

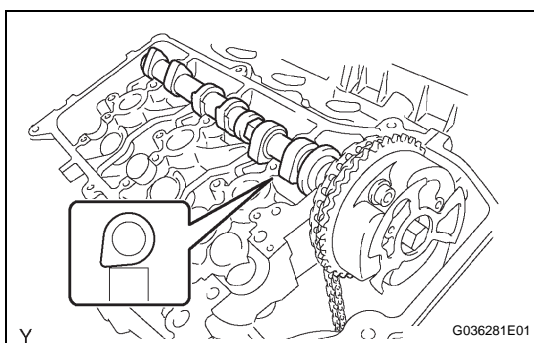
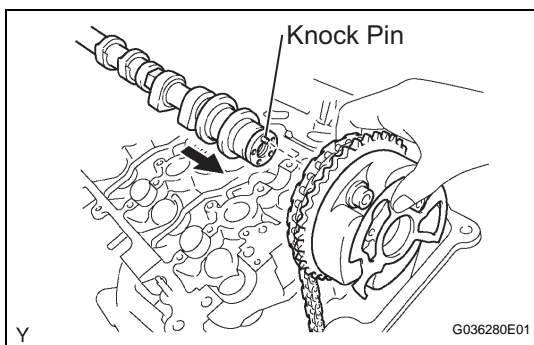
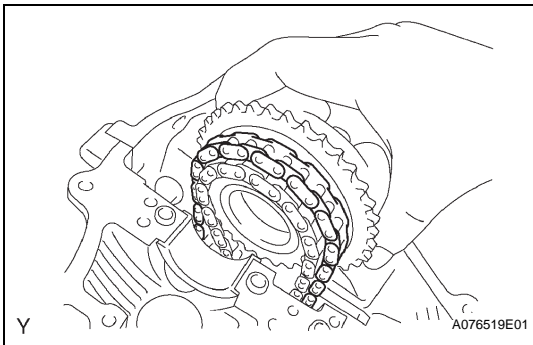
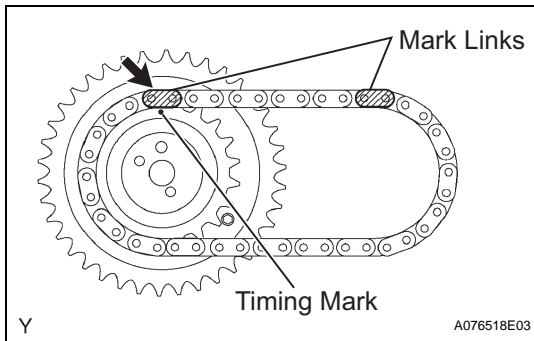
INSTALLATION

1. INSTALL CAMSHAFT

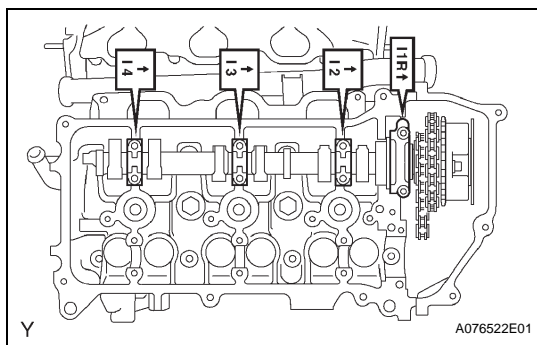
NOTICE:

Keep the camshaft level while it is being removed. The camshaft thrust clearance is very small and failing to keep it level could crack or damage the cylinder head journal surface, which receives the thrust. This could subsequently lead the camshaft to seize or break. Perform the following steps to avoid such problems.

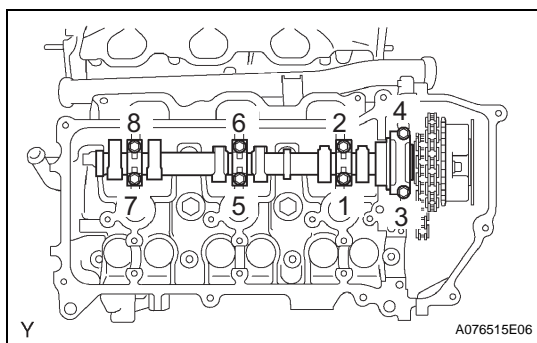
- (a) Align the yellow mark link with the timing mark (1 dot mark) of the camshaft timing gear as shown in the illustration.
- (b) Apply new engine oil to the thrust portion and journal of the camshafts.



- (c) Temporarily install the No. 1 chain onto the No. 2 chain of the camshaft timing gear.
- (d) Align the knock pin hole of the camshaft timing gear with the knock pin of the No. 1 camshaft, and insert the No. 1 camshaft into the camshaft timing gear.
- (e) Temporarily install the camshaft timing gear set bolt.
- (f) Install the No. 1 camshaft onto the RH cylinder head with the cam lobes of the No. 1 cylinder facing downward as shown in the illustration.



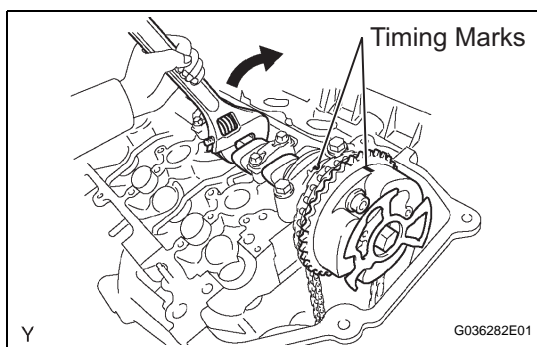
- (g) Install the 4 bearing caps in the proper locations as shown.
- (h) Apply a light coat of engine oil to the threads and under the heads of the bearing cap bolts.



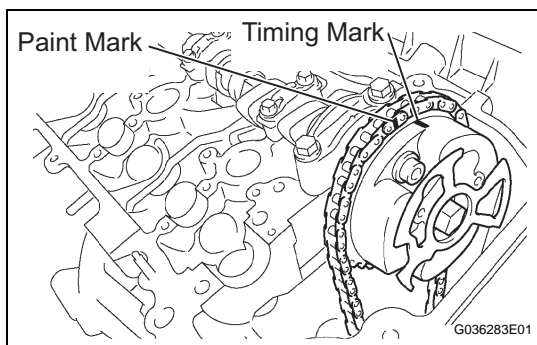
- (i) Using several steps, uniformly install and tighten the 8 bearing cap bolts in the sequence shown in the illustration.

Torque: 9.0 N*m (92 kgf*cm, 80 in.*lbf) for 10 mm (0.39 in.) head
24 N*m (245 kgf*cm, 18 ft.*lbf) for 12 mm (0.47 in.) head

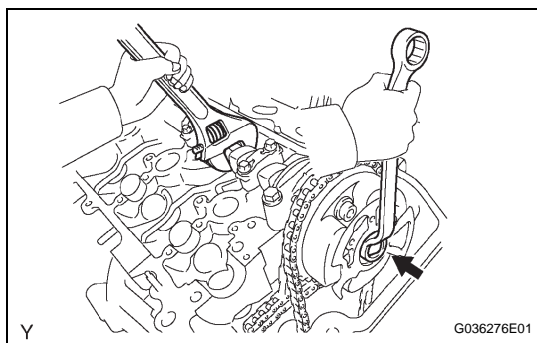
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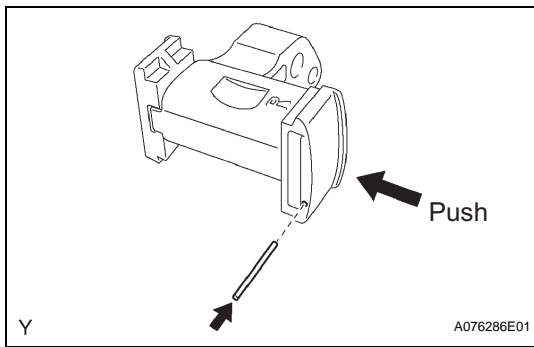
- (j) Rotate the No. 1 camshaft clockwise using a wrench so that the timing mark of the camshaft timing gear is aligned with the timing mark of the camshaft bearing cap.



- (k) Align the paint mark of the No. 1 chain with the timing mark of the camshaft timing gear.

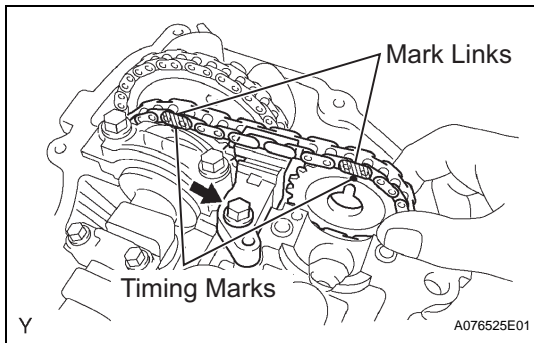


- (l) Hold the hexagonal portion of the No. 1 camshaft with a wrench, and tighten the camshaft timing gear set bolt.
Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)



2. INSTALL NO.2 CHAIN TENSIONER ASSEMBLY

- (a) While pushing in the tensioner, insert a pin of ϕ 1.0 mm (0.039 in.) into the hole to fix it.



- (b) Temporarily install the camshaft timing gear and chain tensioner No. 2 and align the yellow mark links with the timing marks (1 dot mark) of the camshaft timing gears.

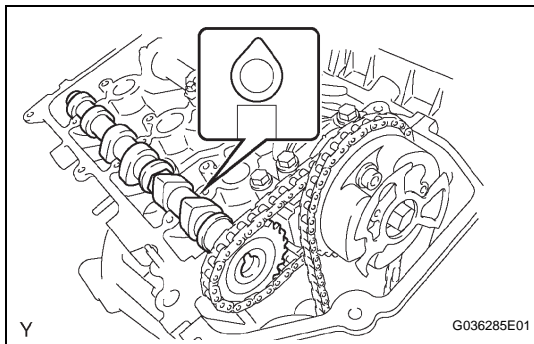
- (c) Tighten the chain tensioner No. 2 bolt.
Torque: 19 N*m (194 kgf*cm, 14 ft.*lbf)

3. INSTALL NO.2 CAMSHAFT

NOTICE:

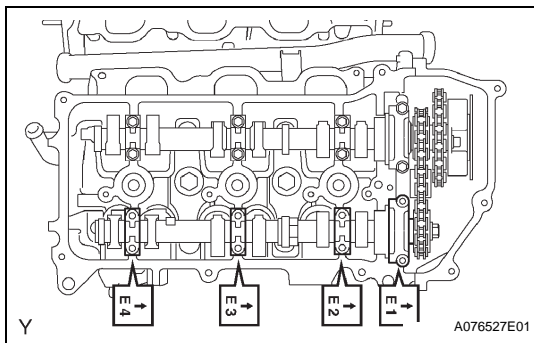
Keep the camshaft level while it is being removed. The camshaft thrust clearance is very small and failing to keep it level could crack or damage the cylinder head journal surface, which receives the thrust. This could subsequently lead the camshaft to seize or break. Perform the following steps to avoid such problems.

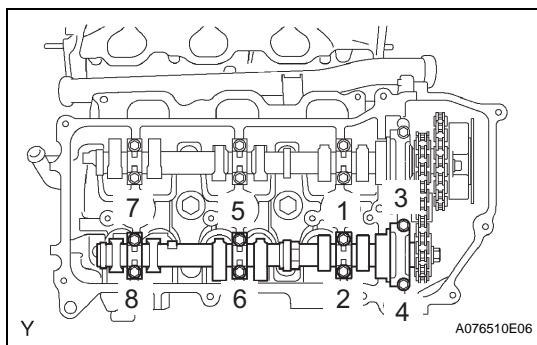
- (a) Install the No. 2 camshaft onto the RH cylinder head with the cam lobes of No. 1 cylinder facing upward as shown in the illustration.



- (b) Install the 4 bearing caps in the proper locations as shown.

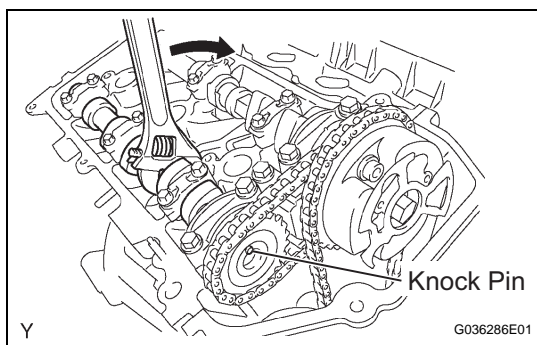
- (c) Apply a light coat of engine oil to the threads and under the heads of the bearing cap bolts.



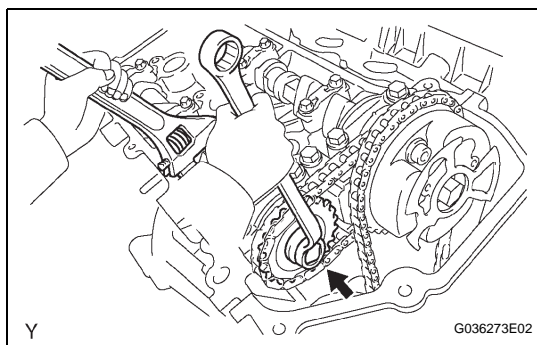


- (d) Using several steps, uniformly install and tighten the 8 bearing cap bolts in the sequence shown in the illustration.

Torque: 9.0 N*m (92 kgf*cm, 80 in.*lbf) for 10 mm (0.39 in.) head
24 N*m (245 kgf*cm, 18 ft.*lbf) for 12 mm (0.47 in.) head



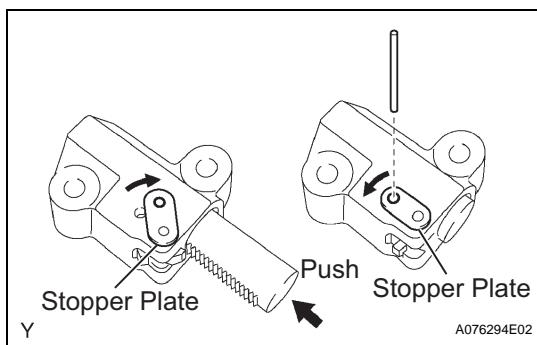
- (e) Rotate the No. 2 camshaft clockwise using a wrench so that the knock pin of the No. 2 camshaft is aligned with the knock pin hole of the camshaft timing gear.



- (f) Hold the hexagonal portion of the No. 2 camshaft with a wrench, and install the camshaft timing gear set bolt.

Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)

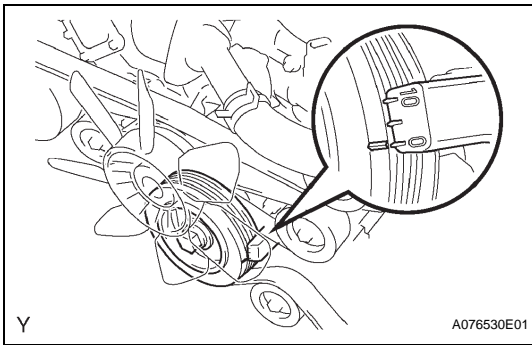
- (g) Remove the pin from the chain tensioner No. 2.



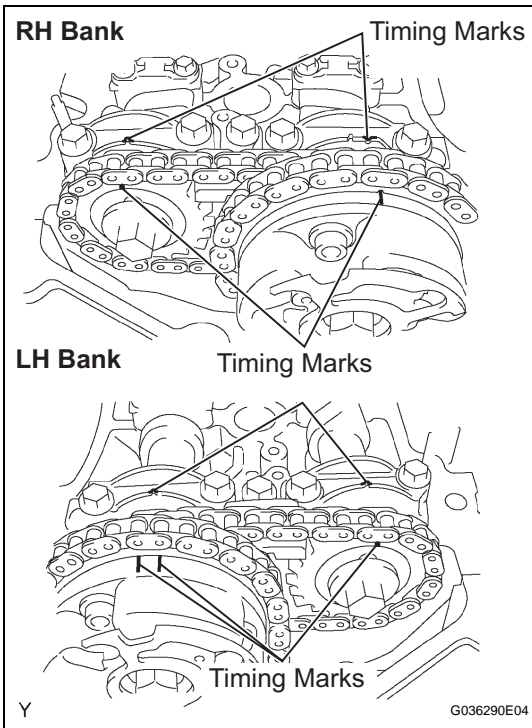
4. INSTALL NO.1 CHAIN TENSIONER ASSEMBLY

- (a) While turning the stopper plate of the tensioner clockwise, push in the plunger of the tensioner as shown in the illustration.
- (b) While turning the stopper plate of the tensioner counterclockwise, insert a bar of ϕ 3.5 mm (0.138 in.) into the holes in the stopper plate and tensioner to fix the stopper plate.
- (c) Install the chain tensioner with the 2 bolts.
Torque: 10 N*m (102 kgf*cm, 7.4 ft.*lbf)
- (d) Remove the bar from the chain tensioner.
- (e) Install a new gasket and the timing chain cover plate with the 4 bolts.

Torque: 9.0 N*m (92 kgf*cm, 80 in.*lbf)

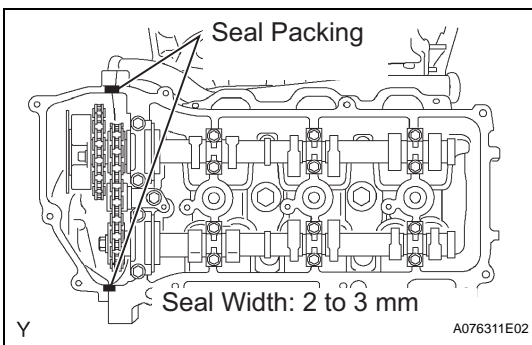


- (f) Turn the crankshaft pulley 2 complete revolutions slowly until its groove and the timing mark "0" of the timing chain cover are aligned.



- (g) Check that the timing marks of the camshaft timing gears are aligned with the timing marks of the bearing cap as shown in the illustration.

5. SET CYLINDER TO TDC/COMPRESSION (See page [EM-7](#))
6. INSPECT VALVE CLEARANCE (See page [EM-8](#))
7. ADJUST VALVE CLEARANCE (See page [EM-9](#))
8. INSTALL CYLINDER HEAD COVER SUB-ASSEMBLY LH
 - (a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the cylinder head, timing chain cover and cylinder head cover.



- (b) Install the cylinder head cover within 3 minutes of applying seal packing. Tighten the cylinder head cover bolts and nuts within 15 minutes of installing the cylinder head cover. Otherwise, the seal packing must be removed and reapplied.

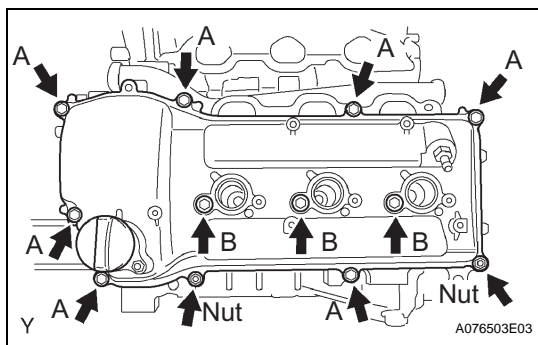
Seal packing:

Part No. 08826-00080 or equivalent

NOTICE:

Install the cylinder head cover within 3 minutes after applying the seal packing. After installing it, cylinder head cover bolts and nuts must be tightened within 15 minutes. Otherwise the seal packing must be removed and reapplied.

- (c) Install the seal washers onto the bolts.



- (d) Install the cylinder head cover with the 10 bolts and 2 nuts. Tighten the bolts and nuts uniformly in several steps.

Torque: 10 N*m (102 kgf*cm, 7.4 ft.*lbf) for bolt A

9.0 N*m (92 kgf*cm, 80 in.*lbf) for bolt B

9.0 N*m (92 kgf*cm, 80 in.*lbf) for nut

HINT:

Each bolt length is as follows.

Bolt	Length
A	25 mm (0.98 in.)
B	60 mm (2.36 in.)

9. INSTALL CYLINDER HEAD COVER SUB-ASSEMBLY

- (a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the cylinder head, timing chain cover and cylinder head cover.



- (b) Apply a continuous bead of seal packing (diameter 2 to 3 mm (0.08 to 0.12 in.)) to the cylinder head and timing chain cover as shown in the illustration.

Seal packing:

Part No. 08826-00080 or equivalent

NOTICE:

Install the cylinder head cover within 3 minutes of applying the seal packing. Tighten the cylinder head cover bolts and nuts within 15 minutes of installing the cylinder head cover. Otherwise, the seal packing must be removed and reapplied.

- (c) Install the seal washers onto the bolts.
- (d) Install the cylinder head cover with the 10 bolts and 2 nuts. Tighten the bolts and nuts uniformly in several steps.

Torque: 10 N*m (102 kgf*cm, 7.4 ft.*lbf) for bolt A

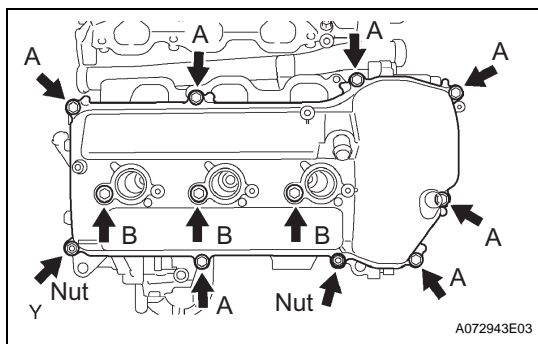
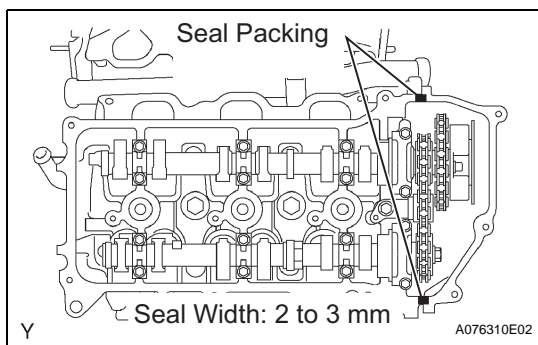
9.0 N*m (92 kgf*cm, 80 in.*lbf) for bolt B

9.0 N*m (92 kgf*cm, 80 in.*lbf) for nut

HINT:

Each bolt length is as follows.

Bolt	Length
A	25 mm (0.98 in.)
B	60 mm (2.36 in.)



10. INSTALL IGNITION COIL ASSEMBLY

- (a) Install the 3 ignition coils with the 3 bolts.
Torque: 10 N*m (102 kgf*cm, 7.4 ft.*lbf) for bolt A

- (b) Connect the 3 connectors.

11. INSTALL INTAKE AIR SURGE TANK

- (a) Install a new gasket onto the intake air surge tank.

- (b) Using the socket hexagon wrench 8, install the intake air surge tank with the 4 bolts.
Torque: 28 N*m (286 kgf*cm, 21 ft.*lbf)
- (c) Install the 2 intake air surge tank nuts.
Torque: 28 N*m (286 kgf*cm, 21 ft.*lbf)
- (d) Install the 2 surge tank stays with the 4 bolts.
Torque: 21 N*m (214 kgf*cm, 15 ft.*lbf)
- (e) Install the oil baffle plate with the bolt.
Torque: 9.0 N*m (92 kgf*cm, 80 in.*lbf)
- (f) Install the throttle body bracket with the 2 bolts.
Torque: 21 N*m (214 kgf*cm, 15 ft.*lbf)
- (g) Install the clutch flexible hose bracket with the nut (w/ Manual Transmission).
Torque: 24 N*m (245 kgf*cm, 18 ft.*lbf)
- (h) Install the 3 wire harness clamps and hose clamp.
- (i) Connect the throttle body w/ motor connector.
- (j) Connect the 2 VSV connectors.
- (k) Connect the ventilation hose.
- (l) Connect the fuel vapor feed hose.
- (m) Connect the 2 water by-pass hoses.

12. INSTALL AIR CLEANER ASSEMBLY (See page [ES-416](#))

13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)

14. ADD ENGINE COOLANT (See page [CO-3](#))

15. CHECK FOR ENGINE COOLANT LEAKAGE (See page [CO-4](#))

16. INSTALL V-BANK COVER

- (a) Install the V-bank cover with the 2 nuts.
Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

17. INSPECT IGNITION TIMING (See page [EM-1](#))