9100 and 9200 Series Tractor Service Manuals
Table of Contents

NR - Not Required, See your Cummins Engine Service Center.

Reprinted

CASE CORPORATION

Rac 8-81919

© 1995 Case Corporation

Printed in U.S.A.
September, 1995

9100 and 9200 Series Tractor Service Manuals
Table of Contents

Rac 8-81919

Printed in U.S.A
September, 1995

9100 and 9200 Series Tractor Service Manuals
Table of Contents

Rac 8-81919

Printed in U.S.A
September, 1995

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

Section

1001

GENERAL INFORMATION

For 9110 and 9130 Series Tractors with P.I.N. JCB0003600 and after

CASE CORPORATION

Rac 8-81870

Printed in U.S.A.
March, 1990

TABLE OF CONTENTS

SAE FASTENER TORQUE CHART

GENERAL TORQUE SPECIFICATION TABLE (Revised 10-87)

NOTE: Use these torques, unless special torques are specified. Values are for UNC and UNF thread fasteners, plated or unplated, as received from supplier Fasteners can be dry or lubricated with normal engine oil Values do not apply if graphite, moly-disulphide or other extreme pressure lubricant is used

SAE Grade No	2				5				8*			
Bolt head identification (See Note 1)												
Bolt Size	LB FT		Nm		LB FT		Nm		LB FT		Nm	
	Min	Max	Min	Max	Min	Max	Min	Max.	Min	Max	Min	Max
1/4	5	6	7	8	9	11	12	15	12	15	16	20
5/16	10	12	14	16	17	20 5	23	28	24	29	33	39
3/8	20	23	27	31	35	42	48	57	45	54	61	73
7/16	30	35	41	47	54	64	73	87	70	84	95	114
1/2	45	52	61	70	80	96	109	130	110	132	149	179
9/16	65	75	88	102	110	132	149	179	160	192	217	260
5/8	95	105	129	142	150	180	203	244	220	264	298	358
3/4	150	185	203	251	270	324	366	439	380	456	515	618
7/8	160	200	217	271	400	480	542	651	600	720	814	976
1	250	300	339	406	580	696	787	944	900	1080	1220	1464
1-1/8					800	880	1085	1193	1280	1440	1736	1953
1-1/4					1120	1240	1519	1681	1820	2000	2468	2712
1-3/8					1460	1680	1980	2278	2380	2720	3227	3688
1-1/2					1940	2200	2631	2983	3160	3560	4285	4827

NOTE 1 Bolt head identification marks as per grade. Manufacturing marks will vary

*Thick nuts must be used with Grade 8 bolts

METRIC FASTENER (ISO) TORQUE CHART

GENERAL TORQUE SPECIFICATION TABLE (Metric)

NOTE: Use these torques, unless special torques are specified. Values are for course thread fasteners, plated or unplated, as received from supplier Fasteners can be dry or lubricated with normal engine oil Values do not apply if graphite, moly-disulphide or other extreme pressure lubricant is used

ISO Class No.	8 8				10 9				12 9			
Bolt head identification (See Note 1)												
Bolt Size	Nm		LB FT		Nm		LB FT		Nm		LB FT	
	Min	Max	Min	Max.	Min	Max	Min	Max.	Min	Max	Min.	Max.
M4	3	4	2	3	4	5	3	4				
M5	6 5	8	5	6	9 5	11	7	8				
M6	10.5	12	8	9	15	17.5	11	13				
M8	26	31	19	23	37	43	27	32				
M10	52	61	38	45	73	87	54	64				
M12	90	107	66	79	125	150	93	112				
*M14	144	172	106	127	200	245	149	179				
M16	217	271	160	200	310	380	230	280				
M20	434	515	320	380	610	730	450	540				
M24	675	815	500	600	1050	1275	780	940				
M30	1250	1500	920	1100	2000	2400	1470	1770				
M36	2175	2600	1600	1950	3500	4200	2580	3090				

Because of the low ductility of these fasteners, the torque range is to be determined individually for each application. As a general rule, the torque ranges specified for grade 10.9 fasteners can be used satisfactorily on 12 9 fasteners

*M14 is not a preferred size

NOTE 1 Bolt head identification marks as per grade. Manufacturing marks will vary

STANDARD TORQUE DATA FOR HYDRAULIC TUBES AND FITTINGS

TUBE NUTS FOR 37° FLARED FITTINGS								O-RING BOSS PLUGS, ADJUSTABLE FITTING LOCK NUTS, SWIVEL JIC - 37° SEATS			
SIZE	TUBING O.D.		THREAD SIZE	TORQUE				TORQUE			
				FOOT POUNDS		NEWTON METERS		FOOT POUNDS		NEWTON METERS	
	Inches	mm		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
4	1/4	6.4	7/16-20	9	12	12	16	6	10	8	14
5	5/16	7.9	1/2-20	12	15	16	20	10	15	14	20
6	3/8	9.5	9/16-18	21	24	29	33	15	20	20	27
8	1/2	12.7	3/4-18	35	40	47	54	25	30	34	41
10	5/8	15.9	7/8-14	53	58	72	79	35	40	47	54
12	3/4	19.1	1-1/16-12	77	82	104	111	60	70	81	95
14	7/8	22.2	1-3/16-12	90	100	122	136	70	80	95	109
16	1	25.4	1-5/16-12	110	120	149	163	80	90	108	122
20	1-1/4	31.8	1-5/8-12	140	150	190	204	95	115	129	156
24	1-1/2	38.1	1-7/8-12	160	175	217	237	120	140	163	190
32	2	50.8	2-1/2-12	225	240	305	325	250	300	339	407

Above torque figures are recommended for plain, cadmium or zinc plated fittings, dry or wet installations.

Swivel nuts either swaged or brazed.

These torques are not recommended for tubes 1/2 inch (12.7 mm) O.D. and larger with wall thickness of 0.035 inch (0.889 mm) or less. The torque is specified for 0.035 inch (0.889 mm) wall tubes on each application individually.

Section

2002

ENGINE TUNE UP

IMPORTANT: This engine was made using the metric measurement system. All measurements and checks must be made with metric tools to make sure of an accurate reading when inspecting parts.

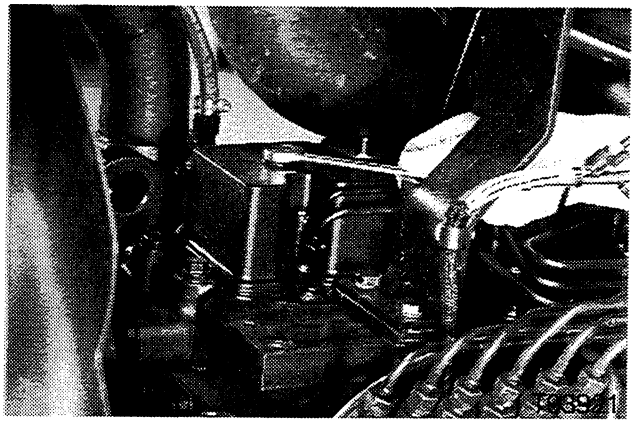
CASE CORPORATION

Rac 8-91611

Copyright © 1991 CASE CORPORATION
Printed in U.S.A.
January, 1988 (Revised February, 1991)

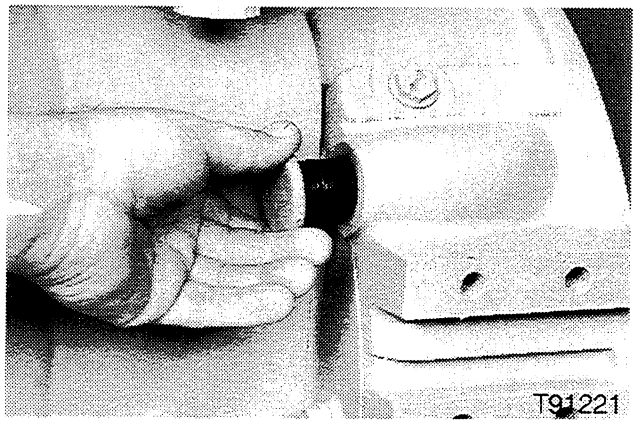
ADJUSTING ROCKER ARM TO VALVE CLEARANCE
Cold Setting

STEP 1



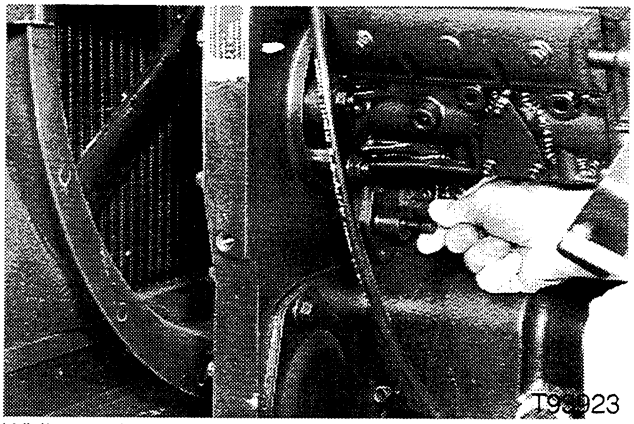
Remove the valve cover from the engine. Discard the gasket.

STEP 2



Remove the plug in the flywheel housing (if equipped) and install the engine turnover tool, CAS-1690.

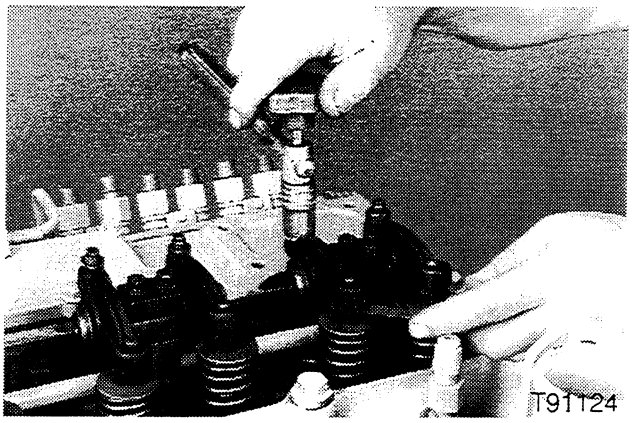
STEP 3



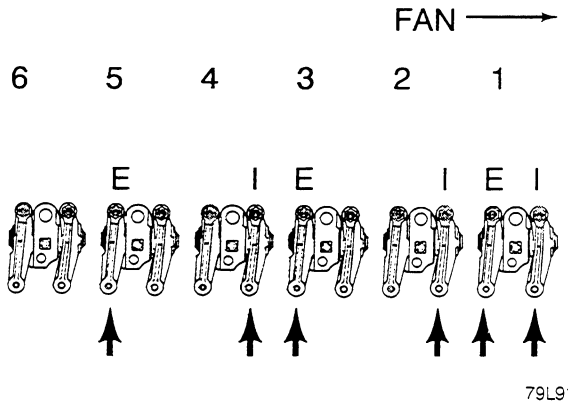
While turning the engine over with the turn over tool, push the lock pin in When the lock pin moves into the camshaft gear, the engine will be at top center.

NOTE: *Use caution when turning the engine to prevent damage to the timing pin.*

STEP 4



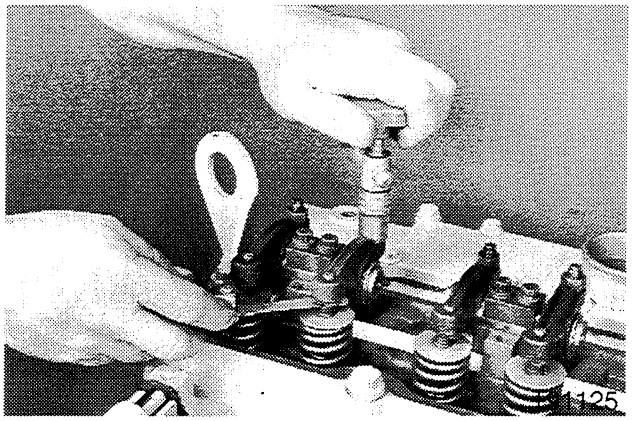
Check and adjust the intake and exhaust valves indicated by the arrows shown below.



Number one cylinder will be at top center of the compression stroke.

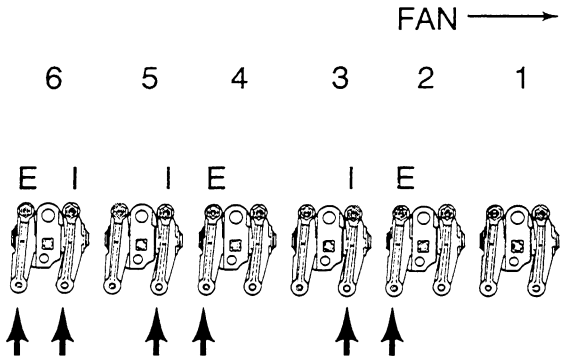
Valve Clearance, Cold - Intake Valves - 0 30 mm
Exhaust Valves - 0.60 mm

STEP 5



Put a mark on the crankshaft pulley and the cylinder block, in alignment. Pull the lock pin from the cam gear. Turn the engine one complete revolution. Make sure the marks are aligned again.

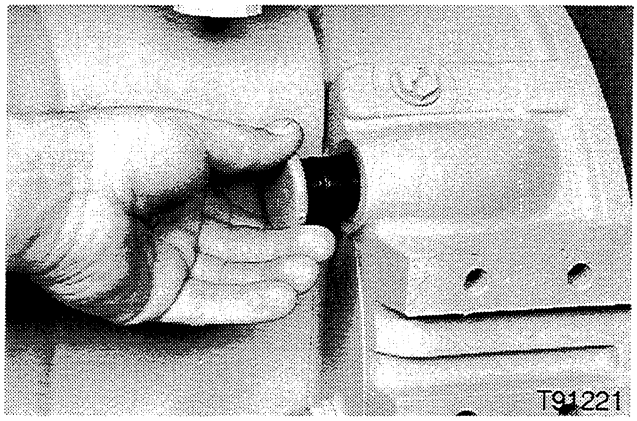
Check and adjust the intake and exhaust valves indicated by the arrows shown below



Number six cylinder will be at top center of the compression stroke

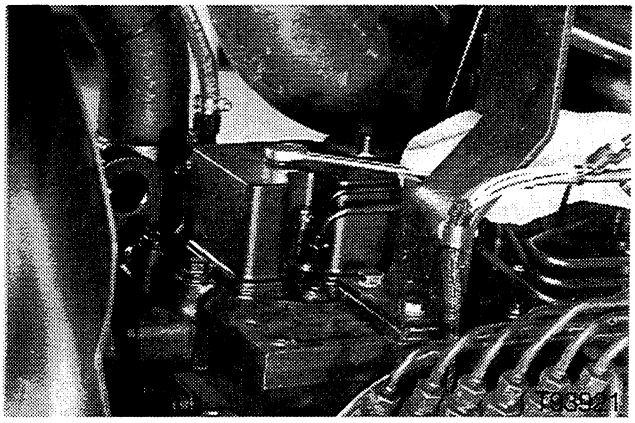
Valve Clearance, Cold - Intake Valves - 0 30 mm
Exhaust Valves - 0.60 mm

STEP 6



Remove the engine turn over tool and install the plug in the flywheel housing (if equipped).

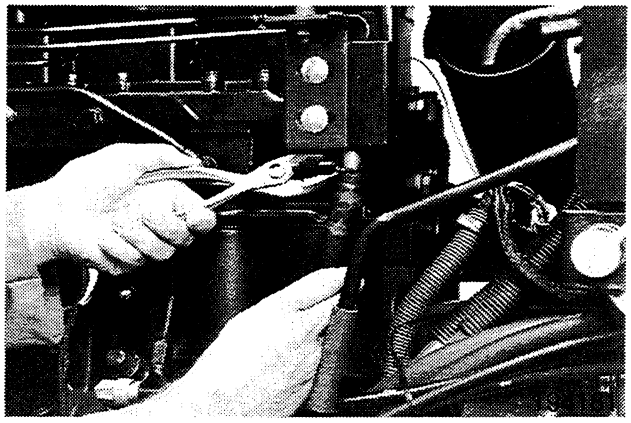
STEP 7



Install a new gasket and the valve cover on the engine. Tighten the valve cover mounting bolts to a torque of 21 to 27 Nm Install the breather tube on the valve cover.

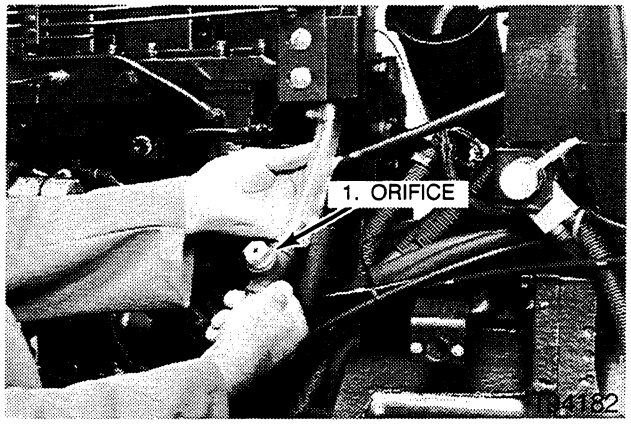
CRANKCASE PRESSURE CHECK (BLOW BY)
Manometer Installation

STEP 8



Remove the breather hose.

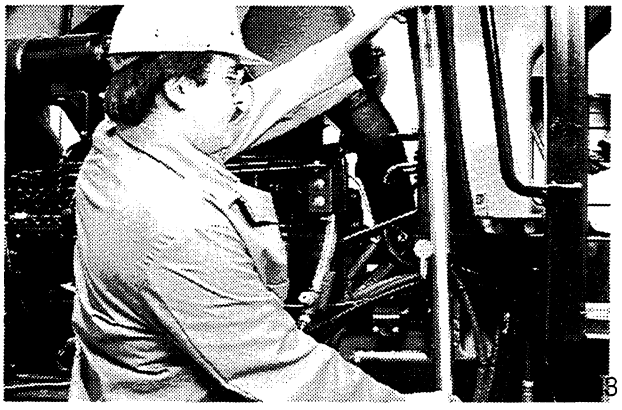
STEP 9



Install the breather adapter with the six cylinder orifice from the CAS-1692 manometer package.

NOTE: *Use the orifice for six cylinder engines, marked 6 cyl.*

STEP 10



Install the manometer on the tractor.

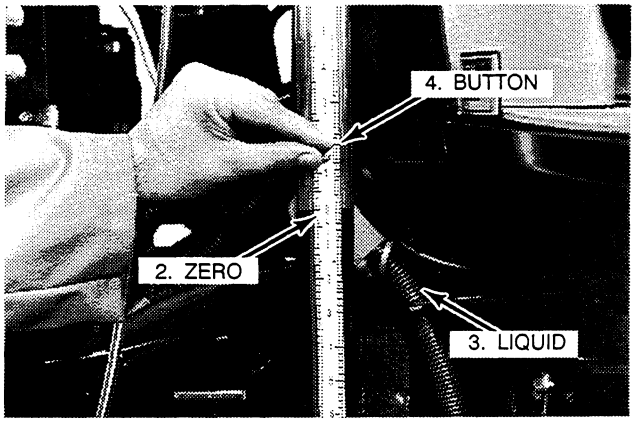
STEP 11

Turn each connector on the manometer one turn counterclockwise to open the check valves.

STEP 12

Connect the tube from the breather adapter to one of the connectors on the manometer.

STEP 13



Push the button on the gauge and move the gauge up or down, until the zero on the gauge and the liquid in the tube are aligned.

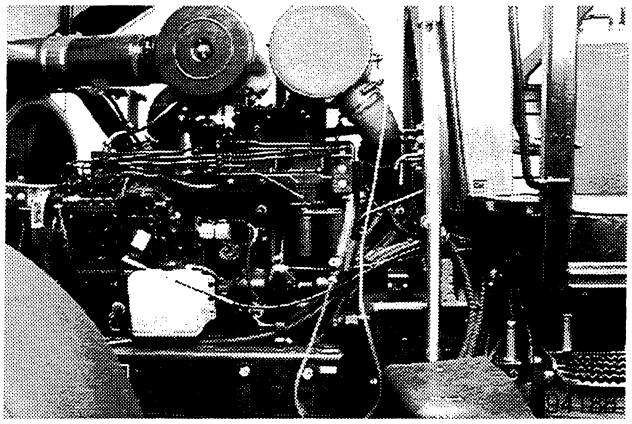
Testing

NOTE: *Do the following steps to get the correct manometer readings.*

Step 1 - Warm the engine to operating temperature.

Step 2 - Operate the engine at the rated speed, under a full load

STEP 14



Take a manometer reading from the engine. Add the number of lowered inches to the number of raised inches for the correct manometer reading.
See example below.

LOWERED INCHES 1.5
RAISED INCHES +1.5

TOTAL 3.0 INCHES

See the chart for manometer reading and crankcase pressure (Blow By) limits

MANOMETER READING

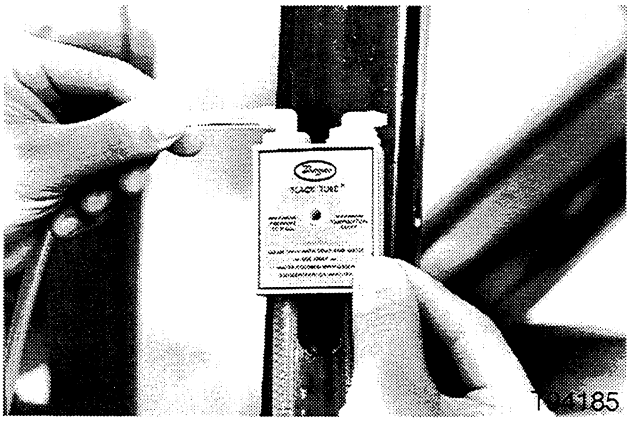
Inches of Water	L/min
1	50
2	84
3	103
4	119
5	133
6	145
7	155
8	164
9	172
10	180
11	187
12	193
13	200
14	206
15	211
16	217
17	222
18	226
19	229
20	232

CRANKCASE PRESSURE
(BLOW BY) LIMITS

Engine Model	Engine Speed	L/min Maximum New	L/min Worn Limit
6T-830	2200	113.0	226.0
6TA-830	2200	113.0	226.0

Manometer Removal

STEP 15

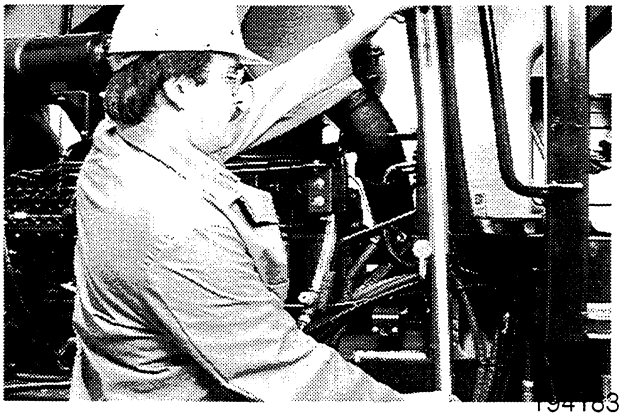


Disconnect the tube from the connector.

STEP 16

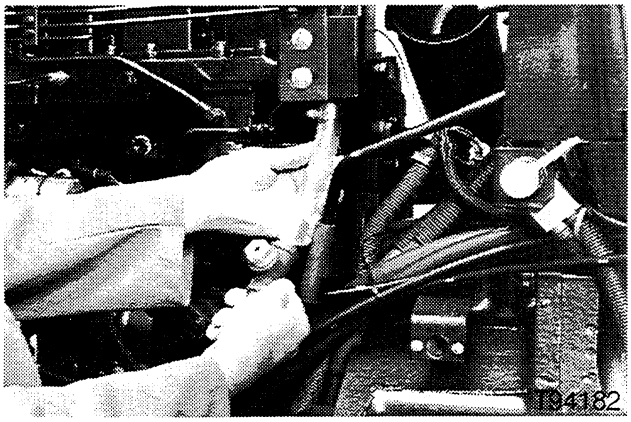
Turn each connector on the manometer one turn clockwise to close the check valve.

STEP 17



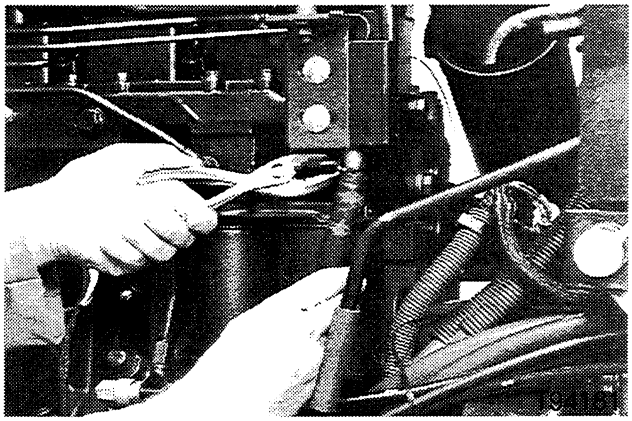
Remove the manometer

STEP 18



Remove the adapter from the breather tube.

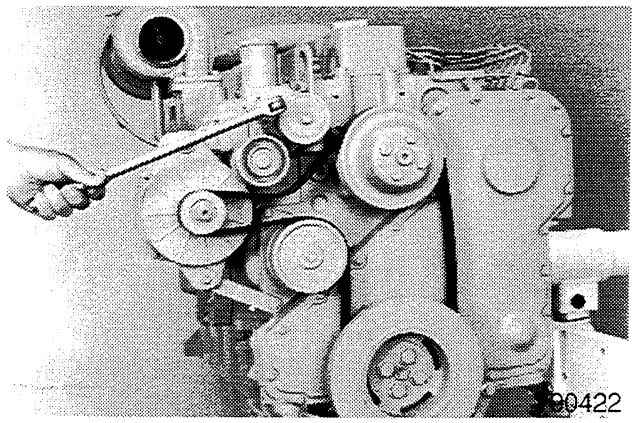
STEP 19



Install breather hose and the hose clamp

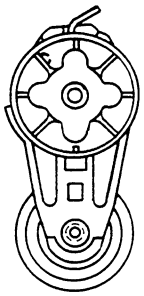
Checking the Fan Belt Tensioner

STEP 20

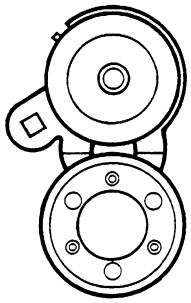


Lift the belt tensioner pulley. If there is tension on the pulley, the tension is good.

If the belt tensioner needs replacement, see Section 2455 in this manual for belt tensioner removal.



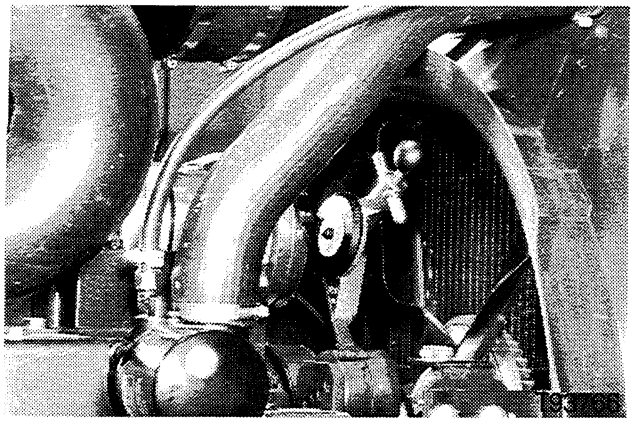
7L91



8-1L91

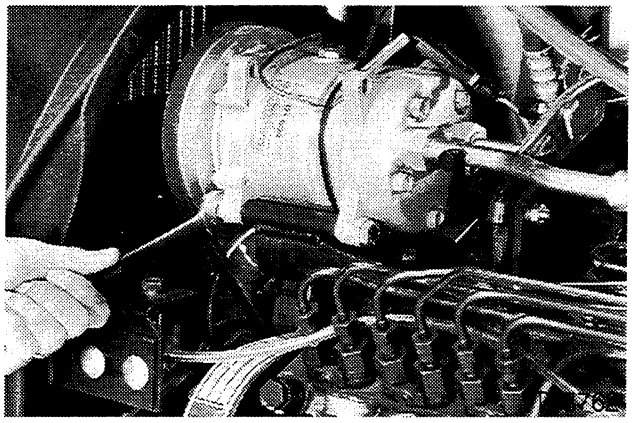
ADJUSTING THE COMPRESSOR BELT

STEP 21



Check the compressor belt for the correct tension using the tension gauge OEM-1294. The belt tension must be 422 to 516 N for a new belt and 400 to 489 N for a used belt. After 10 minutes of run in on a new belt, adjust to used belt specifications

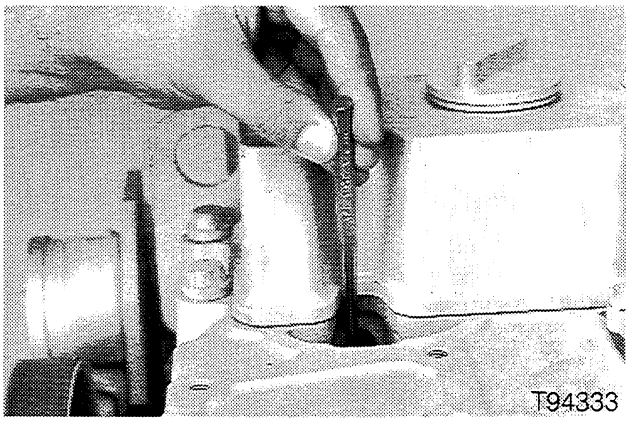
STEP 22



To adjust the compressor belt, loosen the adjusting bolt and pivot bolts. Pull the compressor out from the engine until the correct tension is reached. Tighten the adjusting and pivot bolts.

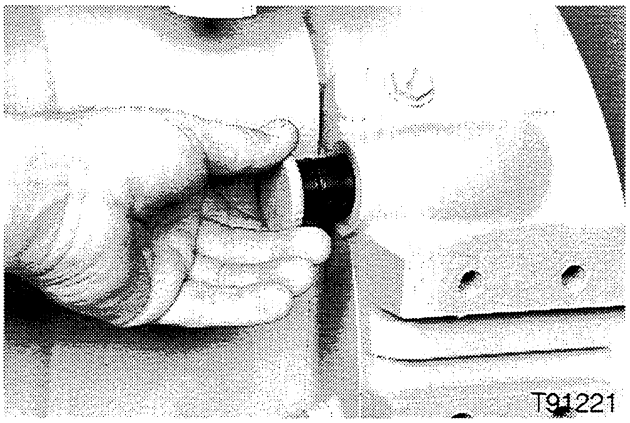
CHECKING ALIGNMENT BETWEEN CRANKSHAFT AND CAMSHAFT GEARS

STEP 23



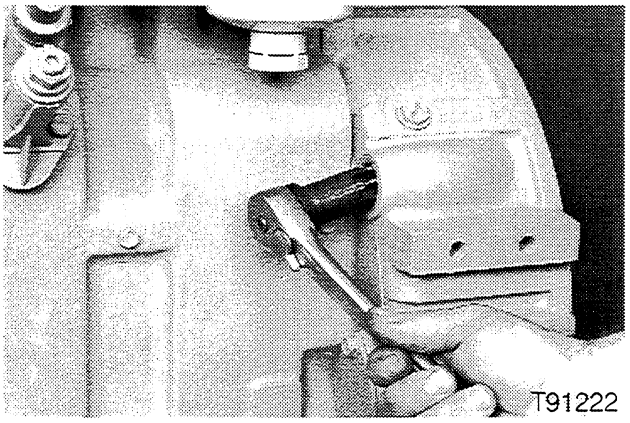
Remove the number one injector. Install a probe (minimum of 250 mm long) in the injector bore so that the probe will touch the top of the piston.

STEP 24



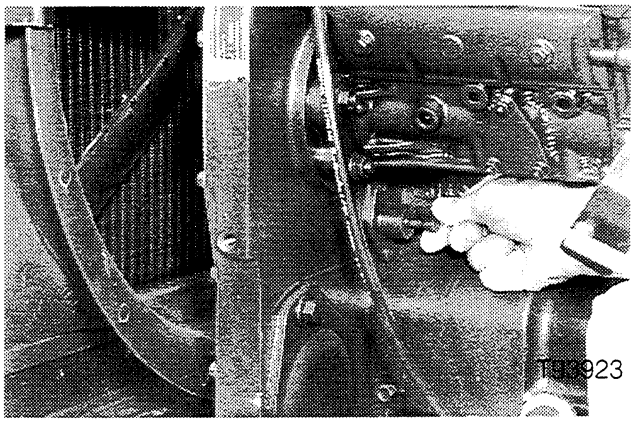
Remove the plug from the flywheel housing (if equipped).

STEP 25



Install the engine turn over tool CAS-1690.

STEP 26



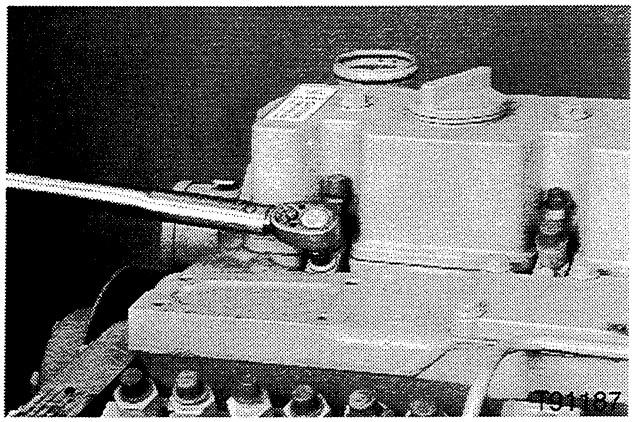
While turning the engine over with the turn over tool, CAS-1690 (if equipped) push the lock pin in When the lock pin moves into the camshaft gear the engine will be at top center.

NOTE: *Use caution when turning the engine to prevent damage to the timing pin.*

STEP 27

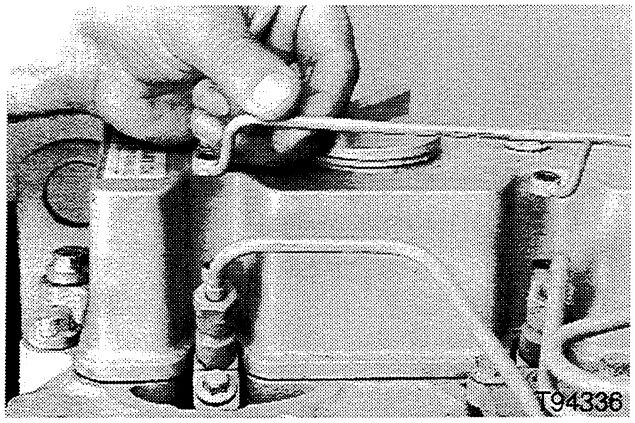
Pull the timing pin from the cam gear Turn the engine in either direction a small amount The probe must go down from this position If the probe goes up when the engine is turned, timing is not correct See Section 2425 in this manual for alignment of gears.

STEP 28



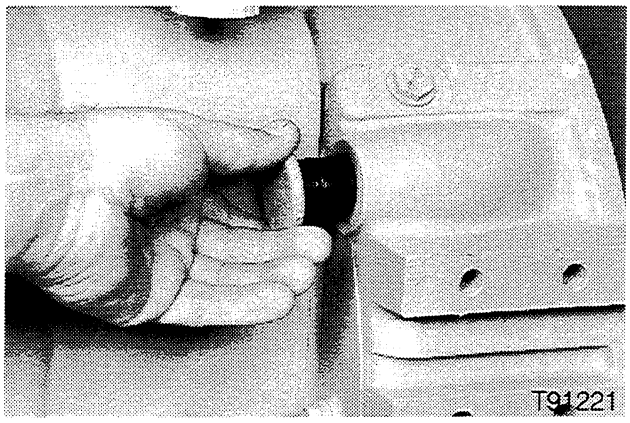
Remove the probe from the injector bore. Install the injector with a new seal. Tighten the retaining bolt to a torque of 21 to 27 Nm.

STEP 29



Install the injection line and leak off line. Tighten the leak off line bolts to a torque of 8 to 10 Nm.

STEP 30

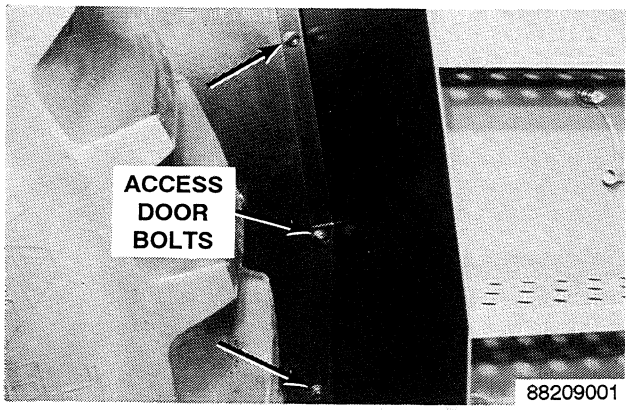


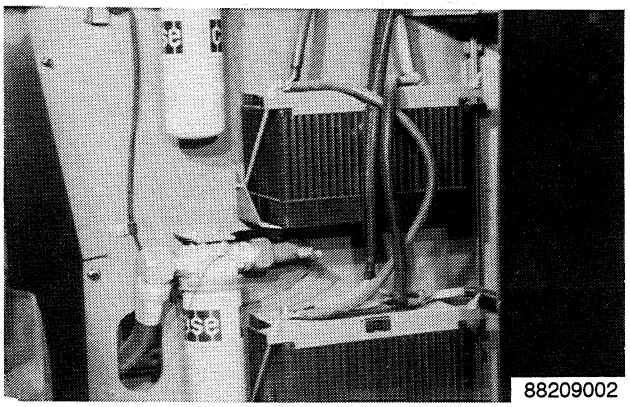
Remove the engine turn over tool and install the plug in the flywheel housing (if equipped).

NOTE: The CASE CORPORATION reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

ENGINE REMOVAL

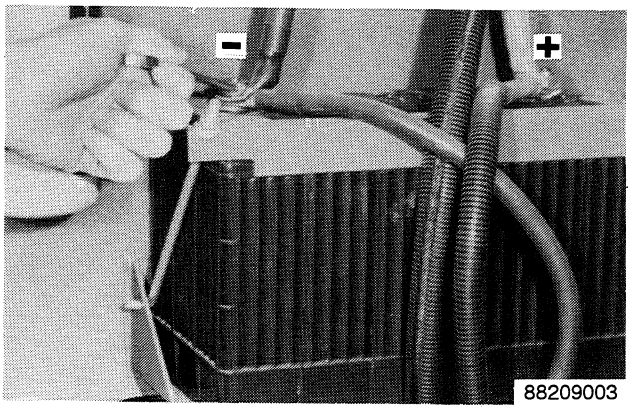
STEP 1





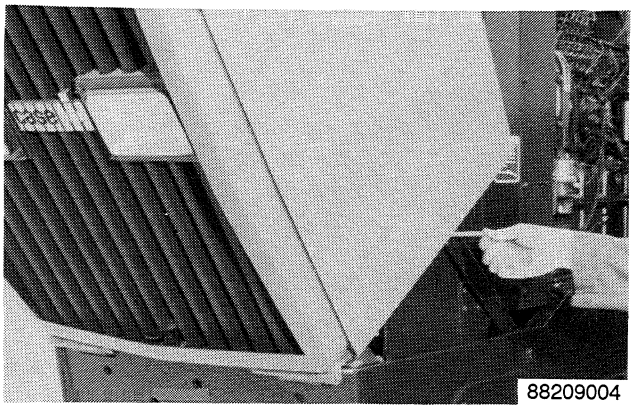
Remove the battery compartment door retaining bolts. Open the access door.

STEP 2



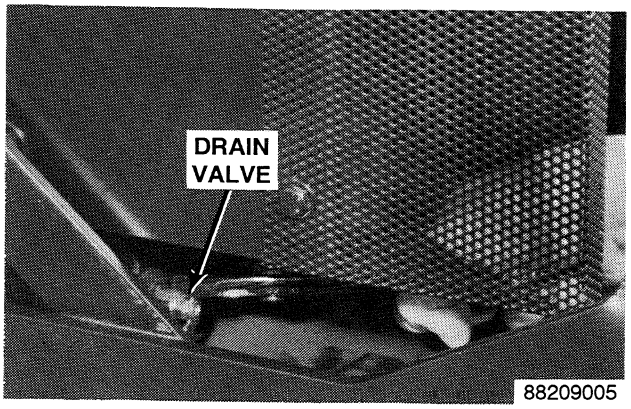
Disconnect both the negative and positive cables from the upper battery.

STEP 3



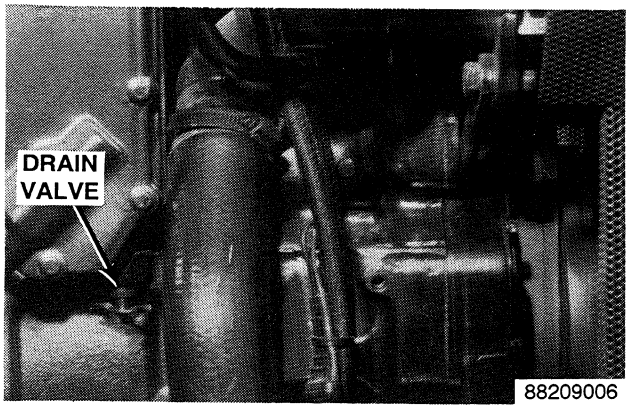
Open and lock the hood.

STEP 4



Drain the radiator coolant.

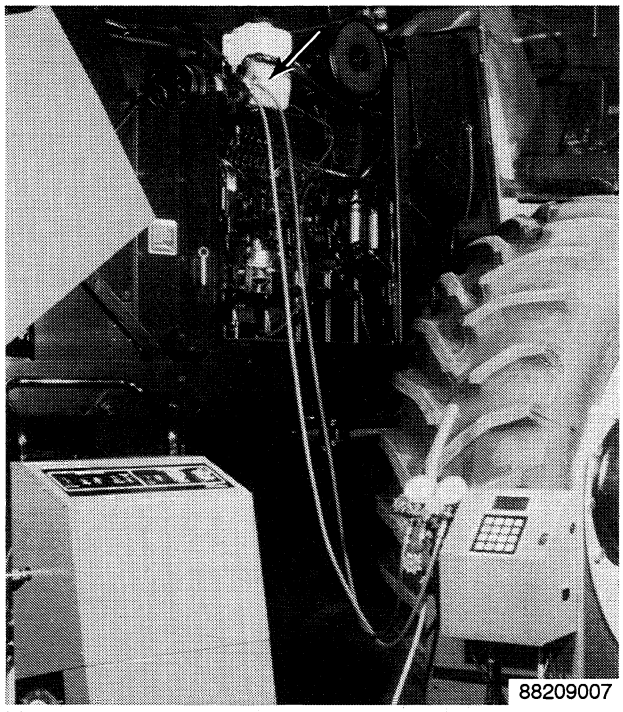
STEP 5



Drain the engine block coolant.

NOTE: *Close the drain valves after the cooling system is empty.*

STEP 6

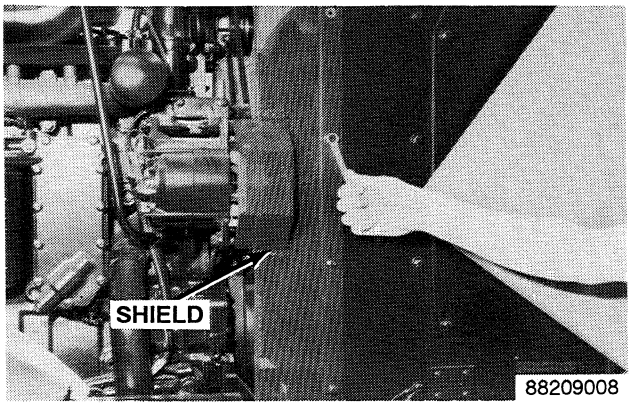

88209007

Use an air conditioning manifold gauge set (or OEM-1365 Charging Station) and OEM-1380 Recovery and Recycling Station (or equivelant) to discharge the air conditioning system according to the instructions in Section 9005 of this manual.

Always wear eye protection when working with liquid refrigerant. Liquid refrigerant in your eyes could cause blindness.

IMPORTANT: *Never discharge R-12 refrigerant to the atmosphere. Always recover and recycle R-12 refrigerant. Some states have enacted very strict regulations regarding the use of and/or discharging of R-12 refrigerant to the atmosphere.*

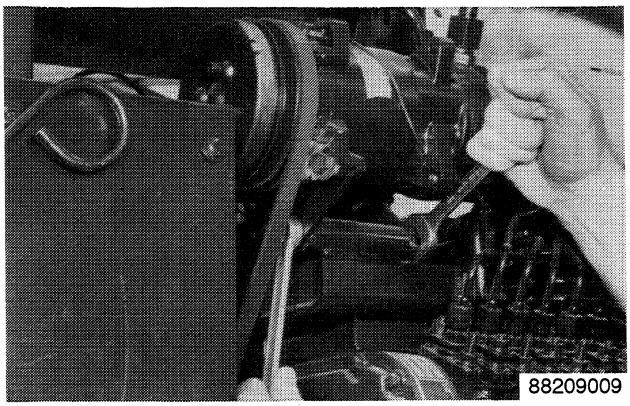
STEP 7



88209008

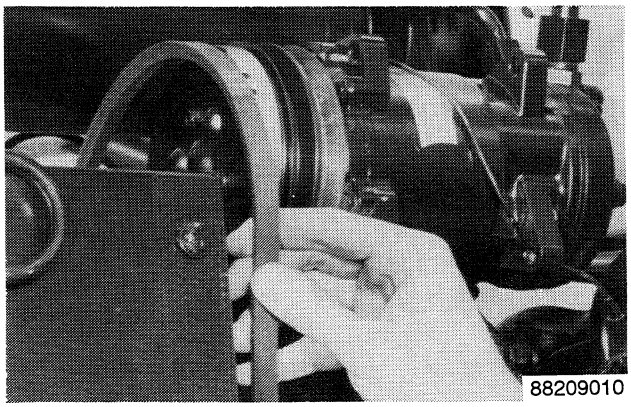
Remove the LH and RH side shields from the radiator shroud.

STEP 8


88209009

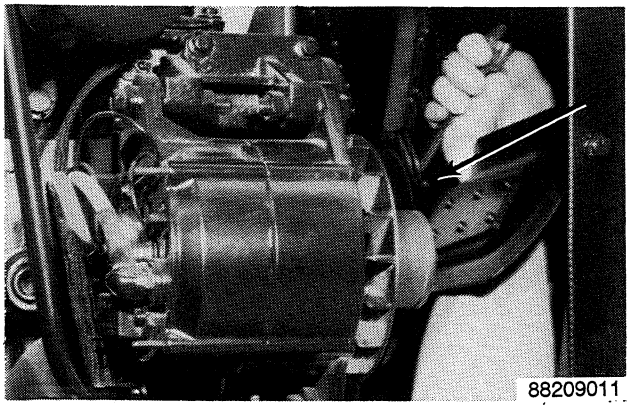
Loosen the air conditioning compressor pivot bolts and tension bolt lock nuts.

STEP 9


88209010

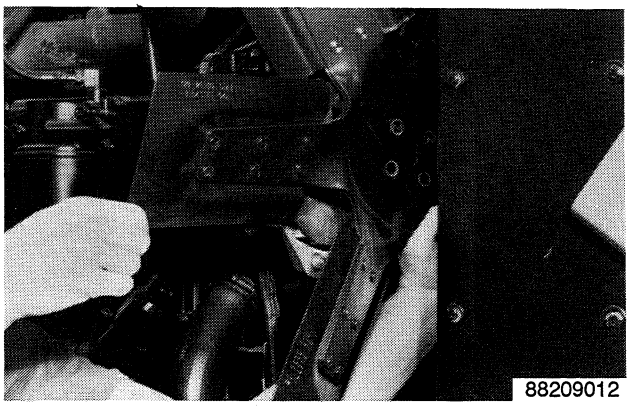
Remove the belt from the compressor pulley.

STEP 10



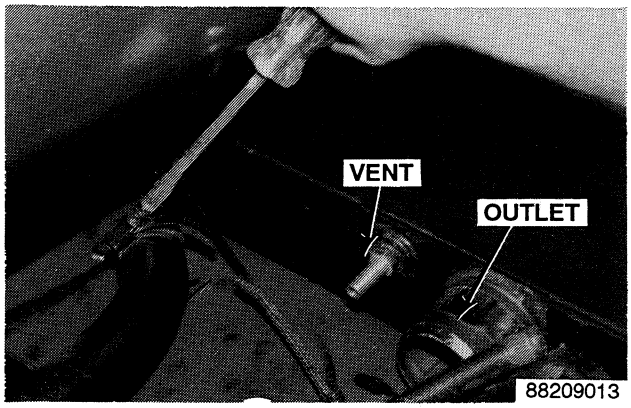
Remove the fan hub bolts.

STEP 11



Remove the fan, spacer block, alternator drive pulley and belt.

STEP 12

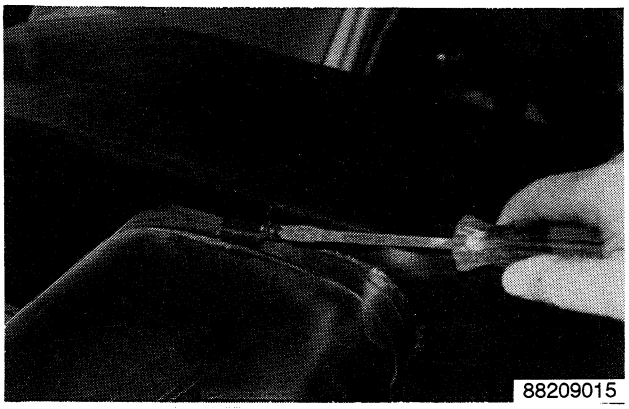


Remove the upper radiator hose, vent hose and cab air cleaner aspirator hose.

STEP 13

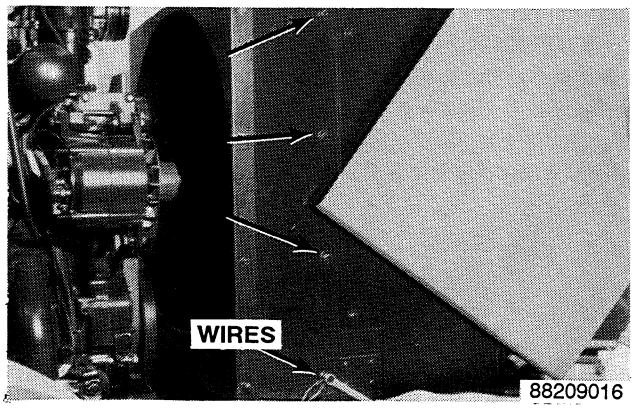
Remove the wire from the low coolant level sensor.

STEP 14



Remove the air cleaner inlet tube.

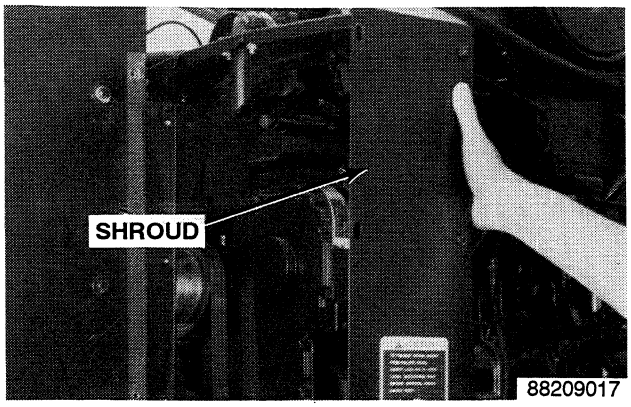
STEP 15



Remove the radiator shroud LH and RH side mount bolts.

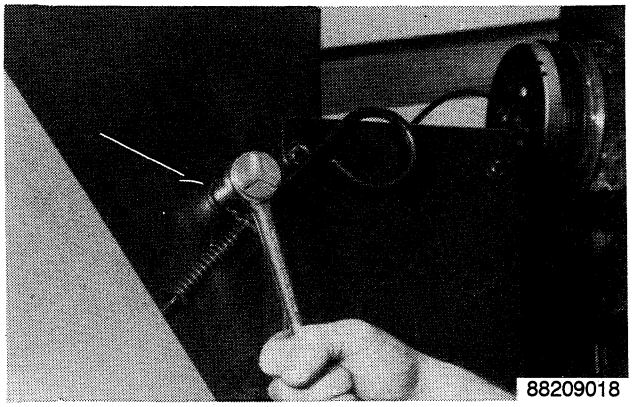
NOTE: *Ground wires are attached to the lower RH mount bolt.*

STEP 16



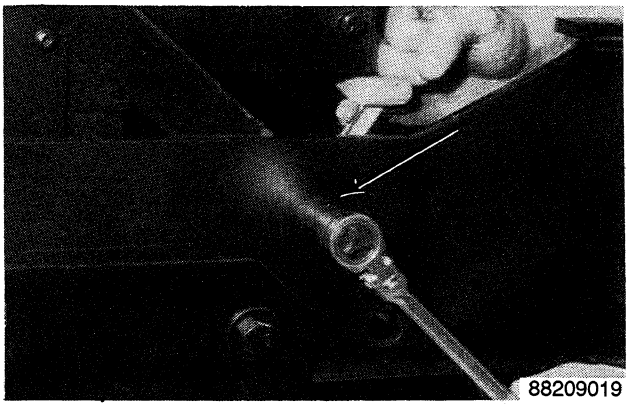
Remove the radiator shroud assembly.

STEP 17



Remove the hood support release lever attaching bolt.

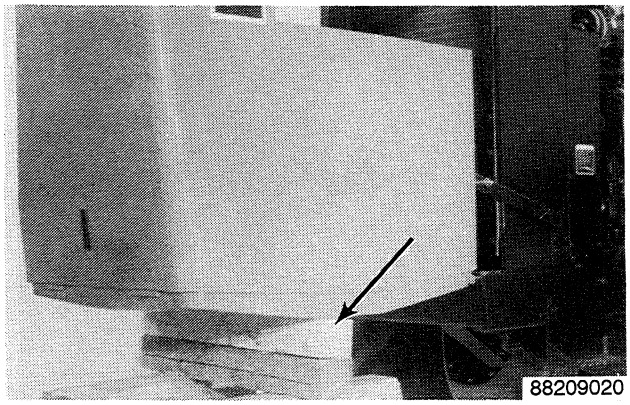
STEP 18



Remove the lower hood support pivot bolt, spacer bushing, flat washer, and nut.

IMPORTANT: *It will require one or two assistants to balance and support the hood while the pivot bolt is removed. the hood is very heavy.*

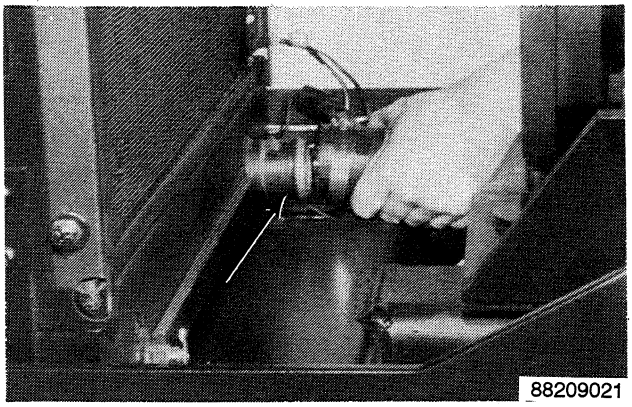
STEP 19



Carefully move and support the hood to a full 90 degree position. Support the hood on stands and wood blocks.

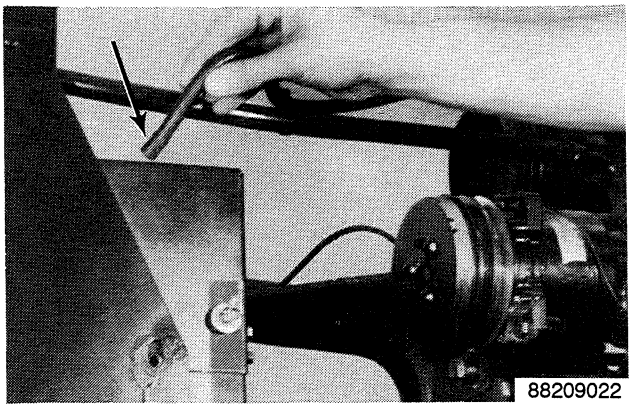
NOTE: *It may be necessary to pull outwards on each hood side panel a small amount so that the inside brackets clear the sides of the radiator support.*

STEP 20



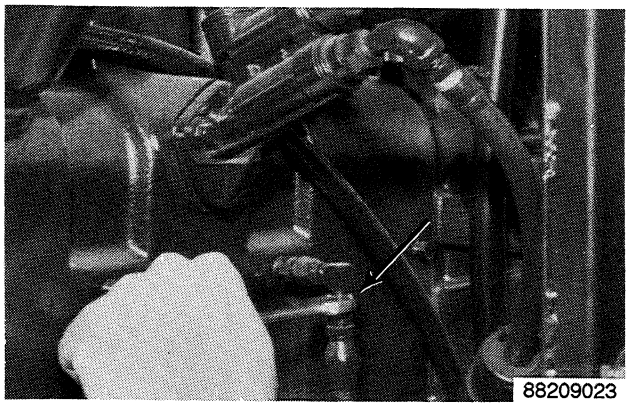
Disconnect the lower hose from the radiator.

STEP 21



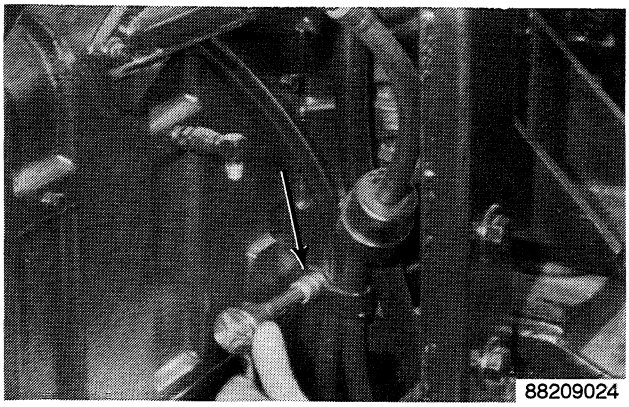
Remove the coolant recovery hose from the top of the radiator.

STEP 22



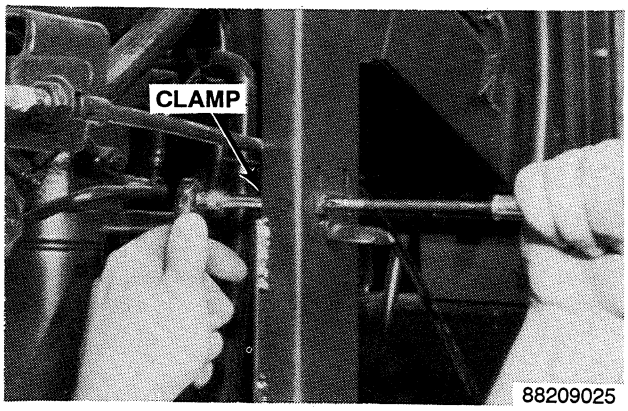
Disconnect the oil gauge pressure line.

STEP 23



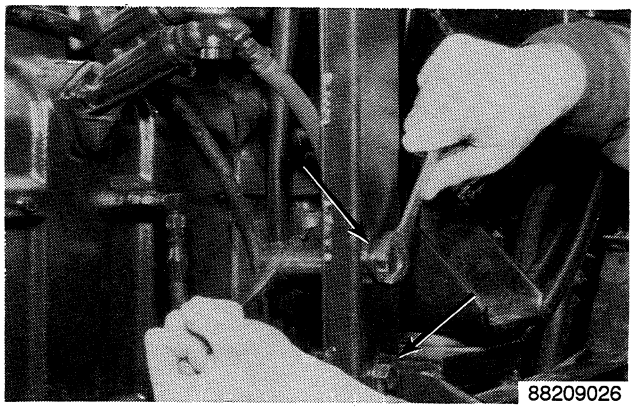
Remove the fuel lines retaining clamp from the lower left front corner of the bell housing.

STEP 24



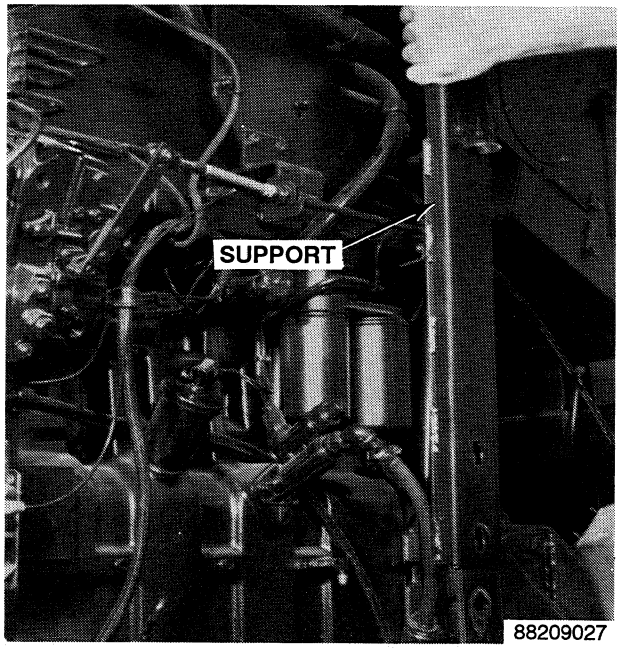
Remove the throttle cable retaining clamp from the hood support.

STEP 25



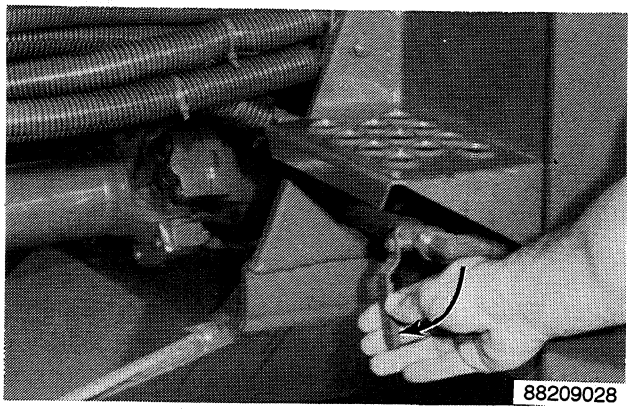
Remove the hood support LH and RH mount bolts.

STEP 26



Remove the hood support assembly.

STEP 27



Close the fuel shut off valve at the fuel tank.

Suggest:

If the above button click is invalid.

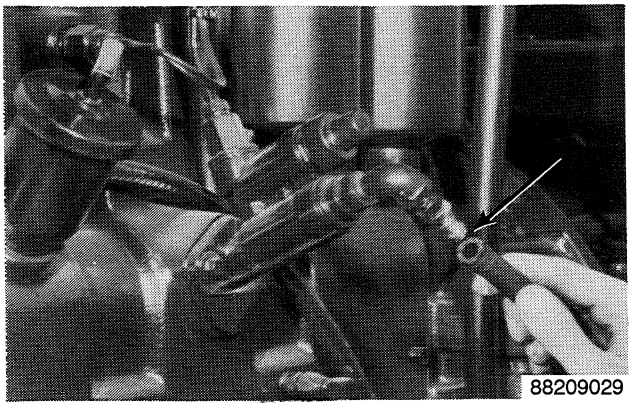
Please download this document

first, and then click the above link

to download the complete manual.

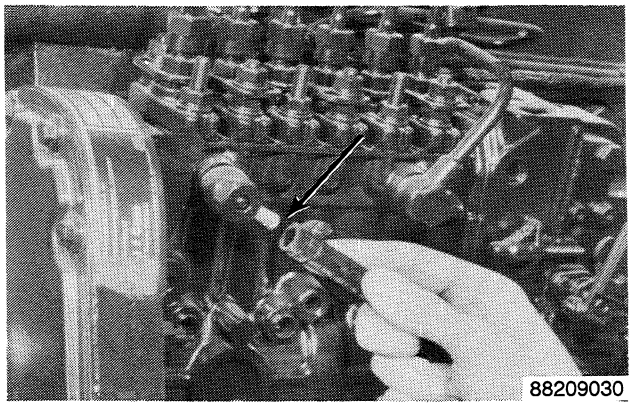
Thank you so much for reading

STEP 28



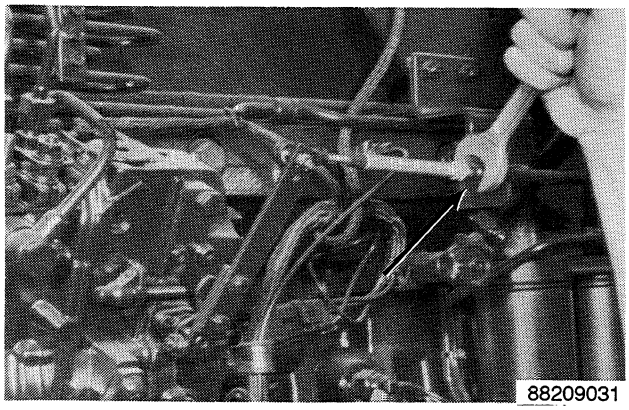
Disconnect the fuel inlet hose.

STEP 29



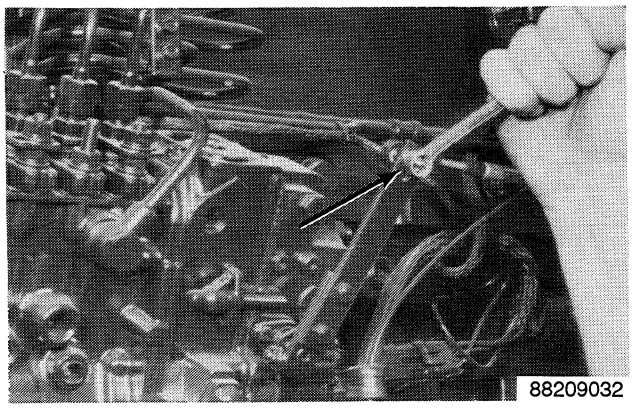
Disconnect the fuel return hose.

STEP 30



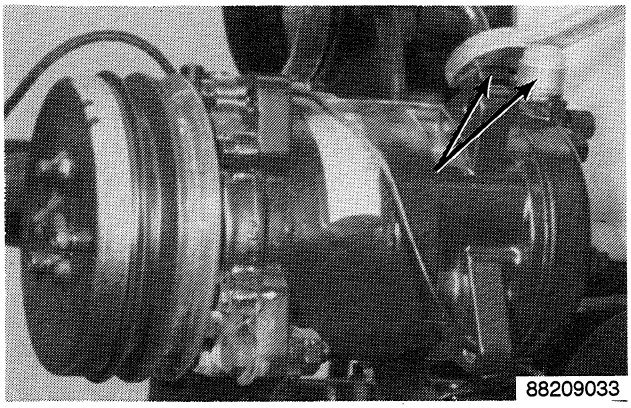
Loosen one of the lock nuts on the throttle cable support bracket.

STEP 31



Disconnect the throttle cable from the fuel pump governor arm. Remove the cable.

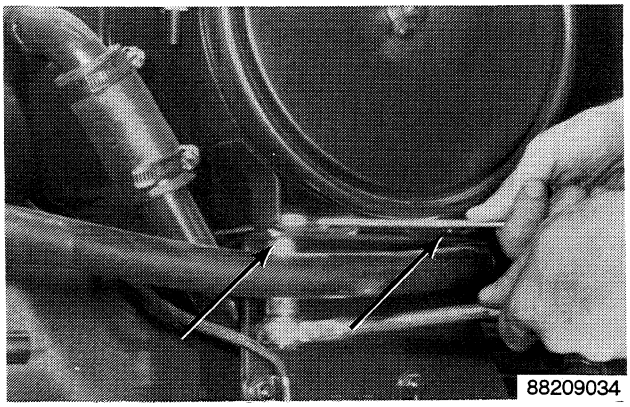
STEP 32



Disconnect the suction and discharge lines from the compressor.

NOTE: *Cap the compressor ports and hose openings.*

STEP 33



Remove the LH air cleaner mount bolts and nuts. Remove the air compressor suction hose clamp.

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