SPECIAL TORQUES

	Metric Value
Aftercooler Bolts	21 to 27 Nm
Alternator Bracket Bolts (Lower)	21 to 27 Nm
Alternator Bracket Bolts (Upper)	21 to 27 Nm
Alternator Retaining Bolt	39 to 47 Nm
Balancer Counter Weight Bolts	21 to 27 Nm
Balancer Mounting Bolts	167 to 183 Nm
Balancer Idler Gear	52 to 62 Nm
Belt Tensioner Bracket Bolts	21 to 27 Nm
Belt Tensioner Retaining Bolt	39 to 47 Nm
Block Heater	11 to 13 Nm
Camshaft Retaining Bolts	21 to 27 Nm
Coolant Inlet Bolts	39 to 47 Nm
Connecting Rod Bolts (Lubricate Threads with Engine Oil)	60 Nm Plus 60 Degrees
Cylinder Head Bolts (Short)	90 Nm Plus 90 Degrees
Cylinder Head Bolts (Long)	120 Nm Plus 90 Degrees
Crankshaft Pulley Bolts	120 to 130 Nm
Engine Lift Bracket Bolts (Rear)	71 to 83 Nm
Exhaust Manifold Bolts	39 to 47 Nm
Fan Pulley Bracket Bolts	23 to 25 Nm
Fan Pulley Bolts	
Grade 8.8 Size M8	25 to 31 Nm
Grade 10.9 Size M8	37 to 43 Nm
Grade 8.8 Size M10	51 to 62 Nm
Grade 10.9 Size M10	51 to 62 Nm
Flywheel Housing Bolts	54 to 66 Nm
Flywheel Retaining Bolts	130 to 144 Nm
Flywheel Housing Cover Bolts	21 to 27 Nm
Fuel Filter Inlet Bolt	29 to 35 Nm
Fuel Air Removal Bolt	5 to 7 Nm
Fuel Filter Inlet Nut	29 to 35 Nm
Fuel Line Fitting (High Pressure)	22 to 28 Nm

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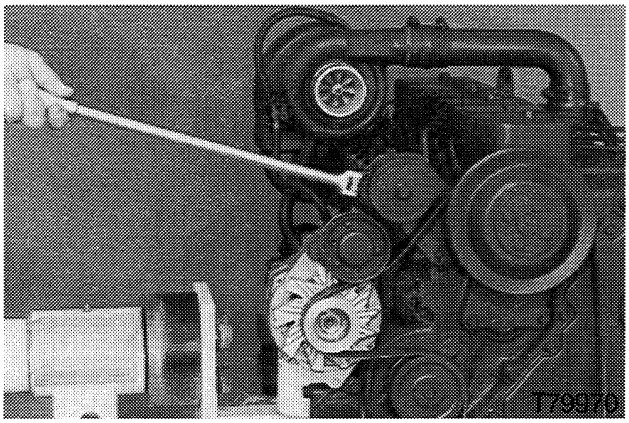
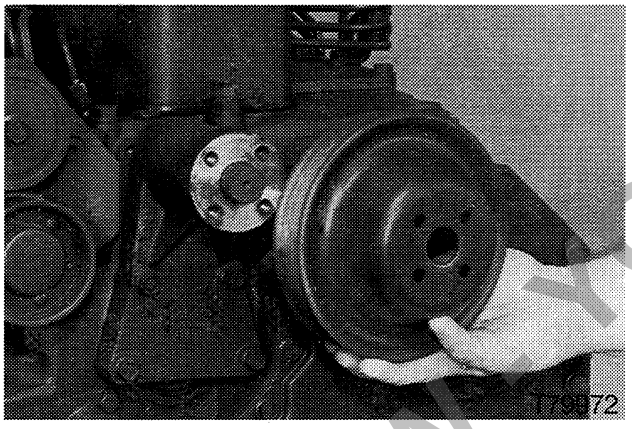
SERVICING THE CYLINDER HEAD AND VALVE TRAIN
Cylinder Head Removal

STEP 1



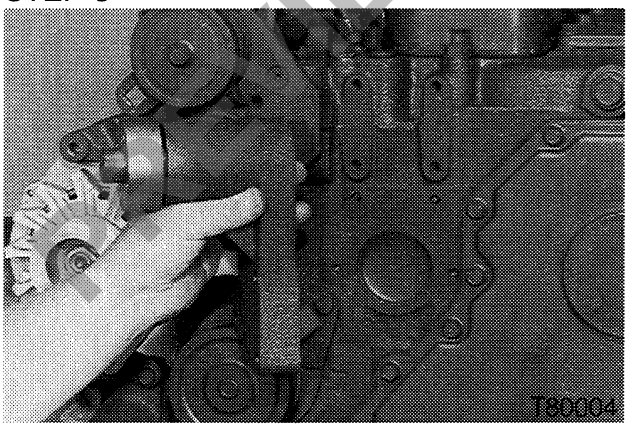
Lift the belt tensioner and remove the fan belt.

STEP 2



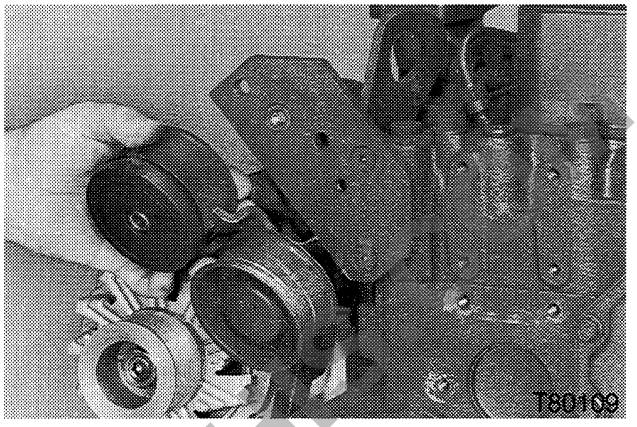
Remove the fan pulley bolts and the fan pulley.

STEP 3



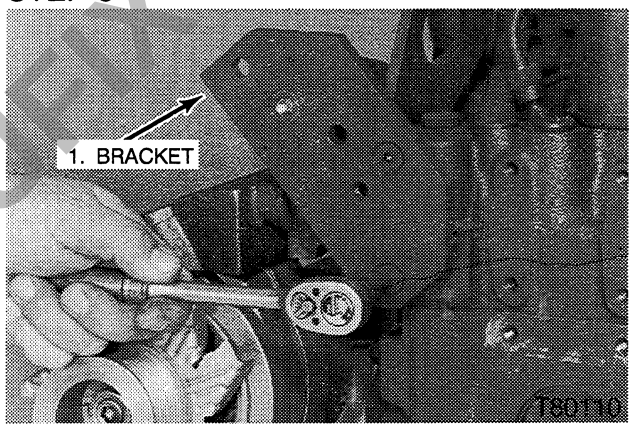
Remove the fan pulley bolts and the pulley bracket.

STEP 4



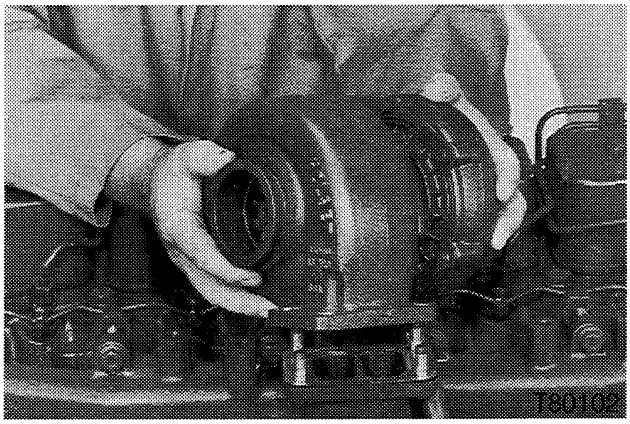
Remove the belt tensioner bolt and the belt tensioner.

STEP 5



Remove the Allen head bolts and the belt tensioner bracket.

STEP 6



See section 2465 to remove the turbocharger.

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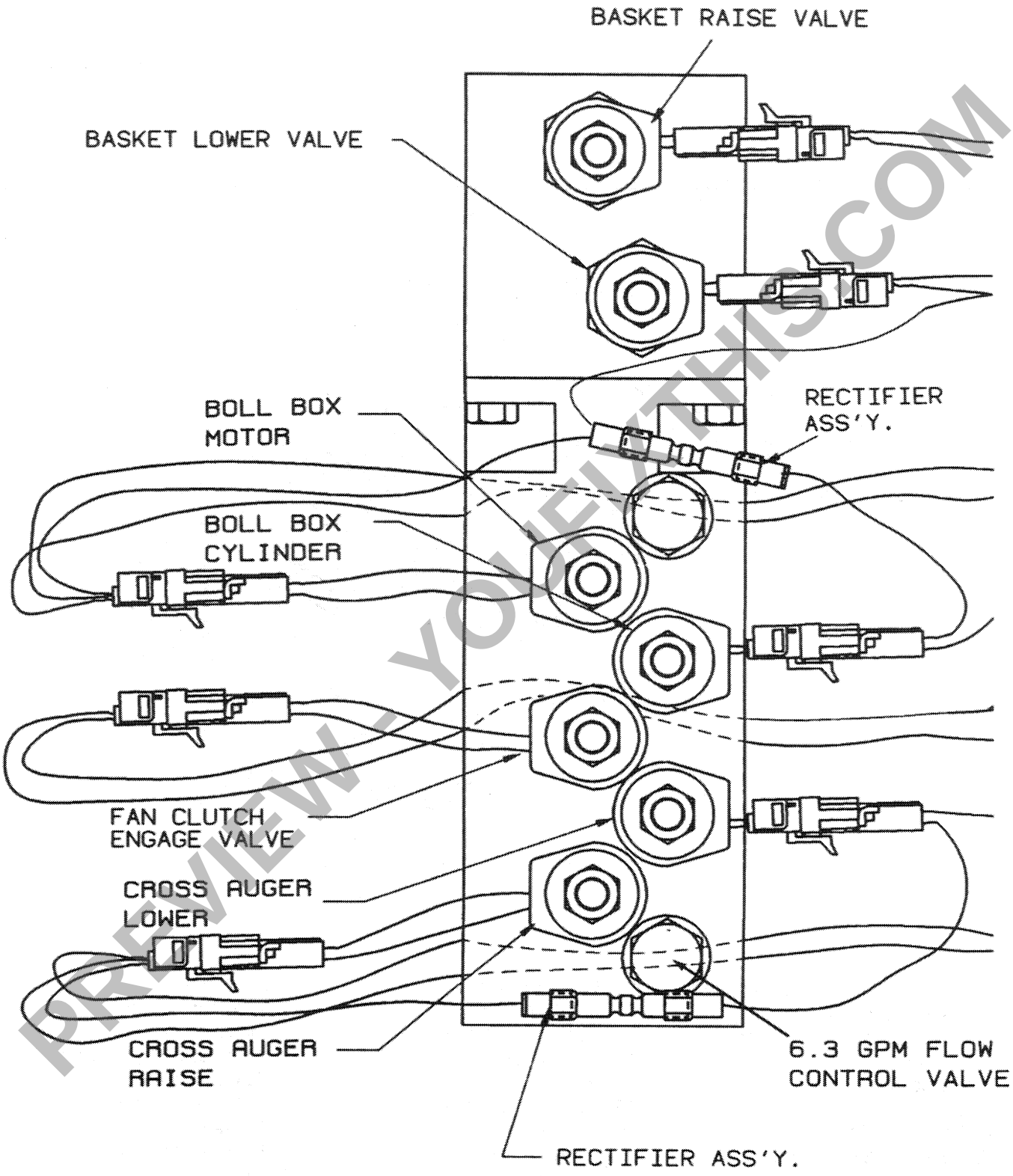
MANIFOLD SOLENOID VALVE LOCATIONS



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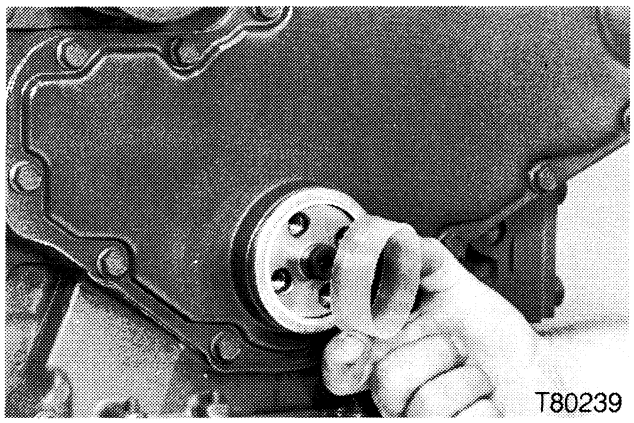
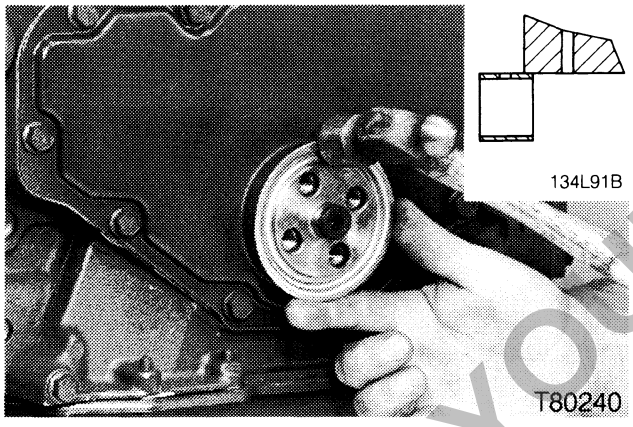
STEP 13



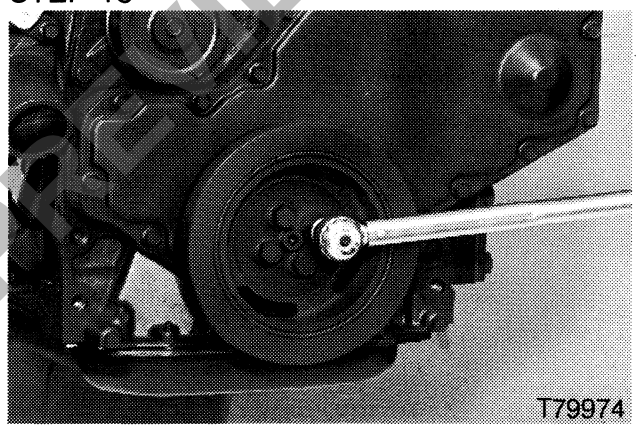
Remove the protective sleeve.

STEP 14



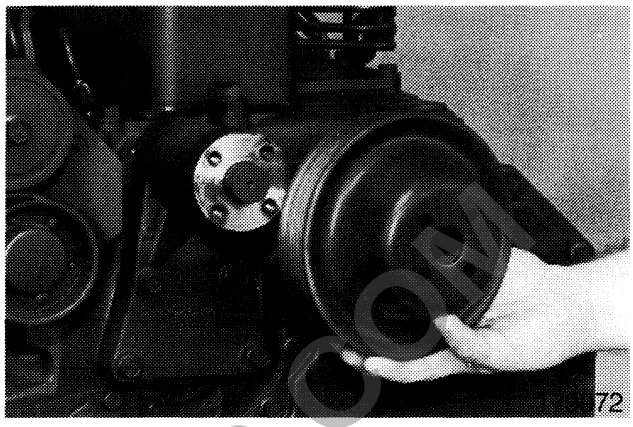
Install the installation tool and push the seal to the correct depth. The seal will be at the correct depth when the outside diameter of the installation tool makes contact with the front cover. Remove the seal installation tool.

STEP 15



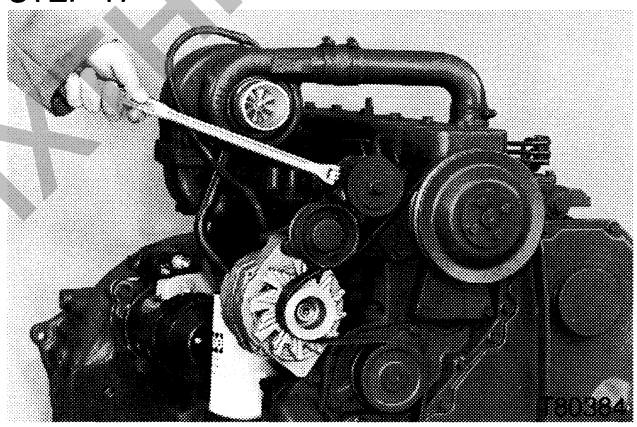
Install the crankshaft pulley and crankshaft pulley bolts. Tighten the bolts to a torque of 120 to 130 Nm.

STEP 16



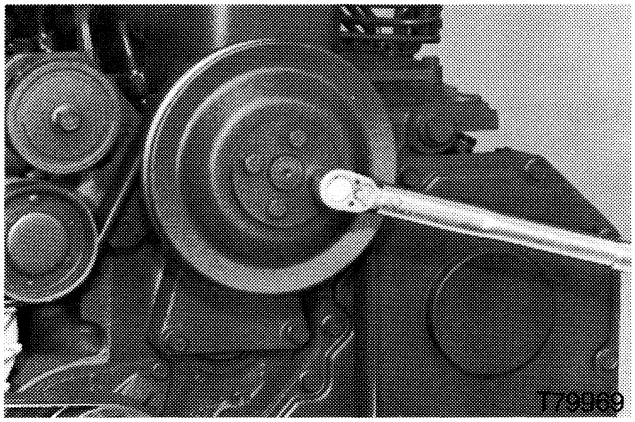
Install the fan pulley and bolts.

STEP 17



Lift the belt tensioner and install the fan belt.

STEP 18



Tighten the fan pulley bolts as follows:

Grade 8.8 Size M8	25 to 31 Nm
Grade 10.9 Size M8	37 to 43 Nm
Grade 8.8 Size M10	51 to 62 Nm
Grade 10.9 Size M10	51 to 62 Nm

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SPECIAL TORQUES

	Metric Value
Alternator Bracket Bolts	21 to 27 Nm
Belt Tensioner Bolt	39 to 47 Nm
Belt Tensioner Bracket Bolt (Allen head)	21 to 27 Nm
Cylinder Head Bolts (Short)	90 Nm Plus 90 Degrees
Cylinder Head Bolts (Long)	120 Nm Plus 90 Degrees
Exhaust Manifold Bolts	39 to 47 Nm
Fan Belt Pulley Bracket Bolts	23 to 25 Nm
Fan Belt Pulley Bolts	
Grade 8.8 Size M8	26 to 31 Nm
Grade 10.9 Size M8	37 to 43 Nm
Grade 8.8 Size M10	51 to 62 Nm
Grade 10.9 Size M10	51 to 62 Nm
Filter Inlet Fitting	29 to 35 Nm
Fuel Filter Housing Nut	29 to 35 Nm
Injector Cap Nut	55 to 65 Nm
Injector Leak Off Fitting	5 to 7 Nm
Intake Manifold Cover Bolts	21 to 27 Nm
Lift Bracket Bolt (Rear)	71 to 83 Nm
Rocker Arm Bracket Bolts	21 to 27 Nm
Thermostat Housing Bolts	21 to 27 Nm
Valve Cover Bolts	21 to 27 Nm

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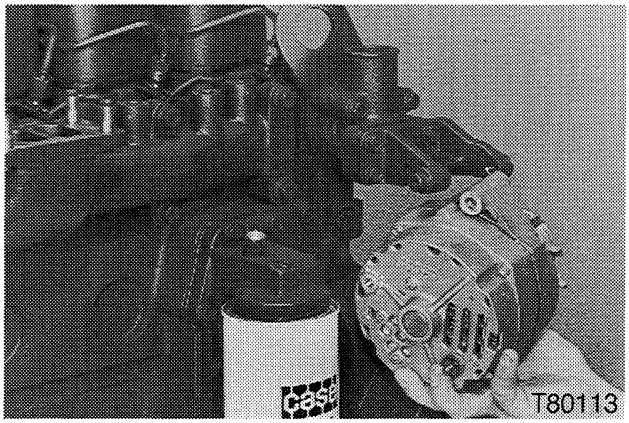
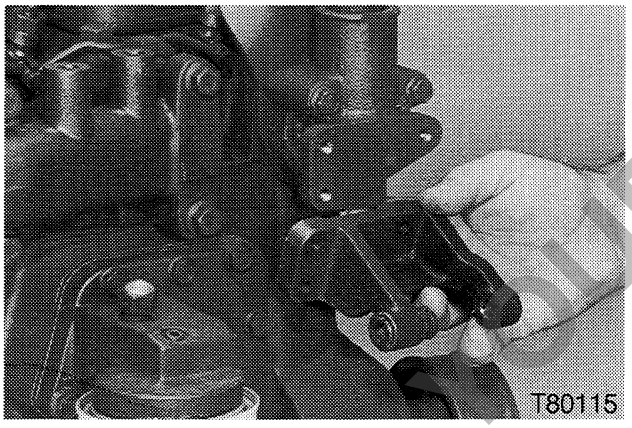
STEP 7



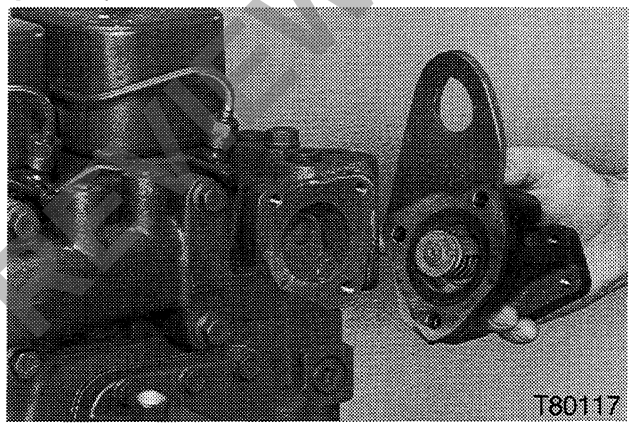
Remove the bolts that hold the alternator and remove the alternator.

STEP 8



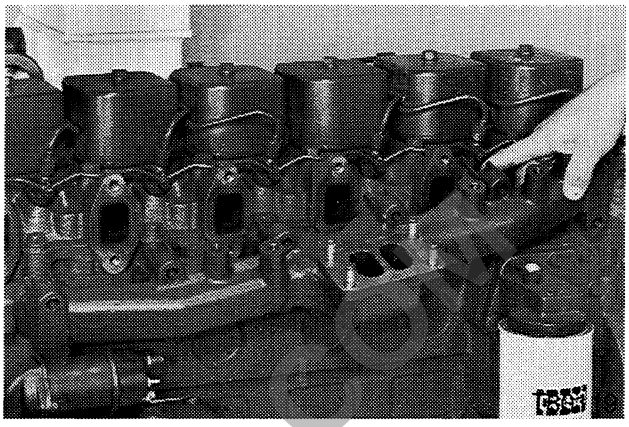
Remove the bolts and the alternator bracket.

STEP 9



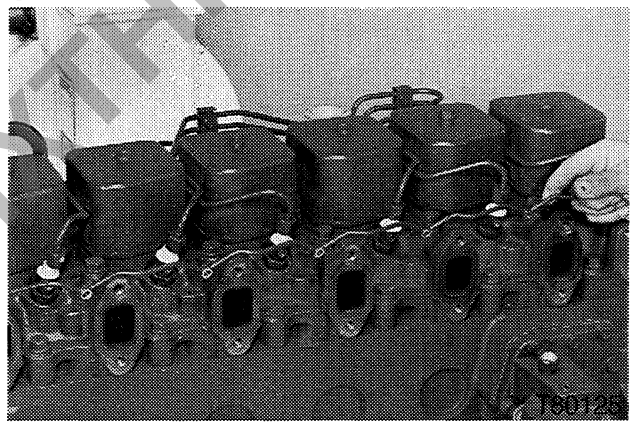
Remove the bolts and the thermostat housing assembly.

STEP 10



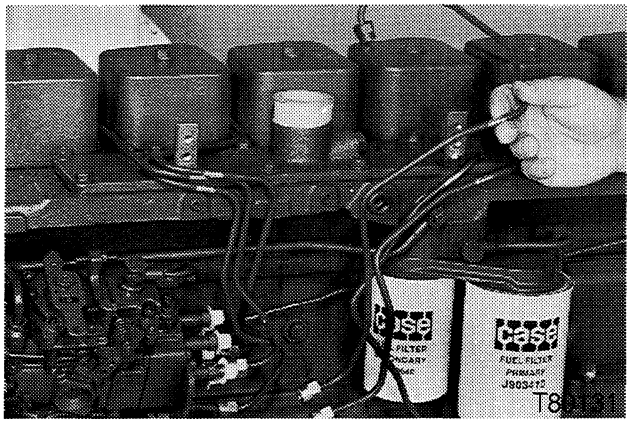
Remove the bolts and the exhaust manifold.

STEP 11



Remove the leak off fittings, gaskets and the leak off line.

STEP 12



Disconnect and remove the fuel lines. Install protective covers on the injector pump and the fuel lines.

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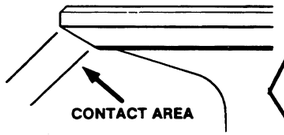
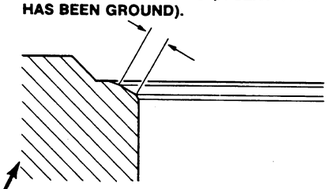
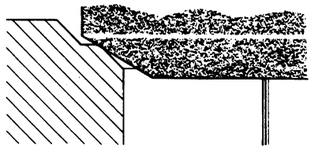
SEAT CONTACT AREA ON THE VALVE TO WIDE



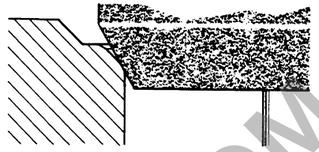
IF THE VALVE CONTACT AREA ON THE SEAT LOOKS LIKE THIS (A SEAT THAT HAS BEEN GROUND).



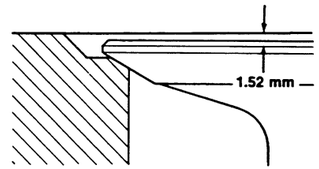
→ USE A 15 DEGREE STONE TO LOWER THE UPPER CONTACT AREA.



→ USE A 45 DEGREE OR 60 DEGREE STONE TO LIFT THE LOWER CONTACT AREA.

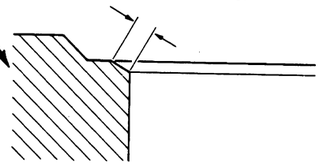


→ CHECK THAT THE VALVE HEAD IS NOT RECESSED MORE THAN 1.52 mm BELOW THE CYLINDER HEAD SURFACE.

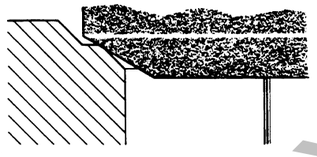


→ IF THE VALVE HEAD IS RECESSED MORE THAN 1.52 mm REPLACE THE VALVE AND INSTALL A VALVE SEAT.

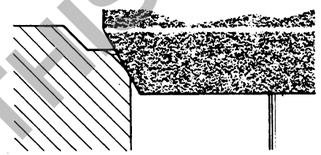
IF THE VALVE CONTACT AREA ON THE VALVE SEAT LOOKS LIKE THIS.



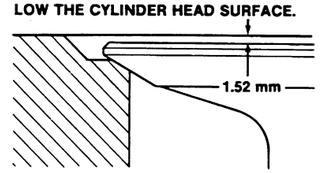
→ USE A 15 DEGREE STONE TO LOWER THE UPPER CONTACT AREA.



→ USE A 45 DEGREE OR 60 DEGREE STONE TO LIFT THE LOWER CONTACT AREA.



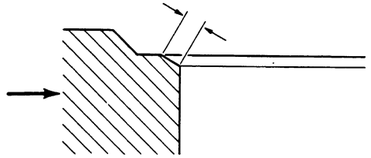
→ CHECK THAT THE VALVE HEAD IS NOT RECESSED MORE THAN 1.52 mm, BELOW THE CYLINDER HEAD SURFACE.



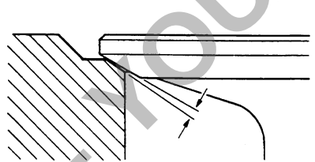
→ IF THE VALVE HEAD IS RECESSED MORE THAN 1.52 mm, REPLACE THE VALVE AND INSTALL A VALVE SEAT.

THIS IS THE CORRECT SEAT CONTACT AREA ON THE VALVE.

THE CORRECT VALVE CONTACT AREA ON THE SEAT WILL GIVE A SEAT WIDTH OF 1.32 TO 1.92 mm.



→ 1 DEGREE INTERFERENCE ANGLE



→ CORRECT REFACING OF THE INTAKE VALVE AND VALVE SEAT WILL GIVE A 1 DEGREE INTERFERENCE ANGLE. THIS ANGLE IS IMPORTANT BECAUSE IT GIVES ASSISTANCE IN CUTTING CARBON AND TO SEAT THE VALVES.

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Testing

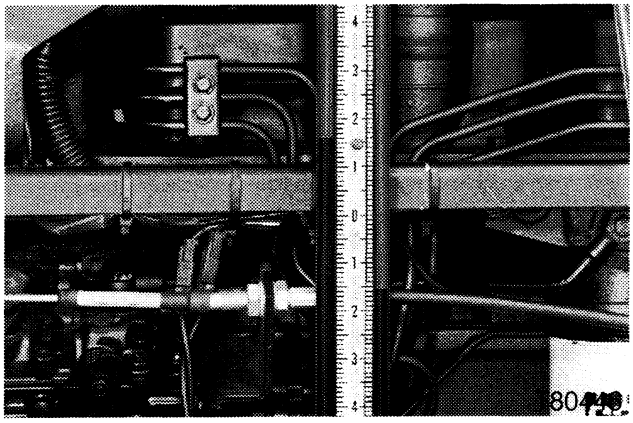
NOTE: *Do the following Steps to get the correct manometer readings.*

Step 1 - Warm the engine to operating temperature.

Step 2 - Operate the engine at the rated speed.

Step 3 - Use the hydraulics to apply a load to the engine during the manometer test.

STEP 341



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	59
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
6-590	2100	25.5	51.0
	2200	26.0	52.0
	2600	30.0	60.0
6T-590	2100	60.0	120.0
	2200	63.0	126.0
6TA-590	2100	60.0	120.0
	2200	63.0	126.0

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SPECIAL TORQUES

	Metric Value
Belt Tensioner Bolt	39 to 47 Nm
Camshaft Plate Bolts	21 to 27 Nm
Connecting Rod Bolts	60 Nm Plus 60 Degrees
Crankshaft Pulley Bolts	120 to 130 Nm
Fan Pulley Bracket Bolts	23 to 25 Nm
Fan Pulley Bolts	25 to 31 Nm
Grade 8.8 Size M8	26 to 31 Nm
Grade 10.9 Size M8	37 to 43 Nm
Grade 8.8 Size M10	51 to 62 Nm
Grade 10.9 Size M10	51 to 62 Nm
Flywheel Bolts	130 to 144 Nm
Flywheel Housing Bolts	54 to 66 Nm
Fuel Inlet Nut	29 to 35 Nm
Injection Pump Nut	59 to 71 Nm
CAV Injection Pump Lock Bolt (Lock Position)	8 Nm
CAV Injection Pump Lock Bolt (Unlock Position)	20 Nm
Bosch Injection Pump Lock Bolt (Lock Position)	30 Nm
Bosch Injection Pump Lock Bolt (Unlock Position)	30 Nm
Injection Pump Mounting Nuts	21 to 27 Nm
Injection Pump Bracket Bolts	21 to 27 Nm
Front Cover Bolts	21 to 27 Nm
Front Housing Bolts	21 to 27 Nm
Main Bearing Bolts	80 Nm Plus 60 Degrees
Oil Suction Tube Bolt	21 to 27 Nm
Seal Carrier Bolts	8 to 10 Nm
Starter Retainer Bolts	39 to 47 Nm
Fuel Inlet Bolts	22 to 28 Nm
Fuel Outlet Bolt	22 to 28 Nm
Lifter Cover Bolts	21 to 27 Nm

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1800 Cotton Harvester
Service Manual

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TENNECO

Rac 8-98620

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LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Farenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
#3	Dark Brown					24 hr	N/A	Form a Gasket (works with oil, fuel or grease) Pliable
80	Yellow					Fast	N/A	Weatherstrip Adhesive
123	Clear					N/A	N/A	Parts Cleaner Fluid
220	Blue	290	0.003	57/143 in lbs	-65 to +250	6 min/24 hrs	747	Wicking Threadlocker
221	Purple	222	0.005	75/44 in lbs	-65 to +300	2 min/24 hrs	747	Low Strength Threadlocker
222	Purple		0.005	53/30 in lbs	-65 to +300	20 min/24 hrs	764	Low Strength Threadlocker (Small Screws)
225	Brown	222	0.010	45/25 in lbs	-65 to +300	7 min/24 hrs	747	Low Strength Threadlocker
242	Blue		0.005	80/50 in lbs	-65 to +300	10 min/24 hrs	764	Medium Strength Threadlocker
262	Red	271	0.005	160/190 in lbs	-65 to +300	5 min/24 hrs	747	High Strength Threadlocker
270	Green	271	0.007	160/320 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
271	Red	262	0.007	160/320 in lbs	-65 to +300	10 min/24 hrs	764	High Strength Threadlocker
272	Red	620	0.007	180/220 in lbs	-65 to +450	30 min/24 hrs	764	High Temperature, High Strength
275	Green	277	0.010	210/300 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
277	Red		0.010	225/300 in lbs	-65 to +300	60 min/24 hrs	764	High Strength Threadlocker
290	Green		0.003	85/350 in lbs	-65 to +300	6 min/24 hrs	764	Wicking Threadlocker
*404	Clear	495	0.006	3200 psi	-65 to +180	30 sec/24 hrs	NA	Instant Adhesive
*406	Clear		0.004	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Adhesive
*409	Clear	454	0.008	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gel Instant Adhesive
*414	Clear		0.006	2500 psi	-65 to +180	30 sec/24 hr	N/A	Instant Adhesive
*415	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Metals)
*416	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Plastics)
*420	Clear		0.002	2500 psi	-65 to +180	15 sec/24 hrs	N/A	Wicking Instant Adhesive
*422	Clear	454	0.020	2800 psi	-65 to +180	60 sec/24 hrs	N/A	Gap Filling Instant Adhesive
*430	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
*445	White/Black		0.250	2000 psi	-65 to +180	5 min/24 hrs	N/A	Fast Setting 2 Part Epoxy
*454	Clear		0.010	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Gen Instant Adhesive
*495	Clear		0.004	2500 psi	-65 to +180	20 sec/24 hrs	N/A	General Purpose Instant Adhesive
*496	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
504	Brt Orange	515	0.030	750 psi	-65 to +300	90 min/24 hrs	None	Rigid Gasket Eliminator
509	Light Blue		0.020	750 psi	-65 to +320	6 hr/72 hrs	764	Flange Sealant
510	Red		0.020	1000 psi	-65 to +400	30 min/24 hrs	764	High Temperature, GAsket Eliminator
515	Purple		0.010	750 psi	-65 to +300	1 hr/24 hrs	764	Gasket Eliminator 515

Rac 8-98902 * Products 404-496 (except for #445) are all instant adhesives (super glues) they differ mostly in viscosity Printed in U.S.A.

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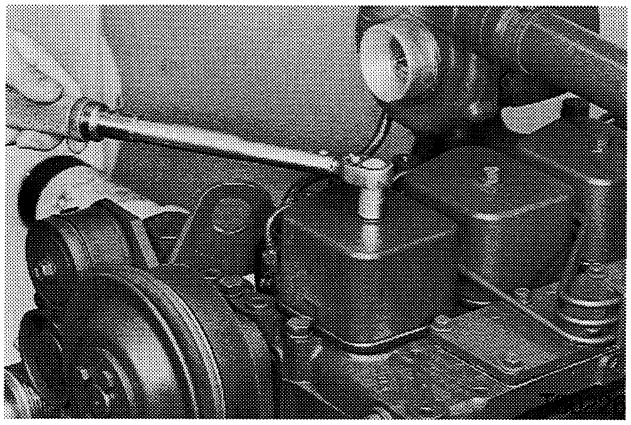
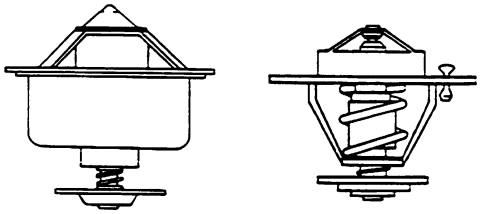
STEP 125



Install new seals the valve cover bolts. Tighten the bolts to a torque of 21 to 27 Nm.

THERMOSTAT SERVICE

STEP 126

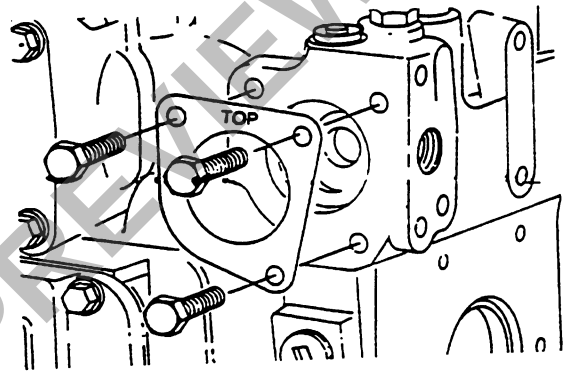


1. NEW THERMOSTAT 2. OLD THERMOSTAT

309L91

A new thermostat has been released for use in your engine. If you removed an old thermostat from your engine, do the following steps to install a new thermostat.

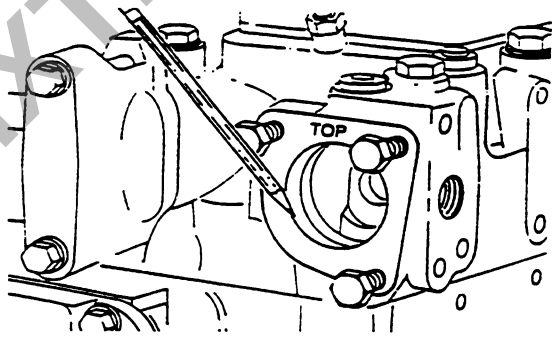
STEP 127



311L91

Install the template that comes with the new thermostat kit.

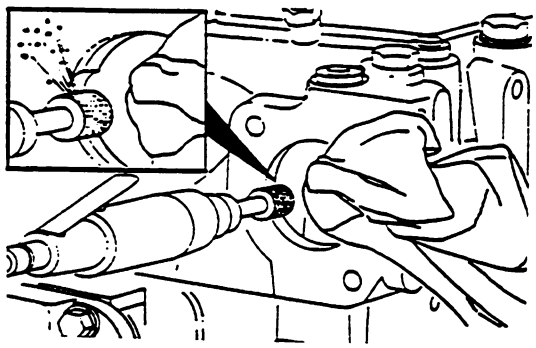
STEP 128



310L91

If the cylinder head coolant passage is smaller than the ID of the template, the coolant passage will have to be made larger. Mark the ID of template on the cylinder head.

STEP 129



312L91

Remove the template. Use a shop cloth in the coolant passage to keep all foreign material out of the engine. Use a rotary grinder to remove the material.

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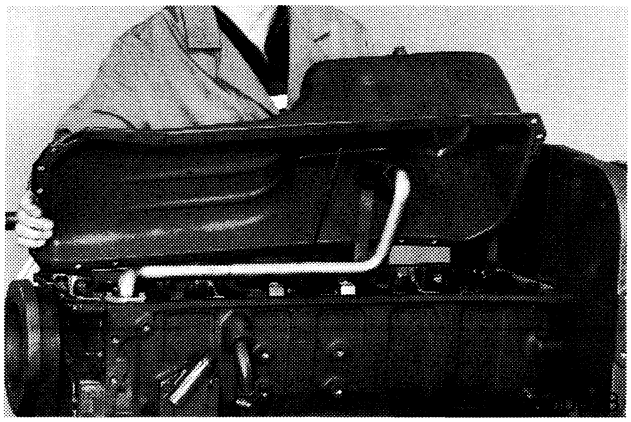
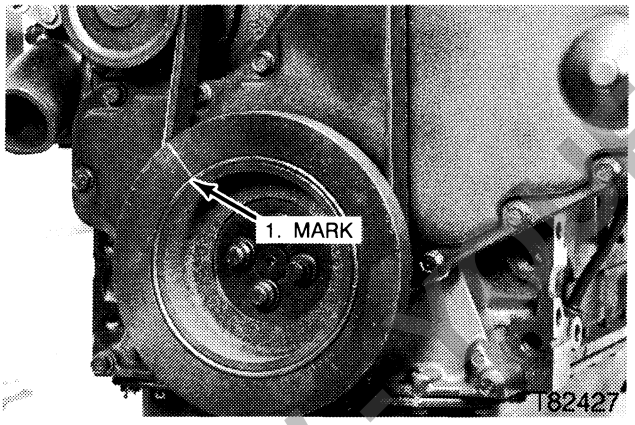
STEP 251



Install the engine oil pan. See Section 2445 for oil pan installation.

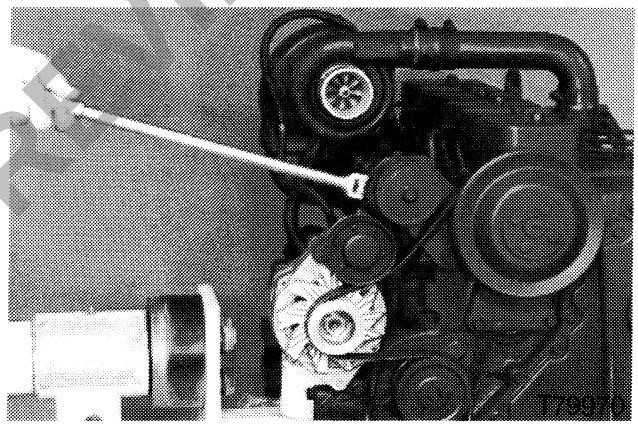
CAMSHAFT
Removal

STEP 252



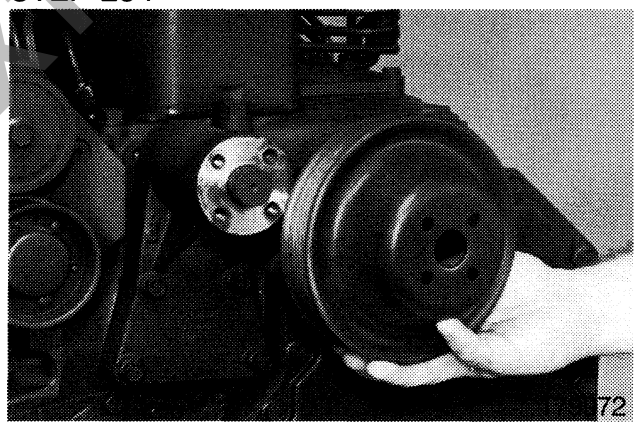
Make sure the upper and lower mark on the crankshaft pulley are in align. If the upper and lower mark are not in align, replace the crankshaft pulley.

STEP 253



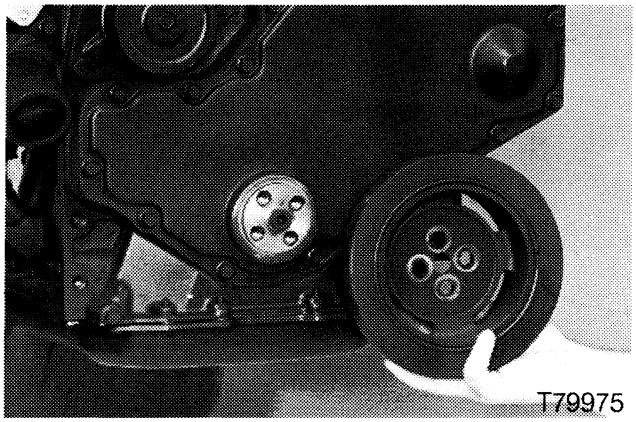
Lift the belt tensioner and remove the fan belt.

STEP 254



Remove the fan pulley bolts and the fan pulley.

STEP 255



Remove the crankshaft pulley bolts and the crankshaft pulley.

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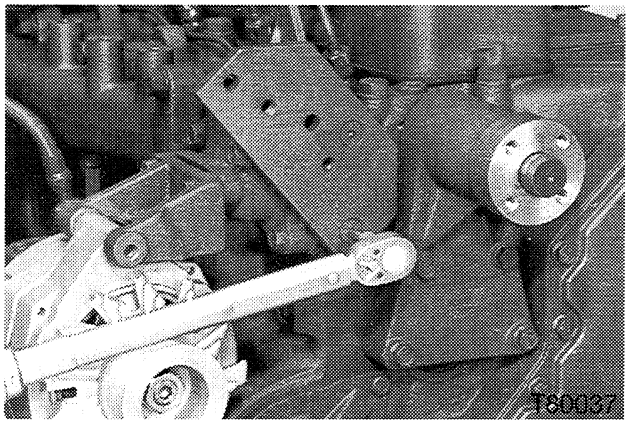
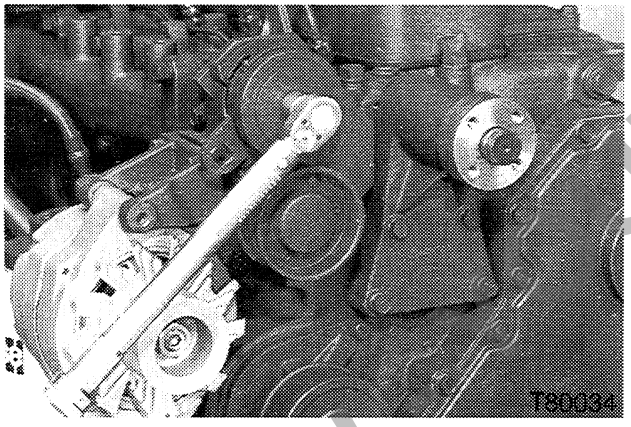
Belt Tensioner and Bracket Installation

STEP 40



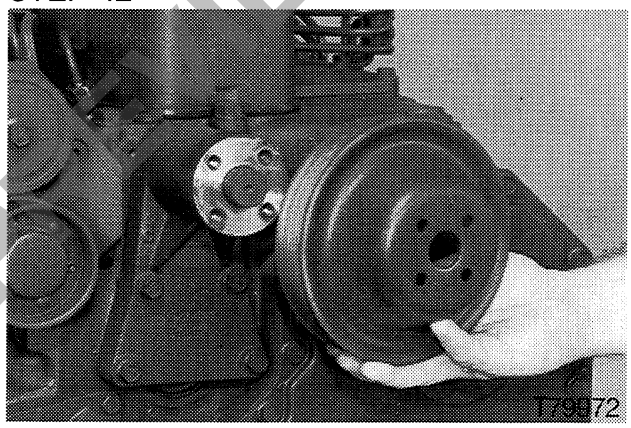
Install the tensioner bracket and the Allen head bolts. Tighten the Allen head bolts to a torque of 21 to 27 Nm.

STEP 41



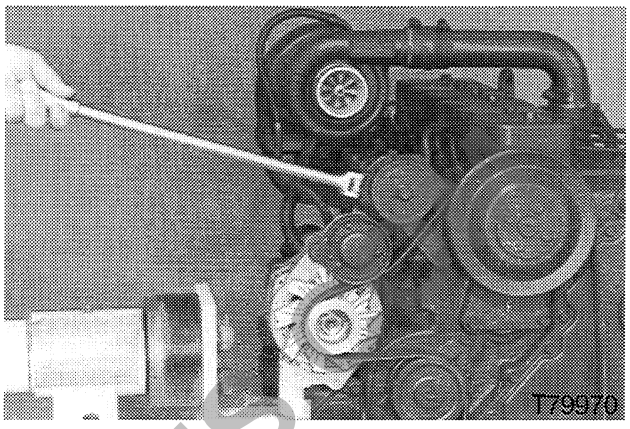
Install the belt tensioner and the belt tensioner bolt. Tighten the bolt to a torque of 39 to 47 Nm.

STEP 42



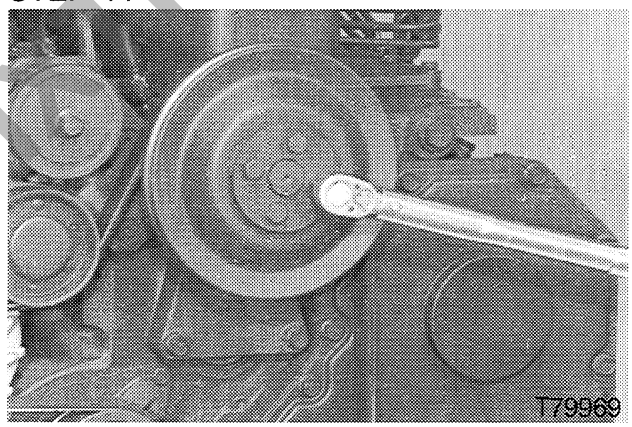
Install the fan belt pulley and bolts.

STEP 43



Lift the belt tensioner pulley and install the fan belt.

STEP 44



Torque the fan pulley bolts as follows:

Grade 8.8 Size M8	25 to 31 Nm
Grade 10.9 Size M8	37 to 43 Nm
Grade 8.8 Size M10	51 to 62 Nm
Grade 10.9 Size M10	51 to 62 Nm

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Section

3413

FUEL INJECTORS

6-590 Diesel Engine

3413

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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 8-26152

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October, 1984 (Revised February, 1992)

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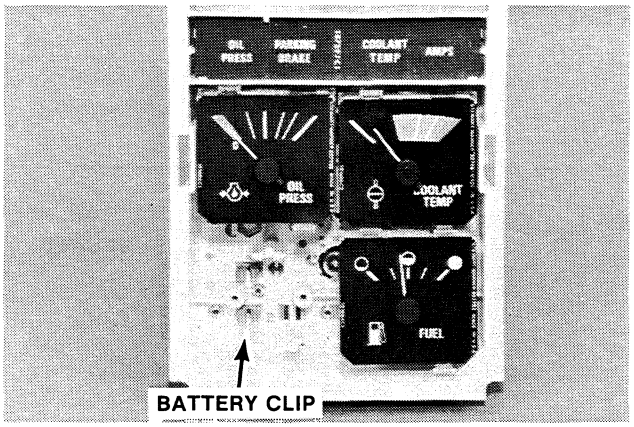
PROCEDURE	RESULT
E. Remove the volt gauge from the instrument cluster. Install the connector into the cluster. Connect a test light to a good ground and the battery clip in the instrument cluster key switch ON.	E. Test light does illuminate, replace the volt gauge. End of Test Test light does not illuminate, replace the instrument cluster. End of Test



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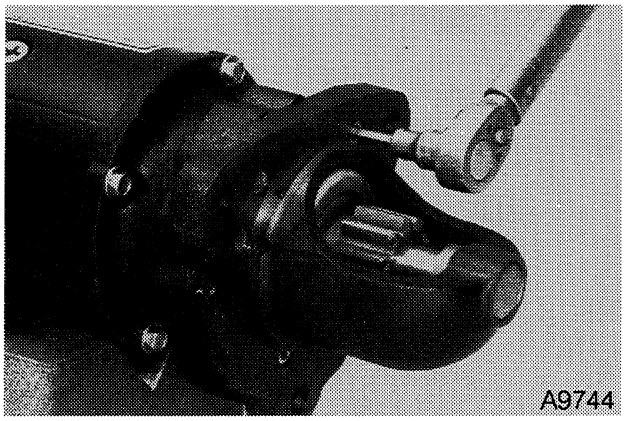
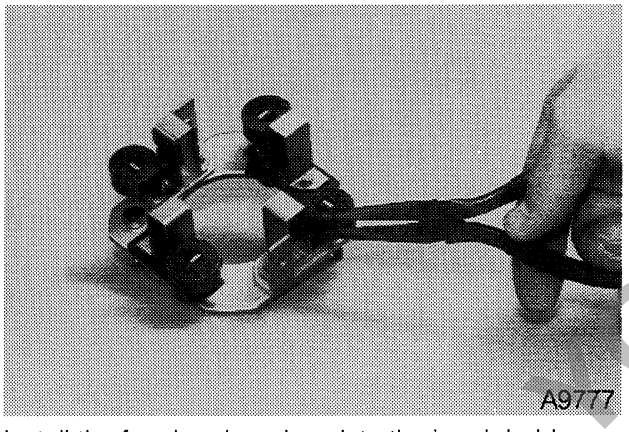
STEP 58



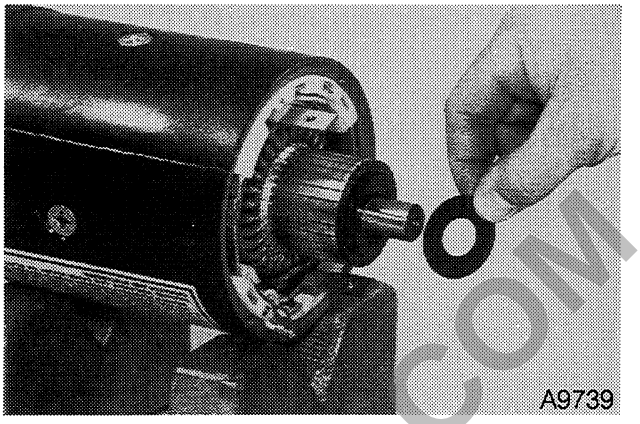
Install and torque the six drive housing to lever housing screws to 25 to 30 Nm (18 to 22 lb ft).

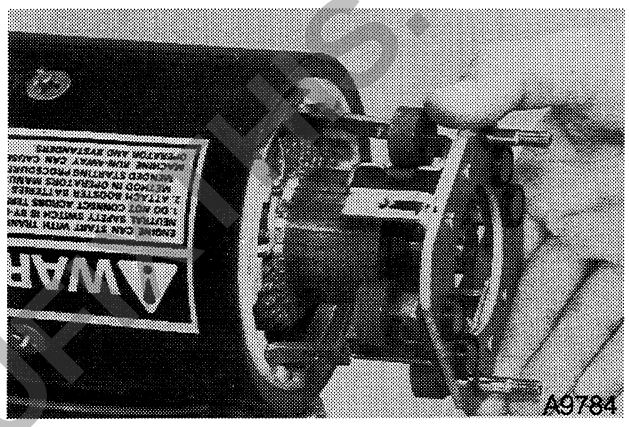
STEP 59



Install the four brush springs into the brush holder assembly.

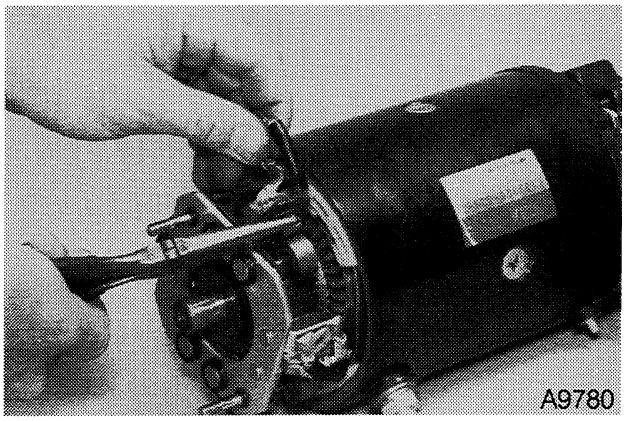
STEP 60





Install the armature end washer and the brush holder assembly onto the field frame. Line up the tab with the mark, and the field winding lead.

STEP 61



Install the four brushes into the brush holder.

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STEERING CYLINDER
Removal 5

Disassembly and Inspection 6

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Section

6035

TRANSMISSION REMOVAL AND INSTALLATION

6035

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A Tenneco Company

Rac 8-98980

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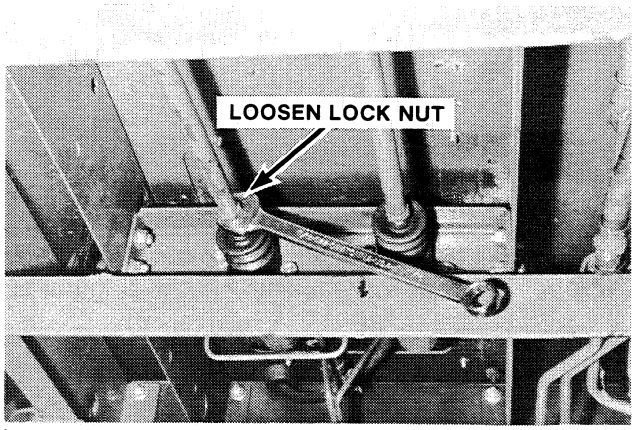
MASTER CYLINDER LINKAGE ADJUSTMENT

STEP 31

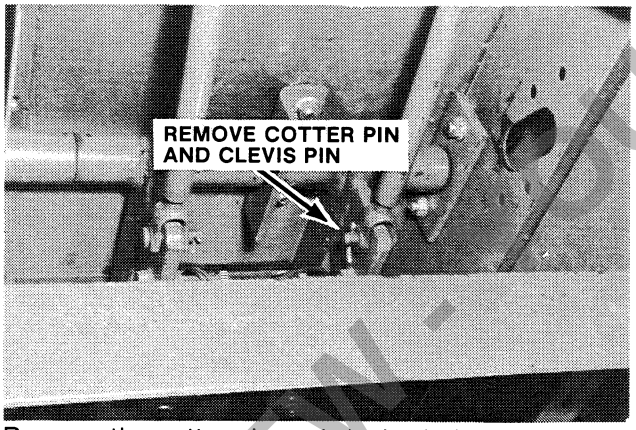
Adjust one brake pedal and master cylinder at a time. Be sure the brake pedal return spring is installed to hold the pedal in the 'rest' position.

STEP 32



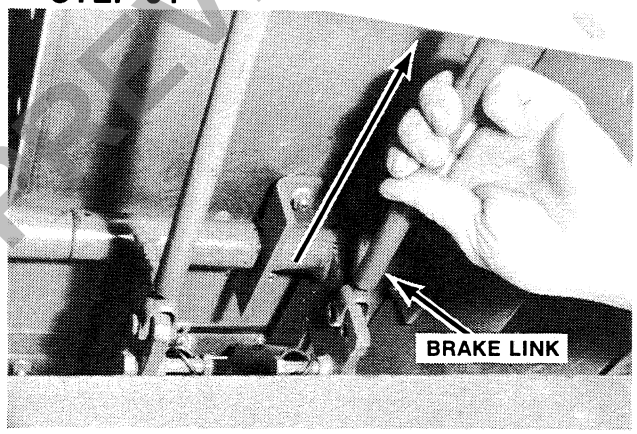
Loosen the brake link lock nut.

STEP 33



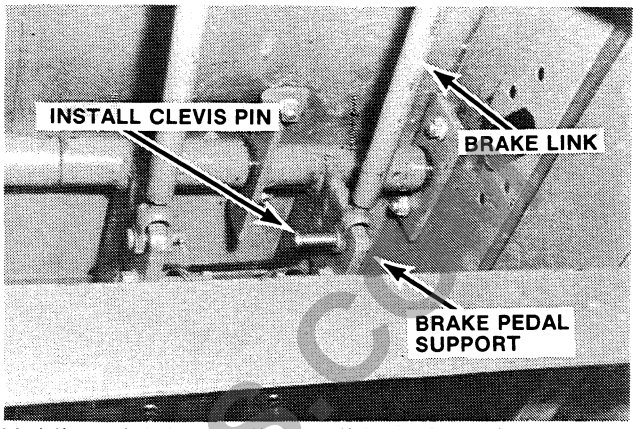
Remove the cotter pin and clevis pin from yoke end of brake link.

STEP 34



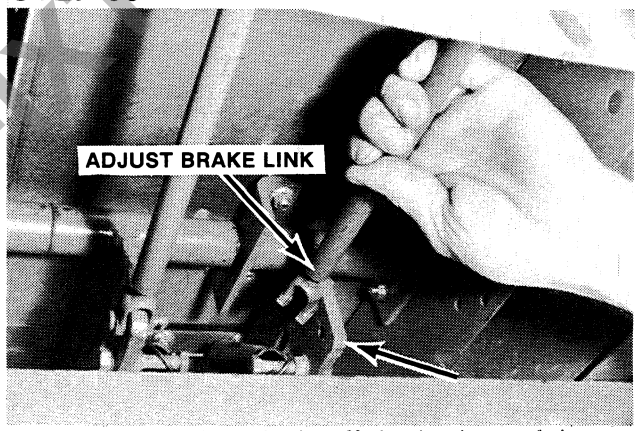
Force the brake link against the master cylinder. Do not move the master cylinder piston.

STEP 35



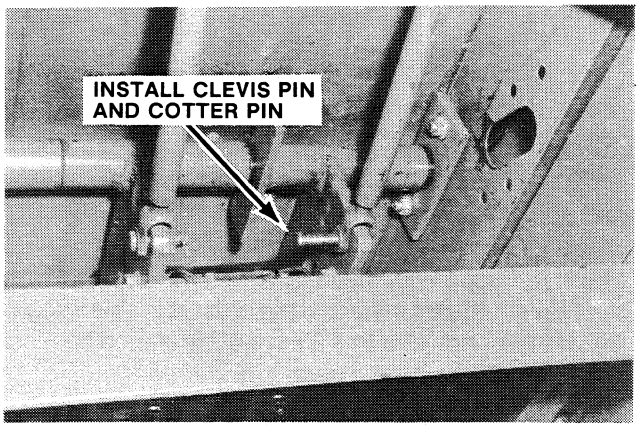
Holding the brake link solid against the master cylinder, try to install the clevis pin thru the clevis into the brake pedal support.

STEP 36



Slip the brake link clevis off the brake pedal support and adjust as needed to line up the holes in the clevis and brake pedal support.

STEP 37



When the holes line up (while holding the brake link solid against the master cylinder), install the clevis pin and cotter pin.

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NOTE: The J I Case Company 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.

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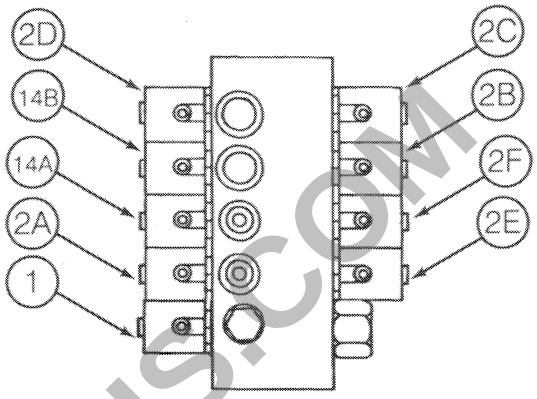
BASKET MANIFOLD VALVE
Functions

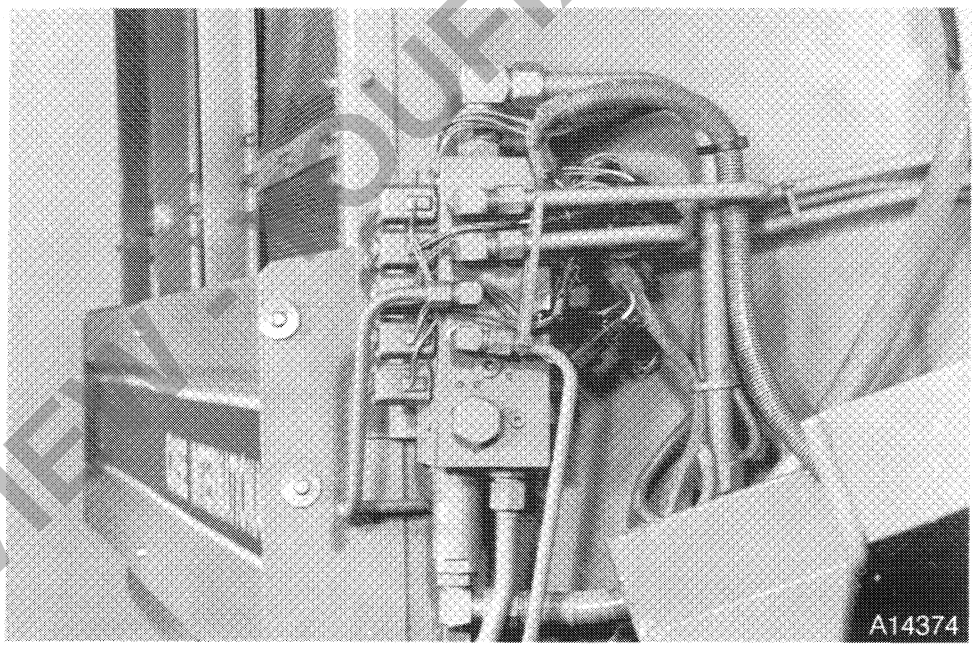
SOLENOID VALVE FUNCTION
2D - COTTON DISTRIBUTOR FORWARD
14B - COTTON DISTRIBUTOR BACK
14A - BASKET DOOR CLOSE
2A - BASKET DOOR OPEN
1- UNLOADER
2C -COTTON DISTRIBUTOR BACK
2B - COTTON DISTRIBUTOR FORWARD
2F - BASKET DOOR OPEN
2E - BASKET DOOR CLOSE



687L91

Removal

STEP 11



NOTE: *Make sure that the basket door is down or secured in the up position.*

1. Clean the area around the valve. Disconnect the hydraulic lines and hoses. Cap or plug the open fittings.
2. Tag the electrical wires and disconnect the wiring harness from the solenoids.
3. Remove the mounting bolts and remove the manifold assembly.

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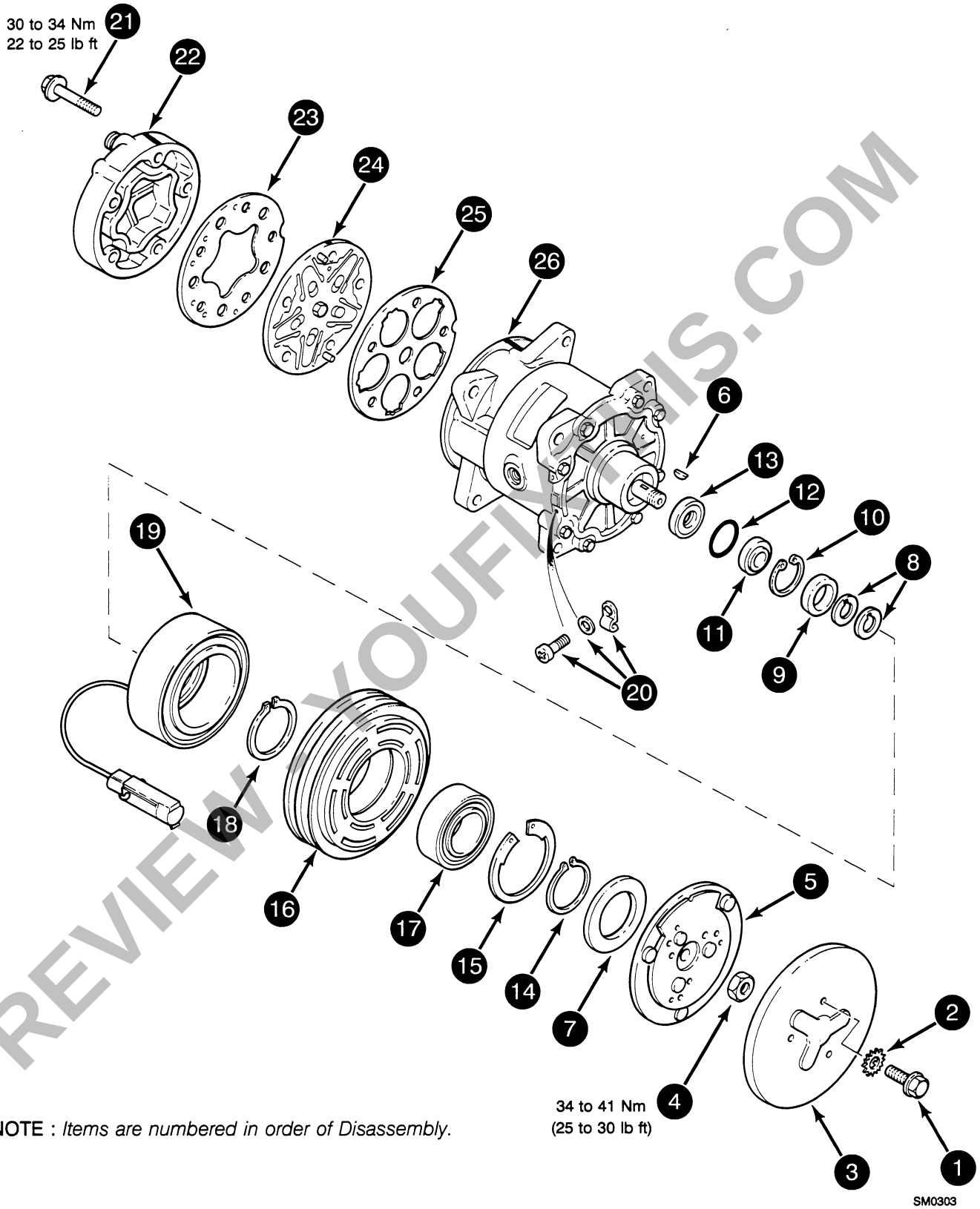

NOTE : *Items are numbered in order of Disassembly.*

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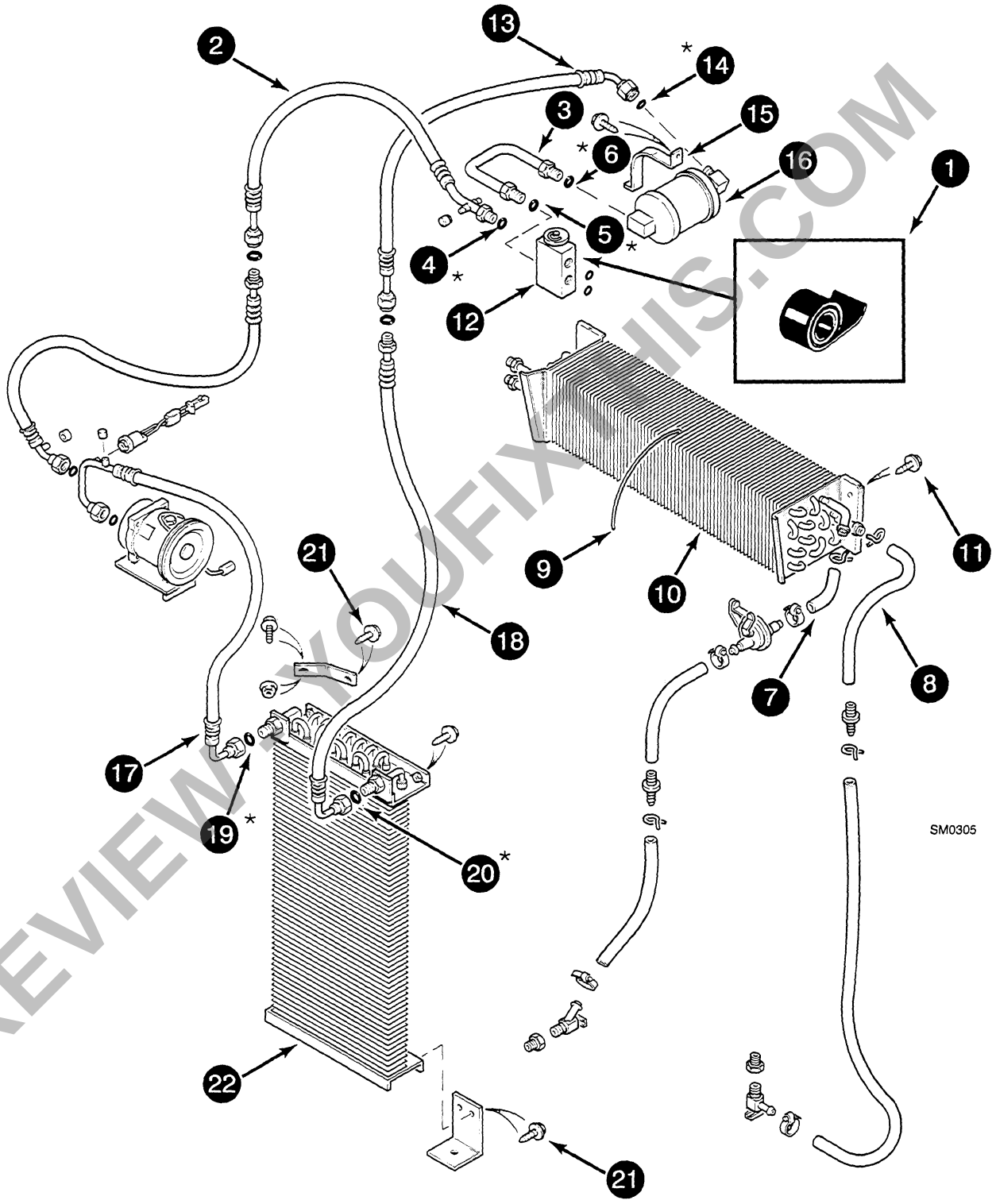
NOTE: *Items are numbered in order of Removal.*

NOTE: *All items marked (*) must be replaced.*



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