

(3) Checking oil clearance

With the bearing cap tightened to the specified torque, measure the oil clearance, using the plastigage.

**Tightening Torque:**  $1.3 \pm 0.15$  kg-m ( $9.4 \pm 1.1$  ft-lb)

**Oil Clearance:**

0.025 - 0.16 mm (0.0010 - 0.0063 inch)

(4) Checking thrust clearance

After the bearing caps have been tightened to the specified torque, check the thrust clearance.

**Maximum limit:** 0.20 mm (0.0078 inch)

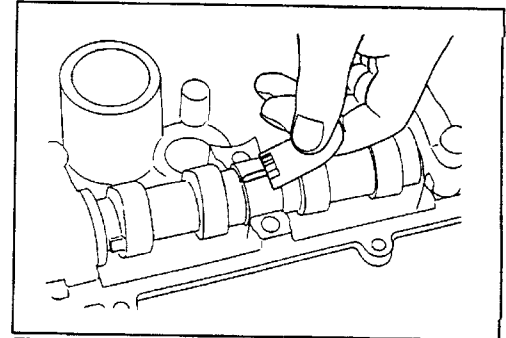


Fig. 5-216

WM-05252

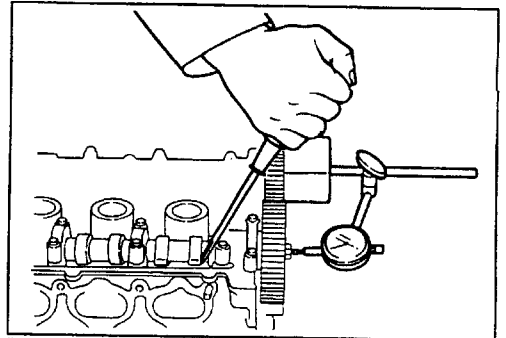


Fig. 5-217

WM-05253

8. Hand lapping of valves

After all checks have been completed, carry out hand lapping of the valves before assembling them.

Apply a thin film of abrasive compound to the valve and valve seat. Perform the lapping with a valve lapper.

After completion of the lapping, wash the valves and cylinder head, using a cleaning solvent. Blow them with compressed air.

WM-05254

**INSTALLATION**

Install the cylinder head to the SST (09219-87703-000).

1. Install the valve spring seats.

2. Installation of valve stem oil seals

Apply engine oil to a new valve stem oil seal. Then, insert it into the valve guide bush by your hands.

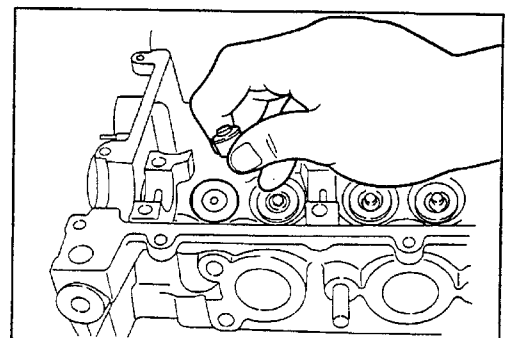


Fig. 5-218

WM-05255

3. Installation of valves

Apply engine oil to the valve stem. Insert it into the valve guide bush from the combustion chamber side, being very careful not to damage the valve stem oil seal.

**NOTE:**

(1) Be sure to install the valves, valve springs and valve retainers into the original position to which they were installed before the disassembly. (This does not apply to the replaced parts.)

(2) Once the valve has been inserted, never pull it out from position. If the valve should be pulled out, replace the valve stem oil seal with a new one.

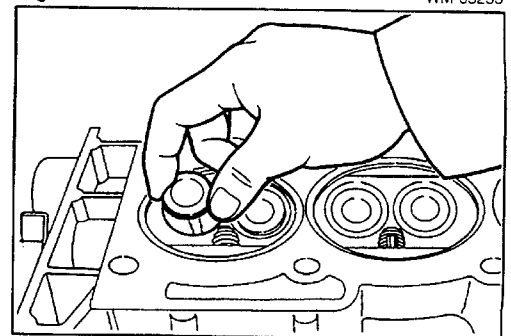


Fig. 5-219

WM-05256

## ENGINE MECHANICALS

4. Installation of compression springs  
Assemble the compression spring with the white-painted side facing the cylinder head.

5. Install the valve spring retainers.
6. Installation of valve spring retainer locks  
Install the valve spring retainer lock using the following SSTs.

SST: 09202-87002-0A0  
09202-87002-000

After the valve spring retainer lock has been installed, lightly tap the valve retainer, using a plastic hammer. In this way, ensure that the valve spring retainer lock is installed securely.

**NOTE:**

During this check, care must be exercised to ensure that the valve spring retainer or lock retainer may not be jumped out.

7. Installation of valve lifters  
Apply engine oil to the cylinder head valve lifter hole and valve lifter. Then, insert the valve lifter into position.

**NOTE:**

Make sure that the valve lifter can be rotated lightly.

8. Installation of shims  
Install the shims in the same number as installed before the disassembly. The shim should be installed with the size-indicated side facing toward the lifter.

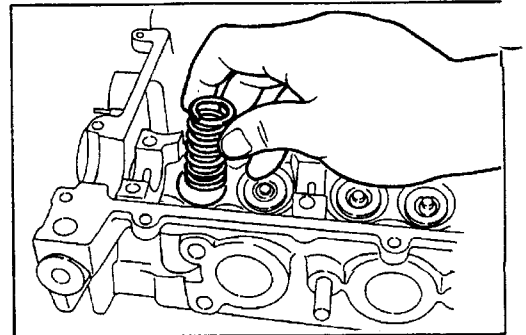


Fig. 5-220

WM-05257

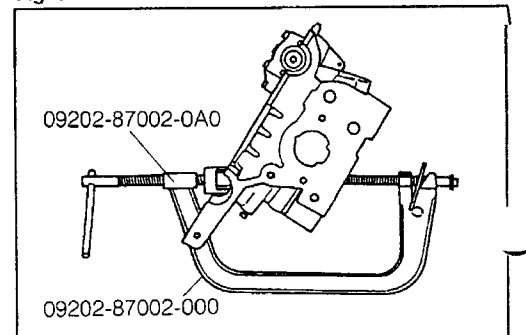


Fig. 5-221

WM-05258

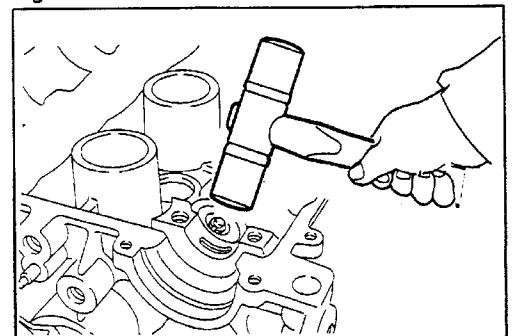


Fig. 5-222

WM-05259

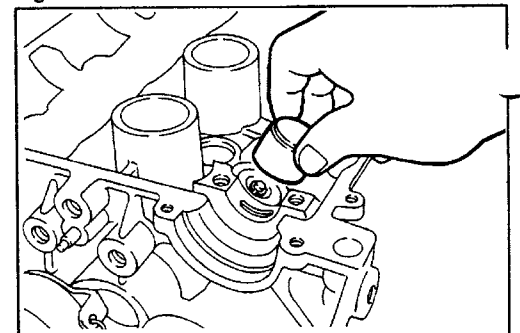


Fig. 5-223

WM-05260

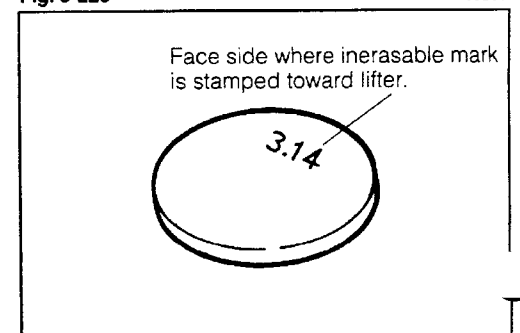


Fig. 5-224

WM-05261

9. Installation of camshafts
- (1) Apply engine oil to the camshaft bearing bores of the cylinder head.
  - (2) Apply engine oil to the camshaft journal sections where the oil seals have been assembled. Then, install the camshaft to the cylinder head.
  - (3) For identification purpose, the camshaft for exhaust valve use has a groove for driving the distributor, as indicated in the right figure.

**NOTE:**

Set each camshaft to the initial position. Namely, set each of the camshafts to a state where the camshaft pushes no valve lifter.

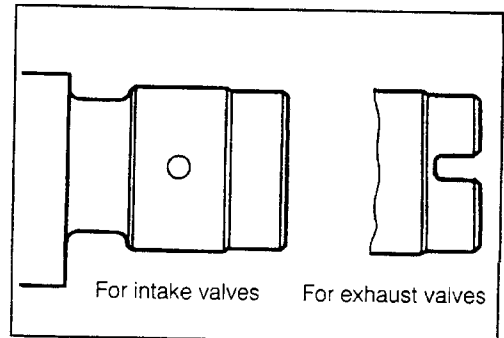


Fig. 5-225

WM-05263

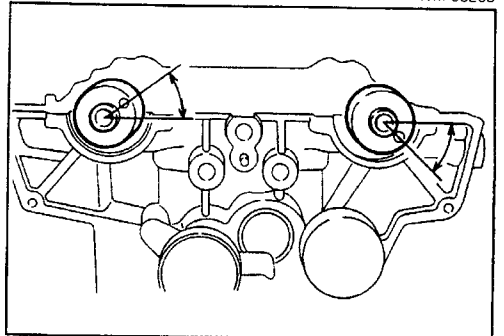


Fig. 5-226

WM-05264

10. Installation of camshaft bearing caps
- Apply engine oil to the inside of each camshaft bearing cap. Then, evenly tighten the camshaft bearing caps to the specified torque.
- Tightening Torque: 1.15 - 1.45 kg-m (8.3 - 10.5 ft-lb)

**NOTE:**

- ① Make sure that the oil seal may not tilt during the bearing cap installation.
- ② Be sure to install each camshaft bearing cap correctly, according to the embossed number and arrow at the back side of the cap.

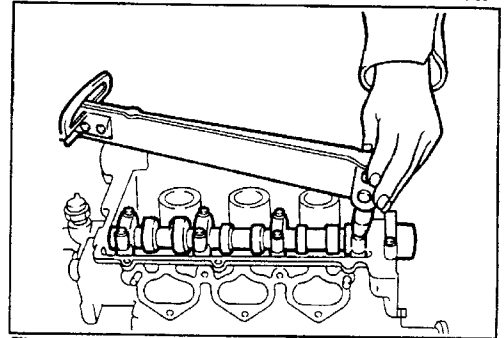


Fig. 5-227

WM-05265

11. Installation of oil seals
- Apply engine oil to each new oil seal. Then, press it into position, using the following SST.
- SST: 09618-87301-000

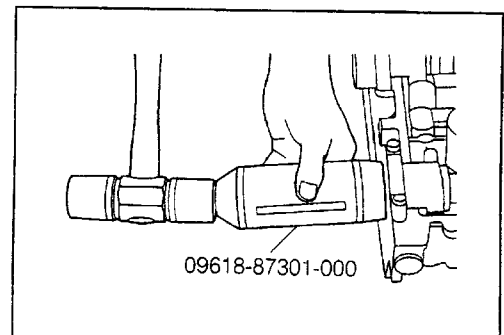


Fig. 5-228

WM-05262

12. Installation of cylinder head gasket
- Install a new cylinder head gasket.

WM-05266

## ENGINE MECHANICALS

### 13. Installation of cylinder head assembly

Tighten the bolts over two stages, following the sequence indicated in the right figure.

#### Tightening Torque:

First tightening 4.0 - 4.5 kg-m (29 - 33 ft-lb)

Second tightening 6.0 - 7.0 kg-m (43 - 51 ft-lb)

#### NOTE:

- ① Be very careful not to scratch the cylinder head and gasket during the installation.
- ② Make sure that no water or oil remains in the attaching holes of the cylinder head bolts.

### 14. Installation of distributor assembly

- (1) Remove the distributor cap. Tilt the rotor, as indicated in the right figure.
- (2) While turning the rotor, push and install the distributor assembly into the groove for driving the distributor.

#### NOTE:

Apply about 40 cc of engine oil between the camshaft journal sections. Also, apply about 10 cc of engine oil to the distributor dog chamber (at the rear end of the camshaft for exhaust valves).

### 15. Remove the cylinder head from the SST.

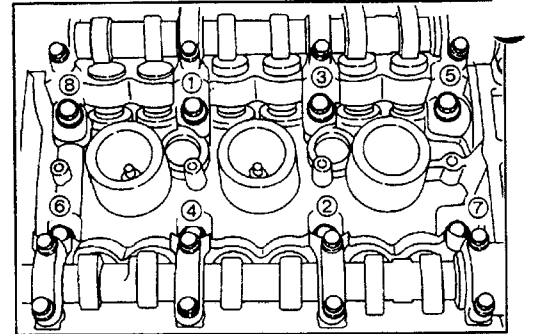


Fig. 5-229

WM-05267

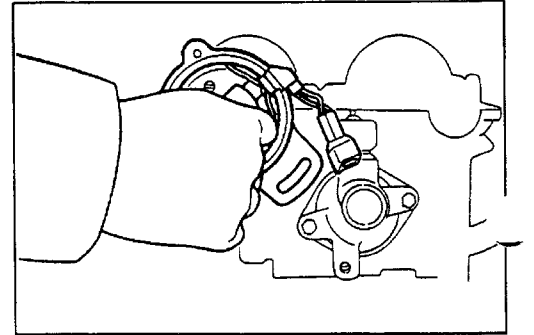


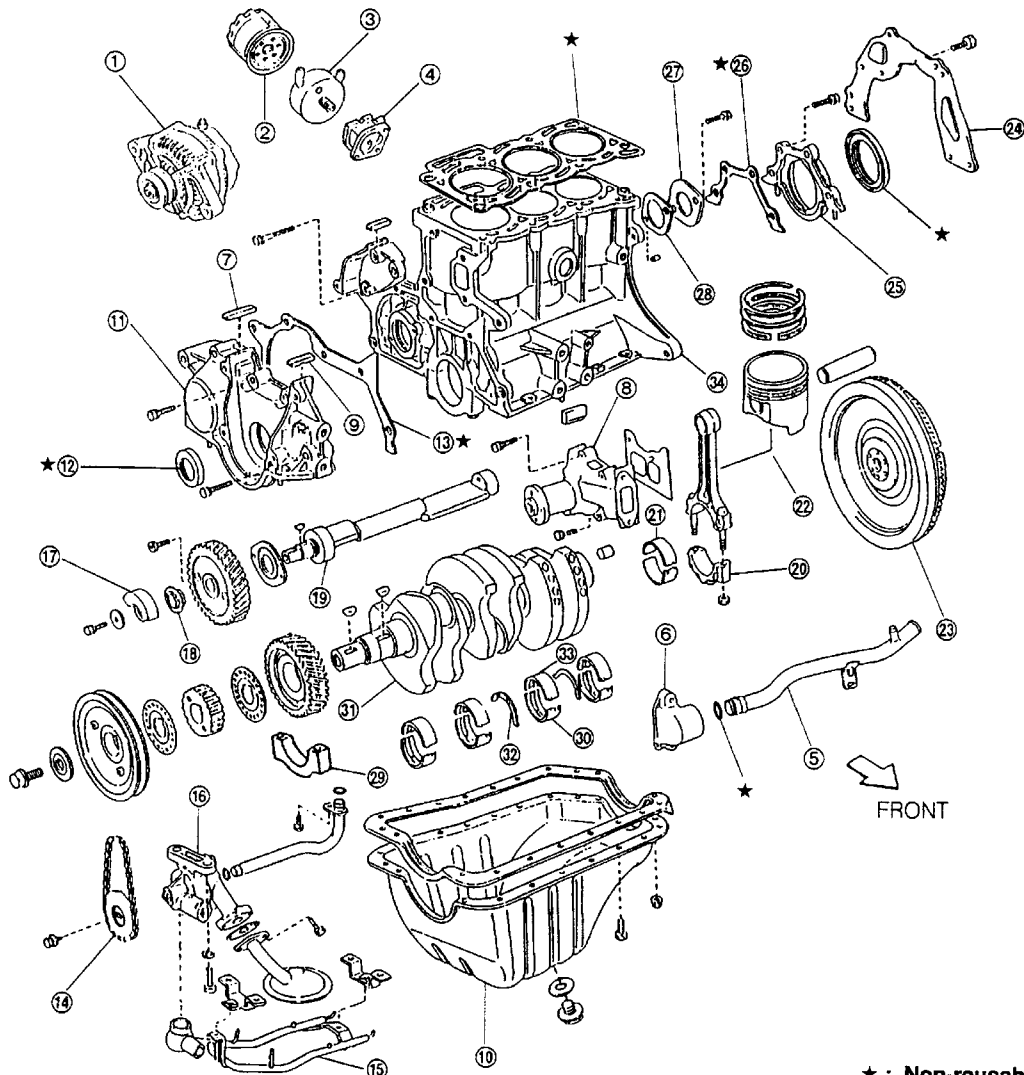
Fig. 5-230

WM-05268

WM-05269

**CYLINDER BLOCK**

**(CB-23, CB-61 & CB-80 ENGINES)  
COMPONENTS OF CYLINDER BLOCK**



★ : Non-reusable parts

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>① Alternator Ay</li> <li>② Oil cleaner element</li> <li>③ Oil cooler Ay (CB-61 &amp; CB-80 engines only)</li> <li>④ Oil filter bracket</li> <li>⑤ Water inlet pipe</li> <li>⑥ Water inlet</li> <li>⑦ Dust seal</li> <li>⑧ Water pump Ay</li> <li>⑨ Dust seal</li> <li>⑩ Oil pan</li> <li>⑪ Balance shaft gear cover</li> <li>⑫ Oil seal</li> <li>⑬ Gasket</li> <li>⑭ Oil pump drive sprocket &amp; drive chain</li> <li>⑮ Oil nozzle (CB-80 engine only)</li> <li>⑯ Oil pump outlet pipe with oil pump</li> <li>⑰ Balance weight</li> </ul> | <ul style="list-style-type: none"> <li>⑱ Oil pump sprocket</li> <li>⑲ Balance shaft</li> <li>⑳ Connecting rod cap</li> <li>㉑ Connecting rod bearing</li> <li>㉒ Connecting rod with piston</li> <li>㉓ Flywheel</li> <li>㉔ Rear end plate</li> <li>㉕ Oil seal retainer with oil seal</li> <li>㉖ Gasket</li> <li>㉗ Balance shaft rear cover</li> <li>㉘ Balance shaft rear cover gasket</li> <li>㉙ Crankshaft bearing cap</li> <li>㉚ Crankshaft bearing (lower)</li> <li>㉛ Crankshaft</li> <li>㉜ Thrust washer</li> <li>㉝ Crankshaft bearing (upper)</li> <li>㉞ Cylinder block</li> </ul> |
|--|---|

Fig. 5-231

WM-05270

## ENGINE MECHANICALS

### REMOVAL

1. Remove the alternator assembly.
2. Remove the oil cleaner element.
3. Remove the oil cooler assembly. (CB-61 & CB-80 engines only)
4. Remove the oil filter bracket.
5. Remove the water inlet pipe.
6. Remove the dust seal.
7. Remove the water pump assembly.
8. Remove the dust seal.
9. Remove the oil pan and oil pan gasket.
10. Remove the balance shaft gear cover.
11. Remove the crankshaft oil seal.
12. Remove the gasket.
13. Remove the balance weight.
14. Remove the oil pump drive sprocket and drive chain.
15. Remove the oil nozzle. (CB-80 engine only)
16. Remove the oil pump and oil pump outlet pipe.
17. Removal of balance shaft

WM-052

- (1) Align the stamped mark on the crank shaft gear with the stamped mark on the balance shaft drive gear.

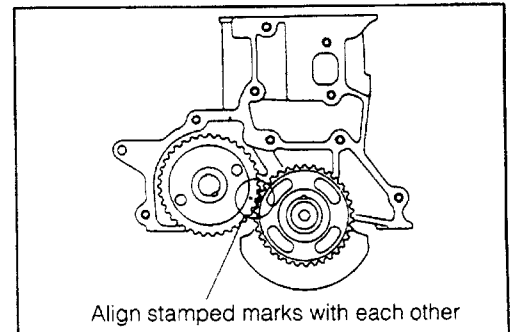
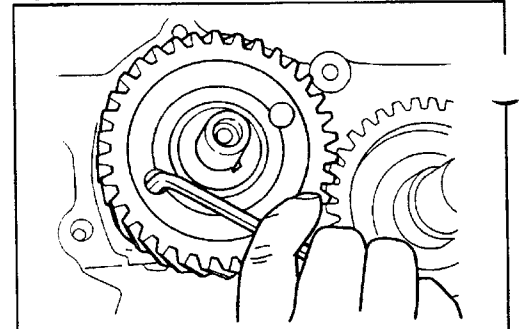


Fig. 5-232

WM-05272

- (2) Remove the hexagon socket head cap bolt, using a (5 mm) hexagon wrench key.  
Pull out the balance shaft toward the front side of the cylinder block.



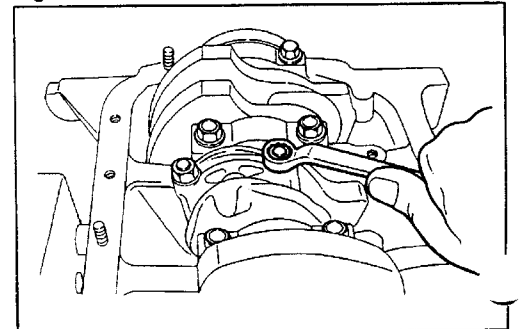
WM-05273

18. Removal of connecting rod bearing cap  
(1) Turn the crankshaft, until the connecting rod bearing cap to be removed comes at the oil pan side.  
(2) Slacken the connecting rod bearing cap nuts evenly over two or three stages. Then, remove the connecting rod bearing cap nuts.

#### NOTE:

Use the following SST to prevent the crankshaft from turning.

SST: 09210-87701-000



WM-05274

- (3) Remove the connecting rod bearing cap.

**NOTE:**

- ① Arrange the removed connecting rod bearing caps in order so that their installation positions may be known readily.
- ② Never touch the surface of the bearing by hands.
- ③ Be very careful not to scratch the crankshaft by the connecting rod bolts.

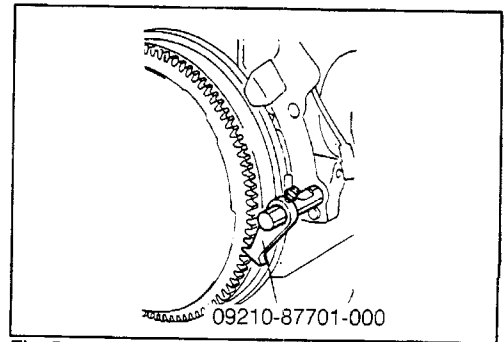


Fig. 5-235

WM-05275

19. Removal of connecting rod bearings

Remove the connecting rod bearing, as follows: Push the connecting rod bearing at the side without the turning-preventive tang by your finger so that the opposite end may float. Thus, take out the bearing. Do not touch the front surface and the back surface of the bearing by your finger during the removal.

**NOTE:**

- ① Arrange the removed connecting rod bearings in order so that their installation positions may be known readily.
- ② Be very careful not to scratch the front surface or back surface of the bearings.
- ③ Never touch the front surface or back surface of the bearings by hands.

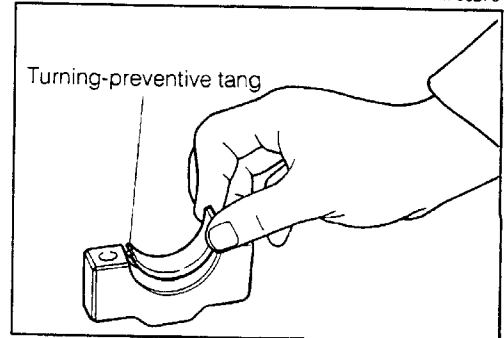


Fig. 5-236

WM-05276

20. Removal of connecting rod with piston

- (1) If the upper part of the cylinder block exhibits carbon deposits, forming ridges, remove them with a ridge reamer or the like.
- (2) Draw the connecting rod with the piston to the cylinder head side.

**NOTE:**

- ① Be very careful not to scratch the cylinder wall surfaces, crankshaft journals and connecting rod.
- ② Arrange the removed connecting rods with the pistons in order so that their installation positions may be known readily.

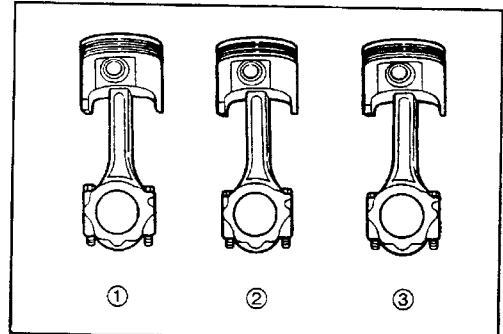


Fig. 5-237

WM-05277

21. Removal of flywheel

- (1) Slacken the attaching bolts of the flywheel evenly over two or three stages. Then, remove the bolts.
- (2) Remove the flywheel.

**NOTE:**

Care must be exercised as to its handling because the flywheel is heavy.

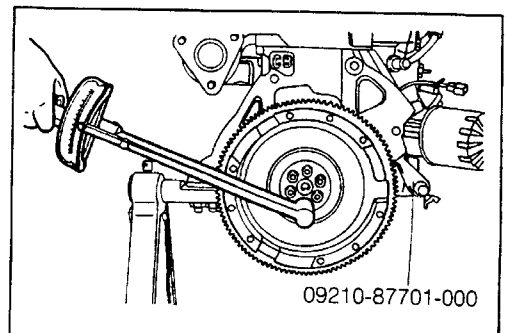


Fig. 5-238

WM-05278