.
	Cylinder head		Refer to "CYLINDER HEAD".
1	Intake valve lifter	8	Refer to "REMOVING/INSTALLING THE VALVES".
2	Intake valve pad	8	
3	Intake valve cotter	16	
4	Intake valve upper spring seat	8	
5	Intake valve spring outer	8	
6	Intake valve spring inner	8	
7	Intake valve oil seal	8	
8	Intake valve lower spring seat	8	
9	Intake valve	8	
10	Intake valve guide	8	



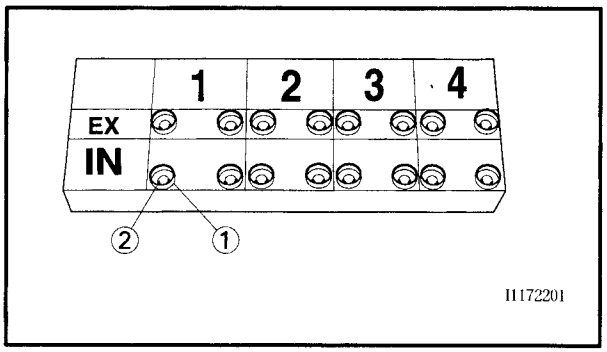
Order	Job/Part	Q'ty	Remarks
11	Exhaust valve lifter	8	Refer to "REMOVING/INSTALLING THE VALVES".
12	Exhaust valve pad	8	
13	Exhaust valve cotter	16	
14	Exhaust valve upper spring seat	8	
15	Exhaust valve spring	8	
16	Exhaust valve oil seal	8	
17	Exhaust valve lower spring seat	8	
18	Exhaust valve	8	
19	Exhaust valve guide	8	
			For installation, reverse the removal procedure.

EAS00237
REMOVING THE VALVES

The following procedure applies to all of the valves and related components.

NOTE:

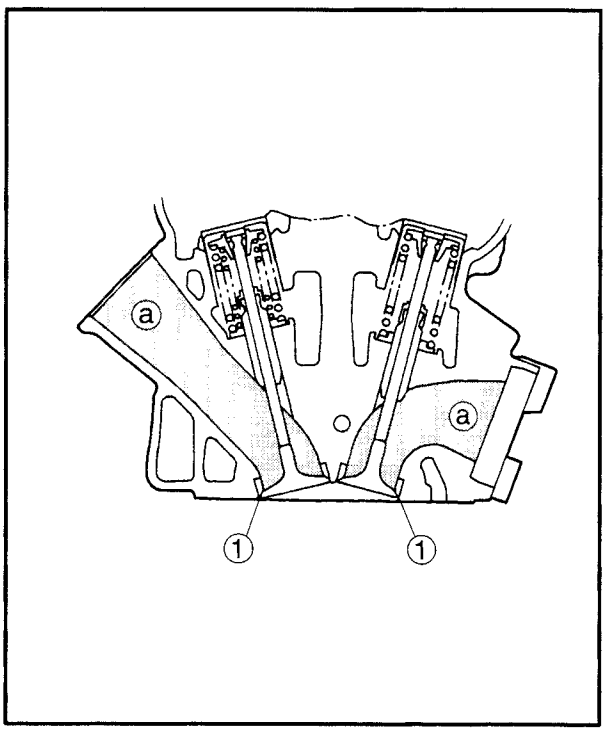
Before removing the internal parts of the cylinder head (e.g., valves, valve springs, valve seats), make sure that the valves properly seal.



1. Remove:
   - valve lifter ①
   - valve pad ②

NOTE:

Make a note of the position of each valve lifter and valve pad so that they can be reinstalled in their original place.



2. Check:
   - valve

   (for leakage)

   Leakage at the valve seat → Check the valve face, valve seat, and valve seat width.

   Refer to "CHECKING THE VALVE SEATS".

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a. Pour a clean solvent ⓐ into the intake and exhaust ports.
b. Check that the valves properly seal.

NOTE:

There should be no leakage at the valve seat ①.

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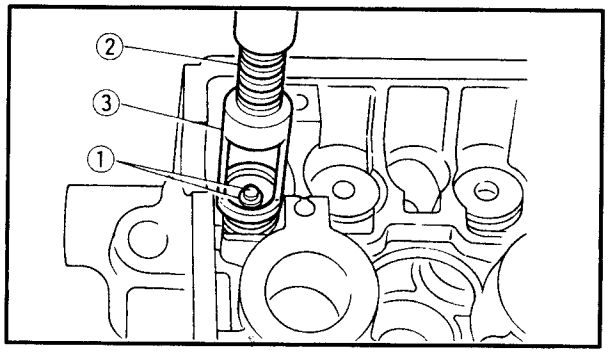
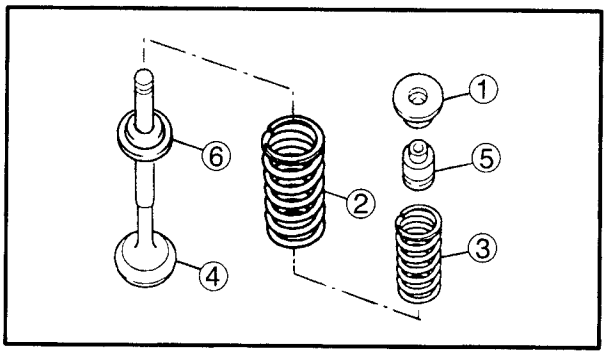


3. Remove:
   • valve cotters ①

NOTE:

Remove the valve cotters by compressing the valve spring with the valve spring compressor ② and attachment ③.

Valve spring compressor
90890-04019, YM-04019
Attachment
90890-04114, YM-01253-1



4. Remove:
   • upper spring seat ①
   • valve spring outer ②
   • valve spring inner (intake only) ③
   • valve ④
   • oil seal ⑤
   • lower spring seat ⑥

NOTE:

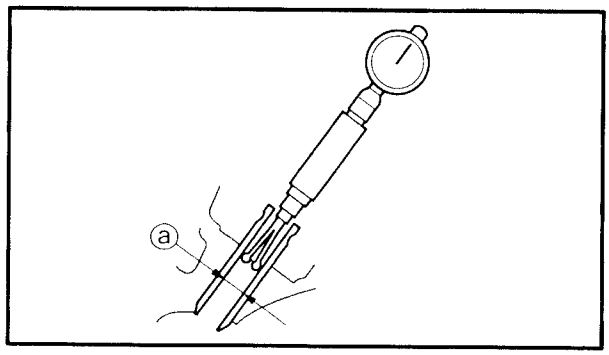
Identify the position of each part very carefully so that it can be reinstalled in its original place.

EAS00239

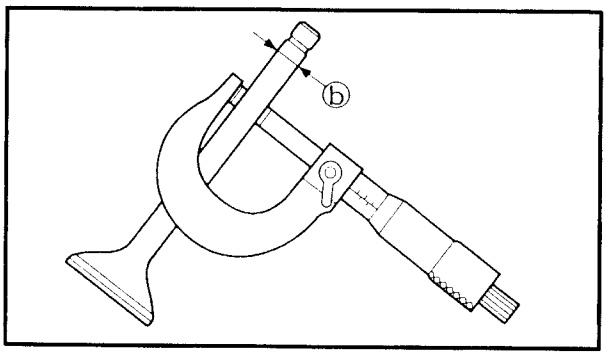
CHECKING THE VALVES AND VALVE GUIDES

The following procedure applies to all of the valves and valve guides.

1. Measure:
   • valve-stem-to-valve-guide clearance

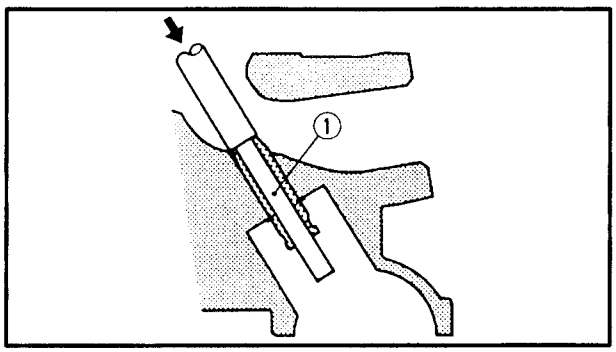


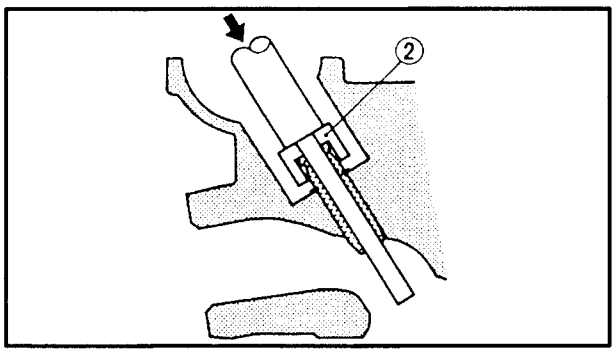
Valve-stem-to-valve-guide clearance =
Valve guide inside diameter ⓐ –
Valve stem diameter ⓑ

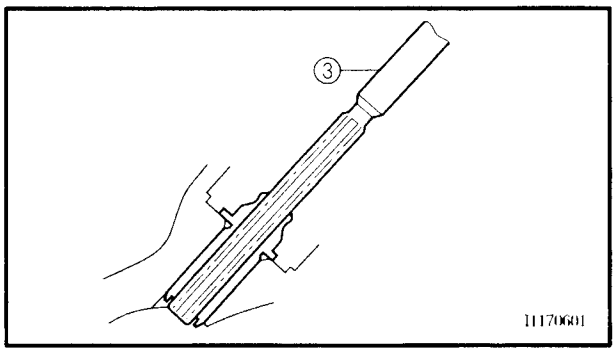


Out of specification → Replace the valve guide.

Valve-stem-to-valve-guide clearance
Intake
0.010 ~ 0.037 mm
(0.0004 ~ 0.0015 in)
<Limit> : 0.08 mm (0.0031 in)
Exhaust
0.025 ~ 0.052 mm
(0.001 ~ 0.002 in)
<Limit>: 0.1 mm (0.0039 in)







2. Replace:
   • valve guide

NOTE:

To ease valve guide removal and installation, and to maintain the correct fit, heat the cylinder head to 100°C (212°F) in an oven.

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a. Remove the valve guide with a valve guide remover ①.
b. Install the new valve guide with the valve guide installer ② and valve guide remover ①.
c. After installing the valve guide, bore the valve guide with a valve guide reamer ③ to obtain the proper valve-stem-to-valve-guide clearance.

NOTE:

After replacing the valve guide, reface the valve seat .

Valve guide remover
(4.0 mm, 0.16 in)
90890-04111
Valve guide installer
(4.0 mm, 0.16 in)
90890-04112
Valve guide reamer
(4.0 mm, 0.16 in)
90890-04113

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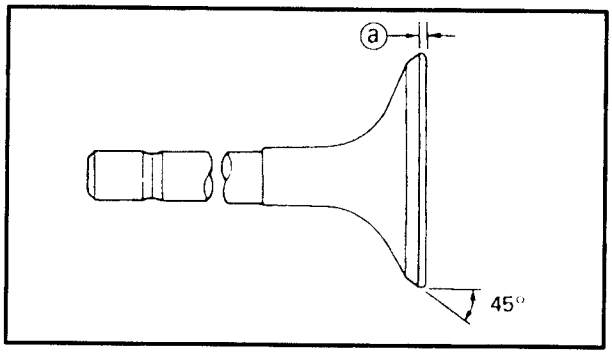
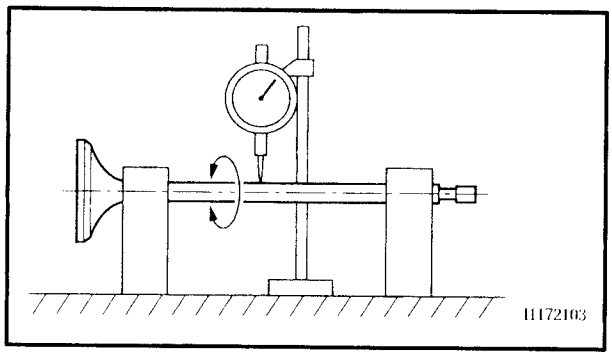
3. Eliminate:
   • carbon deposits
   (from the valve face and valve seat)
4. Check:
   • valve face
   Pitting/wear → Grind the valve face.
   • valve stem end
   Mushroom shape or diameter larger than the body of the valve stem → Replace the valve.



5. Measure:
   • valve margin thickness ⓐ
   Out of specification → Replace the valve.

Valve margin thickness
0.6 mm ~ 0.8 mm
(0.0236 ~ 0.0315 in)
<LIMIT>: 0.5 mm (0.02 in)



6. Measure:
   • valve stem runout
   Out of specification → Replace the valve.

NOTE:

- When installing a new valve, always replace the valve guide.
- If the valve is removed or replaced, always replace the oil seal.

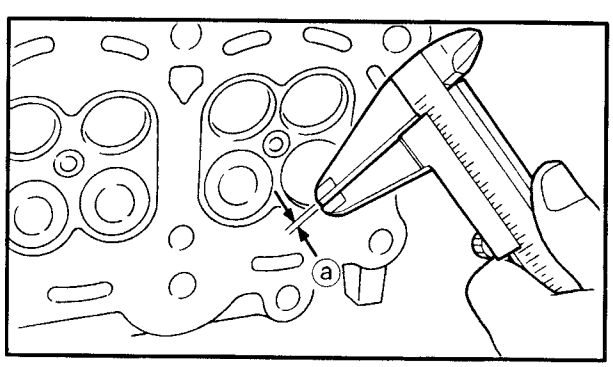
Valve stem runout
0.04 mm (0.0016 in)

EAS00240

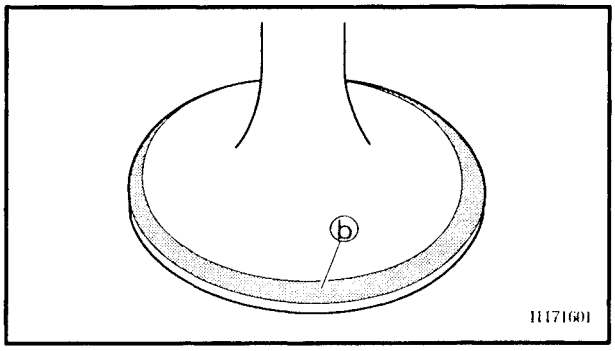
CHECKING THE VALVE SEATS

The following procedure applies to all of the valves and valve seats.

1. Eliminate:
   • carbon deposits
   (from the valve face and valve seat)
2. Check:
   • valve seat
   Pitting/wear → Replace the cylinder head.
3. Measure:
   • valve seat width ⓐ
   Out of specification → Replace the cylinder head.



Valve seat width
Intake: 0.9 ~ 1.1 mm
(0.0354 ~ 0.0433 in)
<Limit>: 1.6 mm (0.06 in)



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a. Apply Mechanic's blueing dye (Dykem) ⓑ onto the valve face.
b. Install the valve into the cylinder head.
c. Press the valve through the valve guide and onto the valve seat to make a clear impression.
d. Measure the valve seat width.

NOTE:

Where the valve seat and valve face contacted one another, the blueing will have been removed.

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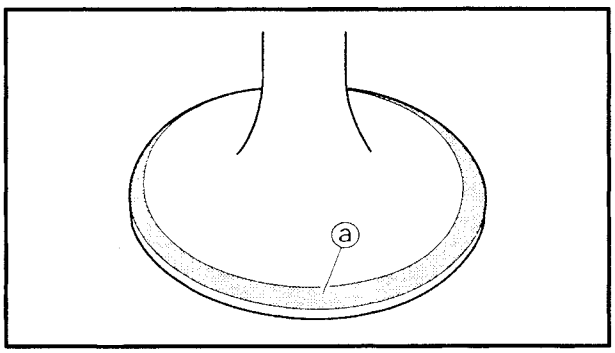

4. Lap:
   • valve face
   • valve seat

NOTE:

After replacing the cylinder head or replacing the valve and valve guide, the valve seat and valve face should be lapped.

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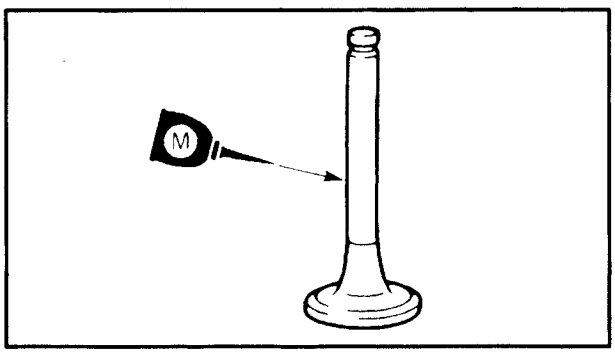
a. Apply a coarse lapping compound ⓐ to the valve face.

CAUTION:

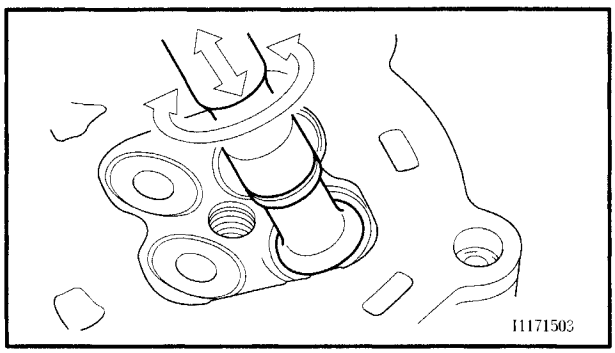
Do not let the lapping compound enter the gap between the valve stem and the valve guide.

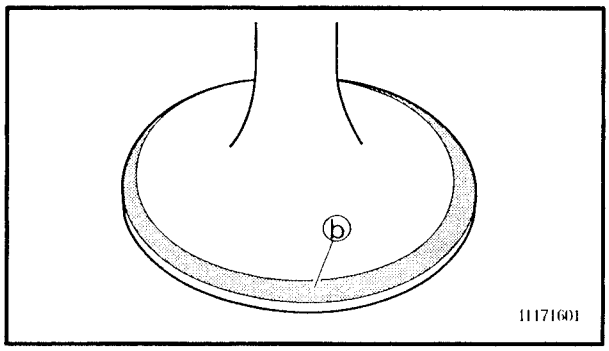


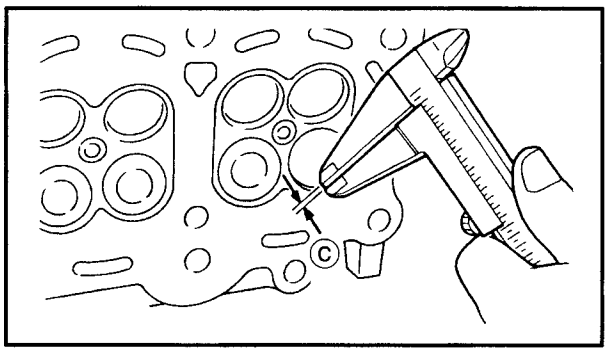
b. Apply molybdenum disulfide oil onto the valve stem.
c. Install the valve into the cylinder head.
d. Turn the valve until the valve face and valve seat are evenly polished, then clean off all of the lapping compound.

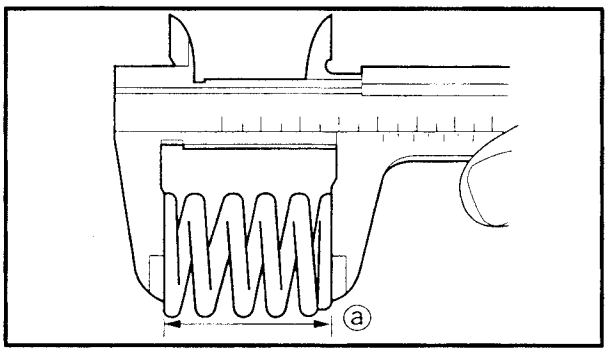
NOTE:

For the best lapping results, lightly tap the valve seat while rotating the valve back and forth between your hand.









e. Apply a fine lapping compound to the valve face and repeat the above steps.
f. After every lapping procedure, be sure to clean off all of the lapping compound from the valve face and valve seat.
g. Apply Mechanic's blueing dye (Dykem) ⓑ onto the valve face.
h. Install the valve into the cylinder head.
i. Press the valve through the valve guide and onto the valve seat to make a clear impression.
j. Measure the valve seat width ⓒ again. If the valve seat width is out of specification, reface and lap the valve seat.

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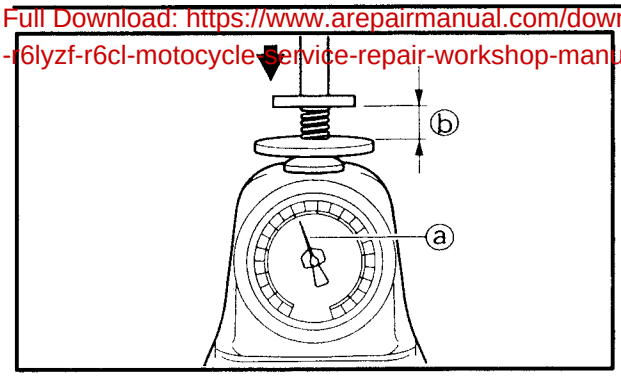
EAS00241

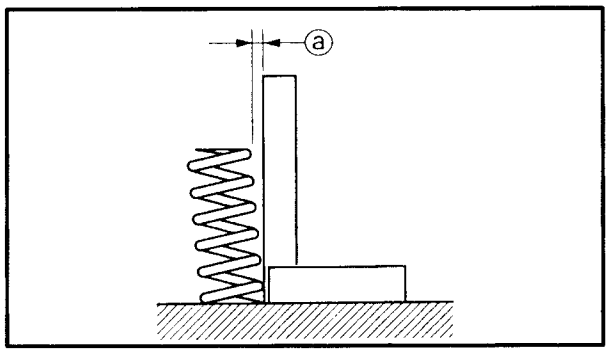
CHECKING THE VALVE SPRINGS

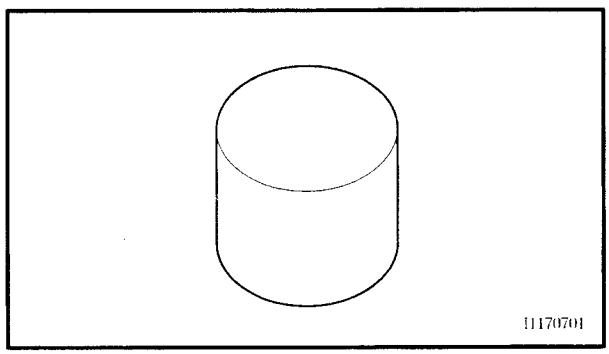
The following procedure applies to all of the valve springs.

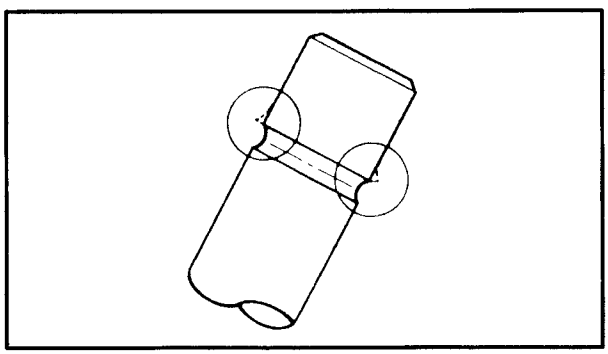
1. Measure:
   • valve spring free length ⓐ
   Out of specification → Replace the valve spring.

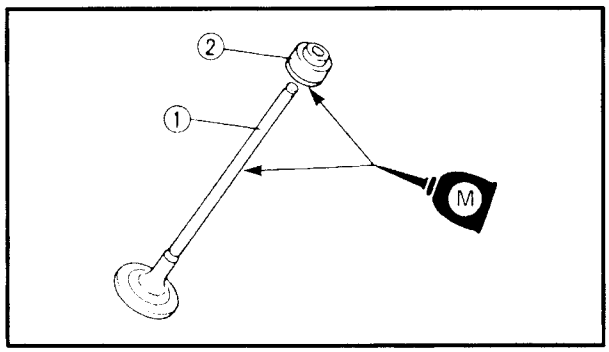
Valve spring free length
Intake valve spring (inner)
37.0 mm (1.46 in)
<Limit>: 35mm (1.38 in)
Intake valve spring (outer)
38.4 mm (1.51 in)
<Limit>: 36.5mm (1.44 in)
Exhaust valve spring
41.7 mm (1.64 in)
<Limit>: 39.5mm (1.56 in)











2. Measure:
   • compressed spring force ⓐ
   Out of specification → Replace the valve spring.

ⓑ Installed length

Compressed spring force (installed)
Intake valve spring inner
69 ~ 79 N (15.51 ~ 17.76 lb, 7.04 ~ 8.06 kg) at 30.0 mm (1.18 in)
Intake valve spring outer
114 ~ 132 N (25.63 ~ 29.67 lb, 11.62 ~ 13.46 kg) at 32.5 mm (1.28 in)
Exhaust valve spring
160 ~ 184 N (35.97 ~ 41.36 lb, 16.32 ~ 18.76 kg) at 36.1 mm (1.42 in)

3. Measure:
   • valve spring tilt ⓐ
   Out of specification → Replace the valve spring.

Max. Spring tilt
Intake valve spring inner
2.5°/1.6 mm (0.06 in)
Intake valve spring outer
2.5°/1.7 mm (0.07 in)
Exhaust valve spring
2.5°/1.8 mm (0.07 in)

EAS00242
CHECKING THE VALVE LIFTERS

The following procedure applies to all of the valve lifters.
1. Check:
   • valve lifter
   Damage/scratches → Replace the valve lifters and cylinder head.

EAS00247
INSTALLING THE VALVES

The following procedure applies to all of the valves and related components.
1. Deburr:
   • valve stem end
   (with an oil stone)
2. Lubricate:
   • valve stem ①
   • oil seal ②
   (with the recommended lubricant)

Recommended lubricant
Molybdenum disulfide oil