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4890 TRACTORS

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Section 1210

GENERAL SPECIFICATIONS

4890 Tractors

Written In <i>Clear And Simple English</i>
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<https://www.ebooklibonline.com>

Hello dear friend!

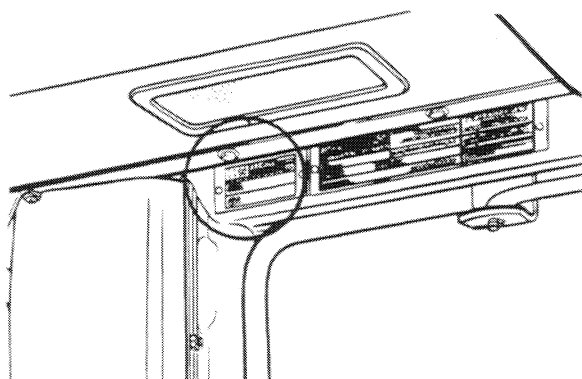
Thank you very much for reading.

Enter the link into your browser.

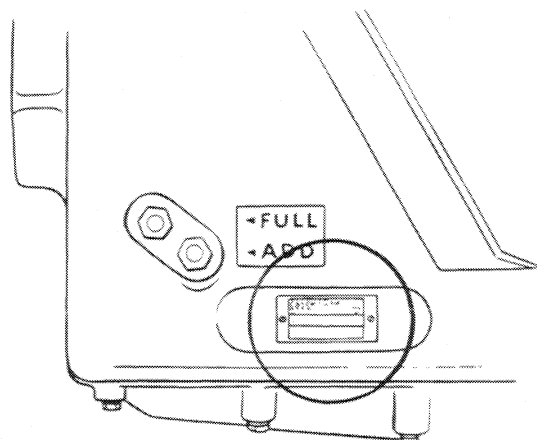
The full manual is available for immediate download.

<https://www.ebooklibonline.com>

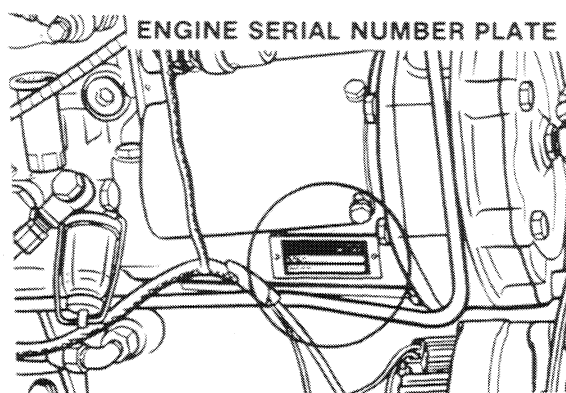
SERIAL NUMBERS



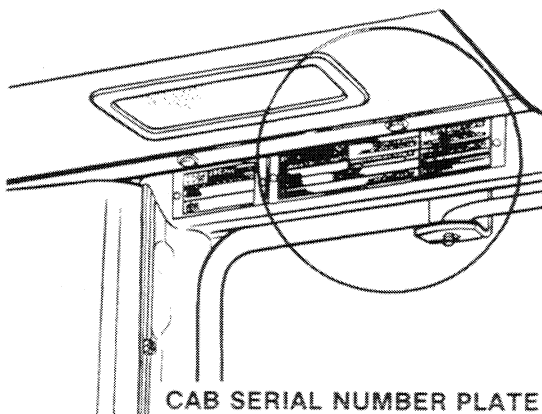
MODEL AND PRODUCT IDENTIFICATION
NUMBER PLATE



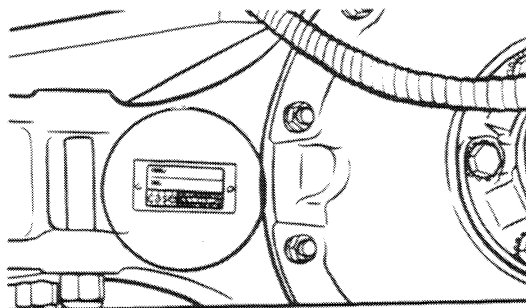
TRANSMISSION SERIAL NUMBER PLATE



ENGINE SERIAL NUMBER PLATE



CAB SERIAL NUMBER PLATE



AXLE SERIAL NUMBER
PLATE (Front and Rear)

HAND SIGNALS

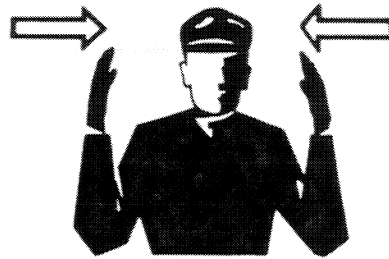
For communication under noise conditions and special operations the American Society of Agricultural Engineers has made standard agricultural hand signals. You will find that the hand signals can decrease time loss and prevent accidents.

Start the Engine



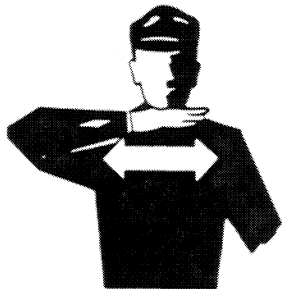
Start the engine. Move arm in a circle at belt level.

This Far To Go



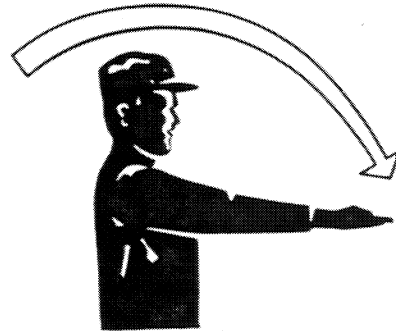
This far to go. Put your hands in front of your face with the back of your hands outward. Move your hands in or out as an indication how far to go.

Stop the Engine



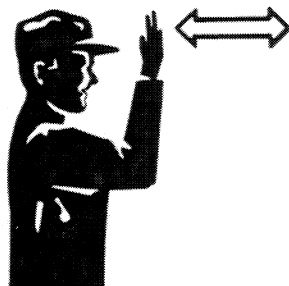
Stop the engine. Move your right arm across your neck from left to right.

Move Out



Move out. Face in the needed direction of movement. Put your arm straight out behind you. Then, swing your arm over your head and forward until your arm is straight out in front of you with the back of your hand up.

Move Toward Me - Follow Me



Move toward me or follow me. Look toward person or vehicle you need to move. Hold one hand in front of you with the back of the hand toward the vehicle and move your arm from the elbow to the fingers backward and forward.

Section

2202

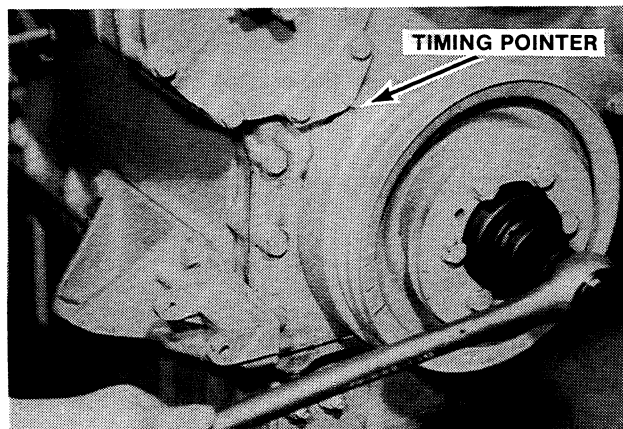
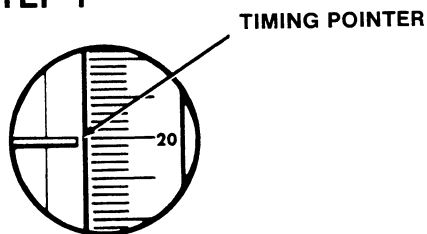
ENGINE TUNE-UP

Written In *Clear
And
Simple
English*

ENGINE TUNE-UP PROCEDURE

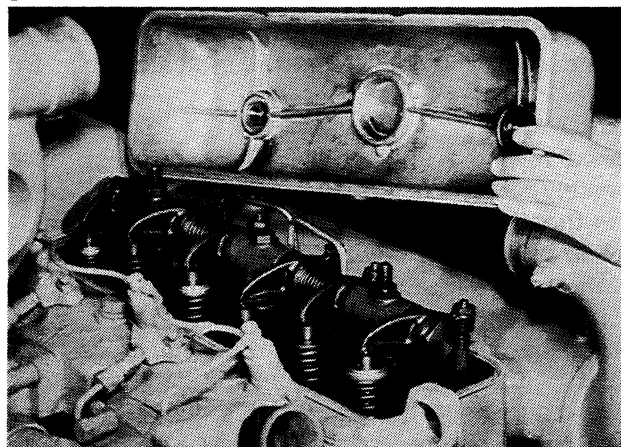
Checking Top Center

STEP 1



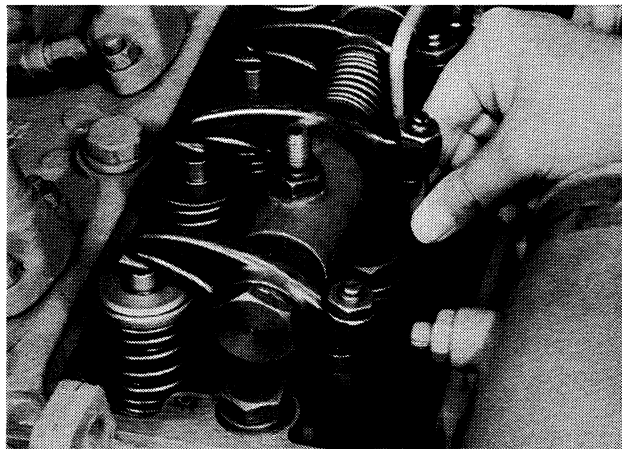
Turn the engine over until the 20° before TC mark on the crankshaft pulley is aligned with the timing pointer

STEP 2



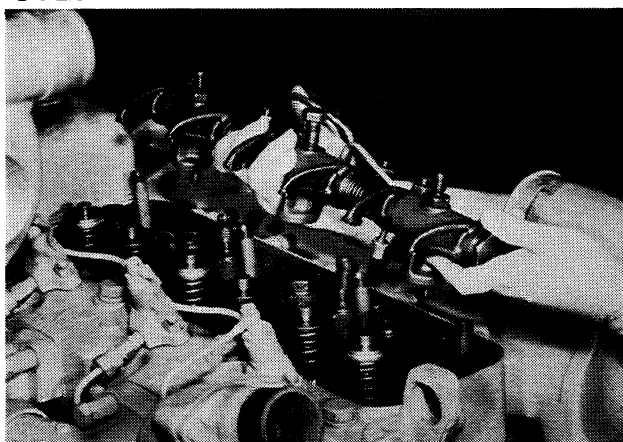
Remove the tube between the turbocharger and the intake manifold. Remove the valve cover from the front cylinder head.

STEP 3



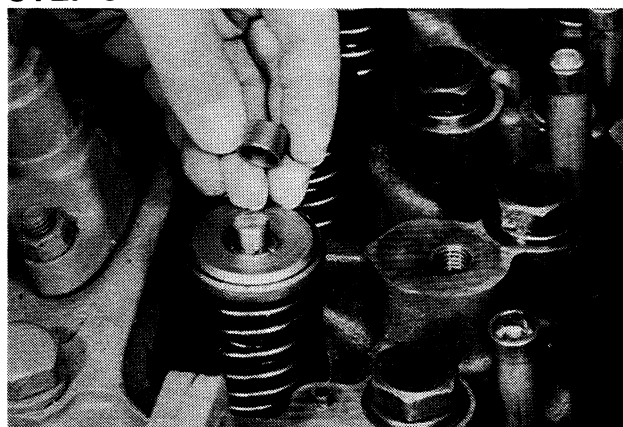
Check the push rods on the No. 1 cylinder for looseness. If the push rods are tight, turn the engine over one revolution.

STEP 4



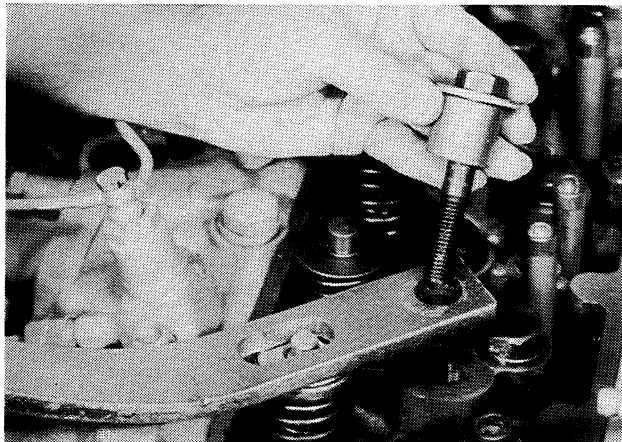
Remove the rocker arm assembly.

STEP 5



Remove the wear cap from the intake valve on the No. 1 cylinder.

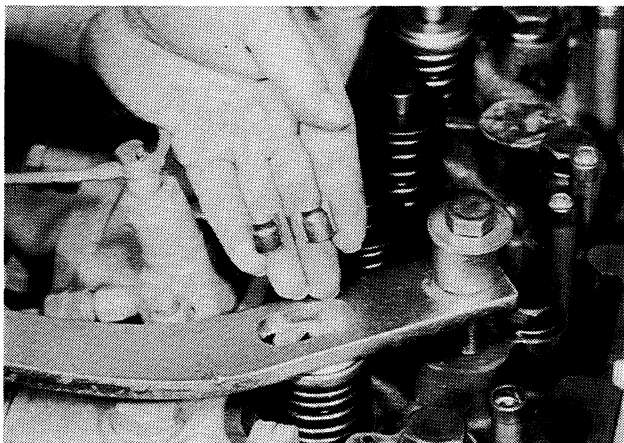
STEP 6



Install the compression tool and bushing, see Page 4

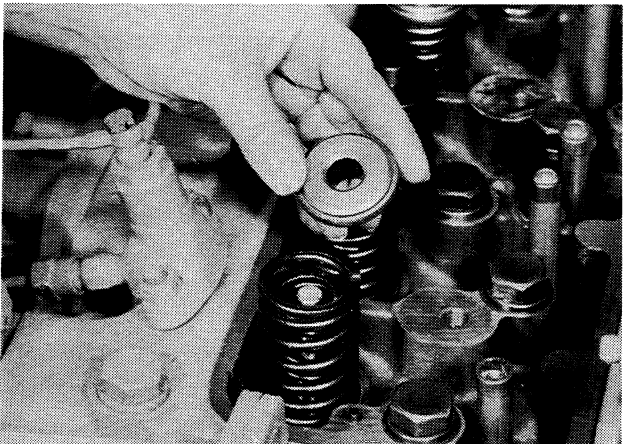
NOTE: Use the mounting bolt for the center rocker arm to fasten the compression tool

STEP 7



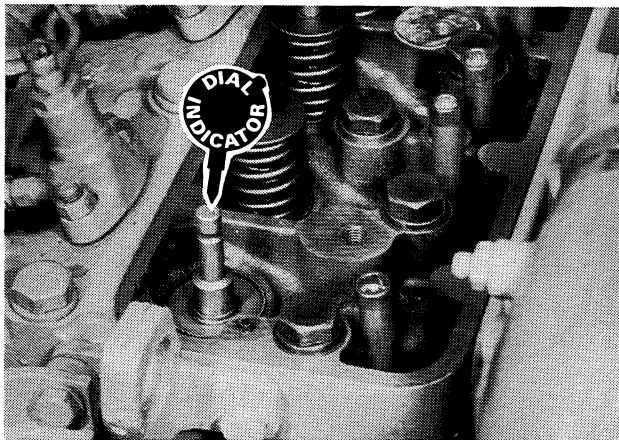
Compress the valve springs and remove the valve keepers. Remove the compression tool.

STEP 8



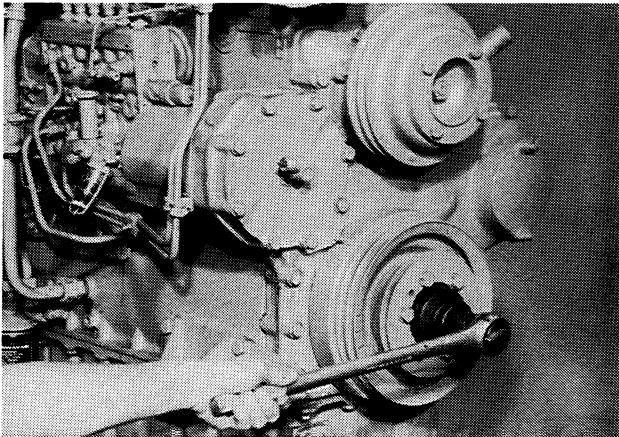
Remove the valve rotor and springs.

STEP 9



Put a dial indicator on the end of the valve stem.

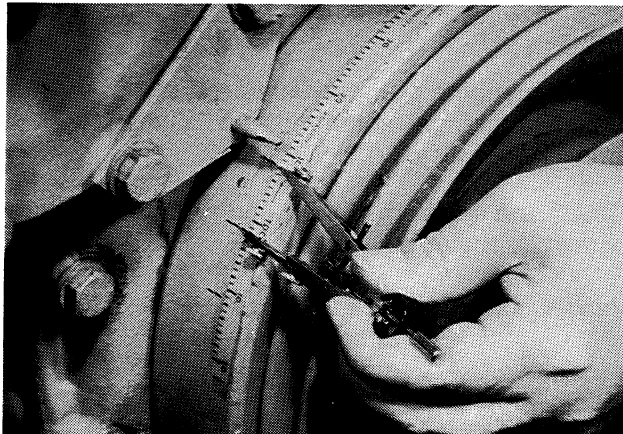
STEP 10



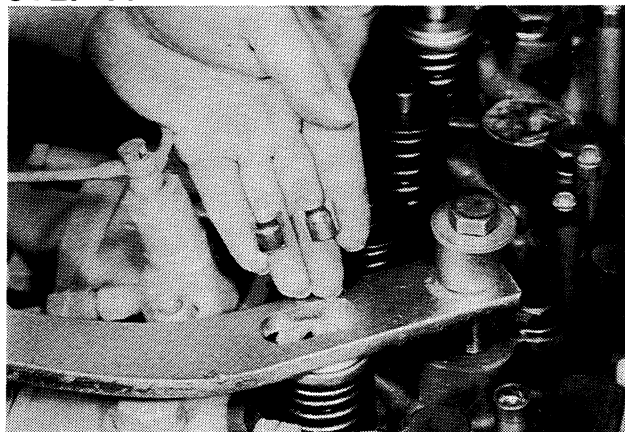
Turn the engine clockwise until the dial indicator hand stops moving. Reset the indicator hand to zero.

Next turn the engine over clockwise, approximately 5 degrees, until 0.010" (0.254 mm) shows on the dial indicator. Make a mark on the crankshaft pulley in line with the timing pointer.

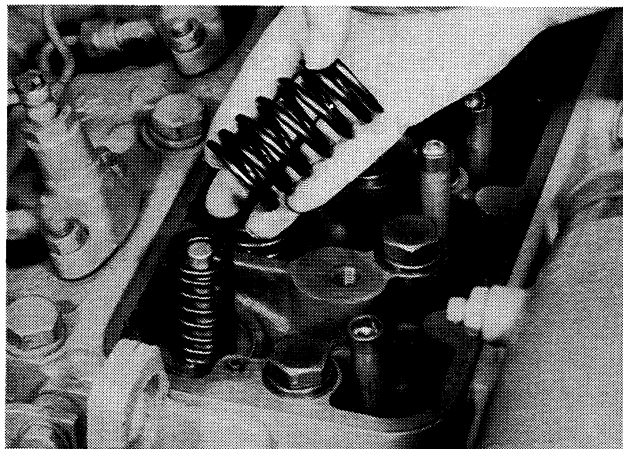
Then, turn the engine over counterclockwise, past the zero mark on the dial indicator, until 0.010" (0.254 mm) shows on the dial indicator. Make a mark on the crankshaft pulley in line with the timing pointer.

STEP 11

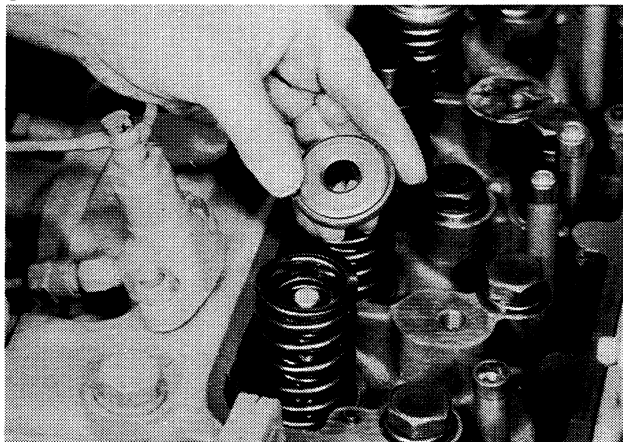
Half the distance between the two marks on the crankshaft pulley will be the Top Center (TC) mark. If the TC mark is not the same as the mark on the timing tape, remove the timing tape. Install the timing tape in line with the TC mark on the crankshaft pulley.

STEP 14

Compress the valve springs, see Step 6 and install the valve keepers (narrow end down) in the groove on the valve stem. Then, remove the compression tool and lightly hit the end of the valve stem to seat the keepers.

STEP 12

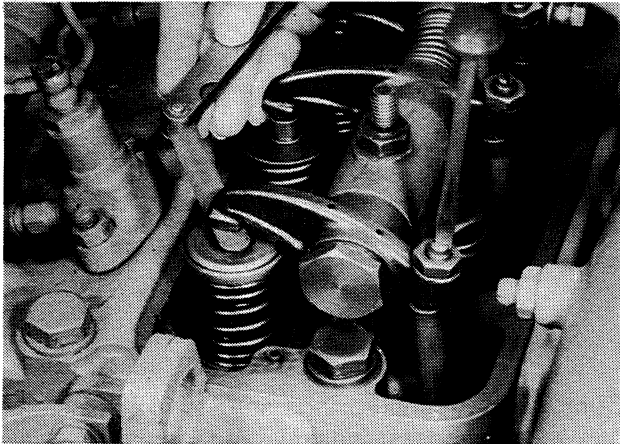
With the close coil end of the springs down, install the inner and outer valve springs.

STEP 13

Put the valve rotator on top of the springs.

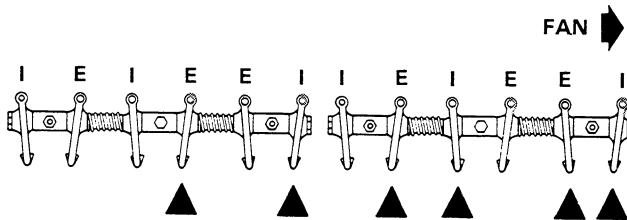
Adjusting Rocker Arm To Valve Clearance

STEP 15



Check and adjust the intake and exhaust valves as shown by the arrows below

Valve Clearance - Intake Valves 0.014" (0.35 mm)
Exhaust Valves 0.031" (0.80 mm)



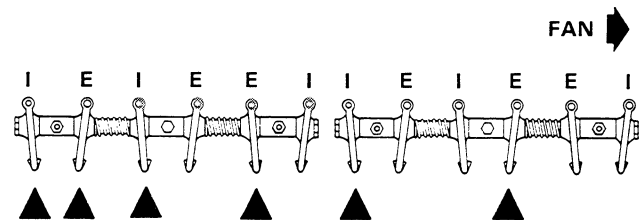
NUMBER ONE CYLINDER TOP CENTER
COMPRESSION STROKE

STEP 16

Turn the engine over one complete revolution and align the timing pointer with the TC mark on the crankshaft pulley

Check and adjust the intake and exhaust valves as shown by the arrows below

Valve Clearance - Intake Valves 0.014" (0.35 mm)
Exhaust Valves 0.031" (0.80 mm)

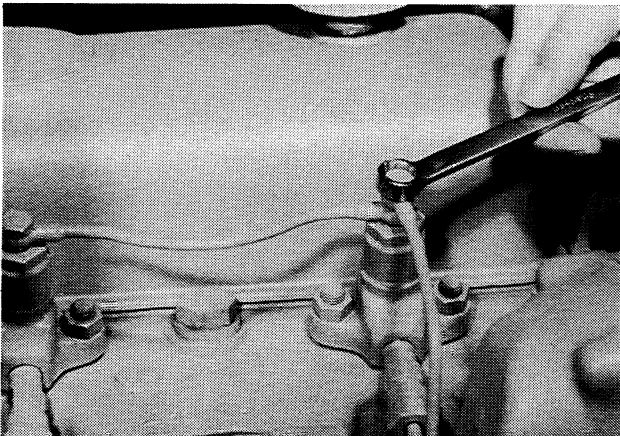


NUMBER SIX CYLINDER TOP CENTER
COMPRESSION STROKE

IMPORTANT: Valve clearance adjustments must be made when the engine is not running and the engine has to cool down a minimum of 1/2 hour after shutoff

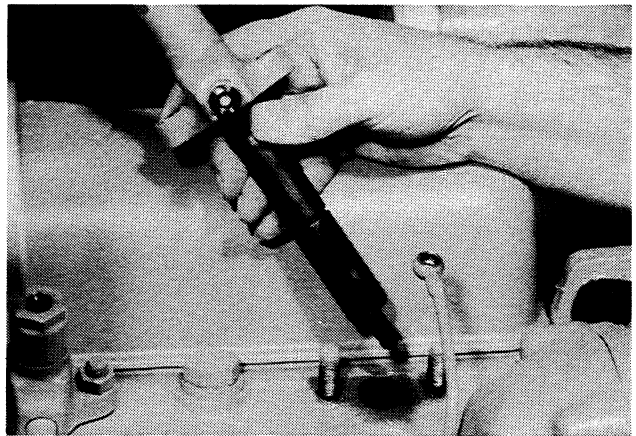
Checking Fuel Injector Nozzles

STEP 17



Remove the fuel supply and return lines to the injectors

STEP 18



Remove and test each fuel injector. See Section 3213 in this Service Manual for testing

NOTE: Make a compression test on each cylinder before installing the injectors.

Checking Engine Compression

STEP 19

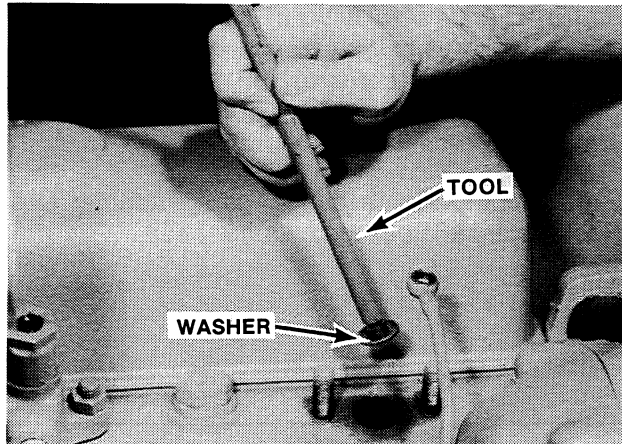
There are two methods of checking the compression pressure. The two methods are the crank method and the engine running method. The engine must be at operating temperature for either method used.

- 1 CRANK METHOD - Remove all of the fuel injectors
- 2 RUNNING METHOD - Disconnect the high pressure fuel line and leak off line from the Number One injector. Send the fuel from the lines back to the fuel tank or into a clean container. Repeat for each cylinder.



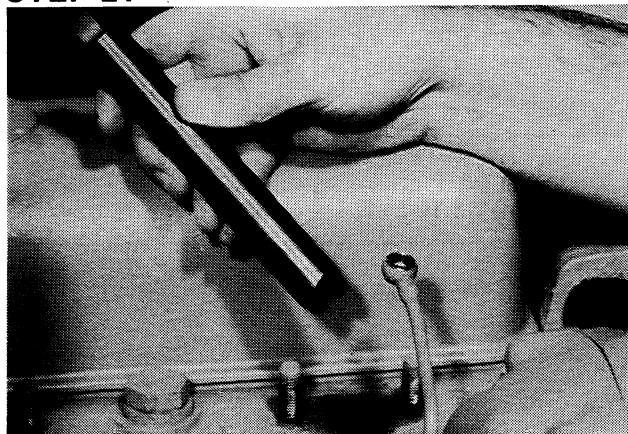
CAUTION Before cranking engine, make sure all operating controls are in neutral, brakes are set and wheels are securely blocked.

STEP 20



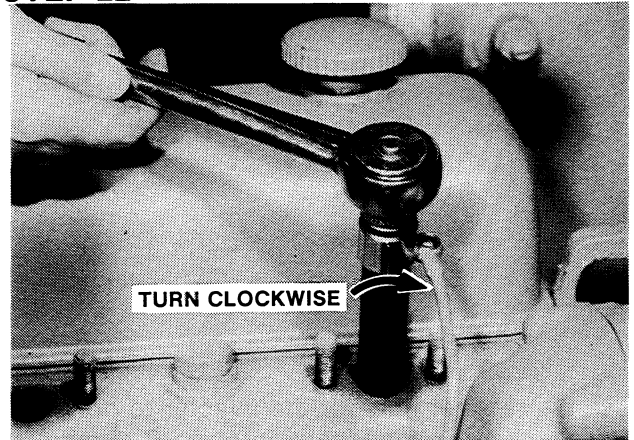
Remove the injector washer from the engine bore. See Page 4 for washer removal tool specifications.

STEP 21



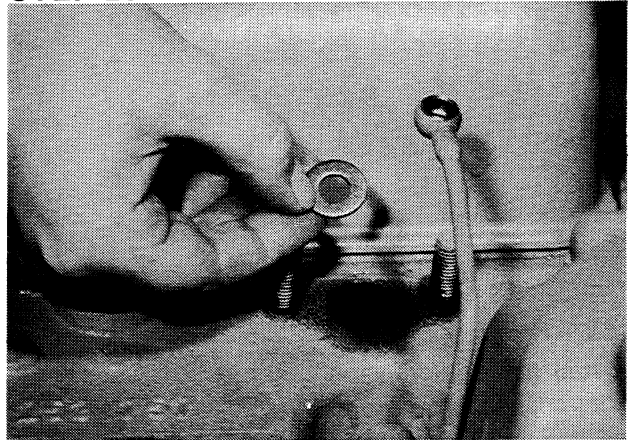
Using bore cleaning tool CAS-10003, clean the injector bores in the cylinder head.

STEP 22



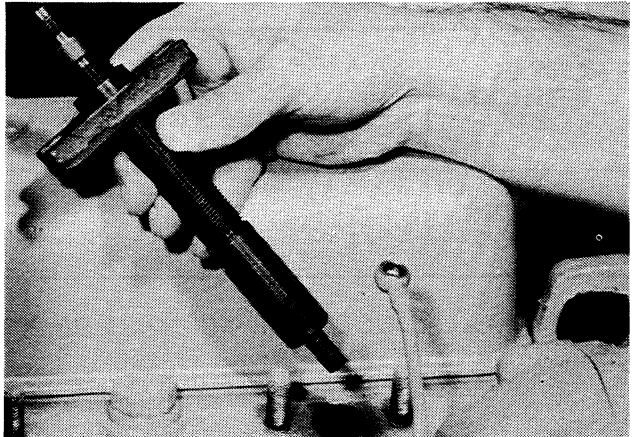
Always turn the tool clockwise. Turning the tool counterclockwise will damage the tool. After using the tool, clean the injector bores with compressed air.

STEP 23

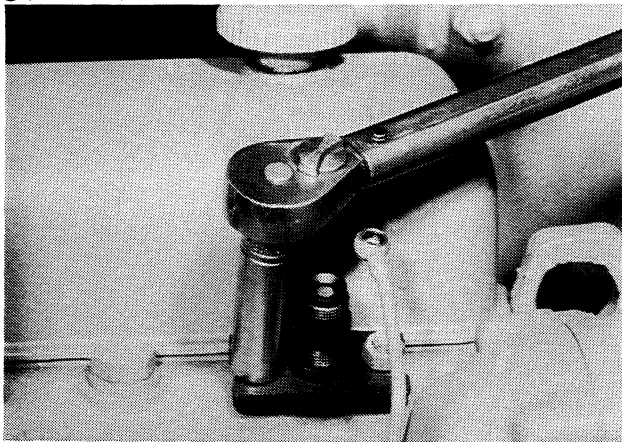


Install a new injector washer in the cylinder head bore.

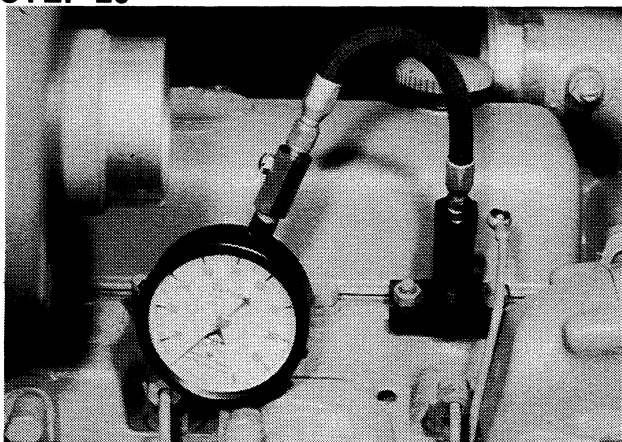
STEP 24



Install compression gauge adapter (70-0301) in the cylinder head bore.

STEP 25

Use the retainer nuts for the injector to hold the compression gauge adapter in place. Tighten the retainer nuts to 7 ft lbs (9 Nm)

STEP 26

Install the compression gauge (70-0003) on the adapter

STEP 27

NOTE: Take several compression readings on each cylinder using the button on the compression gauge to decrease gauge pressure. See the chart below for correct compression pressure.

When checking the compression, using the crank method, start at the Number One cylinder and continue down the line (Number 2,3, 4, etc) Then, check again the Number One cylinder after finishing the last cylinder, since compression can change because of a weak battery

It is very important that all cylinder pressures be approximately the same. See the chart for permitted compression pressure differences

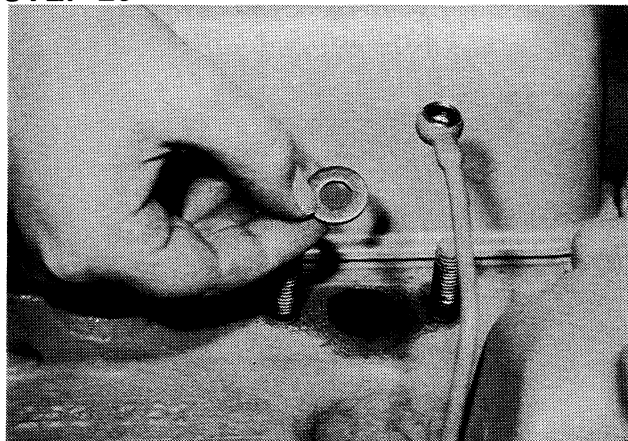
More than normal compression is an indication of carbon deposits. Below normal compression is an indication of a valve that leaks or too much ring clearance

NOTE: To make an easy test when the compression is below normal on one or more cylinders, put about 1/4 ounce of oil in the cylinder and check the compression again. If the pressure goes up to near normal, then the compression loss is past the rings. Very little change in compression is an indication of leakage past the valves

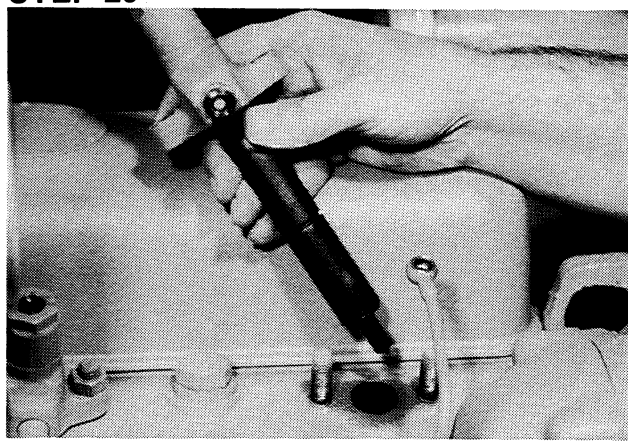
Remove compression gauge, gauge adapter and injector washer from the cylinder head

	ENGINE SPEED	NORMAL COMPRESSION PRESSURE	PERMITTED CHANGE BETWEEN CYLINDERS
CRANK METHOD	APPROXIMATELY 200 RPM UNTIL COMPRESSION GAUGE BECOMES CONSTANT	400 PSI* (2758 kPa)(27.58 bar)	25 PSI (172 kPa)(1.72 bar)
RUNNING METHOD	800 RPM	480 PSI* (3310 kPa)(33.10 bar)	20 PSI (138 kPa)(1.38 bar)

***NOTE:** A 4% REDUCTION IN PSI MUST BE PERMITTED FOR EVERY 1000 FT (305 mm) ABOVE SEA LEVEL.

STEP 28

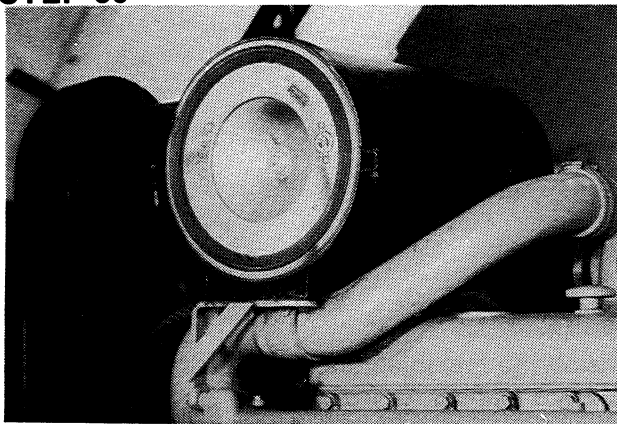
Install a new injector washer in the cylinder head bore

STEP 29

Install the fuel injectors See Section 3213 in this Service Manual for installation

Cleaning And Servicing The Air Intake System

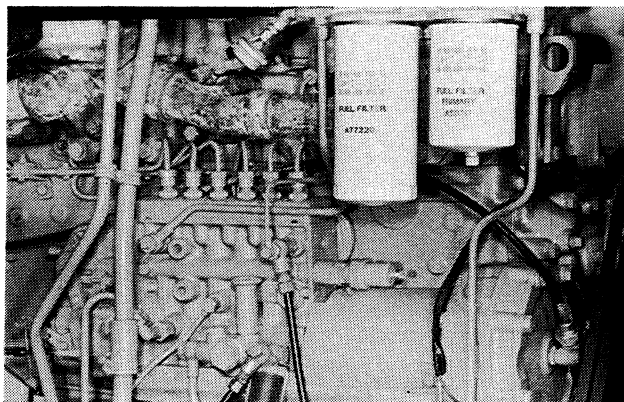
STEP 30



See Section 2275 in this Service Manual for cleaning and servicing the air intake system

Servicing The Fuel Filters

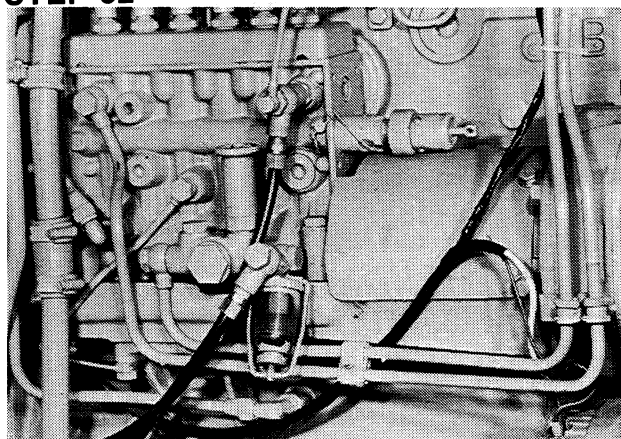
STEP 31



See Section 3210 in this Service Manual for servicing the fuel filters

Timing The Fuel Injection Pump

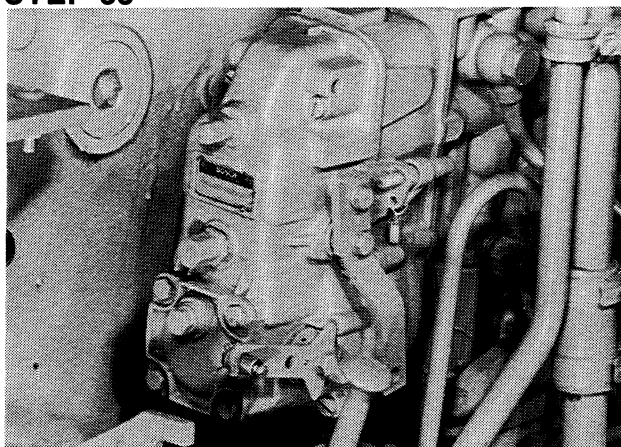
STEP 32



See Section 3212 in this Service Manual for checking and adjusting the timing of the fuel pump

Checking Fuel Injection Pump Governed Speed

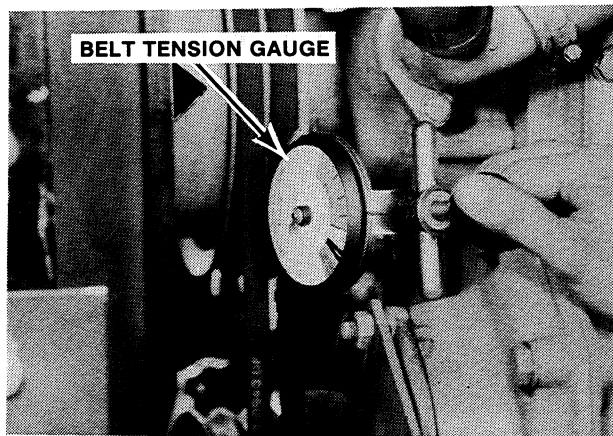
STEP 33



See Section 3212 in this Service Manual for checking and adjusting the governed speed of the fuel injection pump

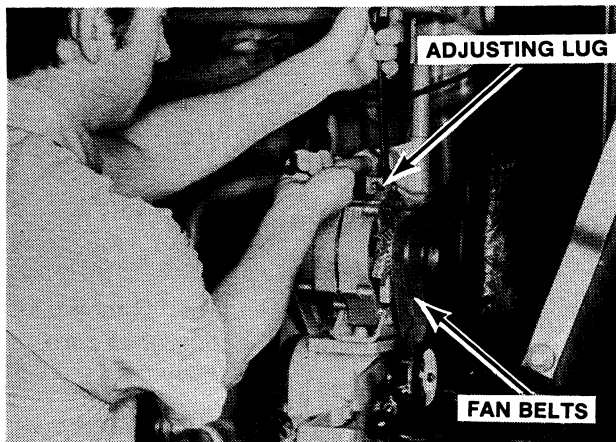
Adjusting Fan And Compressor Belts

STEP 34



Measure the fan belts for the correct tension. Use a belt tension gauge. Belt tension must be 60 lbs (267 N) per belt. **DO NOT** go over a total tension of 140 lbs (628 N) on the belts.

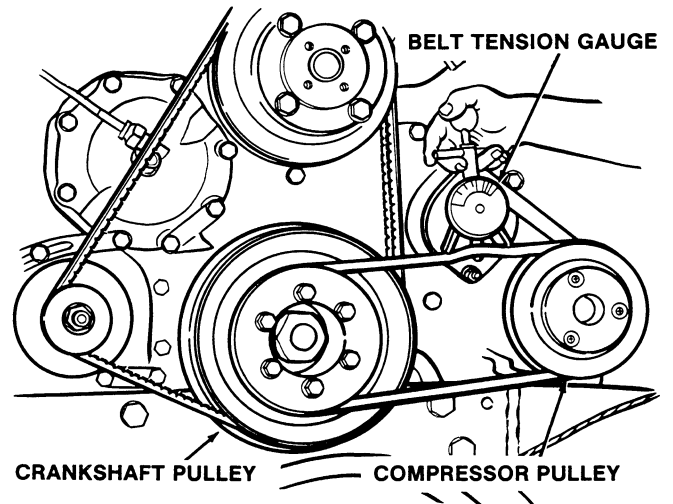
STEP 35



To adjust the belts, loosen the alternator adjusting and mounting bolts. Use a 3/4 inch open end wrench (or 19 mm) on the upper adjusting lug on the alternator. Pull the alternator outward until the correct tension is reached, then, tighten the bolts.

NOTE: See Section 2255 in this Service Manual for installing and adjusting new fan belts.

STEP 36



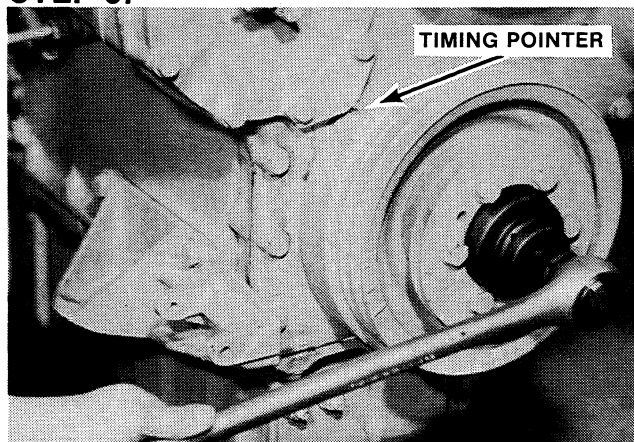
Measure the compressor belt for the correct tension. Use a belt tension gauge. Belt tension must be 80 lbs (355 N).

NOTE: See Section 9235 in this Service Manual for tension and alignment adjustments.

Checking Valve Timing

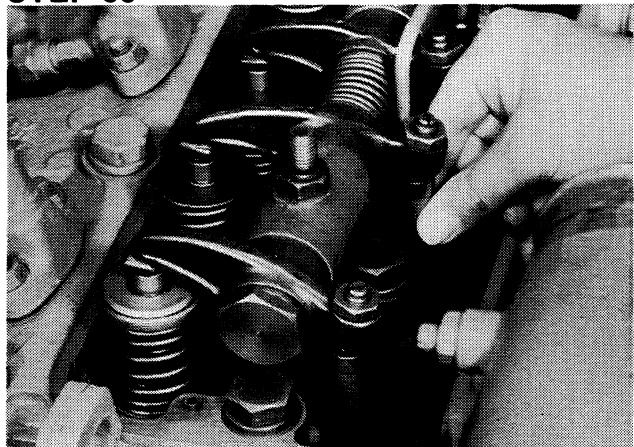
NOTE: This procedure can also be used to check for the correct assembly of the camshaft to the crankshaft gear teeth without removing the front timing gear cover

STEP 37



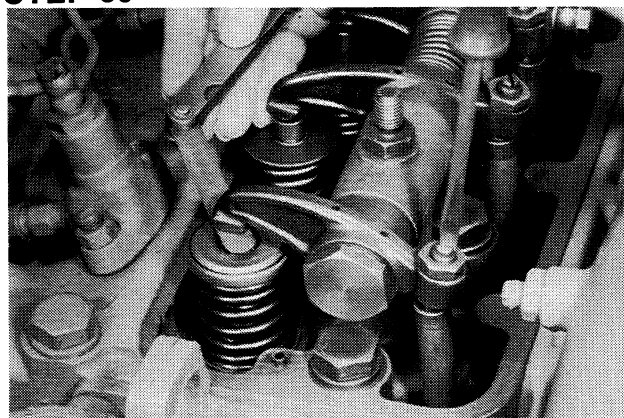
Turn the engine over until the timing pointer is aligned with the TC mark on the crankshaft pulley

STEP 38



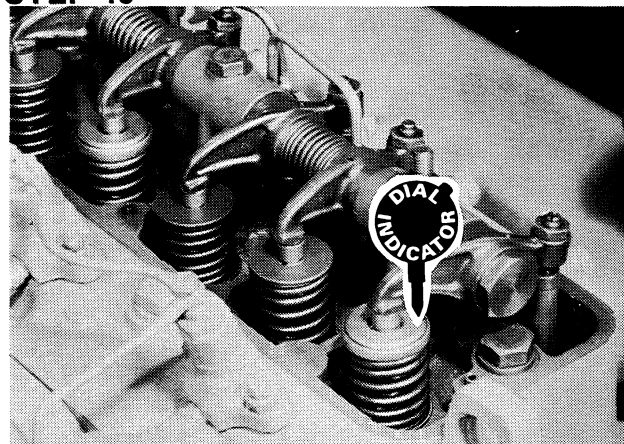
Check the Number One intake and exhaust valve push rods, the push rods must be loose. If the push rods are tight, turn the engine over one complete revolution

STEP 39



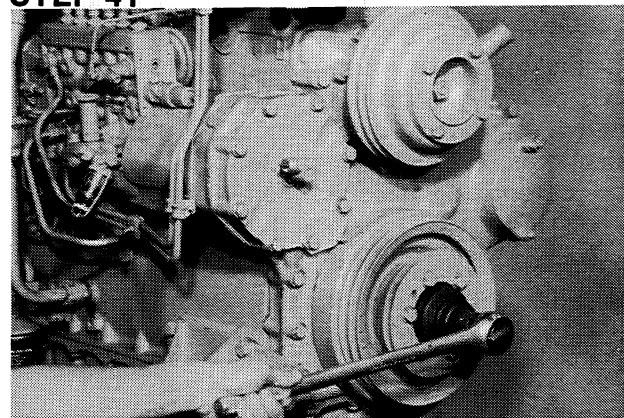
Make sure the valve tappet clearance on the intake valve is correct, 0.014" (0.35 mm)

STEP 40



Put a dial indicator on the Number One intake valve retainer and set the dial indicator at zero

STEP 41



Turn the engine over clockwise one complete revolution. The dial indicator must show a reading of 2.1 to 3.1 mm for the correct valve timing. If the 2.1 to 3.1 mm reading is not reached, the complete valve train assembly must be checked.

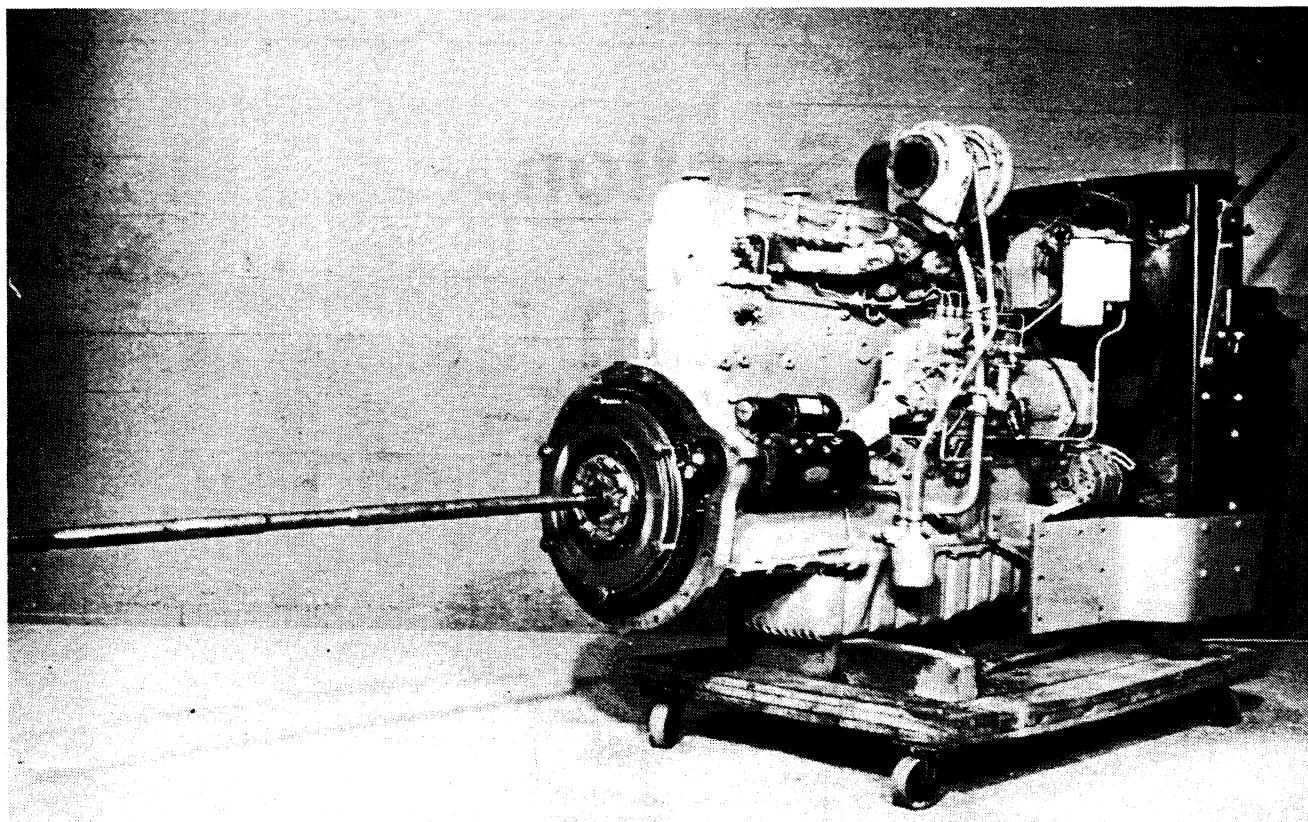
Section

2210

ENGINE REMOVAL

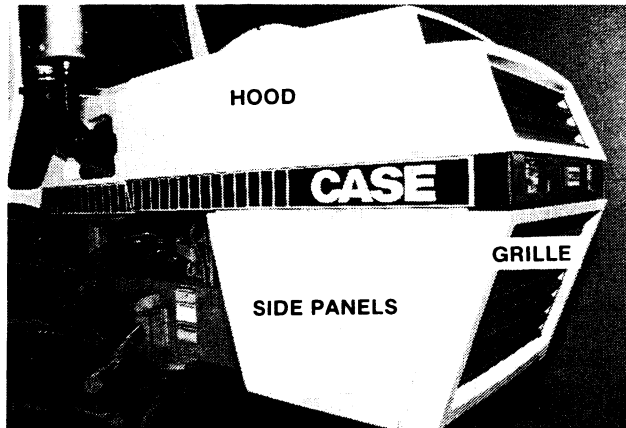
Written In *Clear
And
Simple
English*

ENGINE REMOVAL

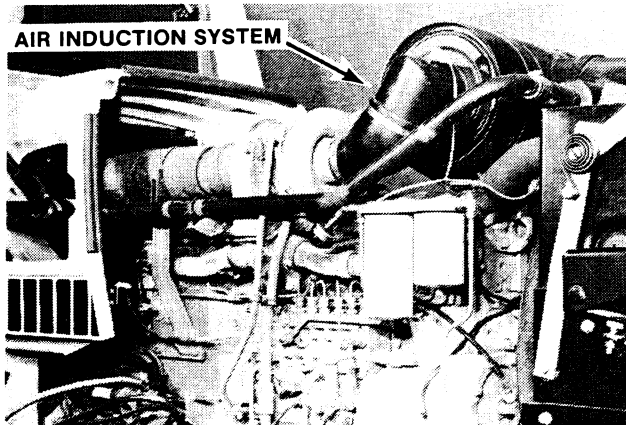


The instructions in this section are for the removal of the engine with the radiator and front casting as one complete assembly as shown. The engine is removed from the tractor at the torque tube. Removal of the engine at the torque tube will permit servicing the following items:

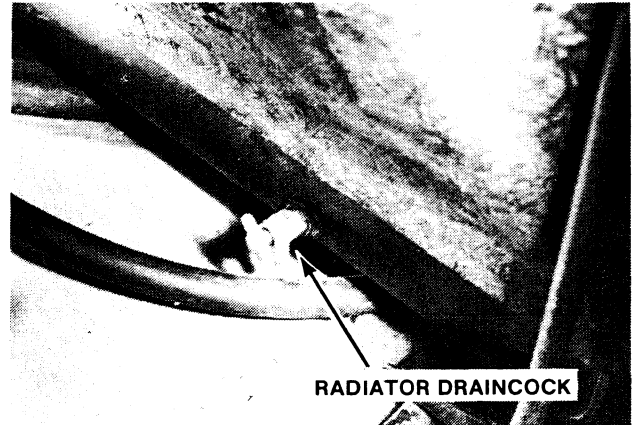
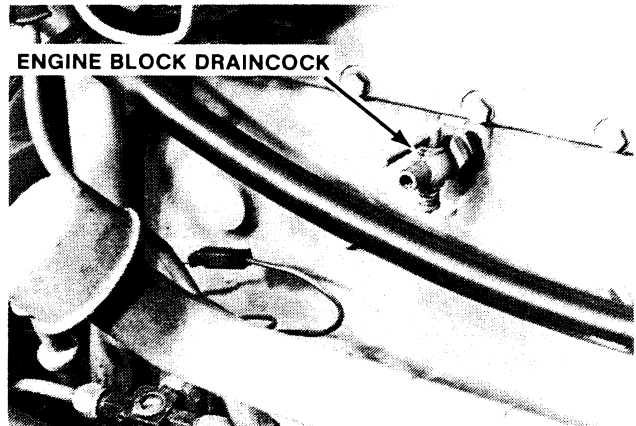
- Torque Limiter
- Engine Flywheel
- PTO Drive Shaft
- Power Shift
- Engine Crankshaft
- Engine Rear Oil Seal
- Engine Camshaft Rear Bushing
- Transmission Intermediate Shaft Front Bearing

STEP 1

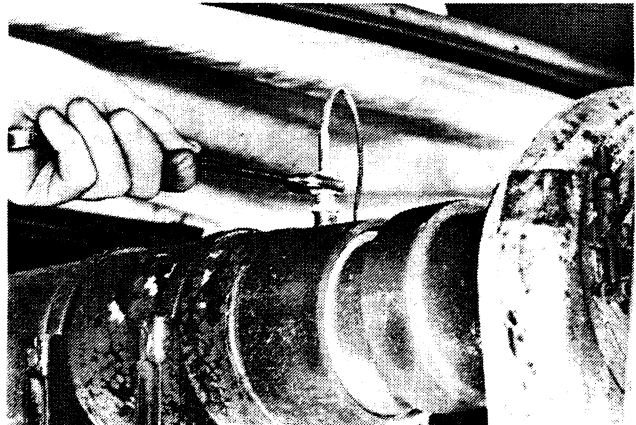
Remove the hood, side panels and grille from the tractor. See Section 9260 for instructions.

STEP 2

Remove the air induction system from the engine. See Section 2275 for instructions.

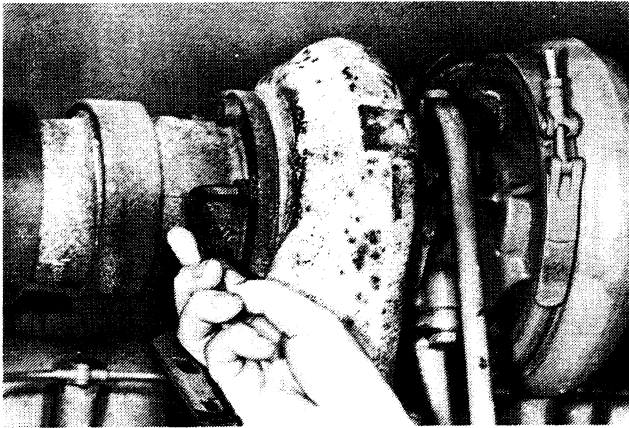
STEP 3**RADIATOR DRAINCOCK****ENGINE BLOCK DRAINCOCK**

Drain the coolant from the radiator and engine block.

STEP 4

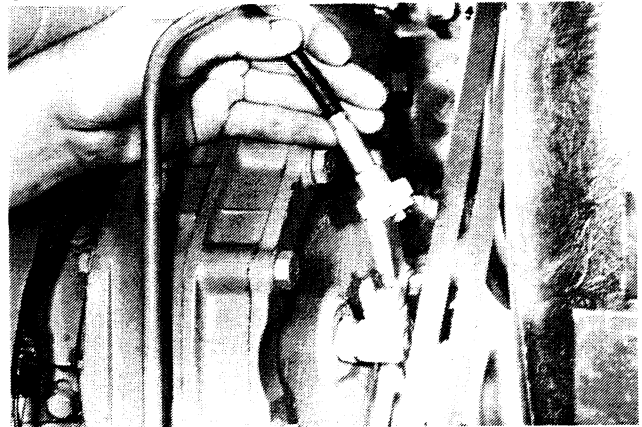
Remove the pyrometer sensing unit.

STEP 5



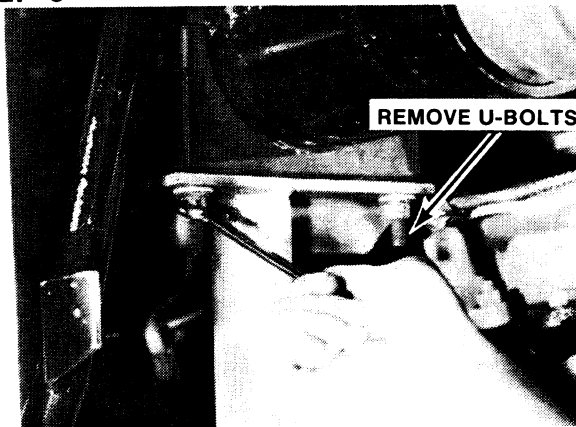
Remove the turbocharger exhaust coupling bolts.

STEP 8



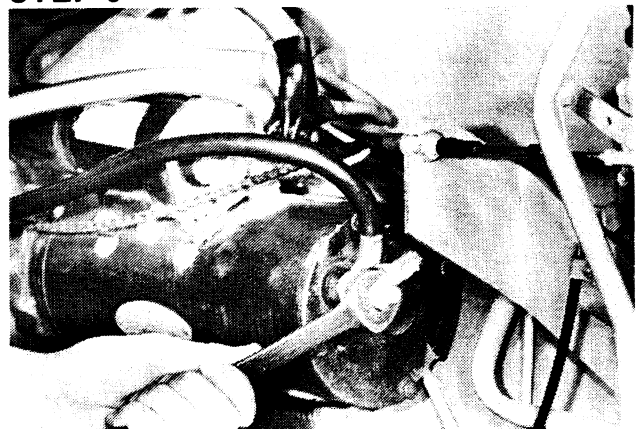
Disconnect the tachometer cable from the engine.

STEP 6



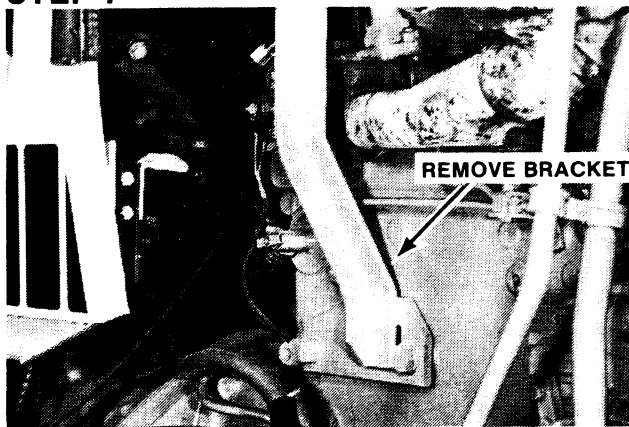
Remove the u-bolts from the exhaust tube and support bracket.

STEP 9



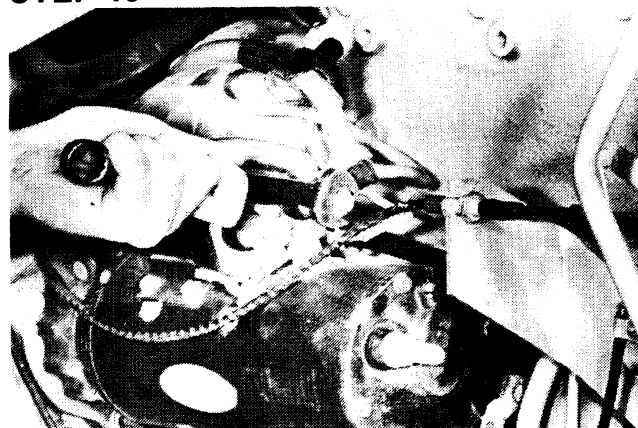
Remove the battery ground cables (negative-black) from the starting motor.

STEP 7

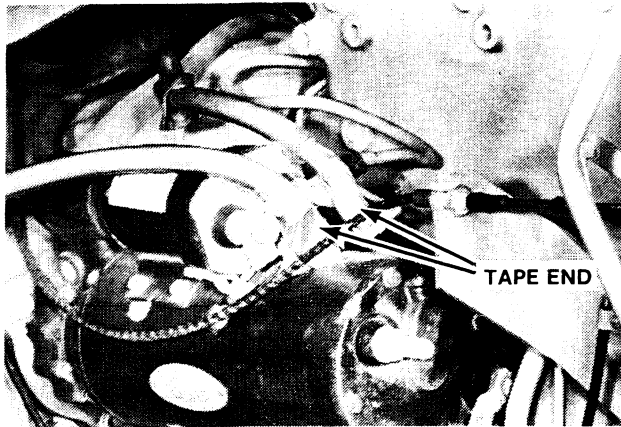


Remove the support bracket from the engine block.

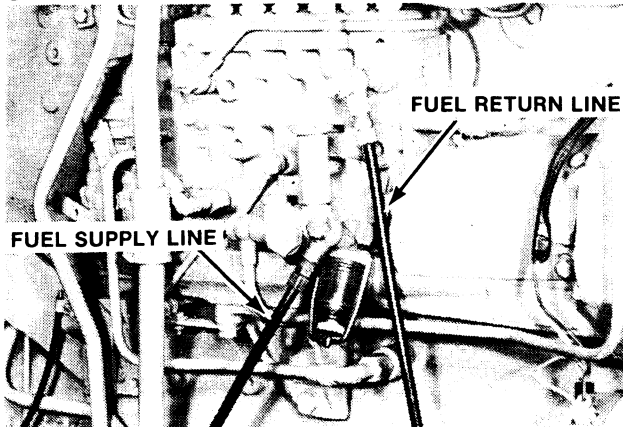
STEP 10



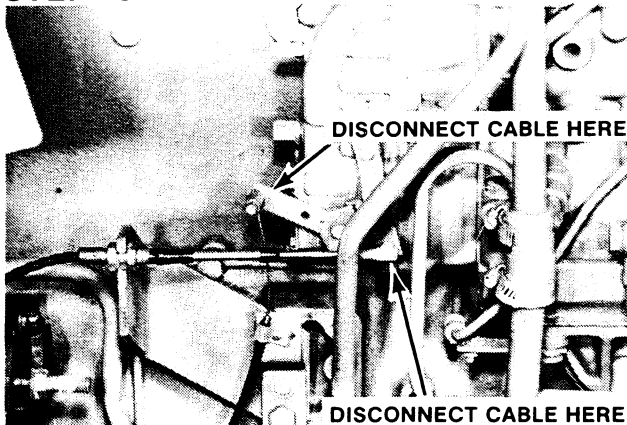
Remove the battery positive (red) cables from the solenoid switch of the starting motor.

STEP 11

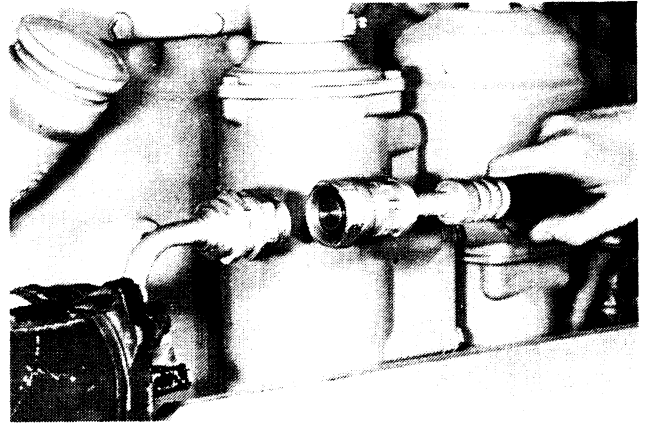
Put tape on the ends of the positive (red) battery cables to prevent a spark that can be caused by an accident.

STEP 12

Disconnect the fuel supply and return lines from the fuel pump.

STEP 13

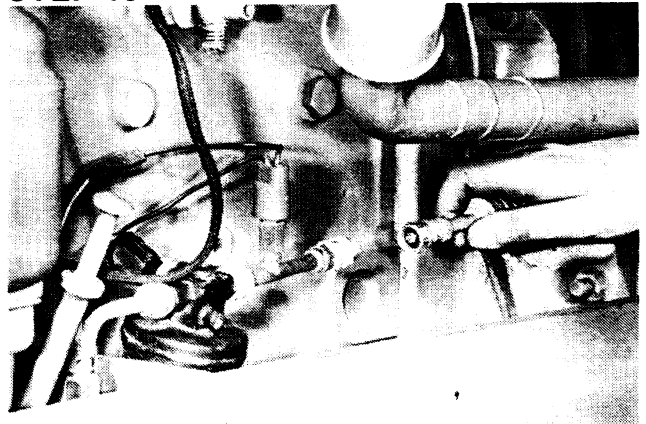
Disconnect the fuel pump throttle and engine stop cables from the fuel pump and bracket.

STEP 14

Disconnect the air conditioning return hose from the compressor.

STEP 15

Disconnect the cab heater hose from the engine oil cooler to water pump tube.

STEP 16

Disconnect the air conditioning pressure hose from the receiver-drier.



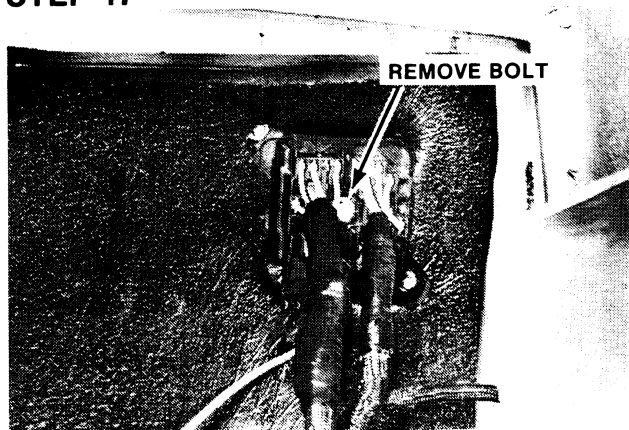
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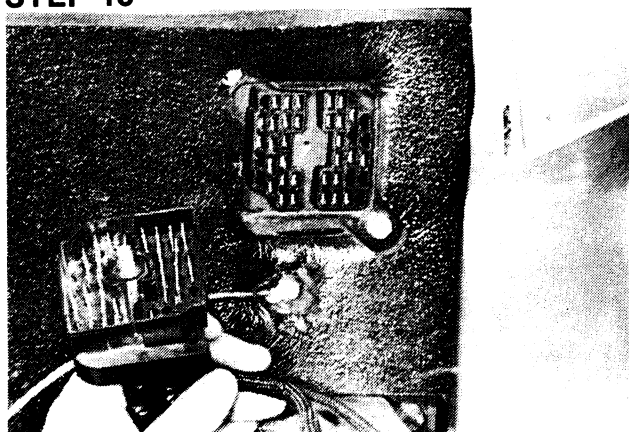
Thank you so much for reading

STEP 17



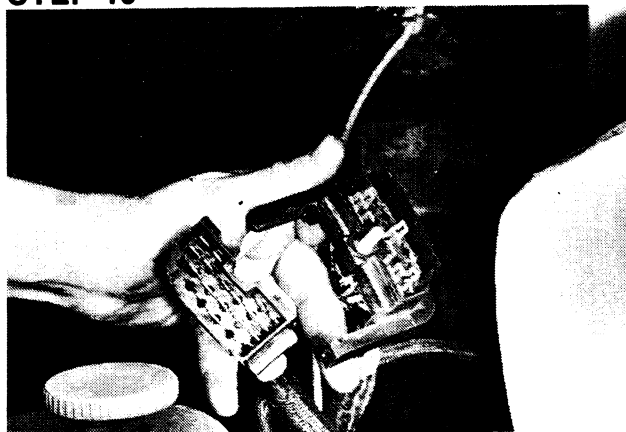
Remove the retaining bolt for the wiring harness connector.

STEP 18



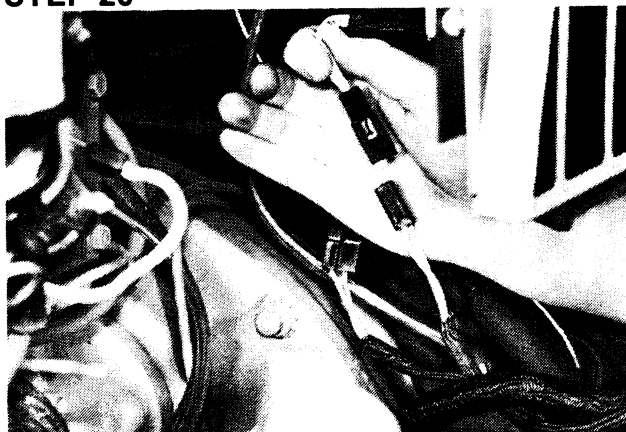
Pull the wiring harness connector from the firewall connector.

STEP 19



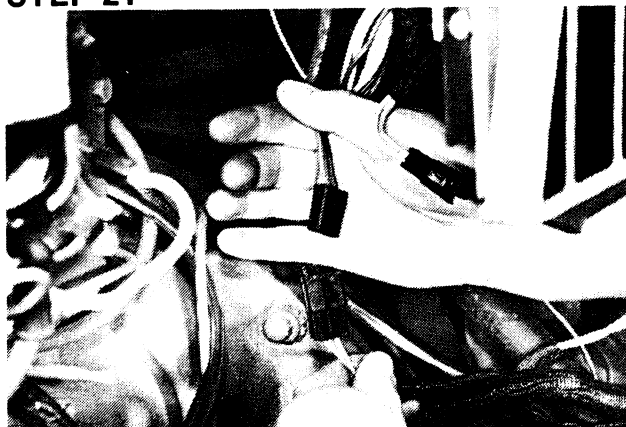
Disconnect the engine harness connector from the transmission harness connector.

STEP 20



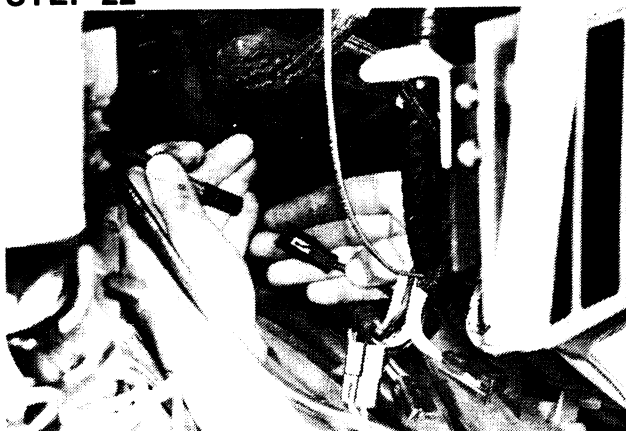
Disconnect the engine harness blue-green connectors.

STEP 21



Disconnect the engine harness pink-yellow connectors.

STEP 22



Disconnect the engine harness single green to the double green connectors.

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