

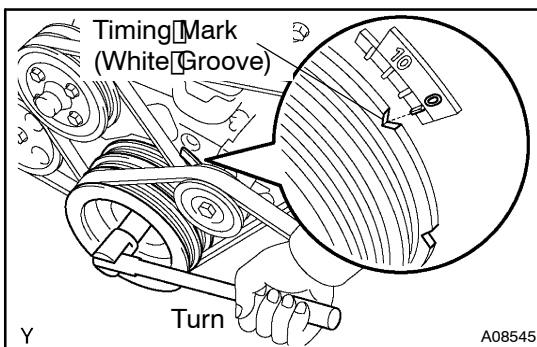
ADJUSTMENT

HINT:

Inspect and adjust the valve clearance when the engine is cold.

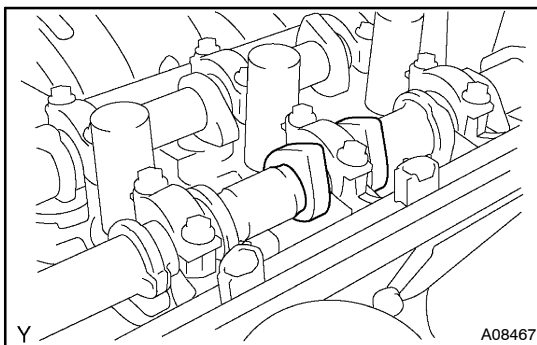
1. REMOVE NO.1 ENGINE UNDER COVER
2. DRAIN ENGINE COOLANT
3. REMOVE AIR CLEANER INLET
4. REMOVE AIR CLEANER ASSEMBLY
5. REMOVE PCV HOSE
6. REMOVE NO.2 CYLINDER HEAD COVER
7. DISCONNECT ENGINE WIRE FROM CYLINDER HEAD
8. REMOVE IGNITION COILS (See page G-6)
9. REMOVE SPARK PLUGS (See page G-1)
10. REMOVE NO.3 WATER BYPASS PIPE
11. REMOVE AIR CLEANER INLET DUCT BRACKET
12. REMOVE CYLINDER HEAD COVER

Remove the 11 bolts, cylinder head cover and gasket.



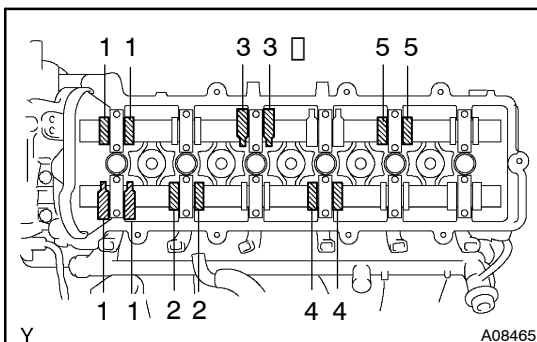
13. SET NO.1 CYLINDER TO TDC/COMPRESSION

- (a) Turn the crankshaft pulley, and align the timing mark (white groove) with the timing mark "0" of the No.1 timing belt cover.



- (b) Check that the No.4 cylinder cam lobes of the intake camshaft faces nearly straight up.

If not, revolve the crankshaft 1 (360°) and align the mark as above.



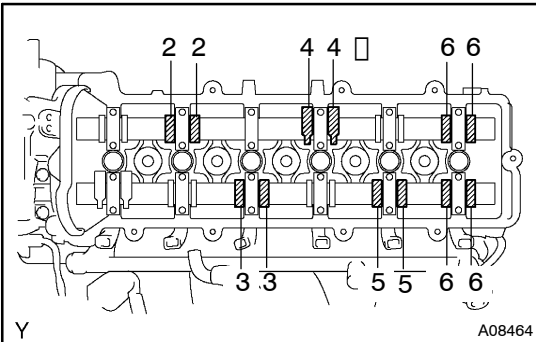
14. INSPECT VALVE CLEARANCE

- (a) Check only those valves indicated in the illustration.
 - (1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.
 - (2) Record the out-of-specification valve clearance measurements. They will be used later to determine the required replacement valve lifter.

Valve Clearance (Cold):

Intake	0.15 - 0.25 mm (0.006 - 0.010 in.)
Exhaust	0.25 - 0.35 mm (0.010 - 0.014 in.)

(b) Turn the crankshaft one revolution (360°) and align the mark as above.



(c) Check only the valves indicated as shown. Measure the valve clearance. (See procedure in step (a))

15. REMOVE RADIATOR ASSEMBLY (See page CO-16)

16. REMOVE DRIVE BELT FOR A/C COMPRESSOR (See page AC-17)

17. REMOVE DRIVE BELT FOR ALTERNATOR (See page CH-6)

HINT:

Before removing the drive belt, loosen the 4 fan pulley nuts.

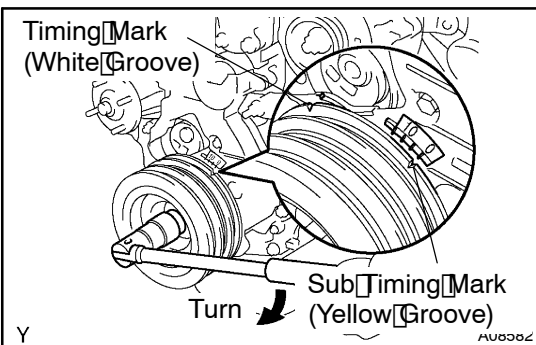
18. REMOVE DRIVE BELT FOR PS VANE PUMP (See page SR-27)

19. REMOVE FAN SPACER AND PULLEY

20. REMOVE NO.2 TIMING BELT COVER

Remove the 4 bolts, timing belt cover and gasket.

21. REMOVE NO.4 TIMING BELT COVER

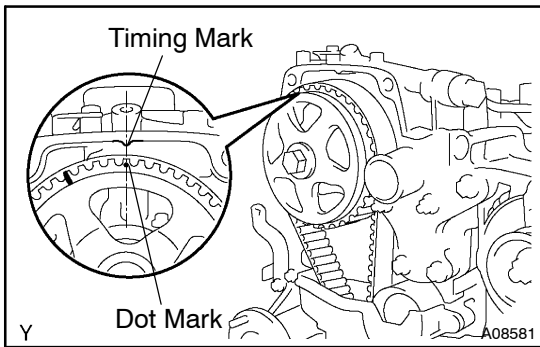


22. SET NO.1 CYLINDER TO APPROX. 60° BTDC/COMPRESSION

(a) Turn the crankshaft pulley, and align the sub timing mark (yellow groove - 60° mark BTDC) with the timing mark "0" of the No.1 timing belt cover.

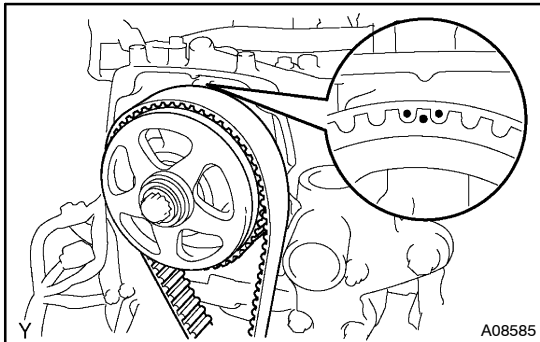
NOTICE:

- Always turn the crankshaft clockwise.
- If the timing belt is disengaged, having the crankshaft pulley at the wrong angle can cause the piston head and valve head to come into contact with each other. Thus results in damage when you remove the camshaft timing pulley (See page EM-59). So, always set the crankshaft pulley at the correct angle.



- (b) Check that the dot mark (60° mark BTDC) of the camshaft timing pulley is aligned with the timing mark of the No.1 bearing cap.

If not, revolve the crankshaft 1 (360°).

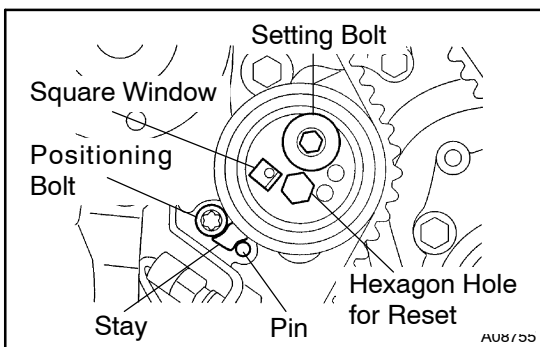


23. DISCONNECT TIMING BELT FROM CAMSHAFT TIMING PULLEY

HINT:

When re-using timing belt:

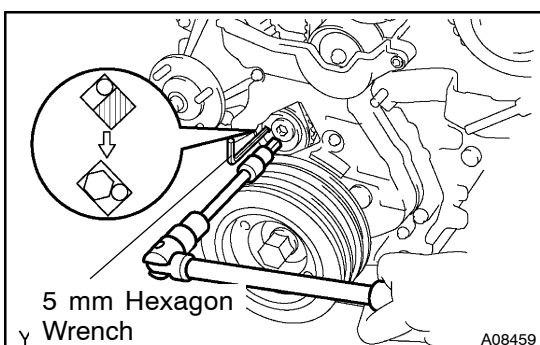
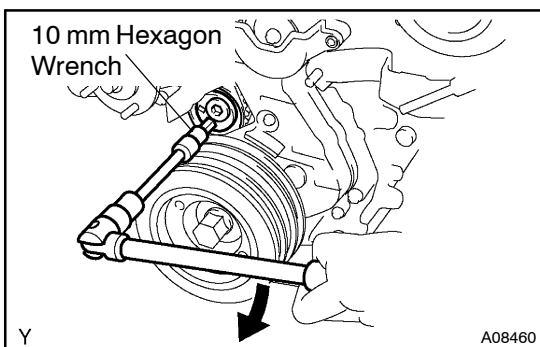
Place the matching marks on the timing belt and the camshaft timing pulley as shown in the illustration.



- (a) Using a 10 mm hexagon wrench, insert the auto tensioner rod inside of the No.1 idler pulley to the hexagon hole for reset in the No.1 idler pulley.

NOTICE:

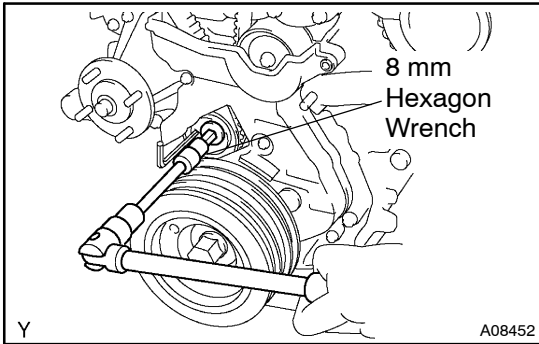
Must not apply torque with more than 39 N·m (400 kgf·cm, 29 ft·lbf).



- (b) After confirming the movement of the pin inside the square window, insert a 5 mm hexagon wrench.

HINT:

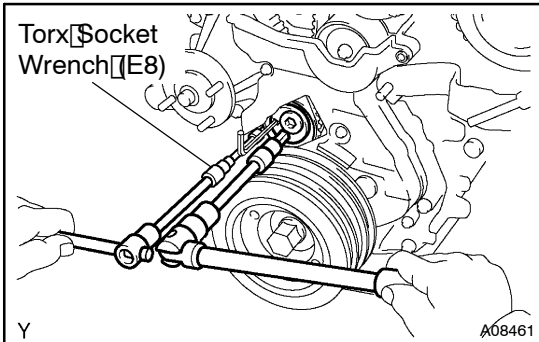
Be sure to insert the wrench only after you feel the knocking while inserting the auto tensioner.



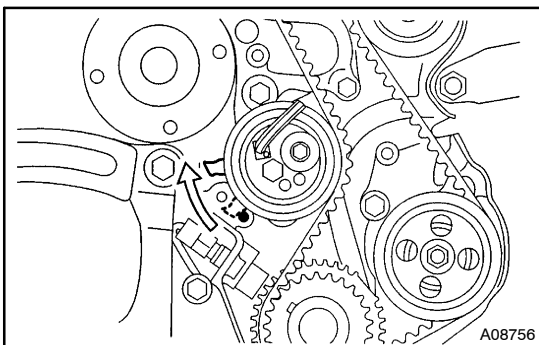
- (c) Using a 8 mm hexagon wrench, loosen the bolt of the No. 1 idler pulley (timing belt tensioner).

NOTICE:

Least necessary loosening is required only to move the No. 1 idler pulley.



- (d) Using a 10 mm hexagon wrench, keep holding the No. 1 idler pulley tightly toward the direction of tensioning and take out the positioning bolt using a Torx socket wrench (E8).

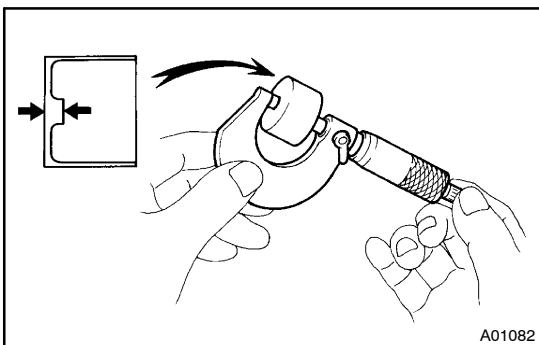


- (e) Move the No. 1 idler pulley by hand toward the direction of loosening the timing belt.
 (f) Disconnect the timing belt from the camshaft timing pulley.

24. REMOVE CAMSHAFT TIMING PULLEY AND CAMSHAFTS (See page EM-36)

25. ADJUST VALVE CLEARANCE

- (a) Remove the valve lifter.



- (b) Determine the replacement valve lifter size by following the Formula or Charts:

(1) Using a micrometer, measure the thickness of the removed valve lifter.

(2) Calculate the thickness of a new lifter so that the valve clearance comes within specified value.

T..... Thickness of removed valve lifter

A..... Measured valve clearance

N..... Thickness of new valve lifter

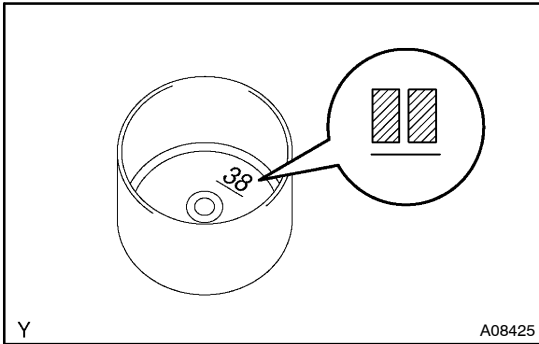
Intake: $N = T + (A - 0.20 \text{ mm} (0.008 \text{ in.}))$

Exhaust: $N = T + (A - 0.30 \text{ mm} (0.012 \text{ in.}))$

(3) Select a new valve lifter with a thickness as close as possible to the calculated value.

HINT:

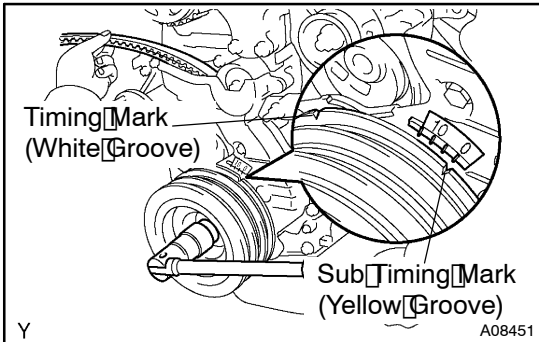
- Valve lifters are available in 35 sizes in increments of 0.020 mm (0.0008 in.), from 5.060 mm (0.1992 in.) to 5.740 mm (0.2260 in.).



- Identification number inside the valve lifter shows the value of the two decimal places. (The illustration shows 5.380 mm (0.2118 in.))
- (c) Install a new valve lifter.

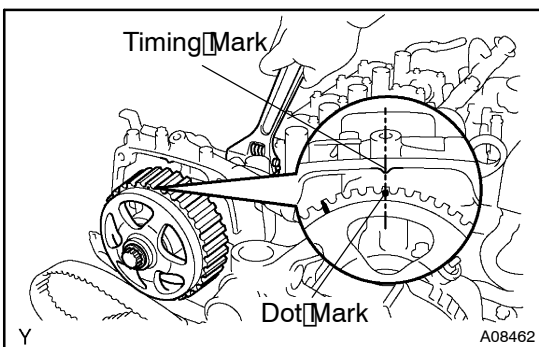
26. REINSTALL CAMSHAFTS AND CAMSHAFT TIMING PULLEY (See page EM-59)

27. RECHECK VALVE CLEARANCE

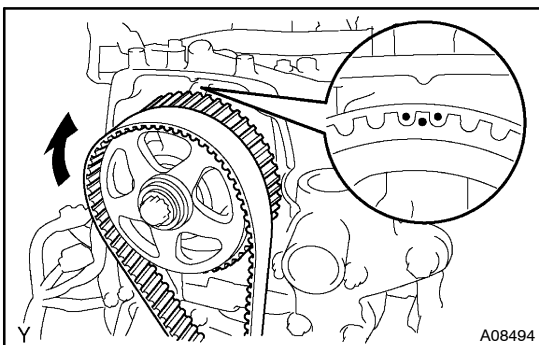


28. RESET NO.1 CYLINDER TO APPROX. 60° BTDC/ COMPRESSION

- (a) Crankshaft Pulley Position:
Turn the crankshaft pulley, and align the sub timing mark (yellow groove – 60° mark BTDC) with the timing mark "0" of the No.1 timing belt cover.



- (b) Camshaft Timing Pulley Position:
Using the hexagon portion of the camshaft, turn the camshaft, align the dot mark (60° mark BTDC) of the camshaft timing pulley with the timing mark of the No.1 bearing cap.

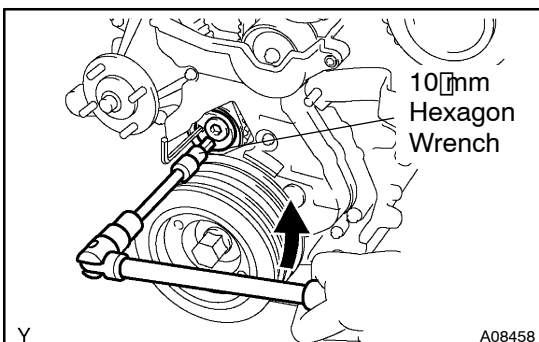


29. RECONNECT TIMING BELT TO CAMSHAFT TIMING PULLEY

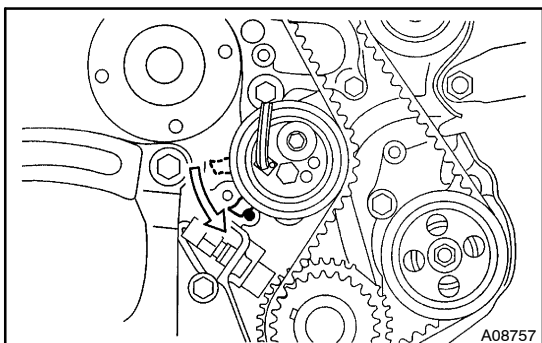
- (a) Install the timing belt, check the tension between the crankshaft timing pulley, oil pump pulley, No.2 idler pulley and camshaft timing pulley.

HINT:

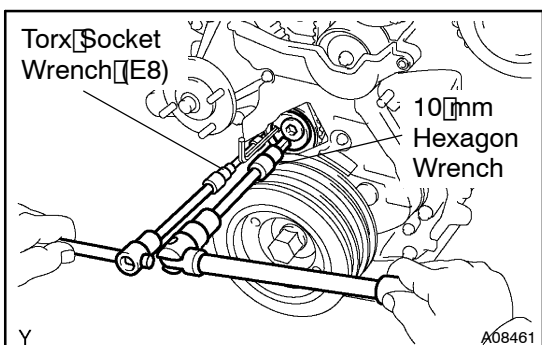
When re-using timing belt:
Align the marked points during removal.



- (b) Using a 10 mm hexagon wrench, keep holding the No.1 idler pulley toward the direction of tensing the timing belt.



- (c) After confirming that the stay of the No. 1 idler pulley touches the pin, install the positioning bolt by hand.

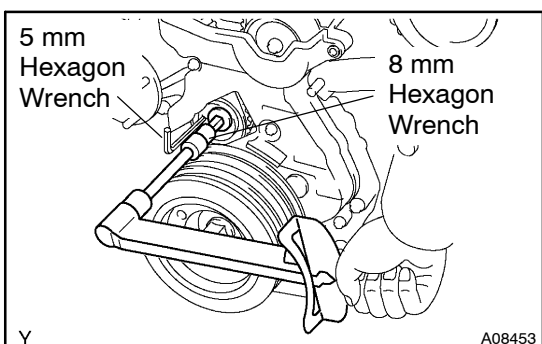


- (d) Using a Torx socket wrench (E8), tighten the positioning bolt.

Torque: 8 N·m (80 kgf·cm, 69 in·lbf)

NOTICE:

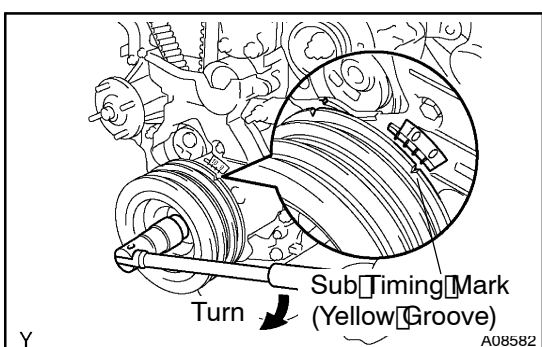
Be careful not to allow the bolt to come onto the stay of the No. 1 idler pulley.



- (e) Using a 8 mm hexagon wrench, tighten the bolt of the No. 1 idler pulley (timing belt tensioner).

Torque: 42.5 N·m (425 kgf·cm, 31 ft·lbf)

- (f) Take the 5 mm hexagon wrench for lock out of the square window.

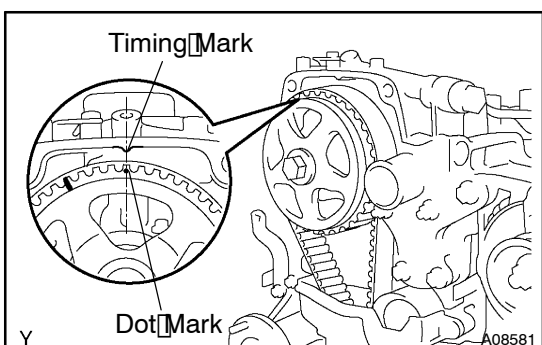


30. CHECK VALVE TIMING

- (a) Slowly revolve the crankshaft 2 times, and align the sub timing mark (yellow groove - 60° mark BTDC) with the timing mark "0" of the No. 1 timing belt cover.

NOTICE:

Always turn the crankshaft clockwise.



- (b) Check that the dot mark (60° mark BTDC) of the camshaft timing pulley is aligned with the timing mark of the No. 1 bearing cap.

31. REINSTALL NO. 4 TIMING BELT COVER

32. REINSTALL NO. 2 TIMING BELT COVER

- (a) Install the gasket to the timing belt cover.
 (b) Install the timing belt cover with the 4 bolts.

Torque: 6 N·m (60 kgf·cm, 52 in·lbf)

33. REINSTALL CYLINDER HEAD COVER

(See page EM-59)

34. REINSTALL AIR CLEANER INLET DUCT BRACKET
Torque: 18.5 N·m (190 kgf·cm, 14 ft·lbf)
35. REINSTALL NO.3 WATER BYPASS PIPE
Torque: 8.5 N·m (85 kgf·cm, 74 in·lbf)
36. REINSTALL SPARK PLUGS (See page G-1)
37. REINSTALL IGNITION COILS (See page G-6)
38. RECONNECT ENGINE WIRE TO CYLINDER HEAD
39. REINSTALL NO.2 CYLINDER HEAD COVER
Torque: 8.5 N·m (85 kgf·cm, 74 in·lbf)
40. REINSTALL PCV HOSE
41. REINSTALL FAN PULLEY AND SPACER

HINT:

Temporarily install the 4 nuts.

42. REINSTALL DRIVE BELT FOR PS VANE PUMP
(See page SR-37)
43. REINSTALL DRIVE BELT FOR ALTERNATOR
(See page CH-15)
44. REINSTALL DRIVE BELT FOR A/C COMPRESSOR
(See page AC-18)
45. RETIGHTEN MOUNTING NUTS OF FAN PULLEY AND SPACER
Torque: 18.5 N·m (185 kgf·cm, 13 ft·lbf)
46. REINSTALL RADIATOR ASSEMBLY
(See page CO-21)
47. REINSTALL AIR CLEANER ASSEMBLY
Torque: 7.5 N·m (75 kgf·cm, 65 in·lbf)
48. REINSTALL AIR CLEANER INLET
Torque: 5 N·m (50 kgf·cm, 43 in·lbf)
49. REFILL ENGINE WITH COOLANT
50. START ENGINE CHECK FOR LEAK
51. REINSTALL NO.1 ENGINE UNDER COVER
52. ROAD TEST
Check abnormal noise, shock, slippage, correct shift points and smooth operation.
53. RECHECK ENGINE COOLANT LEVEL

