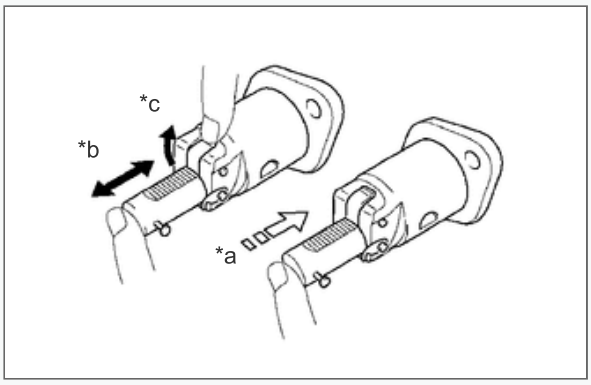
1ZZ-FE ENGINE MECHANICAL ENGINE UNIT INSPECTION

PROCEDURE

1.INSPECT NO. 1 CHAIN TENSIONER SUB-ASSEMBLY

a.



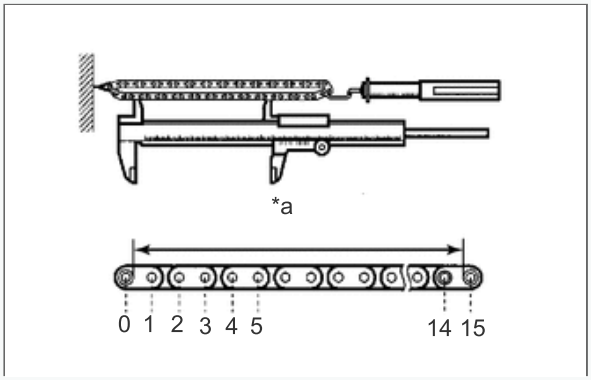
*a	Raise
*b	Move
*c	Lock

Check that the plunger moves smoothly when the ratchet pawl is raised with your finger.

b. Release the ratchet pawl, then check that the plunger is locked in place by the ratchet pawl and does not move when pushed with your finger.

2.INSPECT CHAIN SUB-ASSEMBLY

a.



*a	Measurement Length

Pull the chain sub-assembly with a force of 140 N (14 kgf, 31.5 lbf) as shown in the illustration.

b. Using a vernier caliper, measure the length of 15 links.

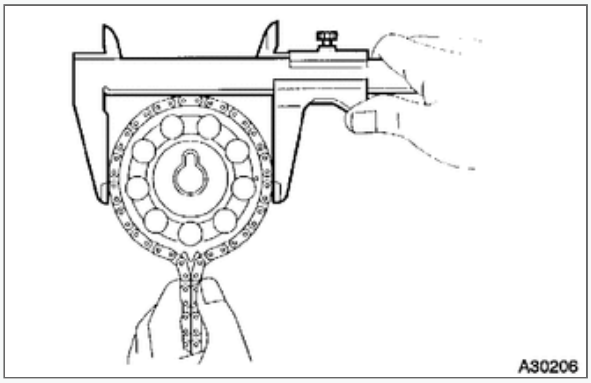
Maximum Chain Elongation:
122.6 mm (4.827 in.)

NOTICE:
Perform the measurement at 3 random places. Use the average of the measurements.

If the average elongation is greater than the maximum, replace the chain sub-assembly.

3.INSPECT CAMSHAFT TIMING GEAR OR SPROCKET

a.



Place the chain sub-assembly around the camshaft timing gear or sprocket.

b. Using a vernier caliper, measure the diameter of the camshaft timing gear or sprocket and chain sub-assembly.

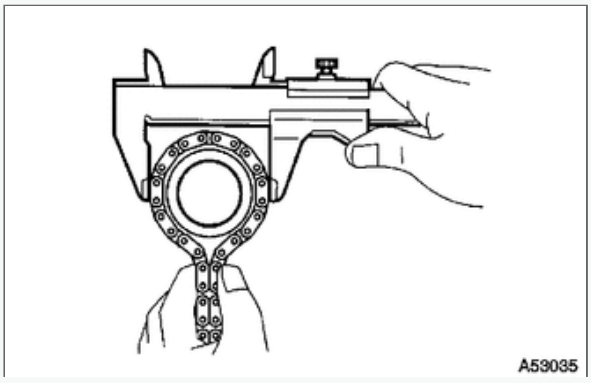
Minimum Gear Diameter (with Chain):
97.3 mm (3.831 in.)

NOTICE:
The vernier caliper must be in contact with the chain rollers when measuring.

If the diameter is less than the minimum, replace the chain sub-assembly and camshaft timing gear or sprocket.

4.INSPECT CRANKSHAFT TIMING SPROCKET

a.



Place the chain sub-assembly around the crankshaft timing sprocket.

b. Using a vernier caliper, measure the diameter of the crankshaft timing sprocket and chain sub-assembly.

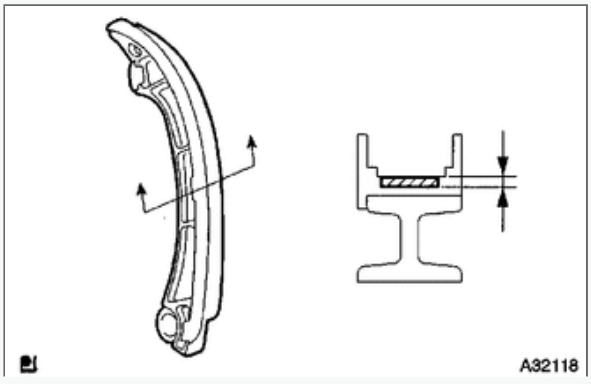
Minimum Gear Diameter (with Chain):
51.6 mm (2.032 in.)

NOTICE:
The vernier caliper must be in contact with the chain rollers when measuring.

If the diameter is less than the minimum, replace the chain sub-assembly and crankshaft timing sprocket.

5.INSPECT CHAIN TENSIONER SLIPPER

a.



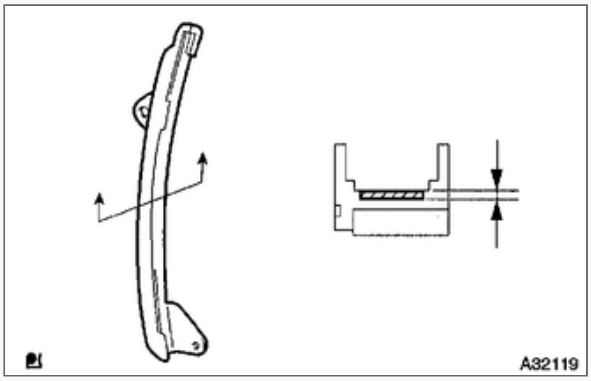
Using a vernier caliper, measure the chain tensioner slipper wear.

Maximum Wear:
1.0 mm (0.0394 in.)

If the wear is greater than the maximum, replace the chain tensioner slipper.

6.INSPECT NO. 1 CHAIN VIBRATION DAMPER

a.



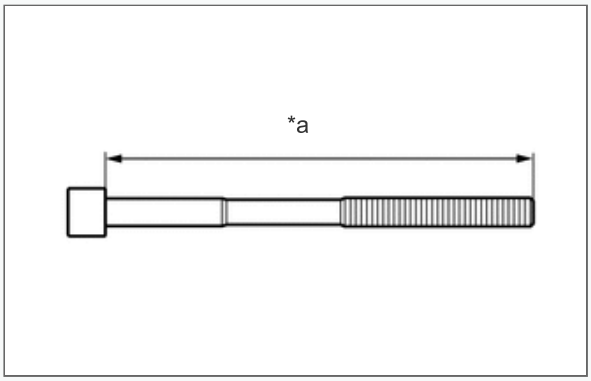
Using a vernier caliper, measure the No. 1 chain vibration damper wear.

Maximum Wear:
1.0 mm (0.0394 in.)

If the wear is greater than the maximum, replace the No. 1 chain vibration damper.

7.INSPECT CYLINDER HEAD SET BOLT

a.



*a	Measurement Length

Using a vernier caliper, measure the length of the cylinder head set bolt from the seat to the end.

Standard Length:
156.0 to 159.0 mm (6.142 to 6.260 in.)

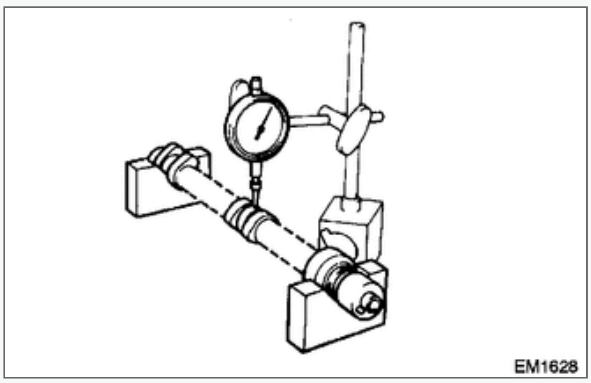
Maximum Length:
159.5 mm (6.280 in.)

HINT:

- If the length is greater than the maximum, replace the cylinder head set bolt with a new one. Failure to do so may lead to engine damage.
- If there is any thread deformation, replace the cylinder head set bolt with a new one.

8.INSPECT CAMSHAFT

a.



Inspect the camshaft for runout.

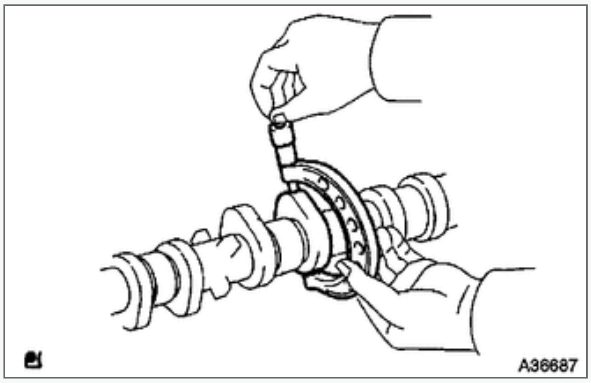
i. Place the camshaft on V-blocks.

ii. Using a dial indicator, measure the runout at the center journal.

Maximum Runout:
0.03 mm (0.00118 in.)

If the runout is greater than the maximum, replace the camshaft.

b.

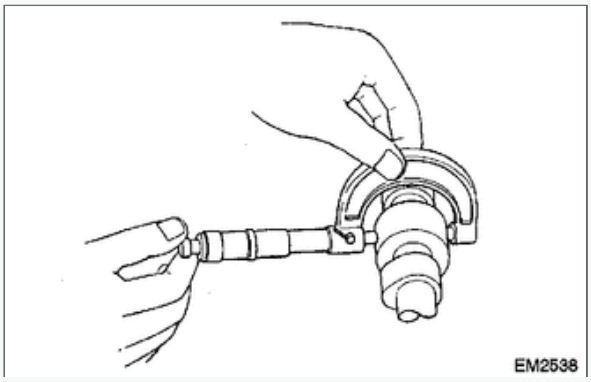


Inspect the cam lobes.

i. Using a micrometer, measure the cam lobe height.
If the cam lobe height is less than the minimum, replace the camshaft.

Standard Cam Lobe Height:
Intake:
44.333 to 44.433 mm (1.7454 to 1.7493 in.)
Exhaust:
43.761 to 43.861 mm (1.7229 to 1.7268in.)

c.



Inspect the camshaft journals.

i. Using a micrometer, measure the journal diameter.

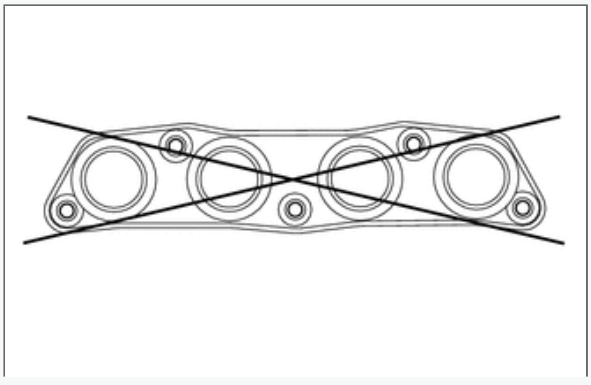
Standard Journal Diameter:

Journal Position	Specified Condition
No. 1	34.449 to 34.465 mm (1.35626 to 1.35689 in.)
Other	22.949 to 22.965 mm (0.90350 to 0.90413 in.)

If the journal diameter is not as specified, check the oil clearance.
Click hereEngine / Hybrid System>1ZZ-FE ENGINE MECHANICAL>CYLINDER HEAD>INSPECTION

9.INSPECT EXHAUST MANIFOLD

a.



Using a precision straightedge and feeler gauge, measure the warpage on the contact surface of the cylinder head sub-assembly.

Maximum Warpage:
0.7 mm (0.0276 in.)

If the warpage is greater than the maximum, replace the exhaust manifold.