880B EXCAVATOR
TABLE OF CONTENTS

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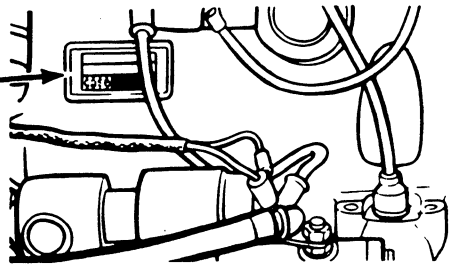
CASE CORPORATION

Section 11

GENERAL ENGINE SPECIFICATIONS 880 EXCAVATOR

THE MODEL AND ENGINE SERIAL NUMBER IS STAMPED ON A PLATE LOCATED ON THE SIDE OF THE ENGINE ABOVE THE CRANKING MOTOR.



DIESEL ENGINES

General

Type ..... 4 Cylinder, 4 Stroke Cycle, Valve-in-Head Turbo-Charged
Firing Order 1-3-4-2
Bore ..... 4-5/8 Inches
Stroke ..... 5 Inches
Piston Displacement ..... 336 Cubic Inches
Compression Ratio ..... 16.5 to 1
No Load Governed Speed ..... 2385 - 2415 RPM
Rated Engine Speed ..... 2200 RPM
Engine Idling Speed ..... 725 to 775 RPM
Exhaust Valve Rotators ..... Positive Type
*Valve Tappet Clearance (Exhaust) ..... (Hot) .020 Inch (Cold) .025 Inch
(Intake) ..... (Hot and Cold) .015 Inch

*Hot Settings Are Made After the Engine Has Operated At Thermostat Controlled Temperature For At Least Fifteen Minutes.

Piston and Connecting Rods

Rings per Piston 3
Number of Compression Rings 2
Number of Oil Rings 1
Type Pins ..... Full Floating Type
Type Bearing ..... Replaceable Precision, Steel Back, Copper-Lead Alloy Liners

Main Bearings

Number of Bearings 5
Type Bearings ..... Replaceable Precision Steel Back, Copper-Lead Alloy Liners

Engine Lubricating System

Crankcase Capacity ..... 10 Quarts
with Filter Change ..... 11 Quarts
Oil Pressure ..... 45 to 55 Pounds with Engine Warm and Operating at Rated Engine Speed
Type System ..... Pressure and Spray Circulation
Oil Pump ..... Gear Type
Oil Filter ..... Full Flow Spin on Type

Fuel System

Fuel Injection Pump ..... Robert Bosch, Type PES Multiple Plunger
Pump Timing ..... 30 Degrees Before Top Dead Center (Port Closing)
Fuel Injectors ..... Pencil Type (Opening Pressure 2800 PSI)
Fuel Transfer Pump ..... Plunger Type, Integral Part of Injection Pump
Governor ..... Variable Speed, Fly-Weight Centrifugal Type, Integral Part of Injection Pump
1st Stage Fuel Filter ..... Full Flow Spin on Type
2nd Stage Fuel Filter ..... Full Flow Spin on Type

PRINTED IN U.S.A.

Section 1050

GENERAL MAINTENANCE

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CASE CORPORATION

MAINTENANCE

Introduction

Scheduled maintenance and lubrication are the normal operations required to provide safe and efficient operation. Following the maintenance charts is the easiest and most economical means of assuring the least amount of down time.

Hourly intervals have been established for servicing the machine. They are based on the number of hours the engine has run. The hourmeter, which operates when the engine is running, indicates the accumulated hours of operation.

Run-In Period

The items listed in the run-in section are performed during the run-in period only.

Scheduled Maintenance

The items listed in this section are separated into maximum hourly intervals. These intervals are based on "average" operating conditions. When operating under "severe" conditions, such as excessive heat, cold, dust, mud or water, shorten the interval.

The chart following lists all components to be serviced, the interval of servicing and the section it is found in.

RUN-IN MAINTENANCE CHART

NOTE: The following charts are based on maximum intervals. If the machine operates in severe conditions, service more often.

NOTE: See page 1050-5 for listing of fluids and lubricants.

INTERVAL	SERVICE	INSTRUCTIONS
Run-In Period After First 20 Hours	Drain and refill engine crankcase oil	See Operator's Manual
	Change engine oil filter.	See Operator's Manual
	Check fan belt tension	Section 4007
	Replace 33 micron hydraulic oil filter element	Section 8201
	Clean 100 mesh screens	Section 8201

SCHEDULED MAINTENANCE CHART

INTERVAL	SERVICE	INSTRUCTIONS
Every 10 Hours or daily, whichever occurs first	Check engine oil level	See Operator's Manual
	Check hydraulic oil level	Section 8201
	Check air cleaner air restriction indicator	Section 2051
	Check radiator coolant level	See Operator's Manual
	Clean air cleaner dust cups	See Operator's Manual

INTERVAL	SERVICE	INSTRUCTIONS
	Check fuel transfer pump sediment bowl for water. If found, drain bowl, filter and fuel tank.	See Operator's Manual
	Fill fuel tank	See Operator's Manual
	Controls - check operation	Section 9206
	Check track rollers for leakage. Lifetime lubricated - no scheduled maintenance required.	
	Lubricate turntable open gear	Section 9201
	Clean operator's compartment thoroughly	See Operator's Manual
	Grease boom and attachment fittings	Section 9201
	Grease crawler drive pillow blocks	Section 6301
After first 50 hours or first week of operation	Check torques on all turntable bearing capscrews	Section 9216
Every 50 hours or Weekly	Grease leveler fittings	Section 9201
	Lubricate control linkage	Section 9201
	Lubricate turntable bearings	Section 9201
	Check oil level in final drive transmissions	Section 6301
	Check tension in excavator tracks	Section 5501
Every 100 hours	Change engine oil	See Operator's Manual
Every 200 hours	Change engine oil filter element	See Operator's Manual
Every 250 Hours	Check V-belt deflection	Section 4007
Every 300 Hours or 6 Weeks	Check torque on all turntable bearing bolts	Section 9216
Every 500 Hours or two months	Drain deposits from fuel tank and sediment bowls	See Operator's Manual
	Add corrosion inhibitor to radiator	See Operator's Manual
	Replace fuel filters	See Operator's Manual
	Replace hydraulic oil filter element and clean mesh screens	Section 8201

INTERVAL	SERVICE	INSTRUCTIONS
Every 1500 Hours or semi-annually	Drain and refill drive transmission	Section 6301
	Drain and refill swing reducer	Section 9201
	Drain and refill hydraulic oil tank	Section 8201
	Clean battery and connecting posts	See Operator's Manual
	Drain and flush radiator and cooling system. Install fresh coolants	See Operator's Manual
Every 3000 Hours or Yearly	Have authorized Case Dealer inspect, clean and service turbocharger.	
	Lubricate starter motor wicks	Section 4201

FUEL, FLUIDS AND LUBRICANT CHART

COMPONENT	CAPACITY U.S.	CAPACITY METRIC	SPECIFICATIONS
Fuel Tank	75 gal.	284 litres	No. 2 diesel fuel
Engine crankcase with filter change without filter change	 11 quarts 10 quarts	 10.5 litres 9.5 litres	Engine oil: Case HDM Oil CD - Commercial class D Above 32° F (0° C) - SAE 30W 10° to 50° F (-12° to 10° C) - SAE 20W Below 32° F (0° C) - SAE 10W
Hydraulic Tank	18.7 gals.	71 litres	Case TCH Fluid Alternate oils: Engine oil - SD Service class D CA - Commercial class A (Service MS or DG) Above 32° F (0° C) - SAE 10W Below 32° F (0° C) - SAE 5W Type C-2 transmission and hydraulic fluid such as Tenneco Hytrans Fluid
Hydraulic System	43 gal.	163 litres	
Final drives (each)	8.5 quarts	8 litres	Case FDL final drive fluid or SAE 90 API-GL-4 Gear Lubricant
Swing Gearbox	4.5 quarts	4.25 litres	Case FDL final drive fluid or SAE 90, API-GI-4 Gear Lubricant
Cooling System	9.5 gal.	36 litres	Ethylene glycol and water should be mixed for prevailing temperatures. Follow antifreeze manufacturer's specifications.
Grease Fittings	As required		No. 2 Moly-disulfide grease

NOTE: It is extremely important that a stable, high quality engine lubricating oil be selected for use in the Case Diesel Engine. It is also extremely important that the correct weight (SAE Viscosity Rating) of oil be selected for the prevailing air temperature. This assures you that the oil will remain fluid or free flowing within the specified temperature ranges.

Section
2001

ENGINE DIAGNOSIS

CASE CORPORATION

Rac. 9-76365

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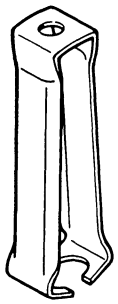
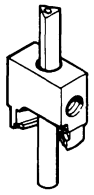
INSTALLATION INSTRUCTIONS FOR M20614 TEFLON VALVE SEAL KIT

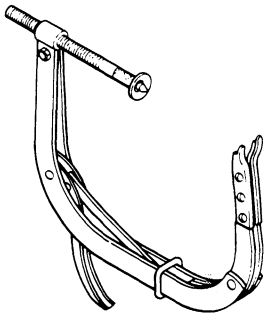
Special Tools Required



M20624 SEAL INSTALLATION TOOL



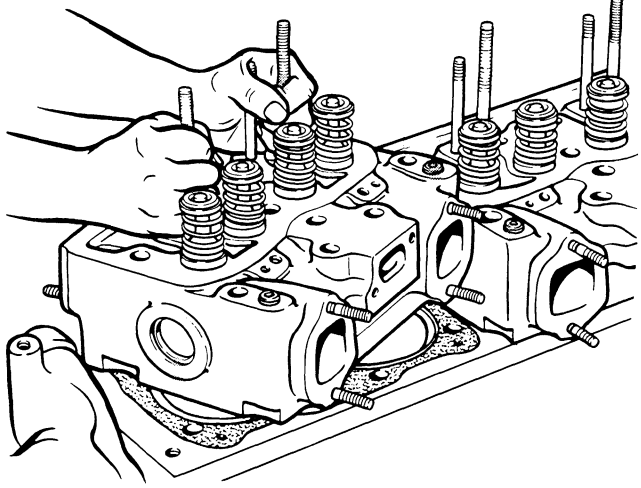
M20617 VALVE GUIDE CUTTING TOOL



VALVE SPRING COMPRESSOR

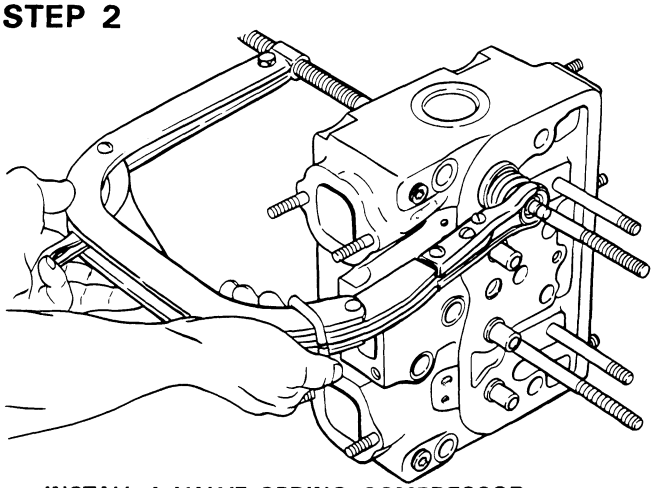
NOTE: FOUR CYLINDER ENGINES REQUIRE TWO M20614 KITS AND SIX CYLINDER ENGINES REQUIRE THREE M20614 KITS.

STEP 1



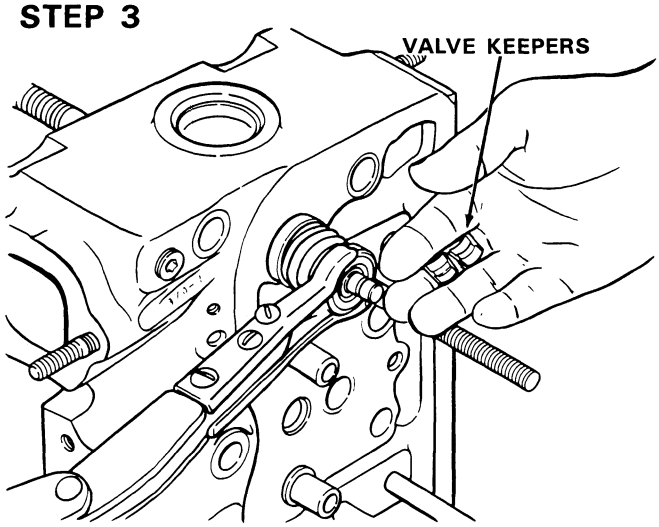
REMOVE THE CYLINDER HEADS FROM THE ENGINE, REFER TO SECTION 2015 FOR HEAD REMOVAL.

STEP 2



INSTALL A VALVE SPRING COMPRESSOR.

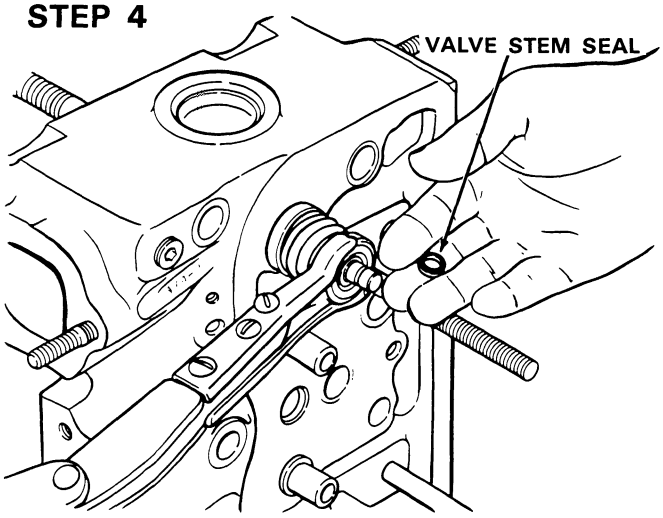
STEP 3



COMPRESS VALVE SPRING AND REMOVE VALVE KEEPERS.

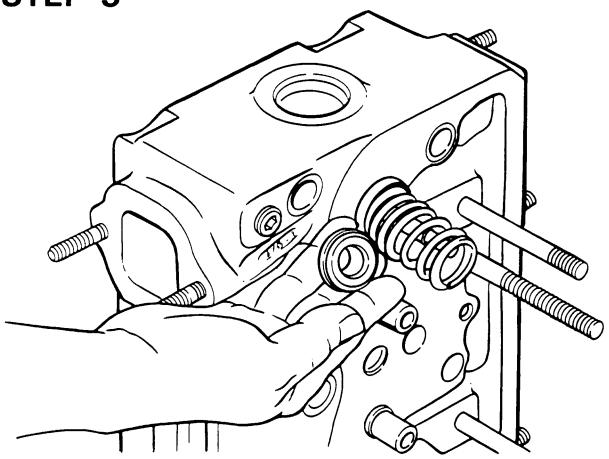
IMPORTANT: VALVES, VALVE RETAINERS OR ROTATORS AND VALVE KEEPERS SHOULD BE MARKED WHEN REMOVED, TO INSURE THAT THEY WILL BE REINSTALLED IN THEIR ORIGINAL LOCATION.

STEP 4



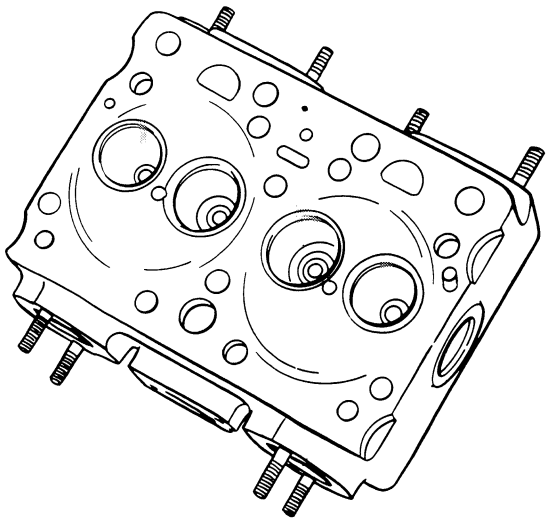
REMOVE VALVE STEM SEAL.

STEP 5



REMOVE VALVE ROTATORS OR SPRING RETAINERS, SPRINGS, SPRING SEATS AND VALVES.

STEP 6

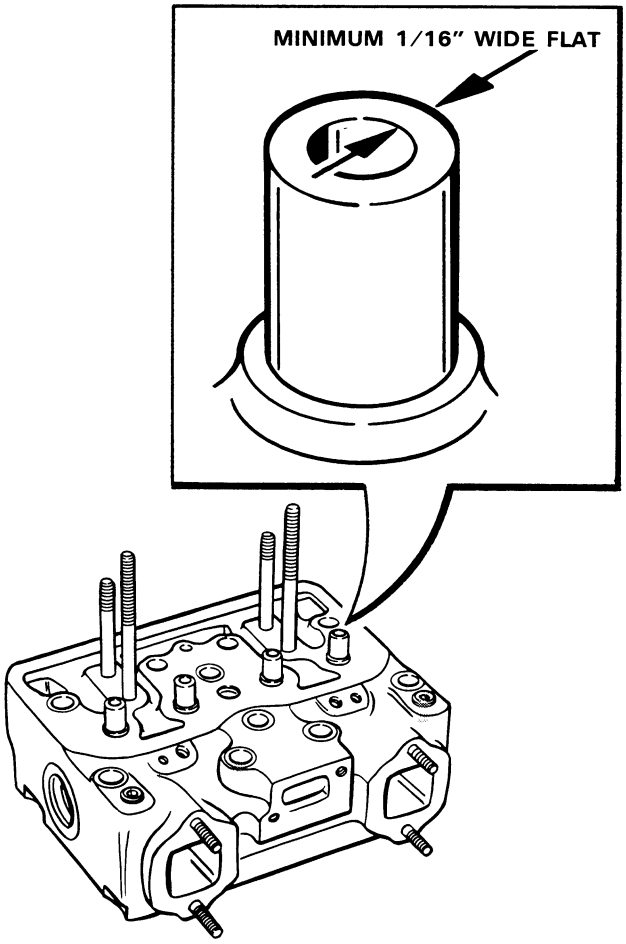


CLEAN CYLINDER HEAD COMPLETELY, REMOVING ALL TRACES OF CARBON AND OTHER DEPOSITS.

STEP 7

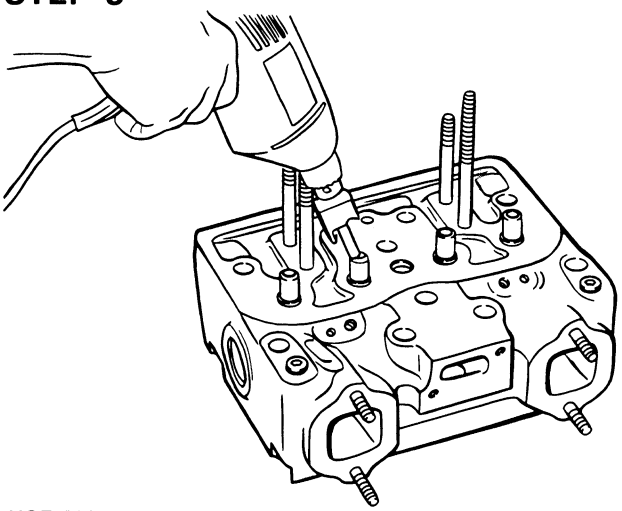
CLEAN VALVES WITH A FINE POWER DRIVEN WIRE BRUSH, REMOVING ALL CARBON AND VARNISH DEPOSITS. BE CAREFUL NOT TO SCRATCH VALVE STEMS.

STEP 8



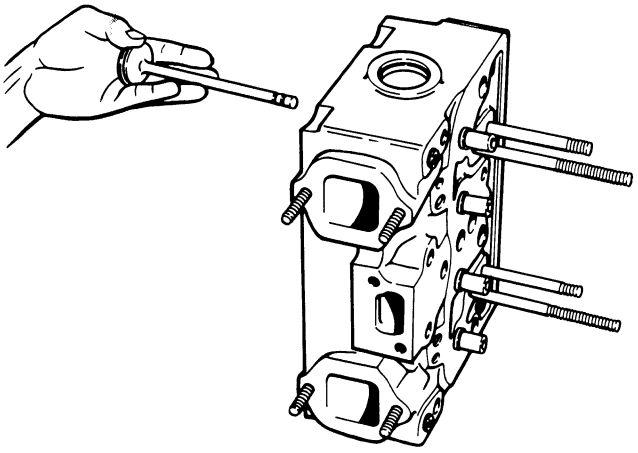
CHECK VALVE GUIDE TOP SURFACE, THERE MUST BE A MINIMUM OF A 1/16" WIDE FLAT AROUND ENTIRE TOP SURFACE.

STEP 9



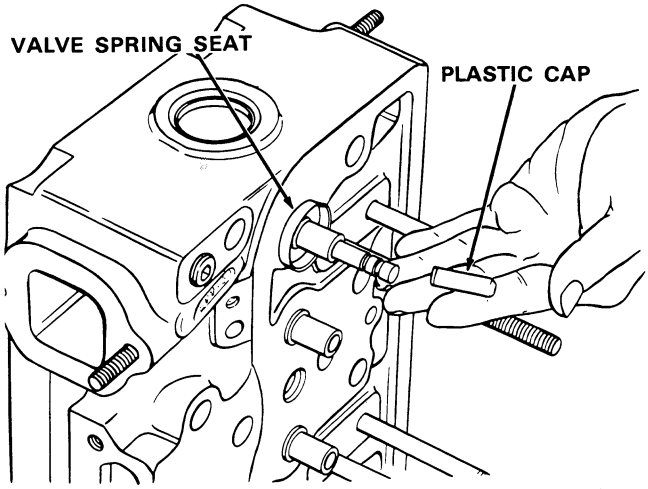
USE M20617 TOOL IN A ELECTRIC DRILL (IF REQUIRED) TO PROVIDE NECESSARY FLAT AREA ON VALVE GUIDE. IMPORTANT: DO NOT EXCEED 450 RPM WHEN DRILLING

STEP 10



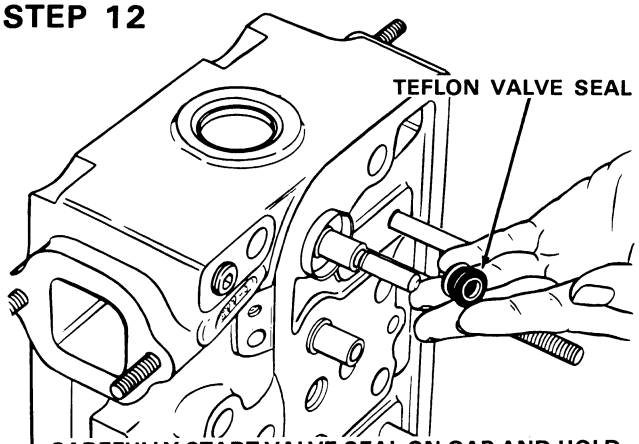
LUBRICATE VALVES WITH CLEAN ENGINE OIL BEFORE REINSTALLING INTO CYLINDER HEAD.

STEP 11



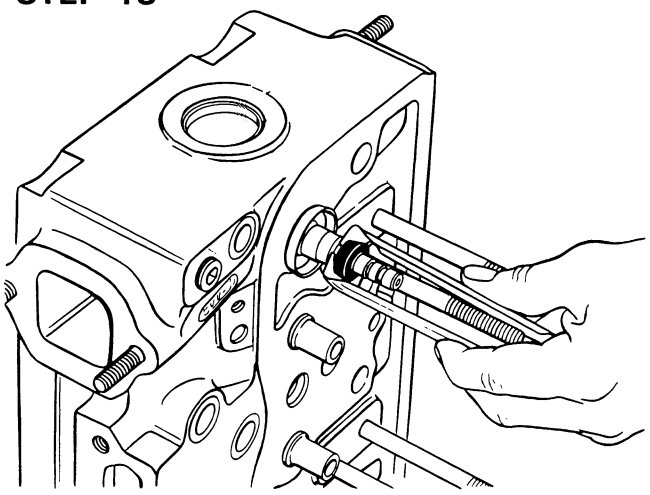
PLACE PLASTIC INSTALLATION CAP, PROVIDED IN KIT, ON THE END OF THE VALVE STEM. NOTE: CAP PREVENTS SHARP EDGES ON VALVE STEM GROOVES FROM CUTTING VALVE SEAL.

STEP 12



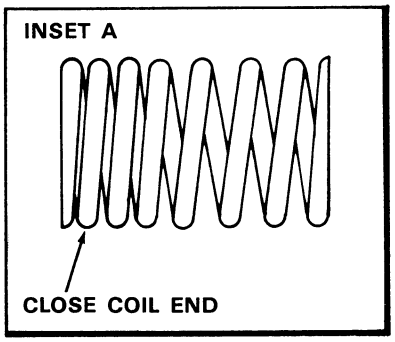
CAREFULLY START VALVE SEAL ON CAP AND HOLD THUMBS AGAINST WHITE SEAL INSERT TO AVOID DISLODGING IT, PUSH SEAL DOWN UNTIL SEAL JACKET TOUCHES TOP OF VALVE GUIDE. REMOVE INSTALLATION CAP AND SAVE, SINCE IT MUST BE REUSED.

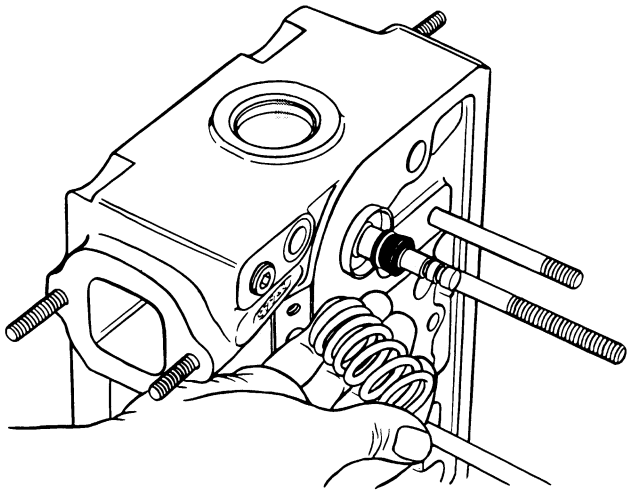
STEP 13



USE M20624 TOOL AND PRESS SEAL DOWN OVER VALVE GUIDE UNTIL SEAL IS FLUSH WITH TOP OF GUIDE.

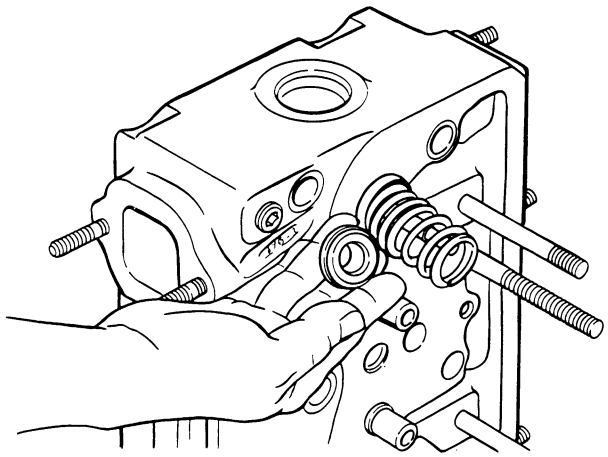
STEP 14





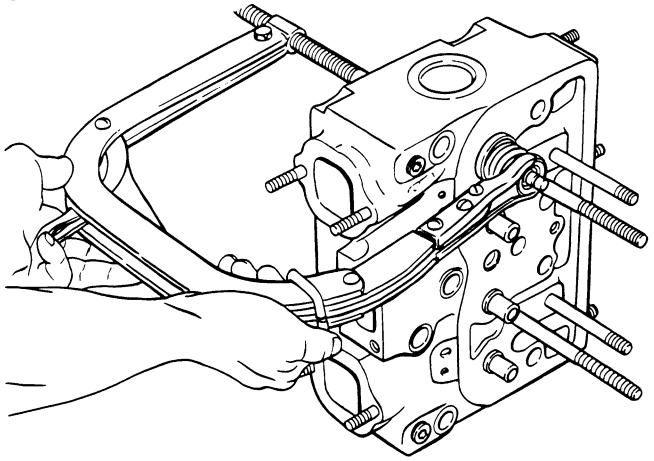
INSTALL THE VALVE SPRING. IMPORTANT: THE CLOSE COIL END OF THE SPRING MUST BE INSTALLED TOWARDS THE CYLINDER HEAD, SEE INSET A.

STEP 15



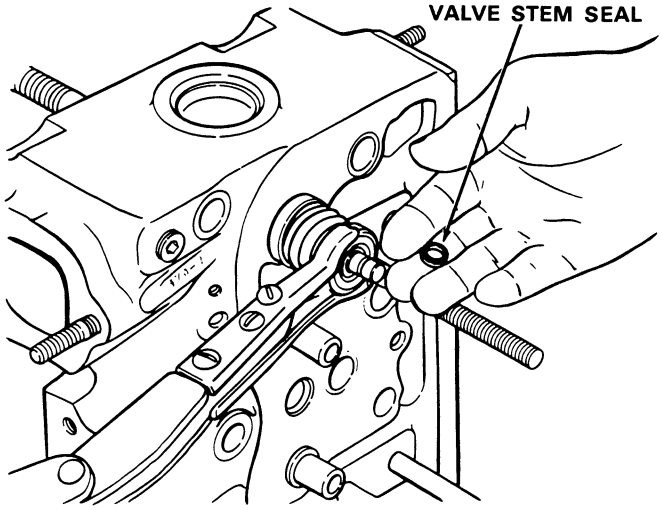
INSTALL VALVE ROTATORS OR SPRING RETAINERS. IMPORTANT: ASSEMBLE VALVE ROTATORS WITH THEIR ORIGINAL VALVES SINCE THEY TEND TO WEAR IN AS A MATCHED SET.

STEP 16



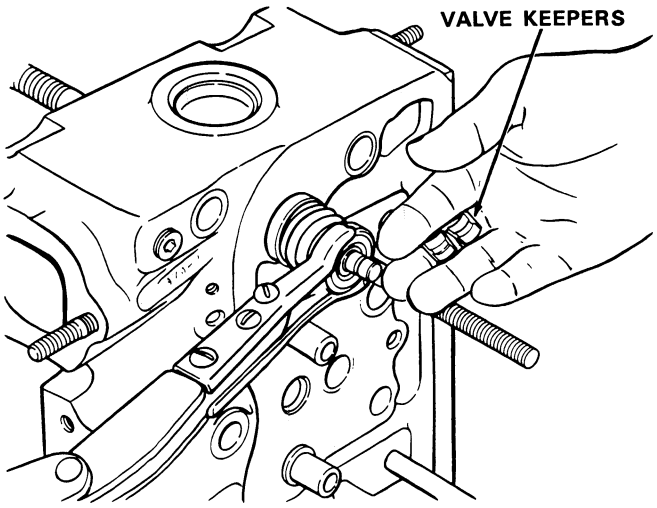
INSTALL VALVE SPRING COMPRESSOR.

STEP 17



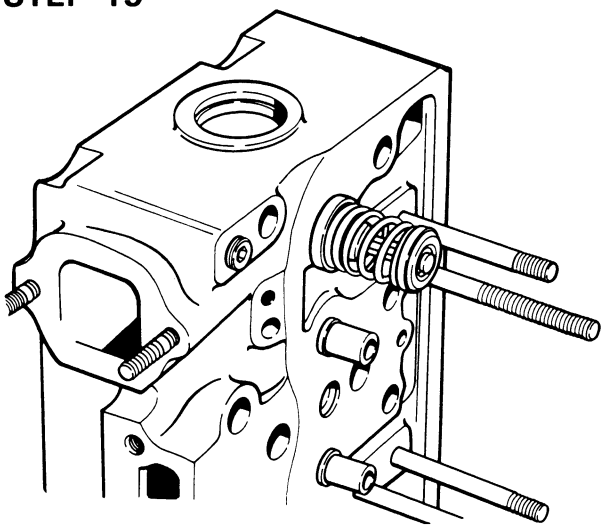
INSTALL STEM SEAL IN LOWER VALVE STEM GROOVE.

STEP 18



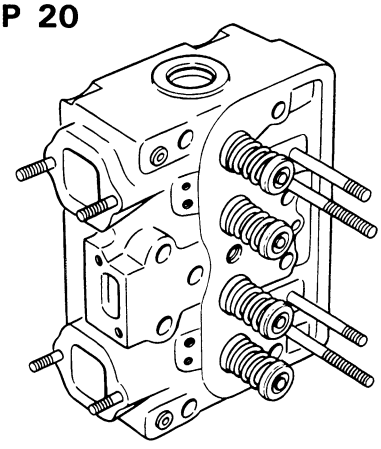
INSTALL VALVE KEEPERS IN OUTER VALVE STEM GROOVE.

STEP 19



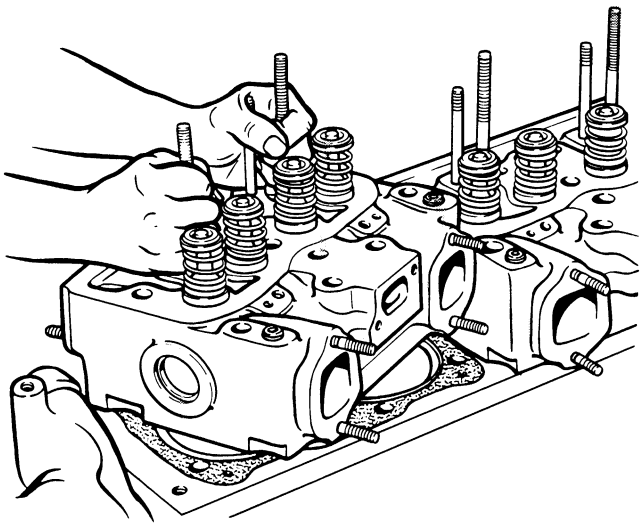
REMOVE SPRING COMPRESSOR AND TAP VALVE STEM END TO SEAT KEEPERS.

STEP 20



INSTALL TEFLON SEALS ON THE OTHER INTAKE AND EXHAUST VALVES, FOLLOWING THE PRECEDING PROCEDURE.

STEP 21



REINSTALL CYLINDER HEAD ON ENGINE FOLLOWING PROCEDURE OUTLINED IN SECTION 2015.

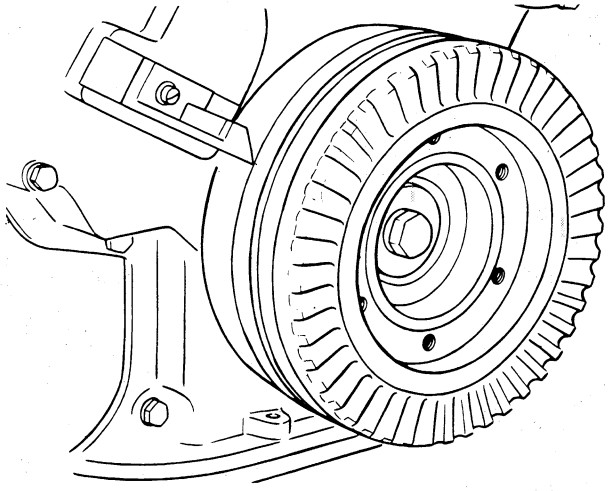
ENGINE TUNEUP PROCEDURE

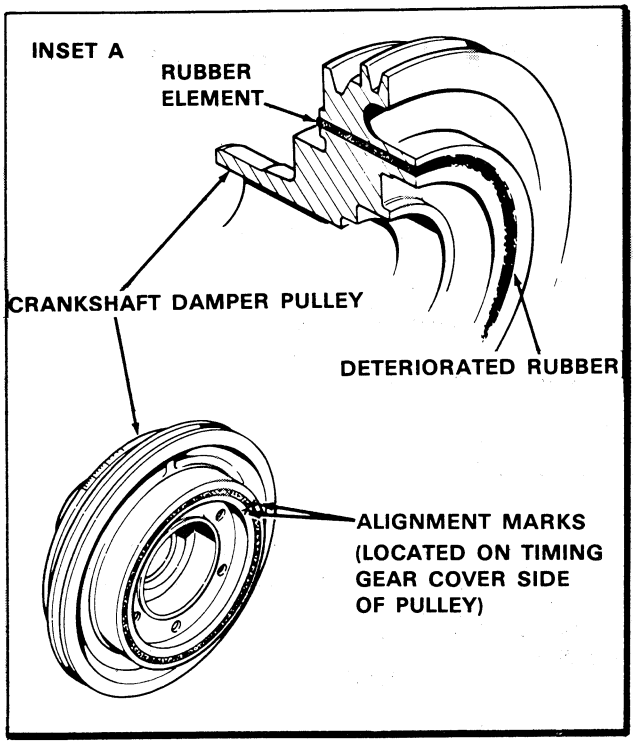
Checking Crankshaft Damper Pulley

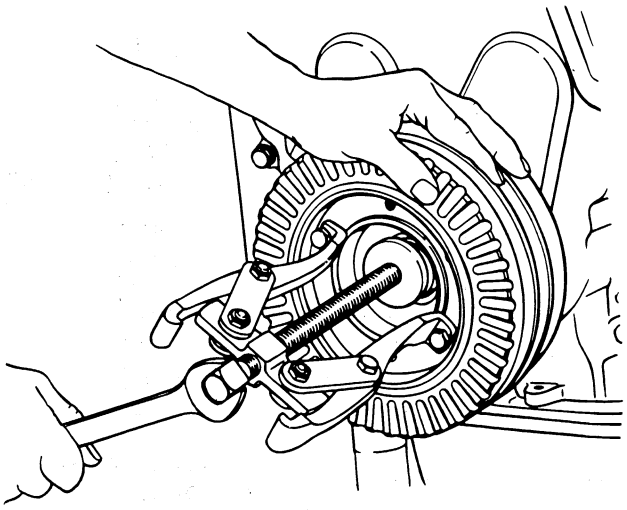
STEP 1

THE RECOMMENDED CHANGE INTERVAL FOR THE CRANKSHAFT DAMPER PULLEY IS 2000 HOURS MAXIMUM. AT ANY TIME OVER 1500 HOURS. CONSIDER CHANGING PULLEY AT ANY MAJOR ENGINE OVERHAUL OR TUNE UP.

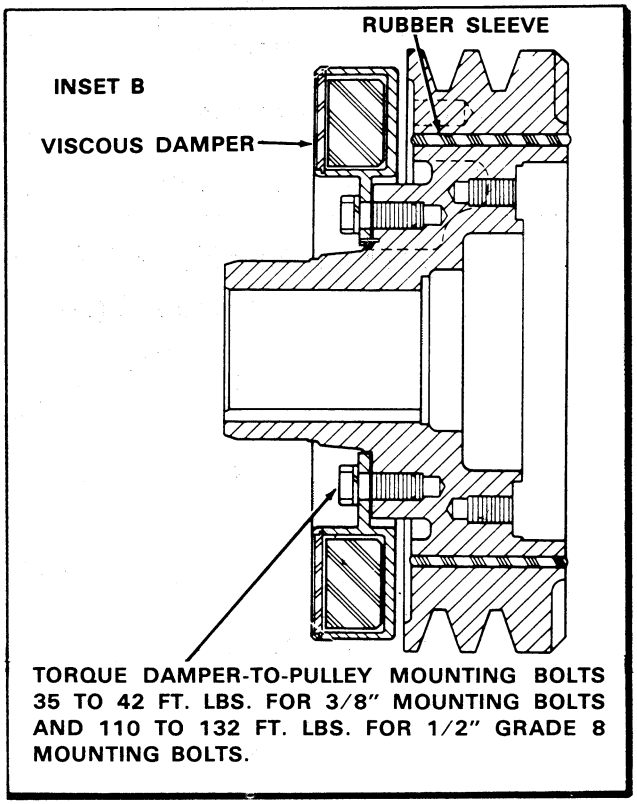
EVERY 500 HOURS AND AT ENGINE TUNEUP, VISUALLY INSPECT RUBBER ELEMENT FOR PEEL AREAS OR RUBBER MISSING. CHECK ALIGNMENT OF THE "V" MARKS BETWEEN THE INNER AND OUTER MEMBERS. IF "V" MARKS SHIFT, ENGINE TIMING WILL BE OFF AND DAMPER PULLEY MUST BE REPLACED.





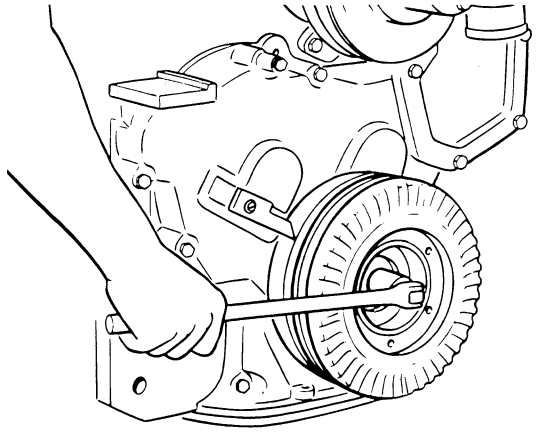


USE BOLT ON TYPE PULLER TO REMOVE PULLEY. REMOVE VISCOUS DAMPER FROM PULLEY (IF SO EQUIPPED). DO NOT PULL OR HAMMER ON OUTSIDE OF PULLEY OR VISCOUS DAMPER; SERIOUS DAMAGE TO PULLEY, DAMPER, AND RUBBER SLEEVE COULD RESULT.



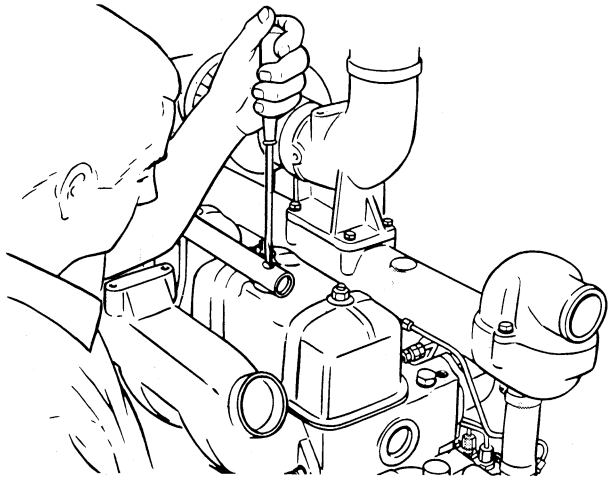
Checking Top Dead Center

STEP 2



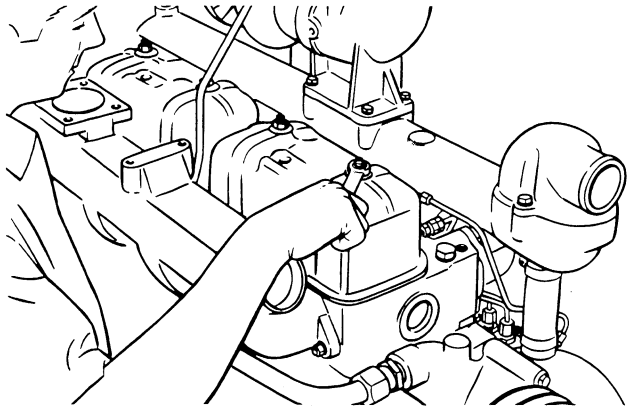
CRANK ENGINE UNTIL 10° BTDC MARK ON CRANKSHAFT PULLEY IS ALIGNED WITH TIMING POINTER.

STEP 3



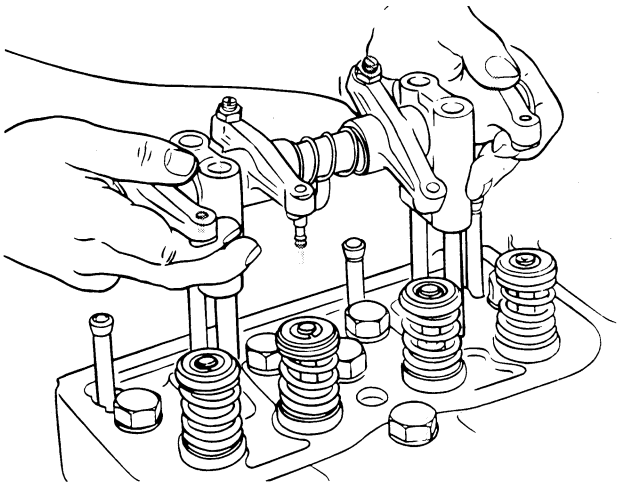
REMOVE BREATHER TUBE.

STEP 4



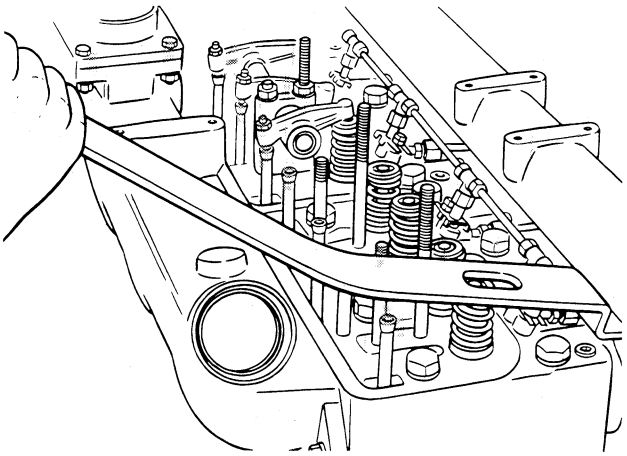
REMOVE VALVE COVER AND GASKET FROM NO. 1 AND NO. 2 CYLINDERS.

STEP 5



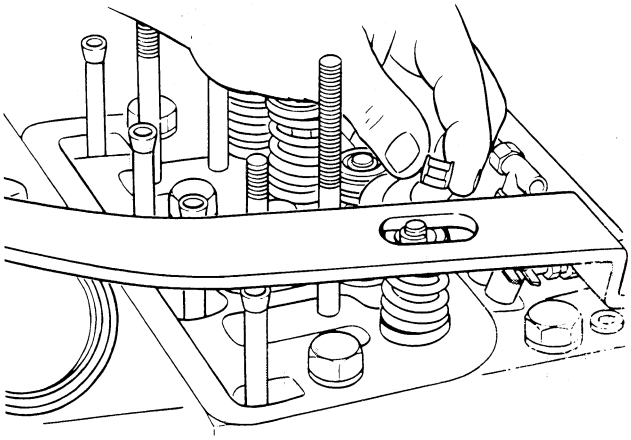
REMOVE ROCKER ARM ASSEMBLY.

STEP 6



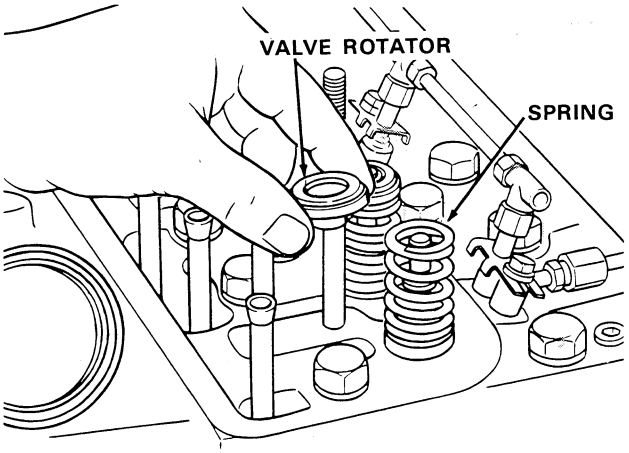
COMPRESS EXHAUST VALVE SPRING ON NO. 1 CYLINDER USING FABRICATED TOOL (SEE PAGE 3).

STEP 7



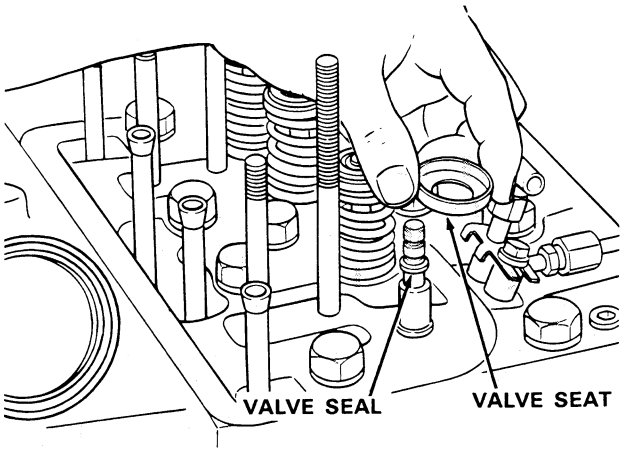
REMOVE VALVE KEEPERS

STEP 8



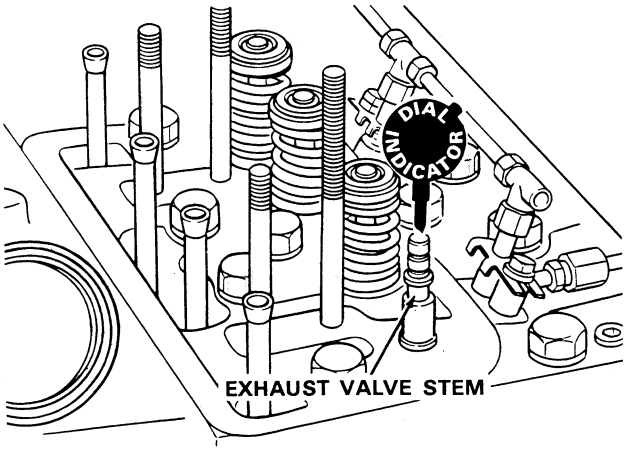
REMOVE VALVE ROTATOR, SPRING AND SEAT.

STEP 9

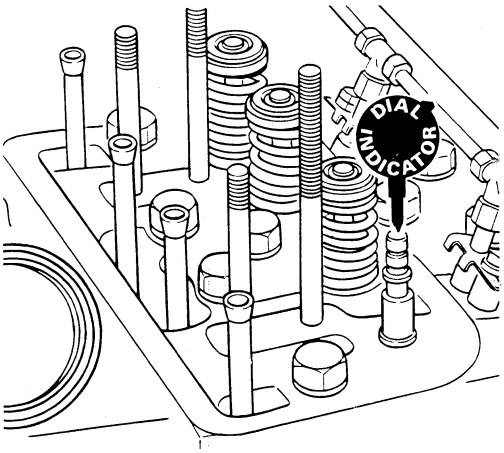


KEEP VALVE SEAL IN PLACE TO PREVENT VALVE FROM FALLING THROUGH VALVE GUIDE IF PISTON IS MOVED TOO FAR

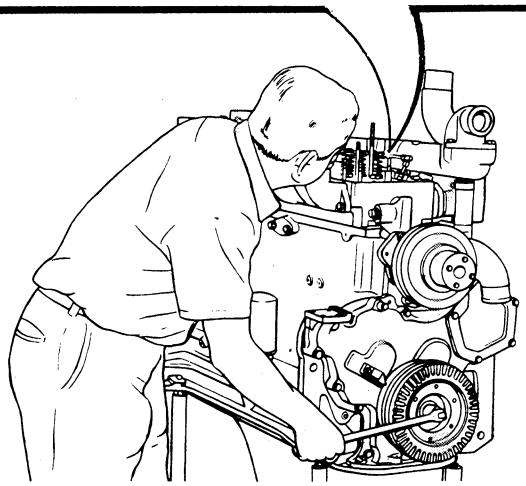
STEP 10



INSTALL DIAL INDICATOR ON END OF VALVE STEM WITH VALVE RESTING ON TOP OF PISTON.



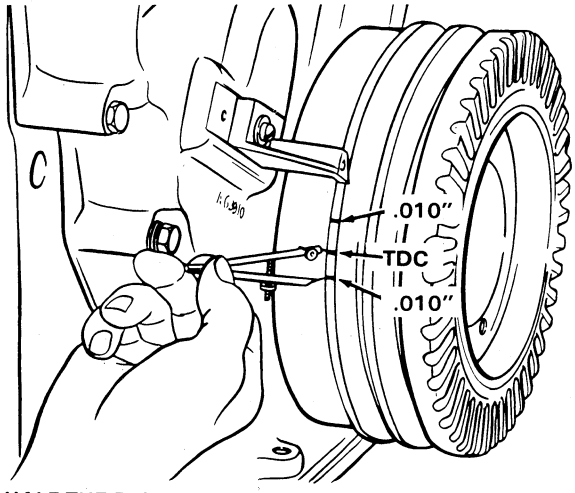
CRANK ENGINE CLOCKWISE UNTIL DIAL INDICATOR HAND STOPS MOVING. RESET INDICATOR TO ZERO.



CRANK ENGINE CLOCKWISE UNTIL .010" SHOWS ON DIAL. SCRIBE A MARK ON CRANKSHAFT PULLEY IN LINE WITH TIMING POINTER.

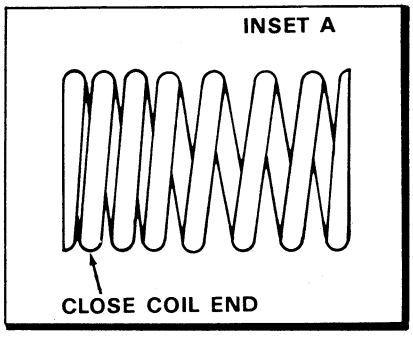
CRANK ENGINE COUNTERCLOCKWISE PAST ZERO MARK ON INDICATOR UNTIL .010" SHOWS ON DIAL. AGAIN, SCRIBE MARK ON CRANKSHAFT PULLEY.

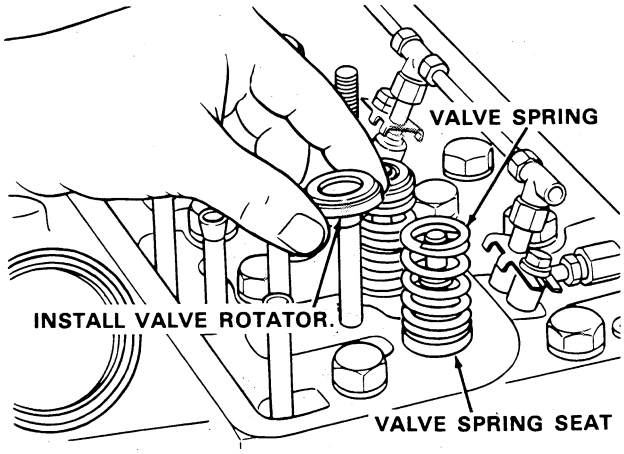
STEP 11



HALF THE DISTANCE BETWEEN THESE TWO SCRIBE MARKS ON CRANKSHAFT PULLEY WILL BE THE TOP DEAD CENTER (TDC) MARK. IF THE SCRIBE MARKS ARE NOT THE SAME AS ORIGINAL MARKS ON PULLEY CHECK DAMPER.

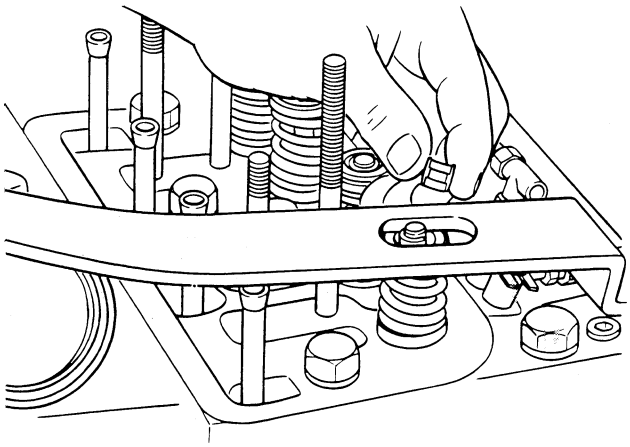
STEP 12





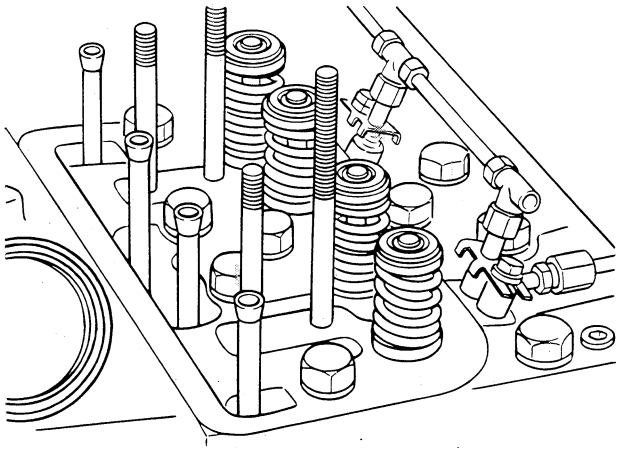
INSTALL SPRING SEAT AND VALVE SPRING. *NOTE:* IF EQUIPPED WITH VALVE SPRING HAVING ONLY ONE CLOSE COIL END, PLACE THIS END TOWARD CYLINDER HEAD, SEE INSET A.

STEP 13



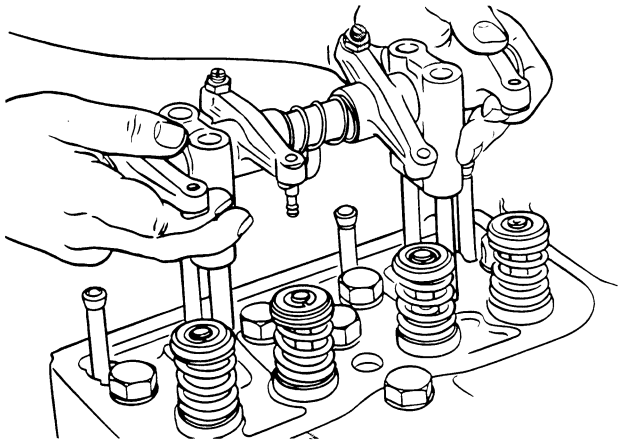
COMPRESS VALVE SPRING USING FABRICATED TOOL. INSTALL SEAL IN LOWER VALVE STEM GROOVE. INSTALL VALVE KEEPERS IN OUTER VALVE STEM GROOVE.

STEP 14



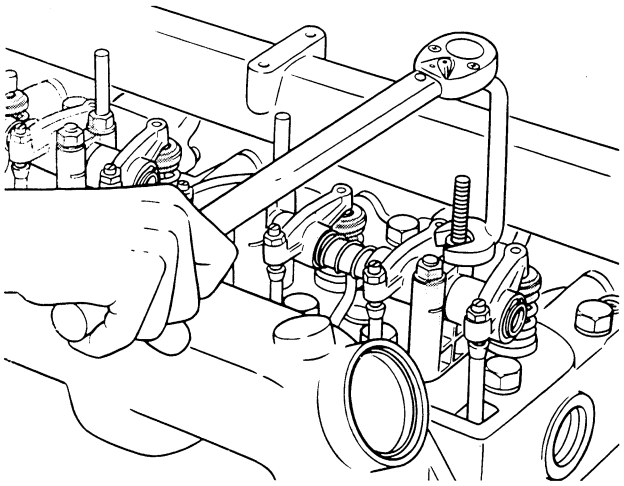
REMOVE SPRING COMPRESSING TOOL. TAP END OF VALVE STEM TO SEAT KEEPERS.

STEP 15



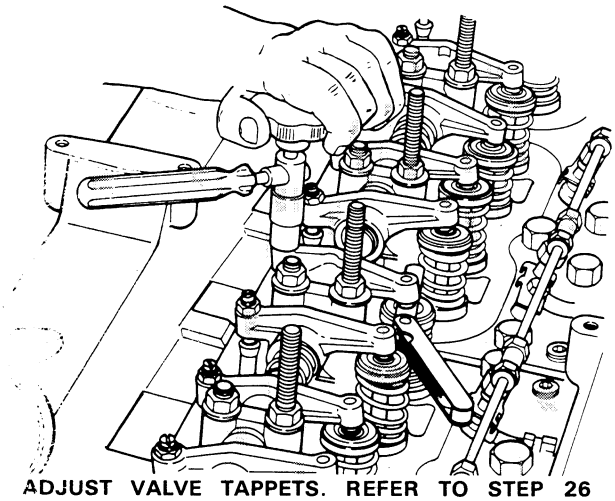
INSTALL ROCKER ARM ASSEMBLY ONTO CYLINDER HEAD.

STEP 16



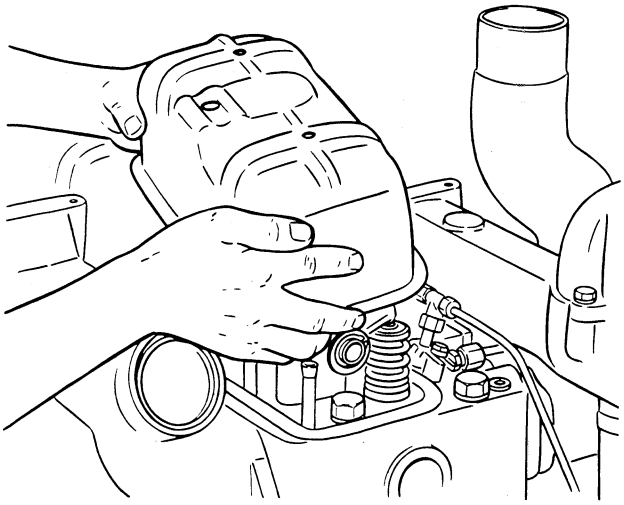
TORQUE ROCKER ARM ASSEMBLY RETAINING NUTS 40 TO 45 FT. LBS.

STEP 17



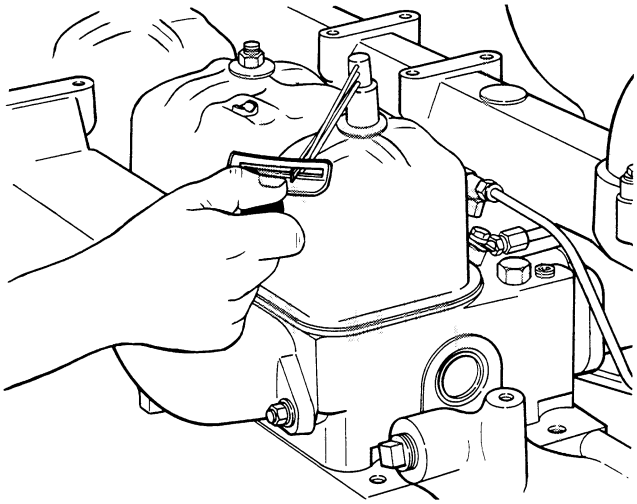
ADJUST VALVE TAPPETS. REFER TO STEP 26 FOR COLD SETTING OR TO STEP 33 FOR HOT SETTING.

STEP 18



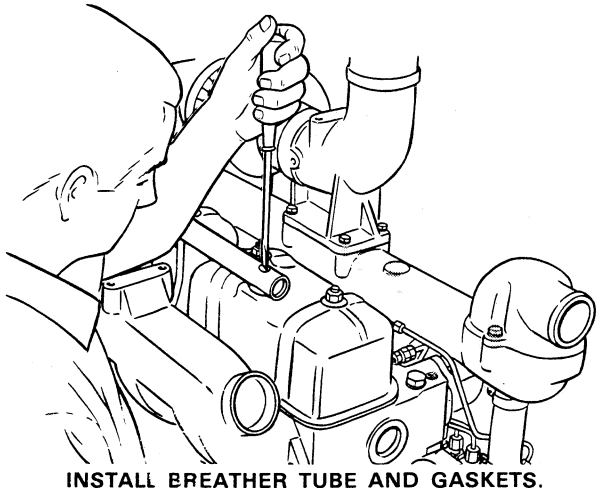
INSTALL VALVE COVERS AND GASKETS.

STEP 19



TORQUE VALVE COVER NUTS 60 TO 70 IN. LBS.

STEP 20

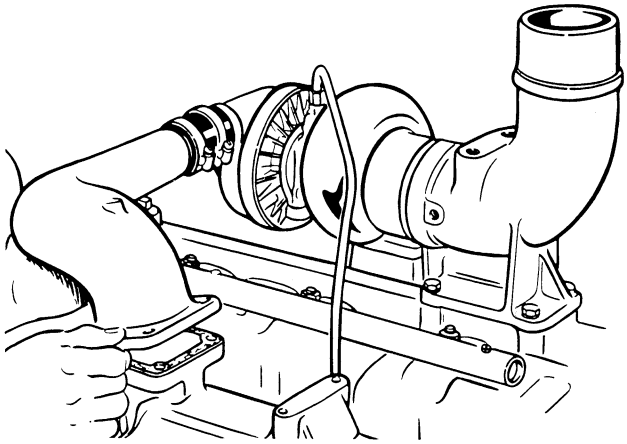


INSTALL BREATHER TUBE AND GASKETS.

Adjusting Tappets

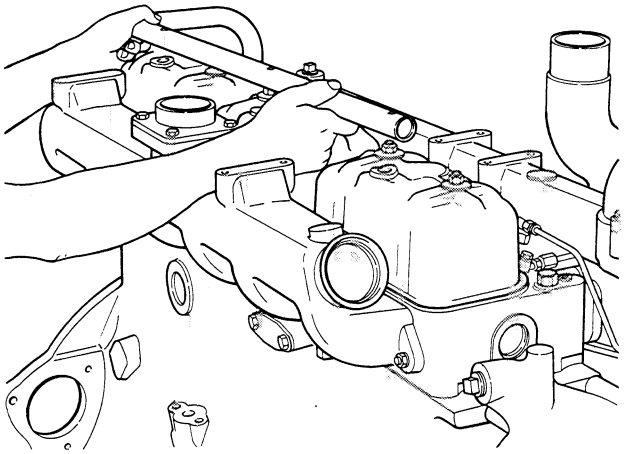
Cold Setting

STEP 21



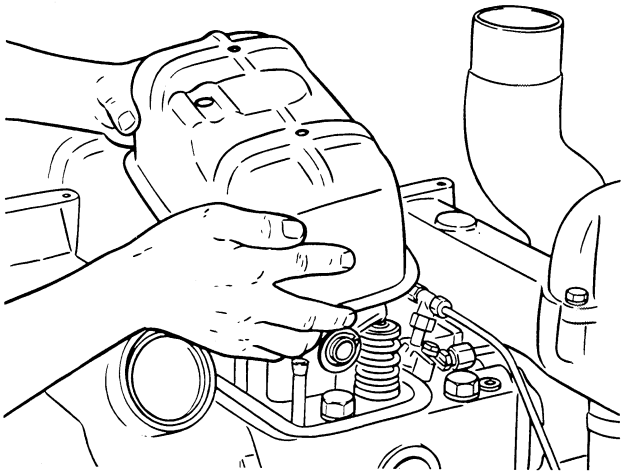
REMOVE TURBOCHARGER INTAKE ELBOW (IF SO EQUIPPED).

STEP 22



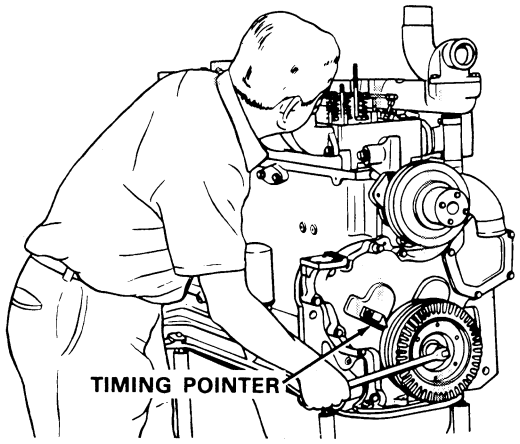
REMOVE BREATHER TUBE.

STEP 23



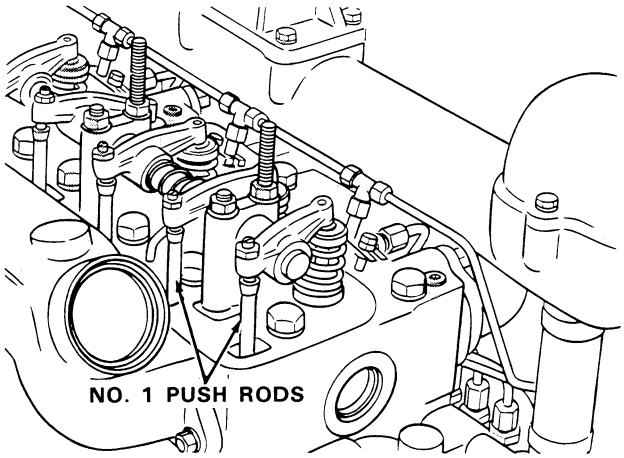
REMOVE VALVE COVERS AND GASKETS FROM ALL CYLINDERS.

STEP 24



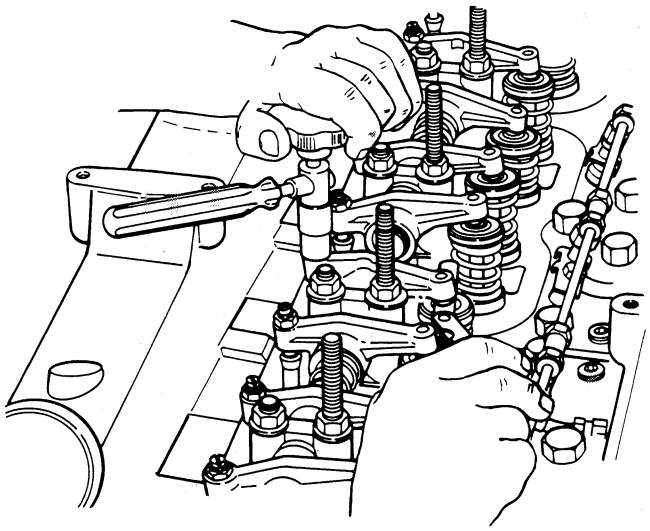
CRANK ENGINE UNTIL TIMING POINTER IS ALIGNED WITH TDC TIMING MARK ON CRANKSHAFT PULLEY.

STEP 25



CHECK PUSH RODS ON NO. 1 CYLINDER FOR LOOSENESS. IF PUSH RODS ARE LOOSE, NO. 1 CYLINDER IS AT TDC ON THE COMPRESSION STROKE. IF PUSH RODS ARE TIGHT, CRANK ENGINE ONE COMPLETE REVOLUTION AND ALIGN TIMING POINTER WITH TDC MARK ON PULLEY.

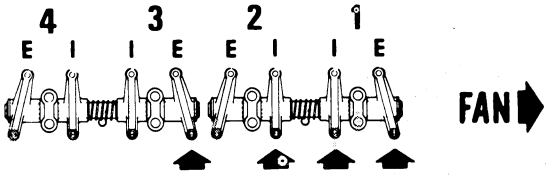
STEP 26



CHECK AND ADJUST THE INTAKE AND EXHAUST VALVES AS POINTED OUT BY THE ARROWS BELOW.

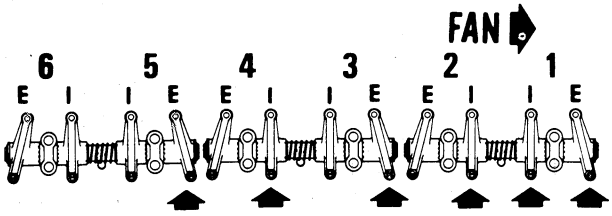
TAPPET CLEARANCE COLD - INTAKE VALVES .015"
EXHAUST VALVES - .025"

FOUR CYLINDER ENGINES



NO. 1 TDC COMPRESSION STROKE

SIX CYLINDER ENGINES



NO. 1 TDC COMPRESSION STROKE

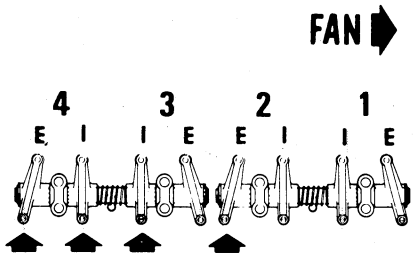
STEP 27

CRANK THE ENGINE ONE COMPLETE REVOLUTION AND ALIGN THE TIMING POINTER WITH THE TDC MARK ON CRANKSHAFT PULLEY.

CHECK AND ADJUST THE INTAKE AND EXHAUST VALVES AS POINTED OUT BY THE ARROWS BELOW.

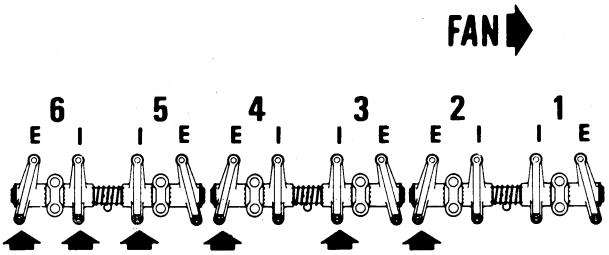
TAPPET CLEARANCE COLD - INTAKE VALVES .015"
EXHAUST VALVES .025"

FOUR CYLINDER ENGINES



NO. 4 TDC COMPRESSION STROKE

SIX CYLINDER ENGINES



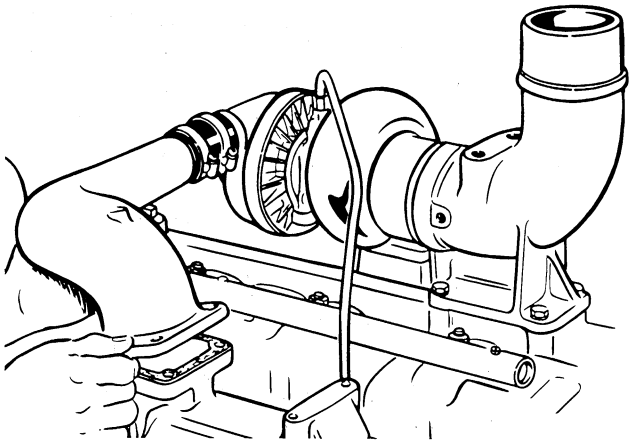
NO. 6 TDC COMPRESSION STROKE

NOTE: AFTER COMPLETING COLD SETTING VALVE TAPPET ADJUSTMENT PROCEED TO STEP 35.

Adjusting Tappets

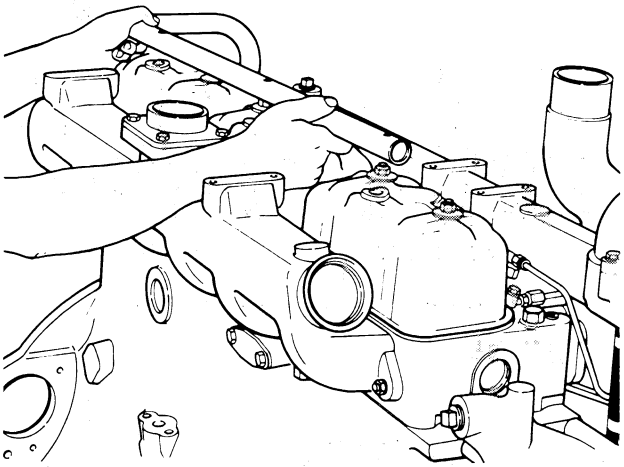
Hot Setting with Engine Stopped

STEP 28



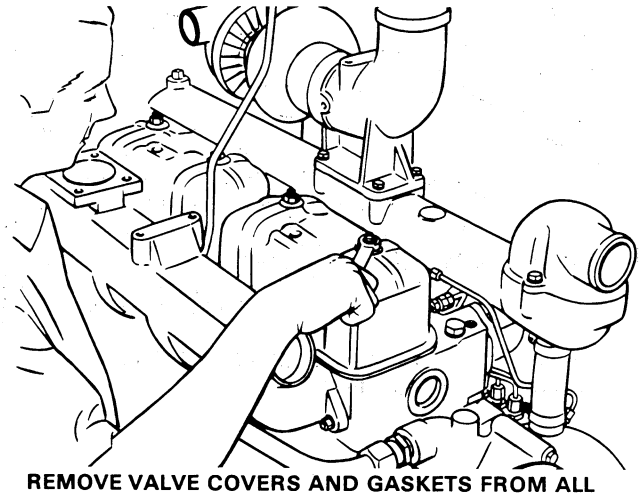
REMOVE TURBOCHARGER INTAKE ELBOW (IF SO EQUIPPED).

STEP 29



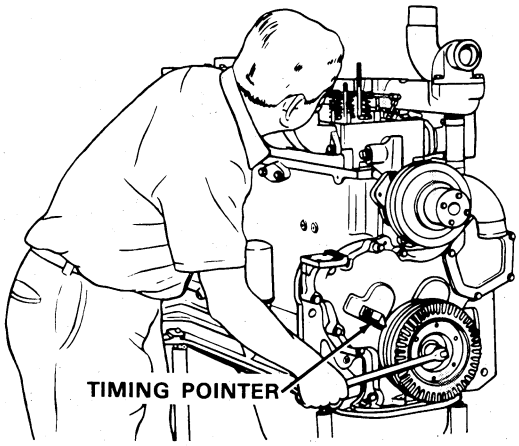
REMOVE BREATHER TUBE

STEP 30



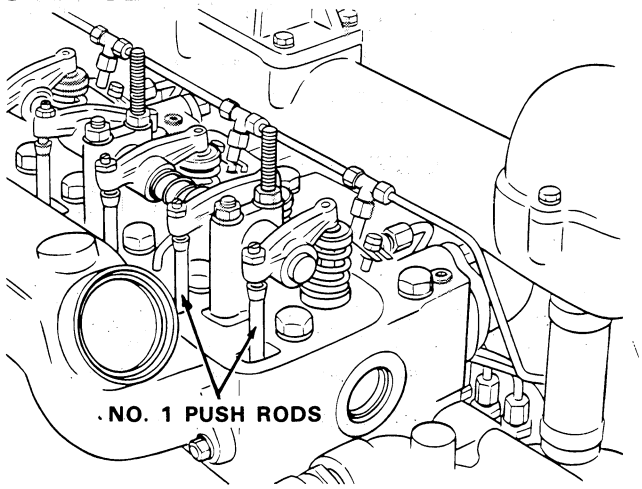
REMOVE VALVE COVERS AND GASKETS FROM ALL CYLINDERS.

STEP 31



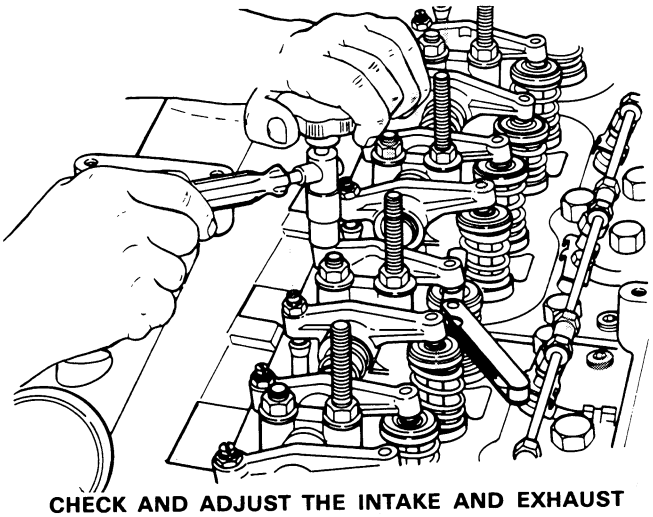
CRANK ENGINE UNTIL TIMING POINTER IS ALIGNED WITH TDC TIMING MARK ON CRANKSHAFT PULLEY.

STEP 32



CHECK PUSH RODS ON NO. 1 CYLINDER FOR LOOSENESS. IF PUSH RODS ARE LOOSE, NO.1 CYLINDER IS AT TDC ON THE COMPRESSION STROKE. IF PUSH RODS ARE TIGHT, CRANK ENGINE ONE COMPLETE REVOLUTION AND ALIGN TIMING POINTER WITH TDC MARK ON PULLEY.

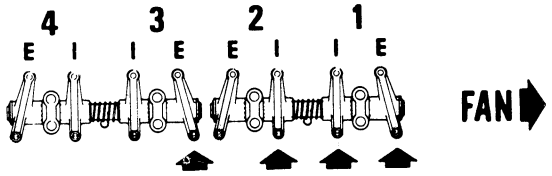
STEP 33



CHECK AND ADJUST THE INTAKE AND EXHAUST VALVES AS POINTED OUT BY THE ARROWS BELOW.

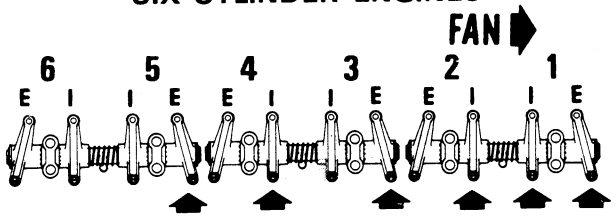
TAPPET CLEARANCE HOT - INTAKE VALVES .015"
EXHAUST VALVES .020"

FOUR CYLINDER ENGINES



NO. 1 TDC COMPRESSION STROKE

SIX CYLINDER ENGINES



NO. 1 TDC COMPRESSION STROKE

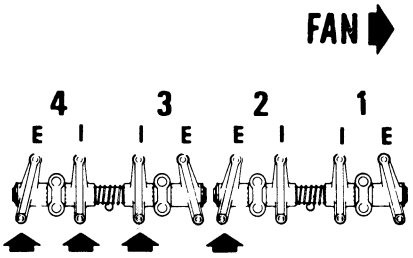
STEP 34

CRANK THE ENGINE ONE COMPLETE REVOLUTION AND ALIGN THE TIMING POINTER WITH THE TDC MARK ON CRANKSHAFT PULLEY.

CHECK AND ADJUST THE INTAKE AND EXHAUST VALVES AS POINTED OUT BY THE ARROWS BELOW.

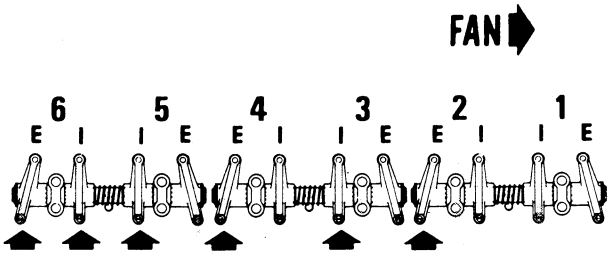
TAPPET CLEARANCE HOT - INTAKE VALVES .015"
EXHAUST VALVES .020"

FOUR CYLINDER ENGINES



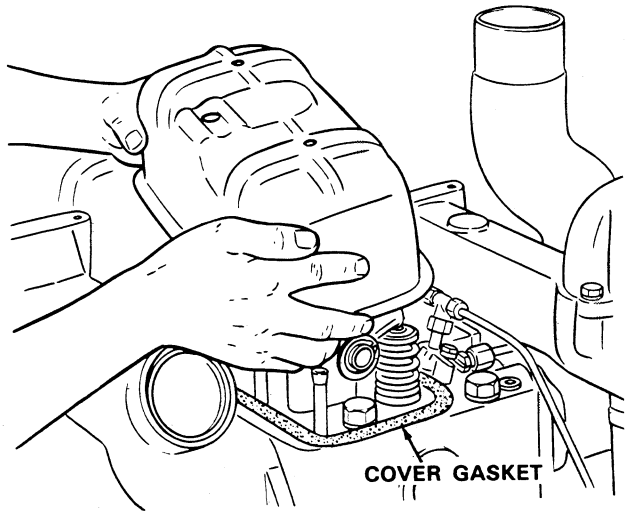
NO. 4 TDC COMPRESSION STROKE

SIX CYLINDER ENGINES



NO. 6 TDC COMPRESSION STROKE

STEP 35



AFTER TAPPET ADJUSTMENT, INSTALL VALVE COVERS AND GASKETS.

Suggest:

If the above button click is invalid.

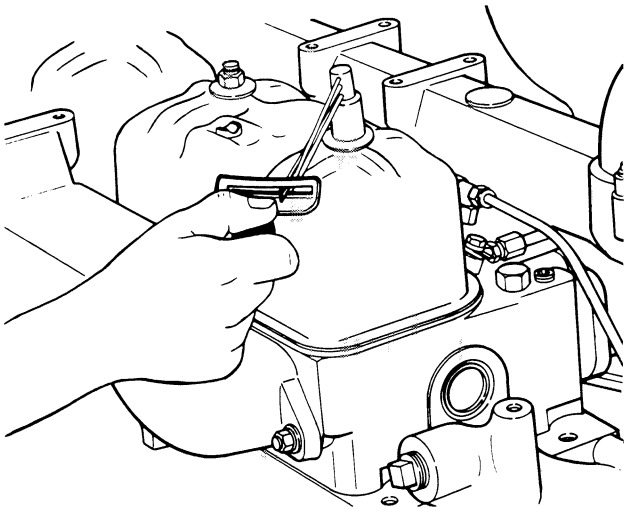
Please download this document

first, and then click the above link

to download the complete manual.

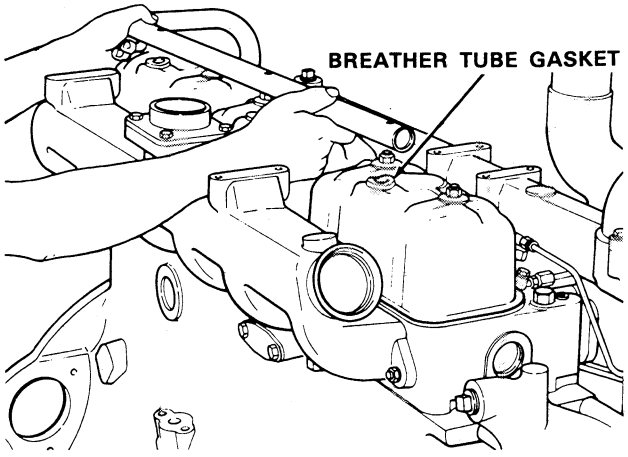
Thank you so much for reading

STEP 36



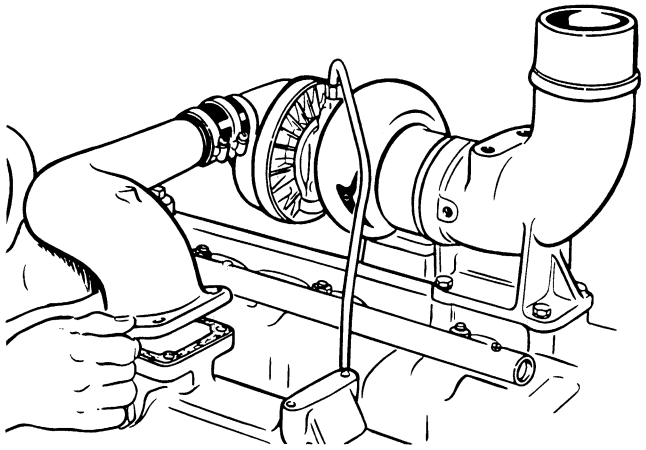
TORQUE VALVE COVER NUTS 60 TO 70 IN. LBS.

STEP 37



INSTALL BREATHER TUBE AND GASKETS.

STEP 38



INSTALL TURBOCHARGER INTAKE ELBOW