

4. Camshaft

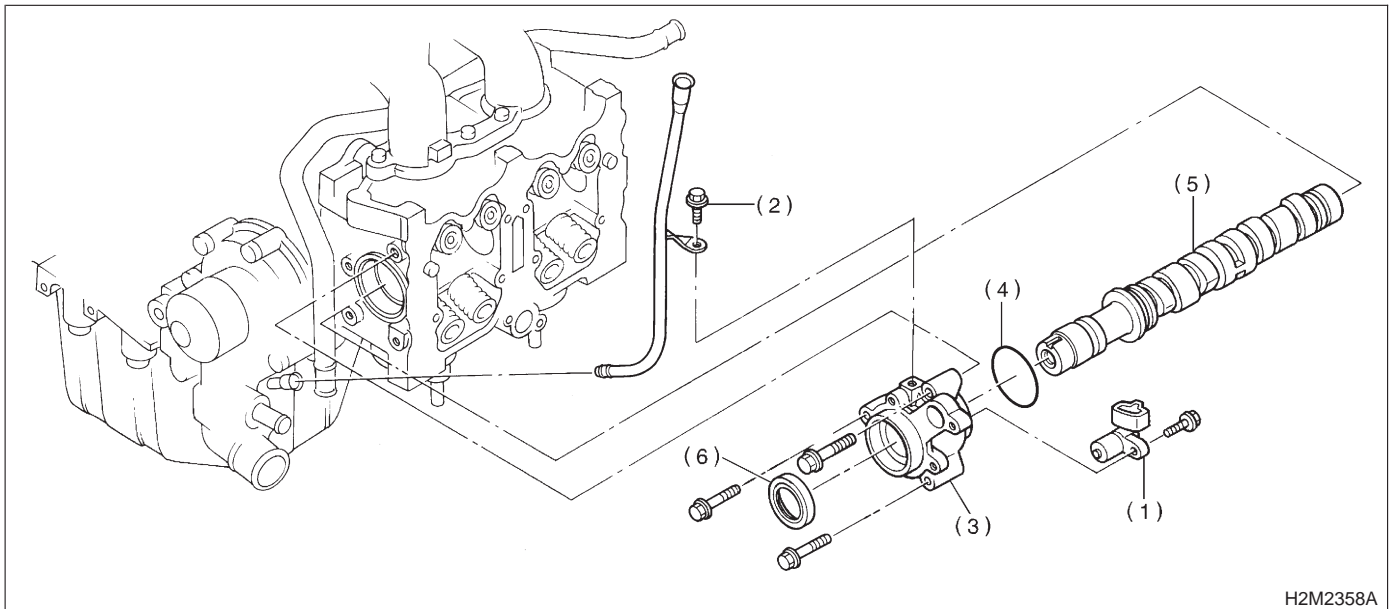
A: REMOVAL

1. RELATED PARTS

1) Remove timing belt, camshaft sprockets and related parts. <Ref. to 2-3a [W2A0].>

2. CAMSHAFT (LH)

2) Remove valve rocker assembly.
<Ref. to 2-3a [W3A0].>



(1) Camshaft position sensor
(2) Bolt

(3) Camshaft support (LH)
(4) O-ring

(5) Camshaft (LH)
(6) Oil seal

1) Remove camshaft position sensor.

CAUTION:

Do not damage the camshaft position sensor.

- 2) Remove oil level gauge guide attaching bolt.
- 3) Remove camshaft support (LH).
- 4) Remove camshaft support LH. Remove O-ring.

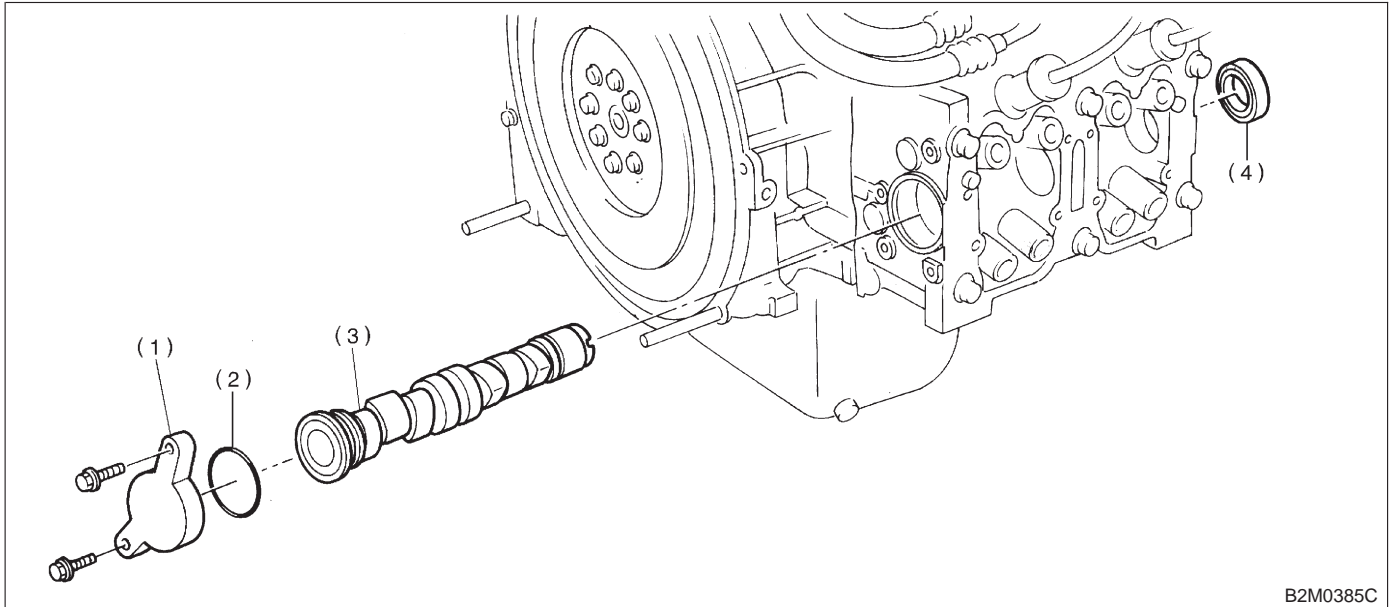
5) Remove camshaft (LH).

6) Remove oil seal.

CAUTION:

- Do not remove oil seal unless necessary.
- Do not scratch journal surface when removing oil seal.

3. CAMSHAFT (RH)



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- | | |
|---------------------------|-------------------|
| (1) Camshaft support (RH) | (3) Camshaft (RH) |
| (2) O-ring | (4) Oil seal |

- 1) Remove camshaft support (RH).
- 2) Remove O-ring.
- 3) Remove camshaft (RH).
- 4) Remove oil seal.

CAUTION:

- Do not remove oil seal unless necessary.
- Do not scratch journal surface when removing oil seal.

2) Check journal for damage and wear. Replace if faulty.

3) Measure outside diameter of camshaft journal and inside diameter of cylinder head journal, and determine the difference between the two (= oil clearance). If oil clearance exceeds specifications, replace camshaft or cylinder head as necessary.

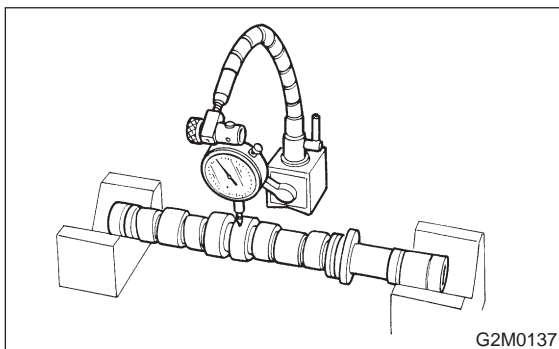
B: INSPECTION

1. CAMSHAFT

- 1) Measure the bend, and repair or replace if necessary.

Limit:

0.025 mm (0.0010 in)



G2M0137

Item	Right-hand camshaft	Front	Center	Rear
	Left-hand camshaft	Rear	Center	Front
Clearance at journal	Standard	0.055 — 0.090 (0.0022 — 0.0035)		
	Limit	0.10 (0.0039)		
Camshaft journal O.D.		31.935 — 31.950 (1.2573 — 1.2579)	37.435 — 37.450 (1.4738 — 1.4744)	37.935 — 37.950 (1.4935 — 1.4941)
Journal hole I.D.		32.005 — 32.025 (1.2600 — 1.2608)	37.505 — 37.525 (1.4766 — 1.4774)	38.005 — 38.025 (1.4963 — 1.4970)

4) Check cam face condition; remove minor faults by grinding with oil stone. Measure the cam height H; replace if the limit has been exceeded.

Cam height: H

Standard

IN: 32.244 — 32.344 mm (1.2694 — 1.2734 in)

EX: 31.964 — 32.064 mm (1.2584 — 1.2624 in)

Limit

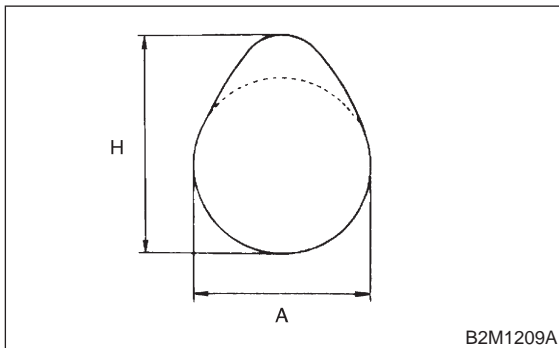
IN: 32.094 mm (1.2635 in)

EX: 31.814 mm (1.2525 in)

Cam base circle diameter A:

IN: 27.5 mm (1.083 in)

EX: 27.0 mm (1.063 in)



2. CAMSHAFT SUPPORT

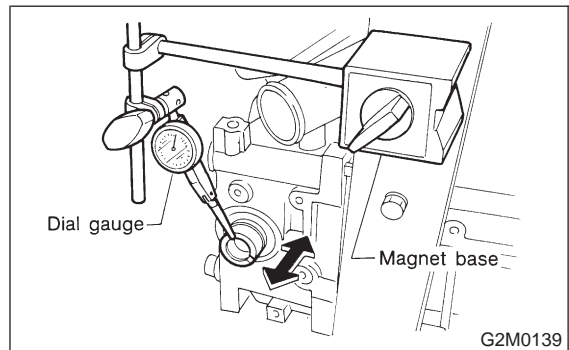
Measure the thrust clearance of camshaft with dial gauge. If the clearance exceeds the limit, replace camshaft support.

Standard:

0.030— 0.260 mm (0.0012 — 0.0102 in)

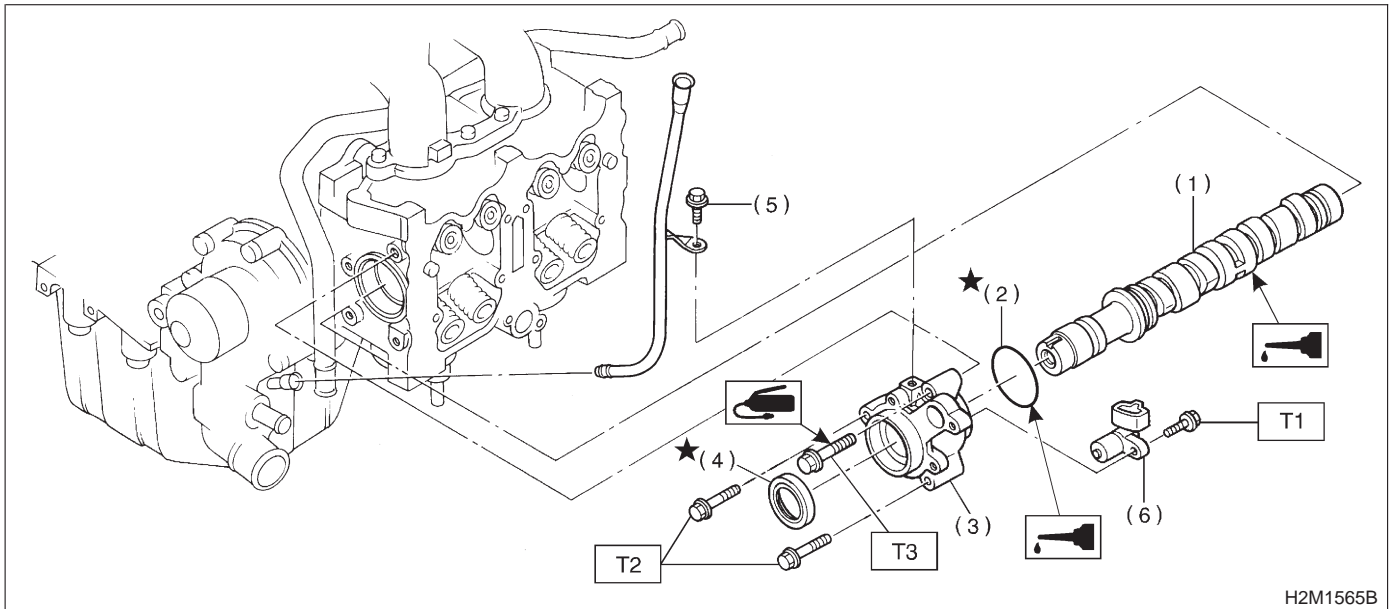
Limit:

0.35 mm (0.0138 in)



C: INSTALLATION

1. CAMSHAFT (LH)



- | | |
|---------------------------|------------------------------|
| (1) Camshaft (LH) | (5) Bolt |
| (2) O-ring | (6) Camshaft position sensor |
| (3) Camshaft support (LH) | |
| (4) Oil seal | |

Tightening torque: N·m (kg·m, ft·lb)

T1: 10 (1.0, 7)

T2: 16 (1.6, 12)

- 1) Apply a coat of engine oil to camshaft journals and install camshaft (LH).
- 2) Apply a coat of engine oil or grease to O-ring.
- 3) Install O-ring to camshaft support.

- 6) Install oil level gauge guide bolt.
- 7) Install camshaft position sensor.

CAUTION:

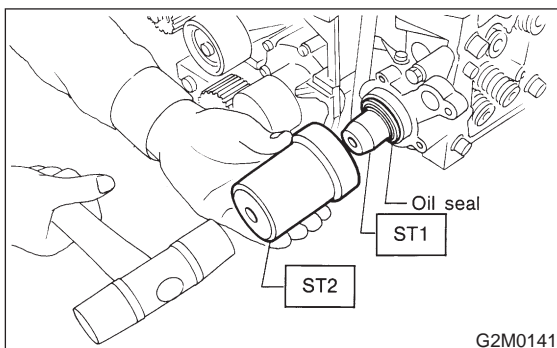
Use a new O-ring.

- 4) Install camshaft support.
- 5) Apply a coat of grease to oil seal lips and install oil seal on camshaft support by using ST1 and ST2.

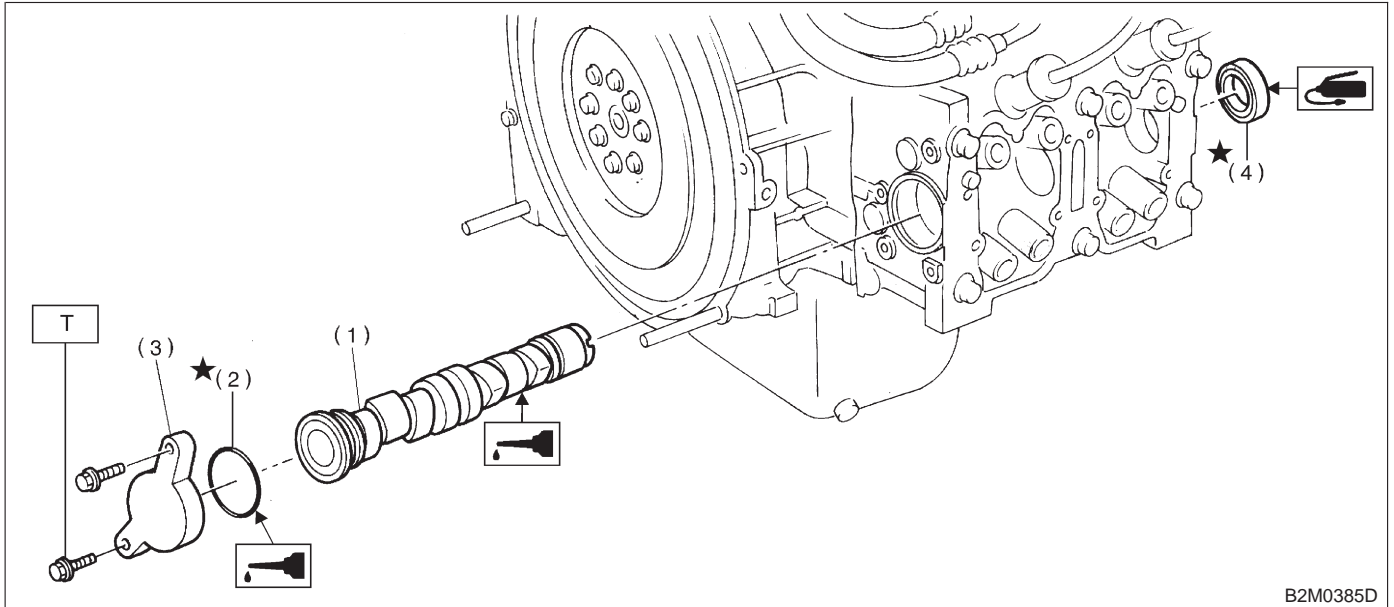
CAUTION:

Use a new oil seal.

- | | | |
|-----|-----------|--------------------|
| ST1 | 499597000 | OIL SEAL GUIDE |
| ST2 | 499587100 | OIL SEAL INSTALLER |



2. CAMSHAFT (RH)



- (1) Camshaft (RH)
- (2) O-ring
- (3) Camshaft support (RH)
- (4) Oil seal

Tightening torque: N·m (kg-m, ft-lb)
T: 16 (1.6, 12)

- 1) Apply a coat of engine oil to camshaft journals and install camshaft (RH).
- 2) Apply a coat of engine oil or grease to O-ring.
- 3) Install O-ring to camshaft support.

CAUTION:
Use a new O-ring.

- 4) Install camshaft support.
- 5) Install oil seal by using ST1 and ST2.

CAUTION:
Use a new oil seal.

- ST1 499597000 OIL SEAL GUIDE
- ST2 499587100 OIL SEAL INSTALLER

3. RELATED PARTS

- 1) Install valve rocker assembly.
<Ref. to 2-3a [W3E0].>
- 2) Install timing belt, camshaft sprockets and related parts.
<Ref. to 2-3a [W2C0].>

