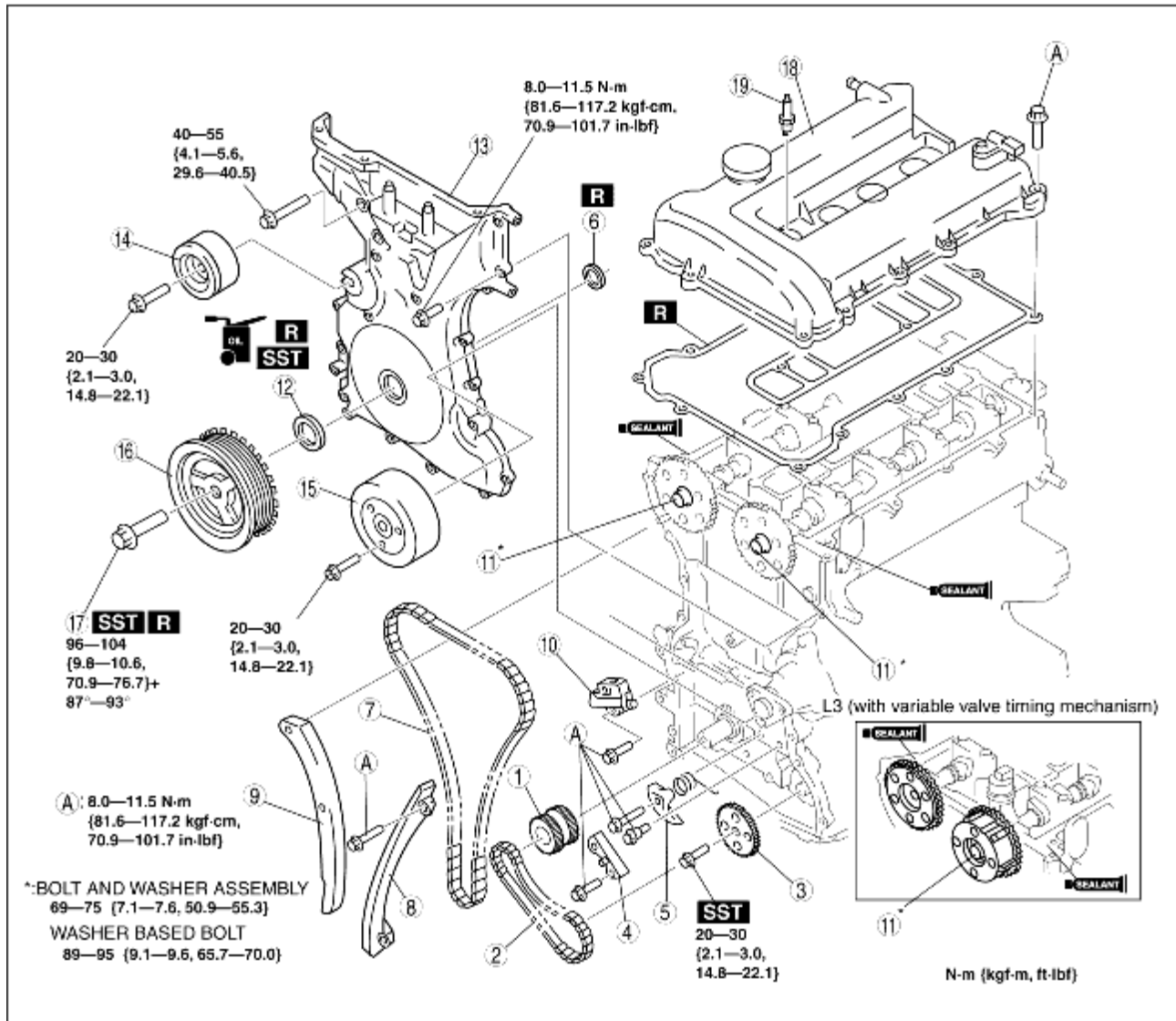


TIMING CHAIN ASSEMBLY

B3E011002000212

1. Assemble in the order indicated in the table.



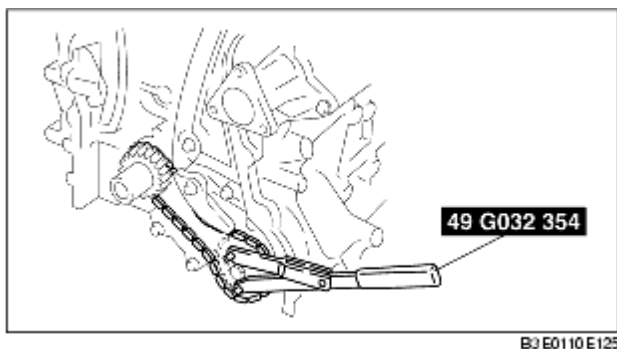
B3E0110E118

1	Crankshaft sprocket
2	Oil pump chain
3	Oil pump sprocket (See Oil Pump Sprocket Assembly Note.)
4	Oil pump chain guide
5	Oil pump chain tensioner
6	Seal (L3 (with variable valve timing mechanism))
7	Timing chain (See Timing Chain Assembly Note.)
8	Chain guide
9	Tensioner arm

10	Chain tensioner
11	Camshaft sprocket, variable valve timing actuator (L3 (with variable valve timing mechanism)) (See Camshaft Sprocket, Variable Valve Timing Actuator (L3 (with variable valve timing mechanism)) Assembly Note.)
12	Front oil seal (See Front Oil Seal Assembly Note.)
13	Engine front cover (See Engine Front Cover Assembly Note.)
14	Drive belt idler pulley (Without stretch-type A/C drive belt)
15	Water pump pulley
16	Crankshaft pulley
17	Crankshaft pulley lock bolt (See Crankshaft Pulley Lock Bolt Assembly Note.)
18	Cylinder head cover (See Cylinder Head Cover Assembly Note.)
19	Spark plug

Oil Pump Sprocket Assembly Note

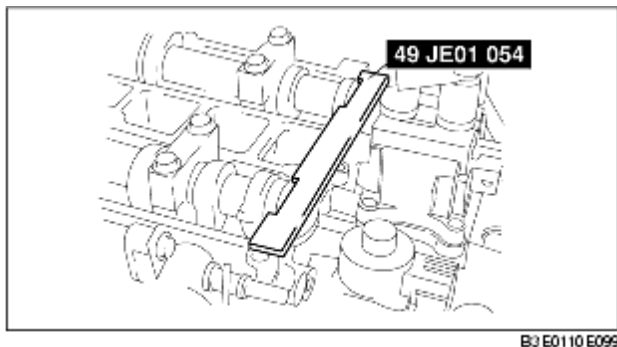
1. Hold the oil pump sprocket using the **SST**.



Timing Chain Assembly Note

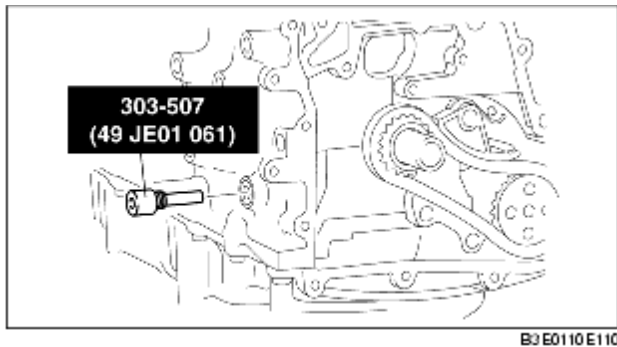
1. Install the **SST** to the camshaft, then align the No. 1 camshaft position with the TDC.

Europe

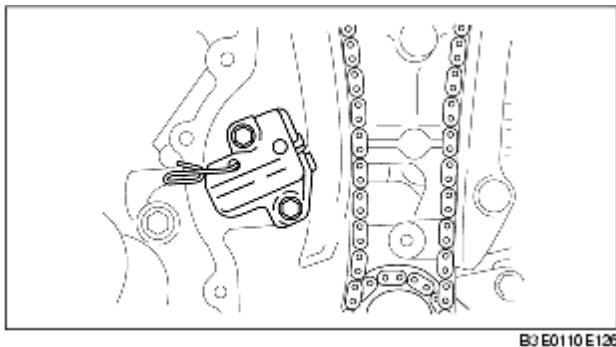


Except Europe

2. Remove the cylinder block lower blind plug.
3. Install the **SST** as shown in the figure.

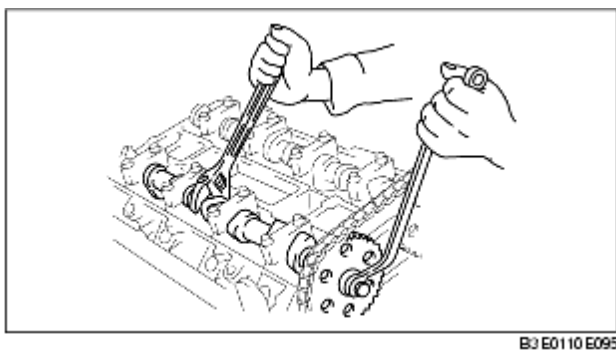


4. Turn the crankshaft clockwise so that the crankshaft is in the No.1 cylinder TDC position.
5. Install the timing chain.
6. Install the chain tensioner and remove the retaining wire.



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 in the figure.
2. Tighten the camshaft sprocket lock bolt.



N·m {kgf·m, ft·lbf}

Engine type	Camshaft sprocket	Bolt type	Tightening torque
			89-95

L8 LF L3	IN side	B	{9.1-9.6, 65.7-70.0}
		C	69-75 {7.1-7.6, 50.9-55.3}
	EX side	A, C	69-75 {7.1-7.6, 50.9-55.3}
L3*1	IN side	A	Can not use
		B, C	69-75 {7.1-7.6, 50.9-55.3}
	EX side	A, C	69-75 {7.1-7.6, 50.9-55.3}

TYPE A : Bolt (Gold), Washer (Gold)

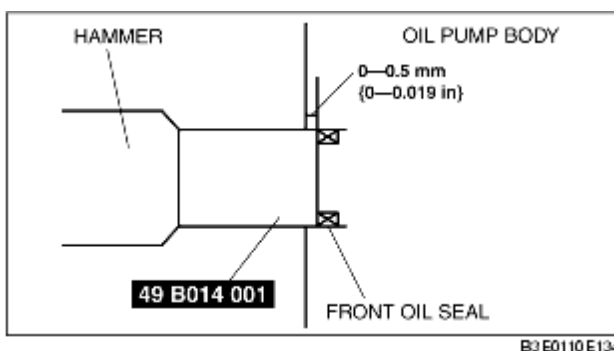
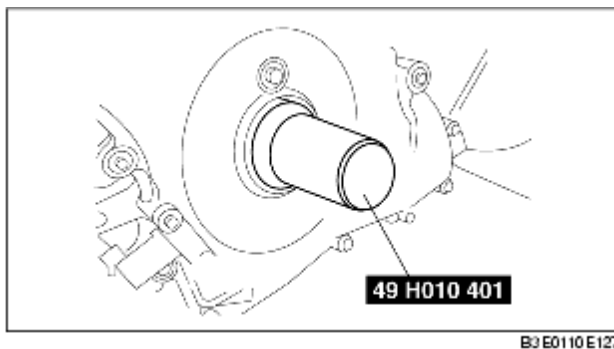
TYPE B : Washer based bolt (Black)

TYPE C : Bolt (Black), Washer (Gray)

*1 : L3 (with variable valve timing mechanism)

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.

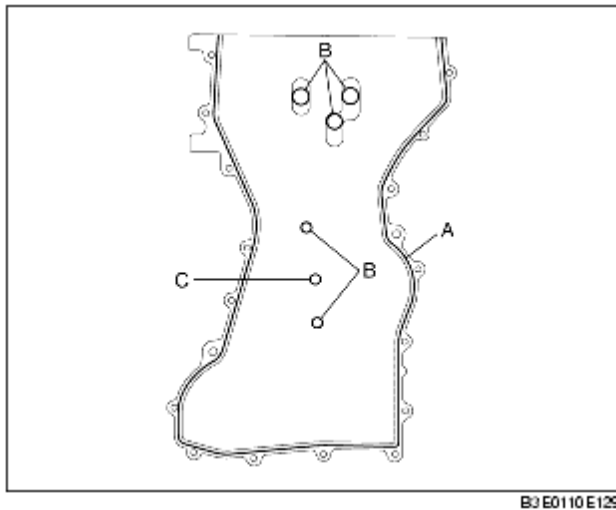


Engine Front Cover Assembly Note

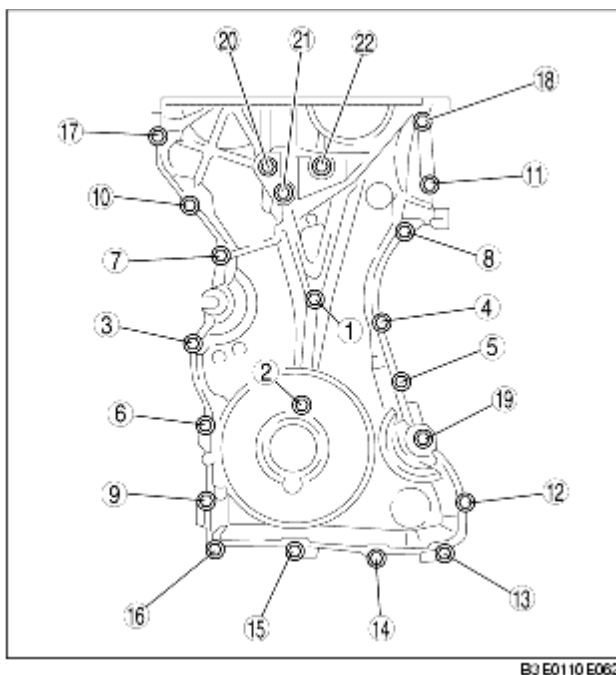
1. Apply silicone sealant to the engine front cover as shown in the figure.

Caution

- Install the cylinder head cover within 10 min 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}**

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

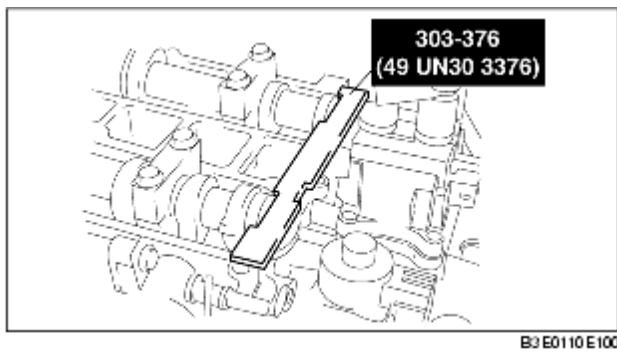


Bolt No.	Tightening torque N·m {kgf·m, ft·lbf}
1-18	8.0-11.5 N·m {81.6-117.2 kgf·cm, 70.9-101.7 in·lbf}
19-22	40-55 {4.1-5.6, 29.7-40.5}

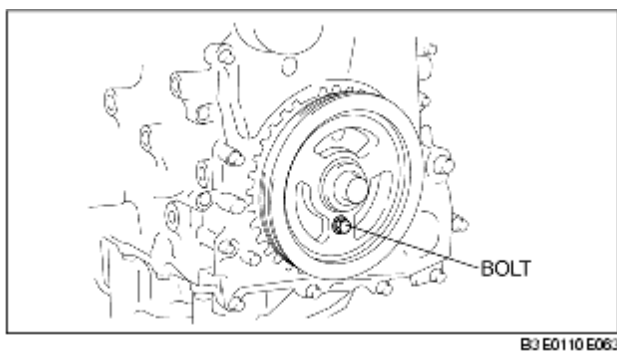
Crankshaft Pulley Lock Bolt Assembly Note

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

Europe

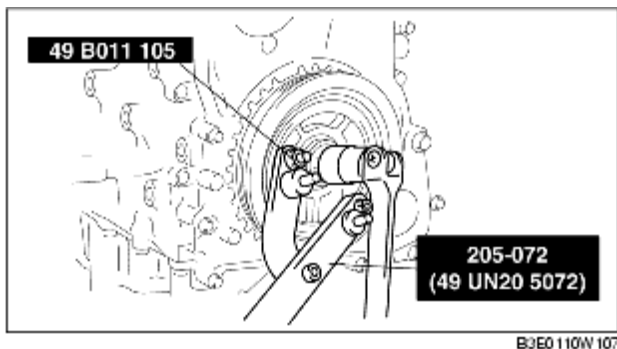
Except Europe

2. Install the M6 × 1.0 bolt in by hand.



3. Turn the crankshaft clockwise so that the crankshaft is in the No.1 cylinder TDC position.

4. Hold the crankshaft pulley using the **SST**.



5. Tighten the crankshaft pulley lock bolt in the order shown following two steps using the **SST (49 D032 316)**.

Tightening torque
(1) 96-104 N·m
{9.8-10.6 kgf·m, 70.9-76.7 ft·lb}
(2) 87°-93°

6. Remove the M6 × 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.

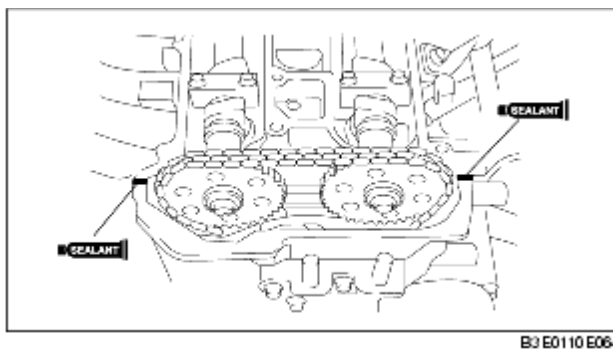
Tightening torque
20 N·m {2.0 kgf·m, 14.8 ft·lbf}

Cylinder Head Cover Assembly Note

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

Caution

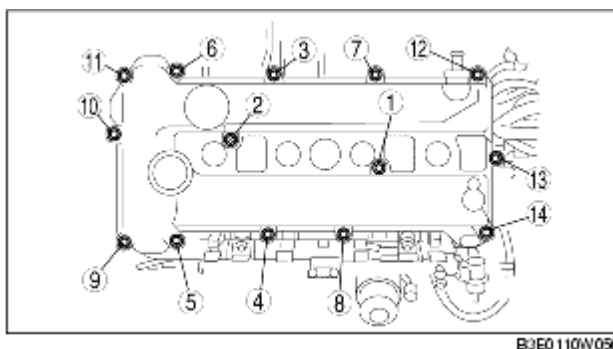
- Install the cylinder head cover within 10 min of applying the silicone sealant.



Dot diameter
4.0-6.0 mm {0.16-0.23 in}

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

3. Tighten the bolts in the order shown in the figure.



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