

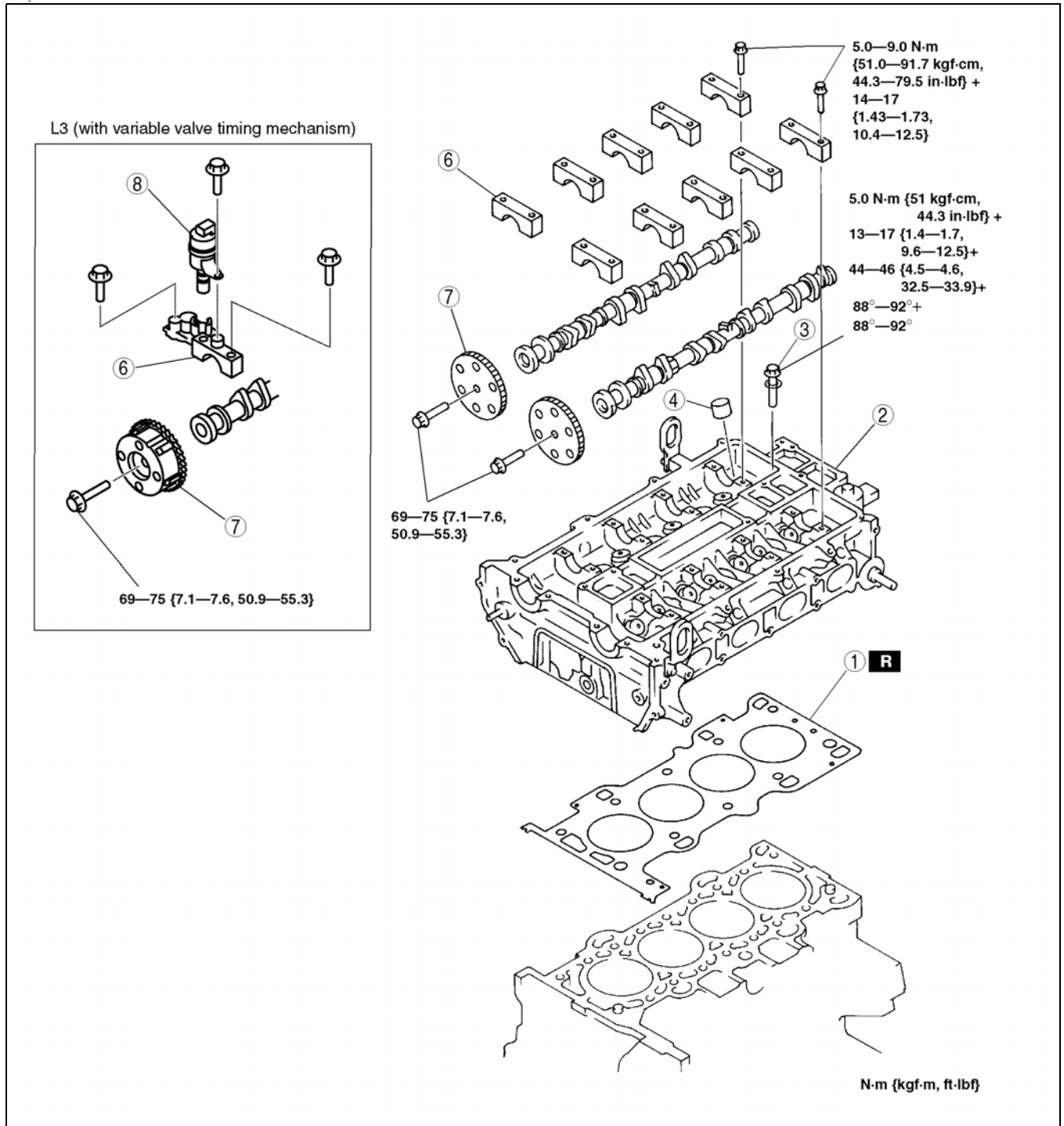
ENGINE

CYLINDER HEAD (II) ASSEMBLY

A6E242402000E12

1. Assemble in the order indicated in the table.

B



AME2224E046

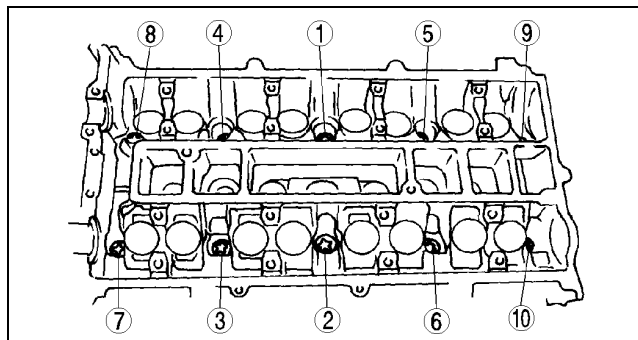
1	Cylinder head gasket
2	Cylinder head
3	Cylinder head bolt (See B-40 Cylinder Head Bolt Assembly Note)
4	Tappet
5	Camshaft (See B-40 Camshaft Assembly Note)

6	Camshaft cap
7	Camshaft sprocket, Variable valve timing actuator (L3 (with variable valve timing mechanism)) (See B-40 Camshaft Sprocket, Variable Valve Timing Actuator (L3 (with variable valve timing mechanism)) Assembly Note)
8	Oil control valve (OCV) (L3 (with variable valve timing mechanism))

ENGINE

Cylinder Head Bolt Assembly Note

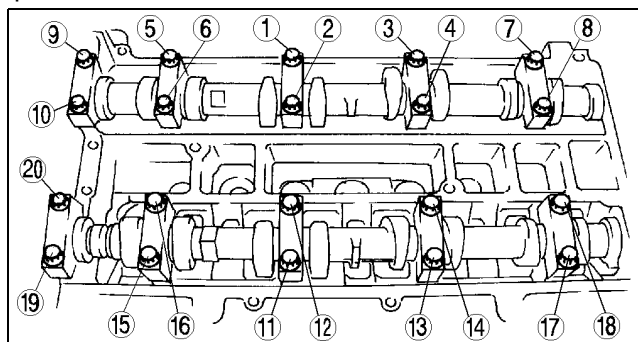
1. Tighten the cylinder head bolts in the order indicated in the figure in six steps.
 - (1) Tighten to **5.0 N·m {51 kgf·cm, 44.3 in·lbf}**.
 - (2) Tighten to **13—17 N·m {1.4—1.7 kgf·m, 9.6—12.5 ft·lbf}**.
 - (3) Tighten to **44—46 N·m {4.5—4.6 kgf·m, 32.5—33.9 ft·lbf}**.
 - (4) Tighten **88°—92°**.
 - (5) Tighten **88°—92°**.



AME2224E047

Camshaft Assembly Note

1. Install the camshaft with No.1 cylinder aligned with TDC position.
2. Tighten the camshaft cap bolt using the following two steps.
 - (1) Tighten to **5.0—9.0 N·m {51.0—91.7 kgf·cm, 44.3—79.5 in·lbf}**.
 - (2) Tighten to **14.0—17.0 N·m {1.5—1.7 kgf·m, 10.4—12.5 ft·lbf}**.



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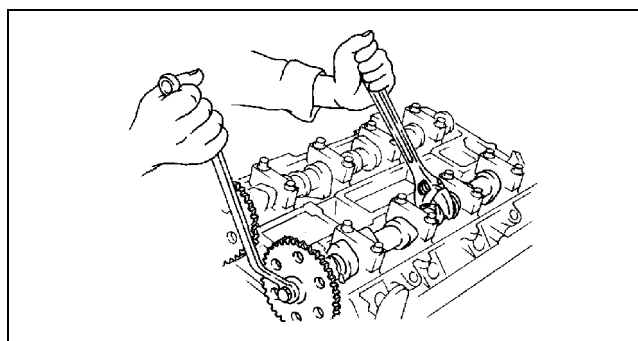
Camshaft Sprocket, Variable Valve Timing Actuator (L3 (with variable valve timing mechanism)) Assembly Note

1. Camshaft sprocket or variable valve timing actuator (L3 (with variable valve timing mechanism)) attachment bolt is changed into the state of a temporary bundle by hand until it attaches timing chain.
2. The attachment bolt of camshaft sprocket or variable valve timing actuator (L3 (with variable valve timing mechanism)) is bound tight for timing chain after attachment.

Tightening torque

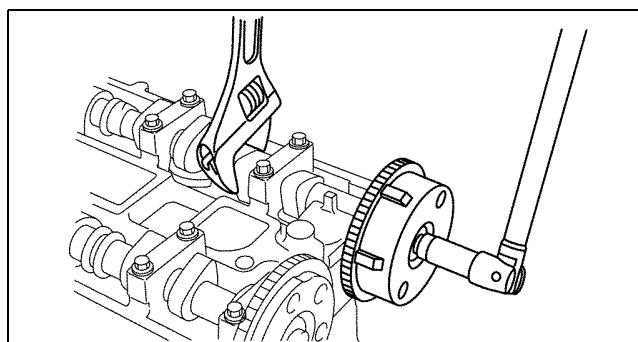
69—75 N·m {7.10—7.60 kgf·m, 50.9—55.3 ft·lbf}

L8, LF, L3



AME2224E077

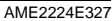
L3 (with variable valve timing mechanism)



AME2224E078

A6E242402000E13

1. Assemble in the order indicated in the table.

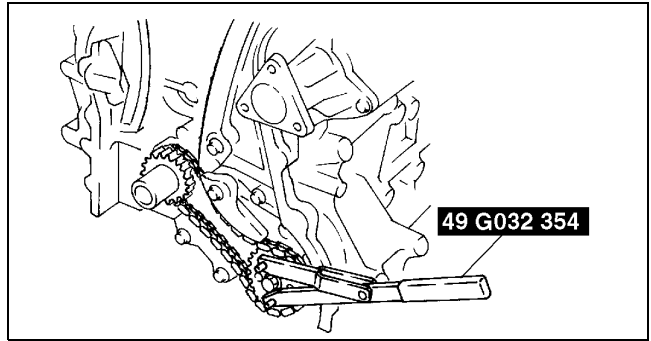


12	Front oil seal (See B-44 Front Oil Seal Assembly Note)
13	Engine front cover (See B-44 Engine Front Cover Assembly Note)
14	Drive belt idler pulley
15	Water pump pulley
16	Crankshaft pulley
17	Crankshaft pulley lock bolt (See B-45 Crankshaft Pulley Lock Bolt Assembly Note)
18	Cylinder head cover (See B-46 Cylinder Head Cover Assembly Note)
19	Spark plug

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Oil Pump Sprocket Assembly Note

1. Hold the oil pump sprocket using the **SST**.

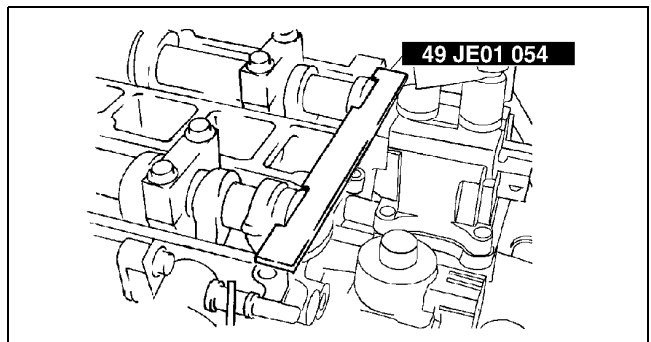


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Timing Chain Assembly Note

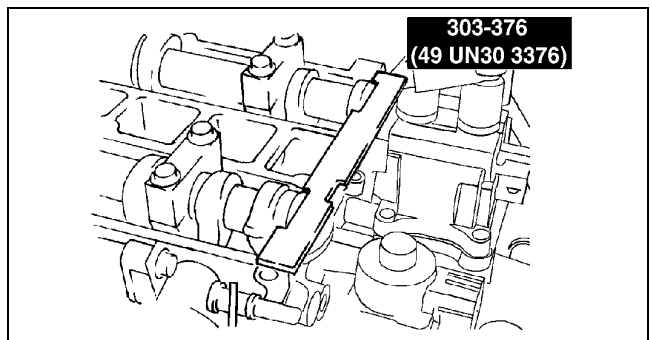
1. Install the **SST** to the camshaft, then align the No. 1 camshaft position with the TDC.

Europe



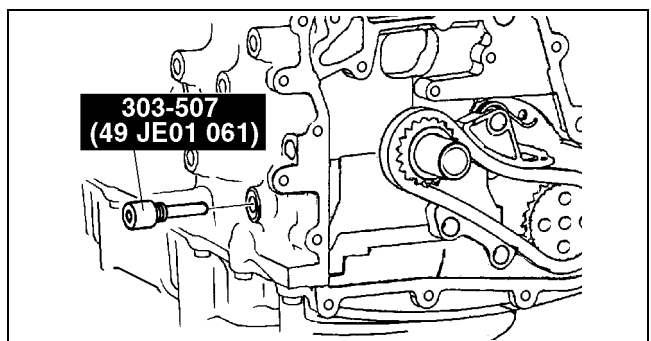
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Except Europe



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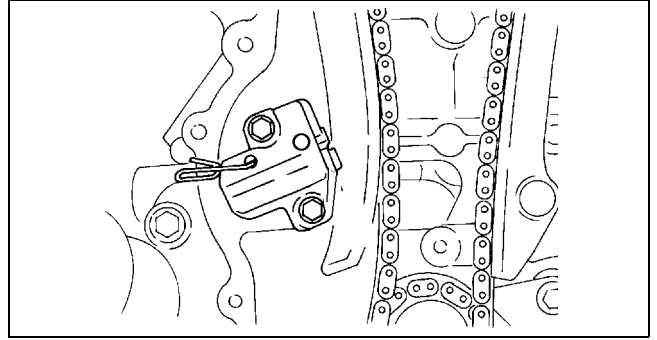
2. Remove the cylinder block lower blind plug.
3. Install the **SST** as shown.
4. Turn the crankshaft clockwise so that the crankshaft is in the No.1 cylinder TDC position.
5. Install the timing chain.



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ENGINE

6. Install the chain tensioner and remove the retaining wire.



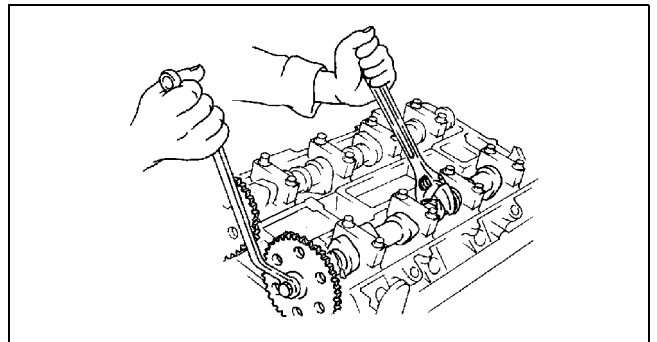
B

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Camshaft Sprocket, Variable Valve Timing Actuator (L3 (with variable valve timing mechanism)) Assembly Note

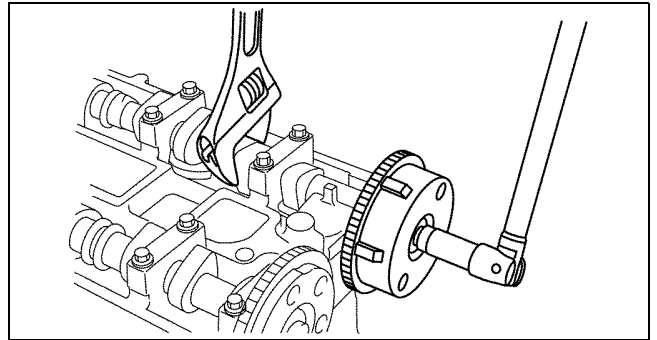
1. Hold the camshaft using a suitable wrench on the cast hexagon as shown.

L8, LF, L3



AME2224E077

L3 (with variable valve timing mechanism)



AME2224E078

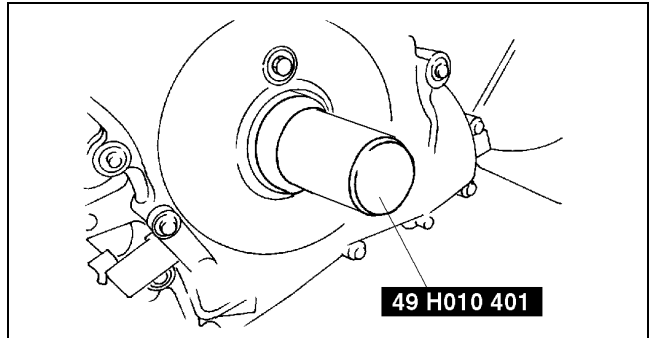
2. Tighten the camshaft sprocket lock bolt.

Tightening torque: 69—75 N·m {7.10—7.6 kgf·m, 50.9—55.3 ft·lbf}

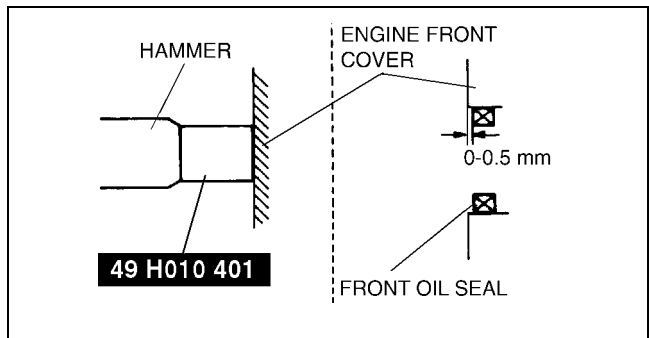
ENGINE

Front Oil Seal Assembly Note

1. Apply clean engine oil to the oil seal.
2. Push the oil seal slightly in by hand.
3. Compress the oil seal using the SST and a hammer.



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AME2224E332

Engine Front Cover Assembly Note

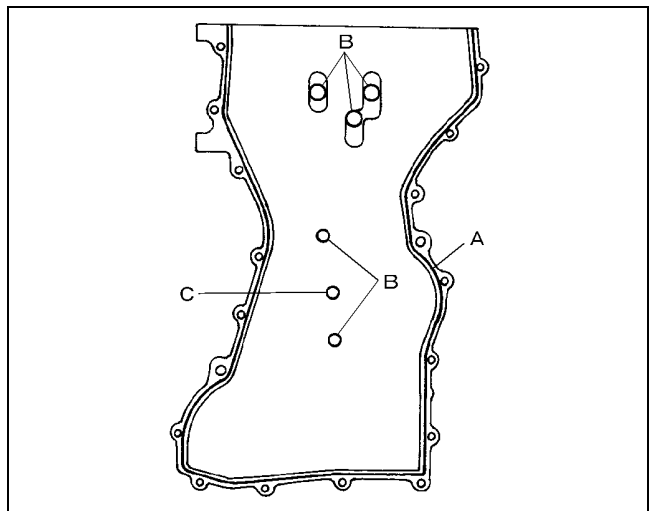
1. Apply silicone sealant to the engine front cover as shown.

Caution

- Install the cylinder head cover within 10 minutes of applying the silicone sealant.
- Silicone sealant is not need in area C as indicated below due to an existing. (L3 (with variable valve timing mechanism))

Thickness

- A: 2.0—3.0 mm {0.079—0.118 in}
B: 1.5—2.5 mm {0.059—0.098 in}

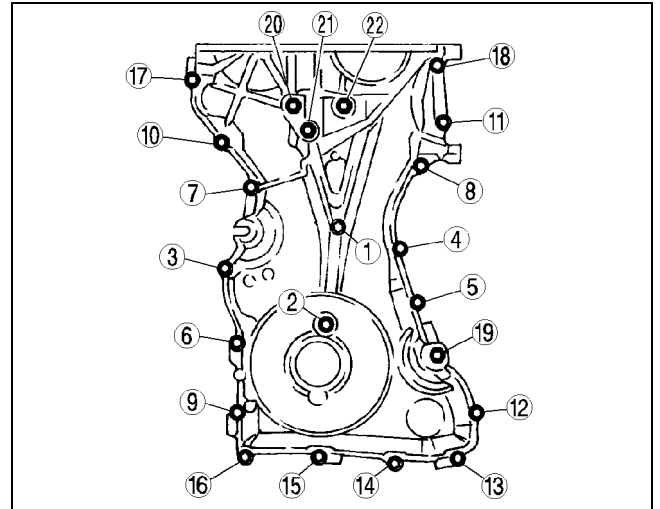


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ENGINE

2. Install the cylinder head cover bolts in the order as shown.

Bolt No.	Tightening torque N·m {kgf·m, ft·lbf}
1—18	8.0—11.5 N·m {81.6—117.2 kgf·cm, 70.9—101.7 in·lbf}
19—22	40—55 {4.1—5.6, 29.7—40.5}

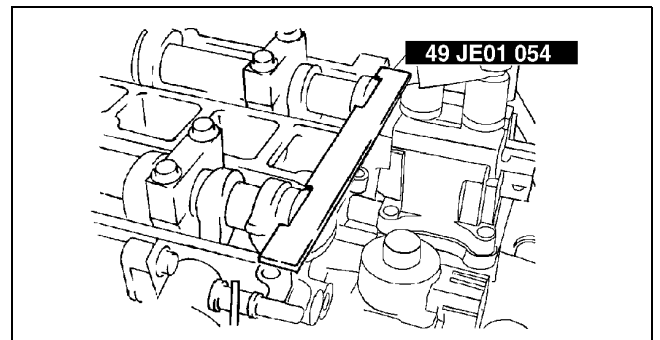


AME2224E334

Crankshaft Pulley Lock Bolt Assembly Note

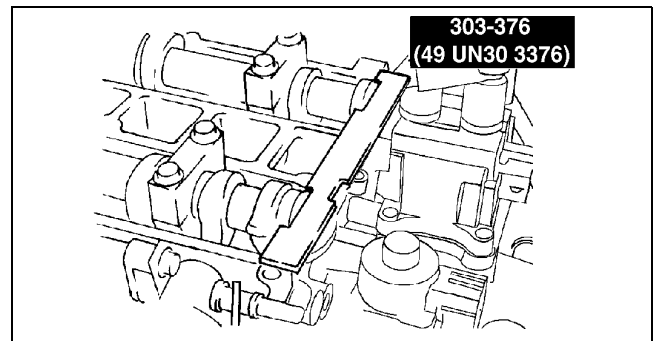
1. Install the **SST** to the camshaft as shown.

Europe



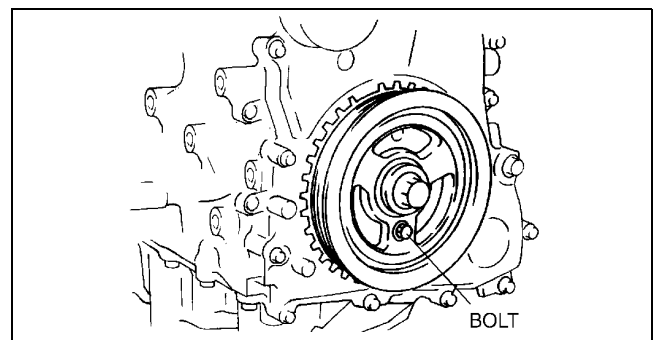
AME2224E329

Except Europe



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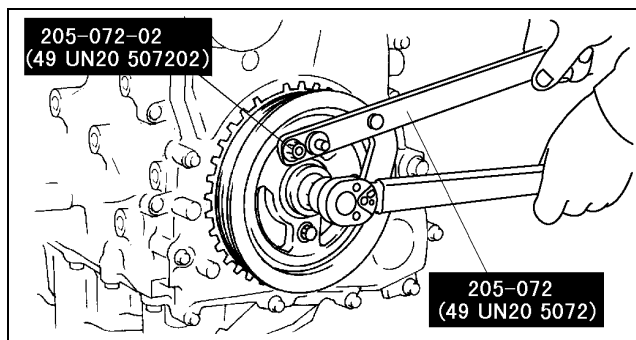
2. Install the M6 x 1.0 bolt in by hand.
3. Turn the crankshaft clockwise so that the crankshaft is in the No.1 cylinder TDC position.



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4. Hold the crankshaft pulley using the **SST**.
5. Tighten the crankshaft pulley lock bolt in the following two steps.
 - (1) Tighten to **96—104 N·m {9.8—10.6 kgf·m, 70.9—76.7 ft·lbf}**
 - (2) Tighten **87°—93°**.
6. Remove the M6 x 1.0 bolt.
7. Remove the **SST** from the camshaft.
8. Remove the **SST** from the block lower blind plug.
9. Rotate the crankshaft clockwise two turns until the TDC position.
 - If not aligned, loosen the crankshaft pulley lock bolt and repeat from Step 1.
10. Install the cylinder block lower blind plug.



AME2224E015

Tightening torque: 20 N·m {2.0 kgf·m, 14.8 ft·lbf}

Cylinder Head Cover Assembly Note

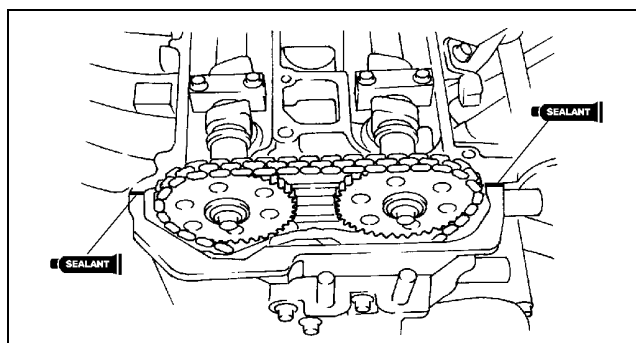
1. Apply silicone sealant to the mating faces as shown.

Caution

- Install the cylinder head cover within **10 minutes** of applying the silicone sealant.

Dot diameter: 4.0—6.0 mm {0.16—0.23 in}

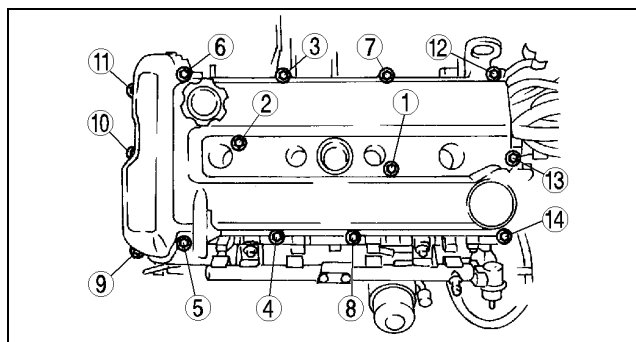
2. Install the cylinder head cover with a new gasket.



AME2224E335

3. Tighten the bolts in the order shown.

Tightening torque: 8.0 —12 N·m {81.6—122.3 kgf·cm, 70.9—106.2 in·lbf}



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