

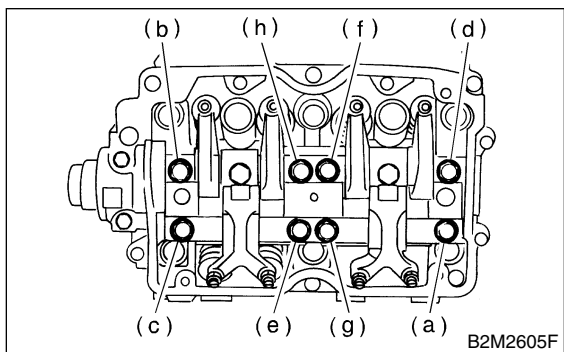
## 18. Valve Rocker Assembly S173094

### A: REMOVAL S173094A18

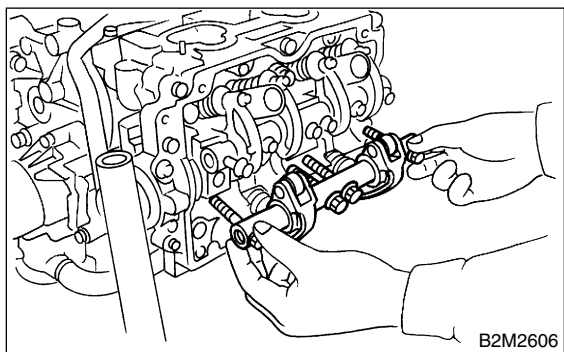
- 1) Remove V-belt. <Ref. to ME-42, REMOVAL, V-belt.>
- 2) Remove crankshaft pulley. <Ref. to ME-44, REMOVAL, Crankshaft Pulley.>
- 3) Remove belt cover. <Ref. to ME-45, REMOVAL, Belt Cover.>
- 4) Remove timing belt assembly. <Ref. to ME-46, REMOVAL, Timing Belt Assembly.>
- 5) Remove camshaft sprocket. <Ref. to ME-51, REMOVAL, Camshaft Sprocket.>
- 6) Disconnect PCV hose and remove rocker cover.
- 7) Removal of valve rocker assembly
  - (1) Remove bolts (a) through (h) in alphabetical sequence.

#### CAUTION:

Leave two or three threads of bolts (g and h) engaged to retain valve rocker assembly.



- (2) Remove valve rocker assembly.



### B: INSTALLATION S173094A11

- 1) Installation of valve rocker assembly
  - (1) Temporarily tighten bolts (a) through (d) equally as shown in figure.

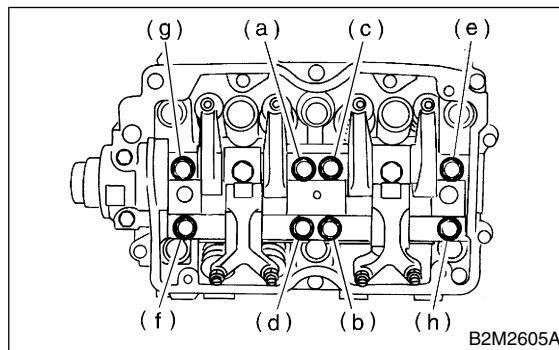
#### CAUTION:

Do not allow valve rocker assembly to gouge knock pins.

- (2) Tighten bolts (e) through (h) to specified torque.
- (3) Tighten bolts (a) through (d) to specified torque.

#### Tightening torque:

**25 N·m (2.5 kgf·m, 18.1 ft·lb)**



- 2) Adjust the valve clearances. <Ref. to ME-31, ADJUSTMENT, Valve Clearance.>
- 3) Install rocker cover and connect PCV hose.
- 4) Install camshaft sprocket. <Ref. to ME-51, INSTALLATION, Camshaft Sprocket.>
- 5) Install timing belt assembly. <Ref. to ME-47, INSTALLATION, Timing Belt Assembly.>
- 6) Install belt cover. <Ref. to ME-45, INSTALLATION, Belt Cover.>
- 7) Install crankshaft pulley. <Ref. to ME-44, INSTALLATION, Crankshaft Pulley.>
- 8) Install V-belt. <Ref. to ME-42, INSTALLATION, V-belt.>

### C: DISASSEMBLY S173094A06

- 1) Remove bolts which secure rocker shaft.
- 2) Extract rocker shaft. Remove valve rocker arms, springs, plates and shaft supports from rocker shaft.

#### CAUTION:

Arrange all removed parts in order so that they can be installed in their original positions.

- 3) Remove nut and adjuster screw from valve rocker.

### D: ASSEMBLY S173094A02

- 1) Install adjuster screw and nut to valve rocker.
- 2) Arrange valve rocker arms, springs and shaft supports in assembly order and insert valve rocker shaft.

**Tightening torque (Shaft supports installing bolts):**

**5 N·m (0.5 kgf·m, 3.6 ft·lb)**

#### CAUTION:

Valve rocker arms, rocker shaft and shaft supports have identification marks. Ensure parts with same markings are properly assembled.

# VALVE ROCKER ASSEMBLY

Mechanical

3) Install valve rocker shaft securing bolts.

## E: INSPECTION S173094A10

### 1. VALVE ROCKER ARM S173094A1001

1) Measure inside diameter of valve rocker arm and outside diameter of valve rocker shaft, and determine the difference between the two (= oil clearance).

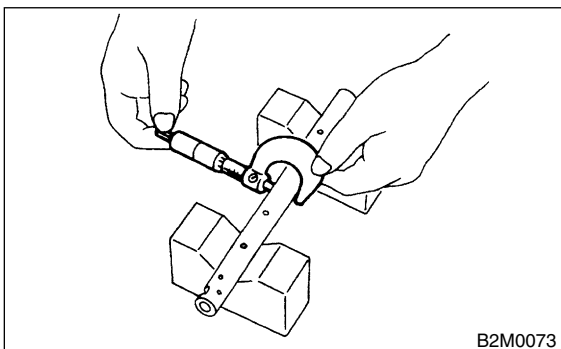
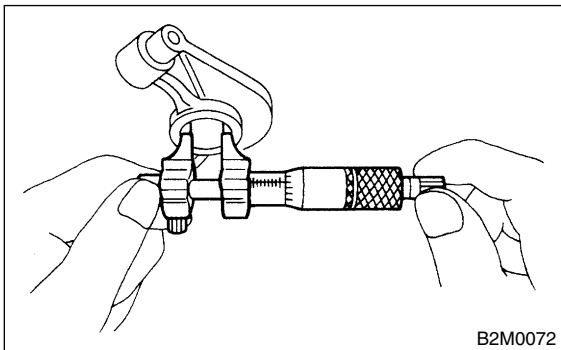
#### **Clearance between arm and shaft:**

##### **Standard**

**0.020 — 0.054 mm (0.0008 — 0.0021 in)**

##### **Limit**

**0.10 mm (0.0039 in)**



2) If oil clearance exceeds the limit, replace valve rocker arm or shaft, whichever shows greater amount of wear.

#### **Rocker arm inside diameter:**

**22.020 — 22.041 mm (0.8669 — 0.8678 in)**

#### **Rocker shaft diameter:**

**21.987 — 22.000 mm (0.8656 — 0.8661 in)**

3) Measure inside diameter of rocker shaft support and outside diameter of valve rocker shaft, and determine the difference between the two (= oil clearance).

#### **Clearance between support and shaft:**

##### **Standard**

**0.005 — 0.039 mm (0.0002 — 0.0015 in)**

##### **Limit**

**0.05 mm (0.0020 in)**

4) If oil clearance exceeds the limit, replace rocker shaft support or shaft, whichever shows greater amount of wear.

#### **Rocker shaft support inside diameter:**

**22.005 — 22.026 mm (0.8663 — 0.8672 in)**

#### **Rocker shaft diameter:**

**21.987 — 22.000 mm (0.8656 — 0.8661 in)**

5) If cam or valve contact surface of valve rocker arm is worn or dented excessively, replace valve rocker arm.

6) Check that valve rocker arm roller rotates smoothly. If not, replace valve rocker arm.

## 2. INTAKE AND EXHAUST VALVE ROCKER SHAFT S173094A1002

Visually check oil relief valve of shaft end for any of the following abnormalities.

- Breaks in check ball body
- Foreign particles caught in valve spring
- Oil leakage at check ball

#### **CAUTION:**

**Repair or replace valve rocker shaft as necessary.**