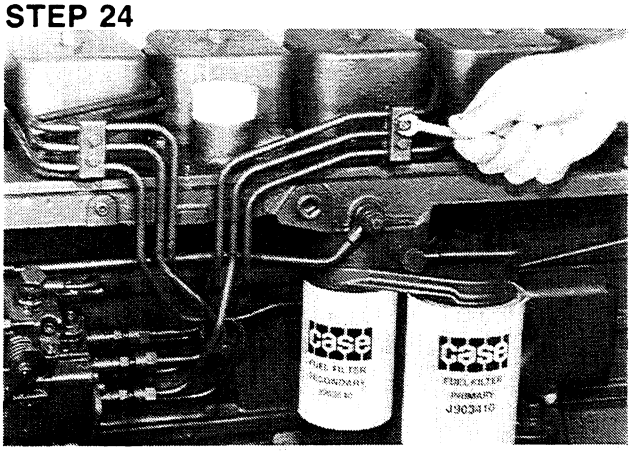
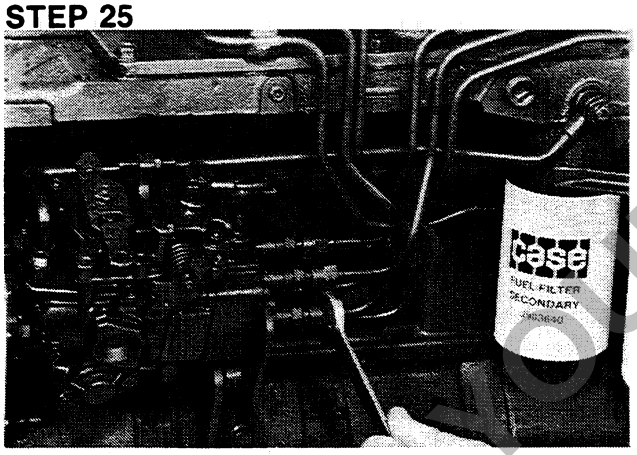
STEP 24



Remove the bolts and clamps that hold the fuel lines.

STEP 25



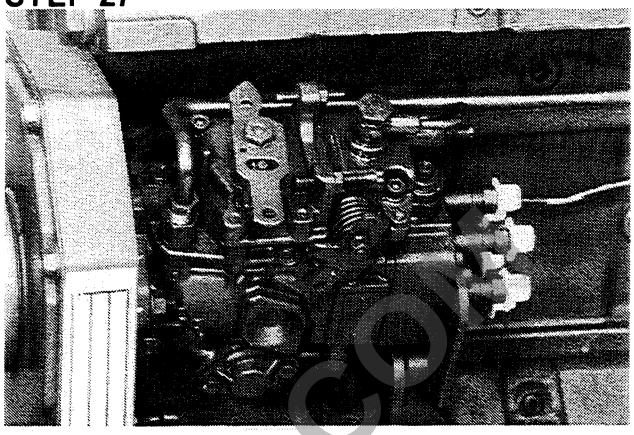
Disconnect the fuel line from the fuel injection pump.

STEP 26



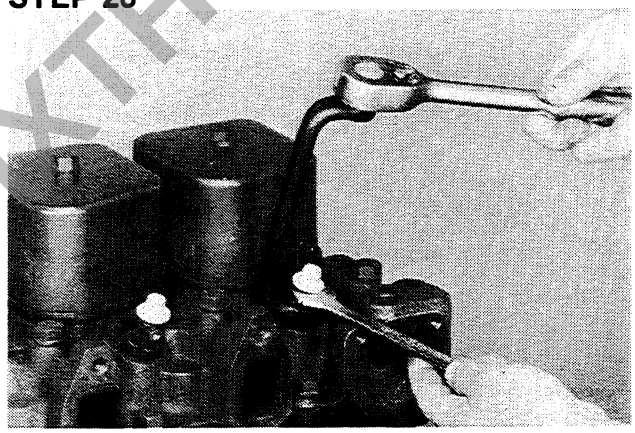
Remove the fuel lines.

STEP 27



Install protective covers on the injection pump outlet lines and the injection lines.

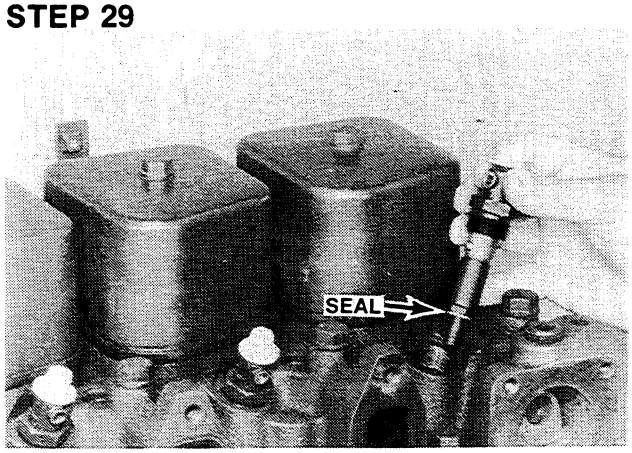
STEP 28



Loosen the nut on the injectors.

NOTE: *The injector must not rotate in the bore of the cylinder head. This will damage the cylinder head.*

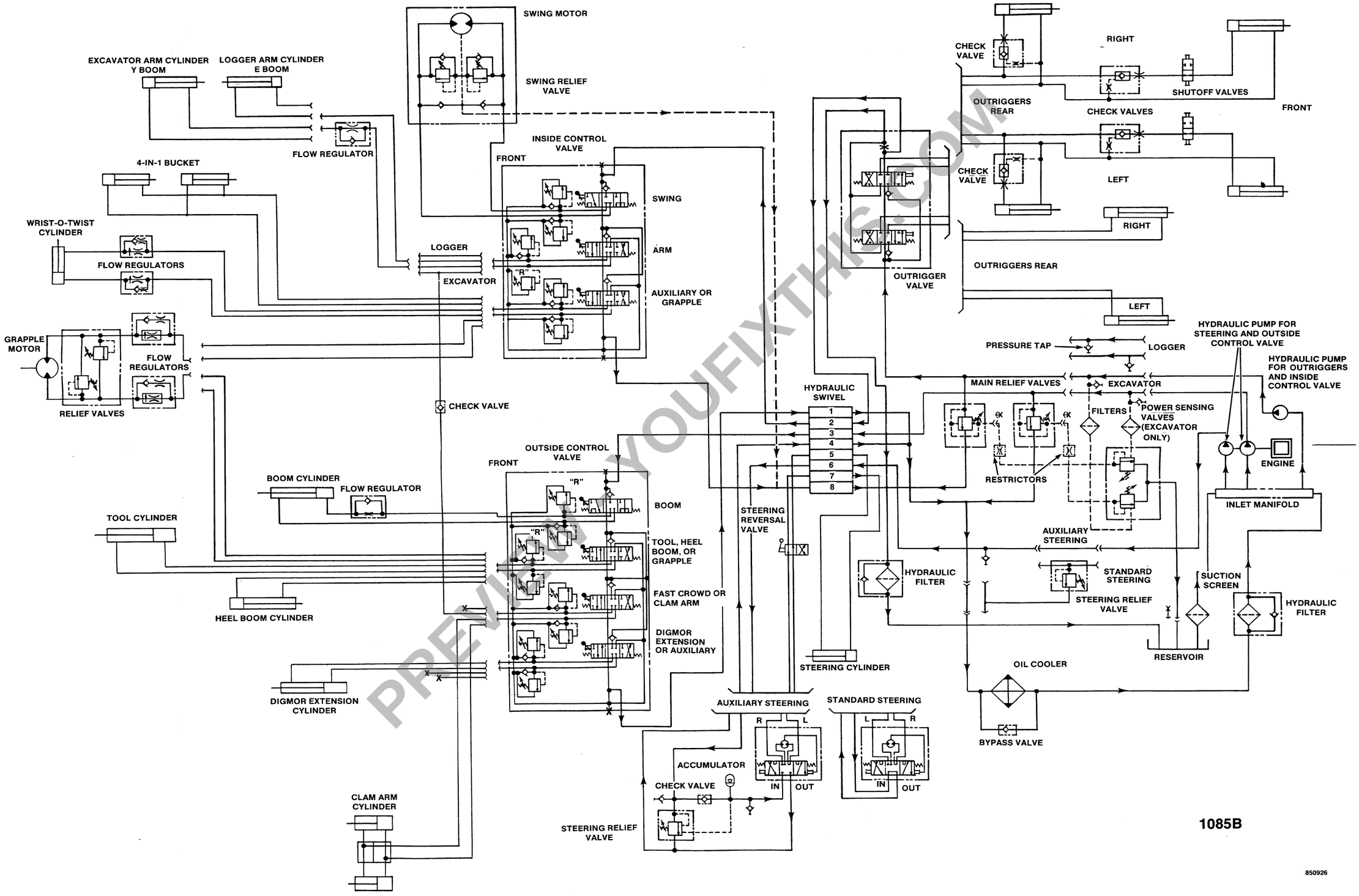
STEP 29



Remove the injectors from the cylinder head.

NOTE: *Make sure the injector seal is removed from the cylinder head.*

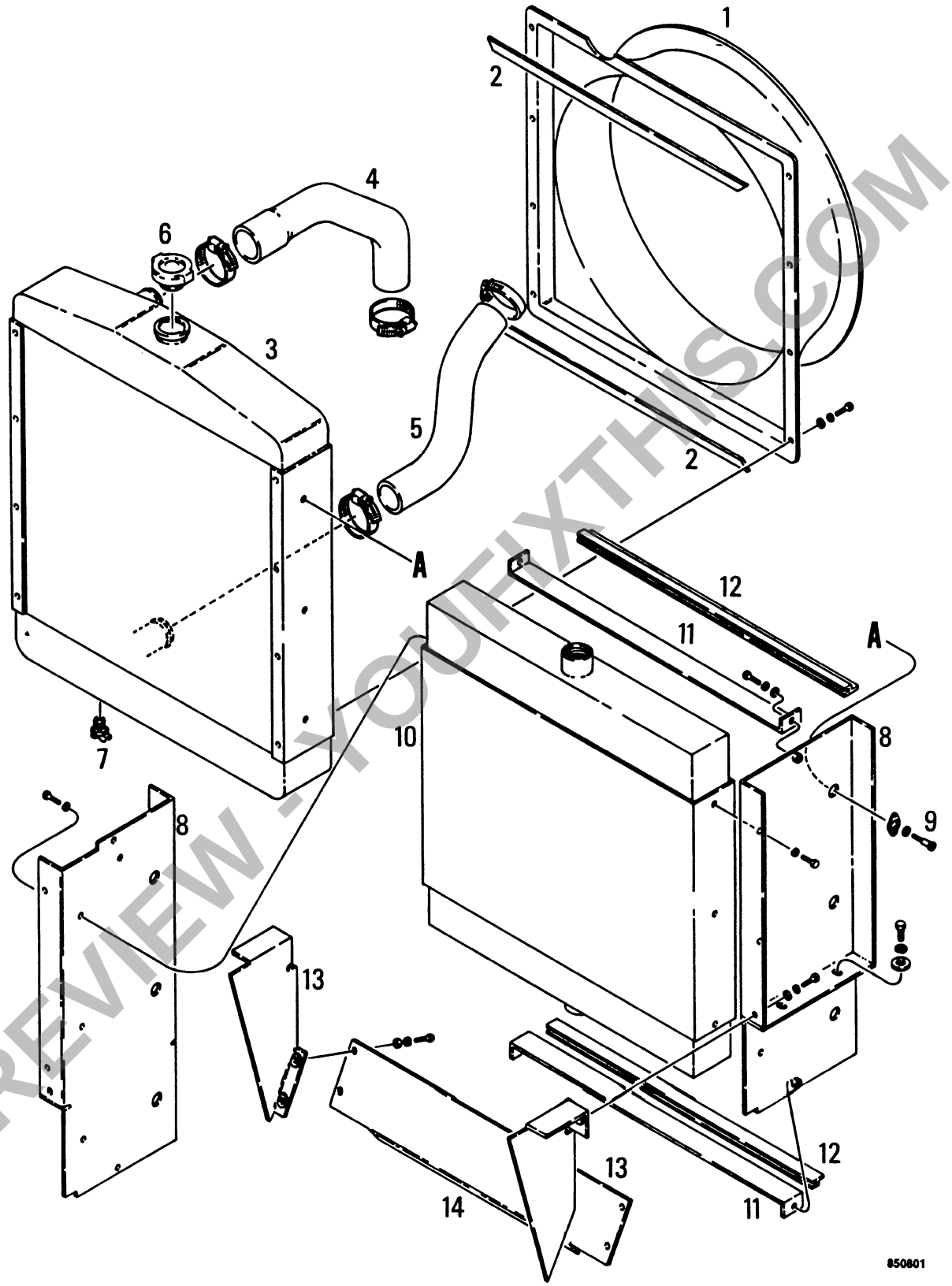
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RADIATOR



1. *Fan Shroud*
2. *Seal*
3. *Radiator*
4. *Top Radiator Hose*
5. *Bottom Radiator Hose*
6. *Radiator Cap*
7. *Drain Valve*
8. *Mounting Bracket*
9. *Allen Head Screw*
10. *Oil Cooler*
11. *Bracket*
12. *Cover Strip*
13. *Side Shield*
14. *Front Shield*

Radiator and Oil Cooler Installation

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TORQUE SPECIFICATIONS - U.S. HARDWARE

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers, dry, or when lubricated with engine oil. Not applicable if special graphites, moly-disulfide greases, or other extreme pressure lubricants are used.

Grade 5 Bolts, Nuts, and Studs



Size	Pound-Feet	Newton metres	Kilogram metres
1/4 in 6.4 mm	9-11	12-15	1.2-1.5
5/16 in 7.9 mm	17-21	23-28	2.4-2.9
3/8 in 9.5 mm	35-42	48-57	4.8-5.8
7/16 in 11.1 mm	54-64	73-87	7.5-8.8
1/2 in 12.7 mm	80-96	109-130	11.1-13.3
9/16 in 14.3 mm	110-132	149-179	15.2-18.2
5/8 in 15.9 mm	150-180	203-244	20.8-24.9
3/4 in 19.0 mm	270-324	366-439	37.3-44.8
7/8 in 22.2 mm	400-480	542-651	55.3-66.4
1.0 in 25.4 mm	580-696	787-944	80.2-96.2
1-1/8 in 28.6 mm	800-880	1085-1193	111-122
1-1/4 in 31.8 mm	1120-1240	1519-1681	155-171
1-3/8 in 34.9 mm	1460-1680	1980-2278	202-232
1-1/2 in 38.1 mm	1940-2200	2631-2983	268-304

Grade 8 Bolts, Nuts, and Studs



Size	Pound-Feet	Newton metres	Kilogram metres
1/4 in 6.4 mm	12-15	16-20	1.7-2.1
5/16 in 7.9 mm	24-29	33-39	3.3-4.0
3/8 in 9.5 mm	45-54	61-73	6.2-7.5
7/16 in 11.1 mm	70-84	95-114	9.7-11.6
1/2 in 12.7 mm	110-132	149-179	15.2-18.2
9/16 in 14.3 mm	160-192	217-260	22.1-26.5
5/8 in 15.9 mm	220-264	298-358	30.4-36.5
3/4 in 19.0 mm	380-456	515-618	52.5-63.0
7/8 in 22.2 mm	600-720	814-976	83.0-99.5
1.0 in 25.4 mm	900-1080	1220-1465	124-149
1-1/8 in 28.6 mm	1280-1440	1736-1953	177-199
1-1/4 in 31.8 mm	1820-2000	2468-2712	252-277
1-3/8 in 34.9 mm	2380-2720	3227-3688	329-376
1-1/2 in 38.1 mm	3160-3560	4285-4827	437-492

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ENGINE AND TORQUE CONVERTER REMOVAL

1. Park the machine on a level surface.

2. Swing the machine until the boom and arm are 90 degrees from the tires.

3. Lower the boom until the tool is on the floor. Apply the parking brake.

4. Stop the engine. Let the engine cool.

5. Remove the access cover for the radiator cap from the hood.

6. With the engine cold, remove the radiator cap.

7. Open the drain valve at the bottom of the radiator. Drain the coolant from the radiator. The cooling system contains 8.5 U.S. gallons (32 litres) of coolant.

8. Remove the cap for the air cleaner.

9. Remove the grommet from around the air cleaner inlet.

10. Remove the hood.

11. Remove the engine side panels.

12. Remove the front shroud.

13. Loosen and remove the cap screws, lock washers, and flat washers that fasten the bracket and cover strip to the mounting brackets between the radiator and oil cooler. Remove the bracket and cover strip.

14. Disconnect the top radiator hose from the radiator.

15. Disconnect the overflow hose from the fill neck on the radiator.

16. Loosen and remove the cap screws, lock washers, and flat washers that fasten the fan shroud to the radiator.

17. Move the fan shroud toward the engine.

18. Disconnect the bottom radiator hose from the radiator.

19. Disconnect the hoses for the transmission oil cooler from the fittings in the bottom of the radiator.

20. Install plugs in the hoses and caps on the fittings.

21. Loosen and remove the two lower Allen head screws that fasten the radiator to the mounting brackets.

22. Have another person help you hold the radiator in place. Remove the remaining Allen head screws. Lift the radiator and remove the radiator from the machine.

23. Remove the fan shroud from the engine.

24. Loosen the clamp that holds the muffler to the exhaust pipe.

25. Loosen the clamp that holds the muffler to the exhaust elbow on the turbocharger.

26. Remove the muffler.

27. Cover or close the opening in the exhaust elbow of the turbocharger.

28. Loosen and remove the cap screws, lock washers, and flat washers that hold the bracket for the exhaust pipe to the engine.

29. Remove the exhaust pipe and the bracket from the engine.

30. Remove the cover for the batteries from the LH fender.

31. Disconnect the ground cable from the batteries.

32. Install the cover for the batteries.

33. Loosen and remove the cap screws and lock washers that hold the cover for the instrument panel on the rear shroud. Remove the cover.

34. Put identification tags on the cables to the master disconnect switch.

35. Disconnect the cables from the master disconnect switch.

36. Disconnect the wiring harness plug for the instrument panel.

37. Loosen and remove the self-locking nuts, bolts, and flat washers that fasten the magnetic switch to the rear shroud.

38. Remove the starter relay.

39. Connect acceptable lifting equipment to the rear shroud.

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56. Tighten the Allen head screws to 15 to 19 pound-feet (20 to 26 N m, 2.1 to 2.6 kg/m).

57. Connect the hoses for the transmission oil cooler to the fittings in the bottom of the radiator.

58. Connect the bottom radiator hose to the radiator.

59. Install the fan shroud to the radiator. Make sure that the clearance between the fan and the fan shroud is equal all the way around the fan shroud.

60. Install the cap screws, lock washers, and flat washers that fasten the fan shroud to the radiator. Tighten the cap screws.

61. Connect the overflow hose to the fill neck on the radiator.

62. Connect the top radiator hose to the radiator.

63. Install the bracket and cover strip that are fastened to the mounting brackets between the radiator and oil cooler.

64. Install the cap screws, lock washers, and flat washers that hold the bracket and cover strip in place. Tighten the cap screws.

65. Close the drain valve at the bottom of the radiator.

66. Fill the cooling system with coolant. Fill the coolant reservoir up to the Full mark. See Section 1002.

67. Install the radiator cap.

68. Make sure the drain plug in the transmission is tight.

69. Fill the transmission with 21 quarts (19.8 litres) of oil. Check the oil level of the transmission according to instructions in Section 6116.

70. Start and run the engine at idle.

71. Check for coolant and oil leakage.

72. Run the engine until the coolant is at operating temperature. Stop the engine and let the engine cool. Check the level in the coolant reservoir. If necessary, add coolant to the coolant reservoir.

73. If necessary, add oil to the transmission.

74. Install the access cover for the hydraulic pumps.

75. Install the front shroud.

76. Install the engine side panels.

77. Install the hood.

78. Install the grommet around the air cleaner inlet.

79. Install the cap for the air cleaner.

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ENGINE SPECIFICATIONS

General

Type	6 Cylinder, 4 Stroke Cycle, Valve-In-Head
Firing Order	1,5,3,6,2,4
Bore	102 mm
Stroke	120 mm
Piston Displacement	5.88 Litres
Compression Ratio	17.0 to 1
No Load Governed Speed	2345 to 2440 RPM
Rated Engine Speed	2305 to 2385 RPM
Engine Idle Speed	700 to 750 RPM
Valve Tappet Clearance (Exhaust)(Cold)	0.508 mm
(Intake)(Cold)	0.254 mm
Thermostat Operating Range	181°F to 203°F (83°C to 95°C)

Piston and Connecting Rods

Rings Per Piston	3
Number of Compression Rings	2
Number of Oil Rings (two piece)	1
Type of Pins	Full Float
Type Bearings	Steel Back Leaded Bronze

Main Bearings

Number of Bearings	7
Type of Bearings	Replaceable

Engine Lubricating System

Oil Pressure	42 to 54 PSI (290 to 372 kPa)(2.90 to 3.72 bar) with Engine Warm at Rated Engine Speed
Type of System	Pressure and Spray Lubrication
Oil Pump	Rotor Type
Oil Filter	Full Flow Turn-on Type
Oil Capacity (with filter)	16 Quarts (15 litres)
(without filter)	15 Quarts (14.3 litres)

Fuel System

Fuel Injection Pump	CAV
Pump Timing	Top Center
Fuel Injectors	Bosch 17 mm Opening Pressure (New) 3190 to 3310 PSI (21 994 to 22 822 kPa)(220 to 228 Bar)
Governor	Variable Speed, a Part of the Injection Pump
First Stage Fuel Filter	Turn on Type
Second Stage Fuel Filter	Turn on Type
Lift Pump	5 to 7 PSI (34 to 48 kPa)(0.34 to 0.48 Bar)

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.

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FLUIDS AND LUBRICANTS

FUEL TANK

Capacity ..... 50 gallons (190 litres)

Specifications ..... See Operators Manual

ENGINE COOLING SYSTEM

Capacity - System ..... 8.5 gallons (32 litres)

Coolant reservoir ..... 2 quarts (1.9 litres)

Specifications ..... See Operators Manual

HYDRAULIC SYSTEM

Capacity - System ..... 59 gallons (223 litres)

Reservoir ..... 18.7 gallons (70.8 litres)

Specifications ..... Case TCH Fluid

Alternate ..... Type C3 Fluid (10W)

TRANSMISSION/TORQUE CONVERTER

Capacity ..... 21 quarts (19.8 litres)

Specifications ..... Case TCH Fluid

Alternate ..... Type C3 Fluid (10W)

SWING GEARBOX

Capacity - Gearbox ..... 14 pints (6.6 litres)

Reservoir ..... 3 pints (1.4 litres)

Specifications ..... Case FDL

Alternate ..... Gear Lubricant, SAE 85/140, API-GL-5

AXLE (Differential)

Capacity - Front ..... 4 gallons (15.1 litres)

Rear ..... 4 gallons (15.1 litres)

Specifications ..... Case FDL

Alternate ..... Gear Lubricant, SAE 85/140, API-GL-5

AXLE (Planetary Hubs)

Capacity (Each) ..... 6.5 pints (3.1 litres)

Specifications ..... Case FDL

Alternate ..... Gear Lubricant, SAE 85/140, API-GL-5

BRAKE FLUID RESERVOIRS

Capacity - System ..... 2 quarts (1.9 litres)

Specifications ..... DOT-3 Brake Fluid (SAE J1703)

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MAINTENANCE SCHEDULE

The items in this maintenance schedule are at maximum intervals. If you are operating the machine under severe conditions (high temperatures, mud, dust, water, etc.), shorten the intervals.

As Required

Service air cleaner if red band in restriction indicator is in full view ..... See Operators Manual

Replace the hydraulic filter elements if hydraulic filter warning lamp illuminates ..... See Operators Manual

Check torque of wheel nuts if a wheel has been removed and installed ..... See Section 6129

Every 10 Hours of Operation or Each Day, Whichever Occurs First

Check air cleaner restriction indicator ..... See Operators Manual

Check engine oil level ..... See Operators Manual

Check condition of drive belt ..... See Operators Manual

Check hydraulic reservoir fluid level ..... See Operators Manual

Check transmission/torque converter fluid level ..... See Operators Manual

Check oil level for swing gearbox reservoir ..... See Operators Manual

Check spray lubricant can ..... See Operators Manual

Check tires for damage and correct air pressure ..... See Section 6129

Check and clean safety and instructional decals ..... See Operators Manual

Check alcohol level for alcohol evaporator (if equipped) ..... See Operators Manual

Drain water from air reservoir ..... See Operators Manual

Lubricate

Boom, arm (dipper), and attachments (bucket, etc.) ..... See Operators Manual

Turntable ring gear ..... See Operators Manual

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1085B AND 1086B CRUZ-AIR
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Printed in U.S.A.
Issued October 1985

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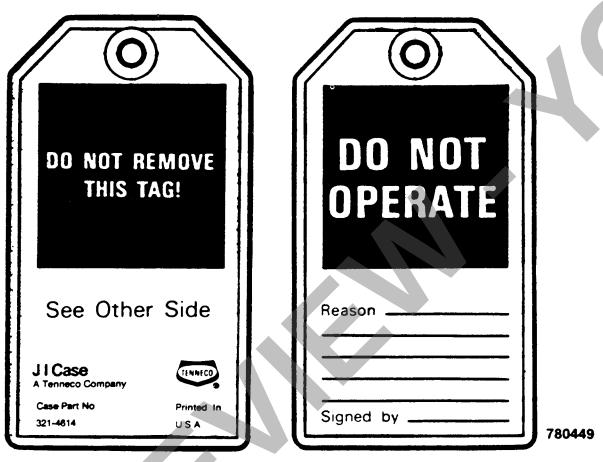
SAFETY RULES

This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death. 1-1-C

NOTE: *To prevent injury on job, follow the Warning, Caution, and Danger notes in this section and other sections throughout this manual. Follow the instructions carefully.*

The procedures recommended and shown in this manual are good, effective service methods. However, all possible procedures and service hazards may not be covered. Therefore, if you use a tool or procedure not recommended, you must make sure that the method you select is a safe method.

Put the warning tag shown below on the key for the key switch when you are servicing or repairing this machine. One warning tag is on every new machine. You can buy additional warning tags, part number 331-4614, from Service Parts Supply.



WARNING: *Read operator's manual to familiarize yourself with control lever functions.* 46-27

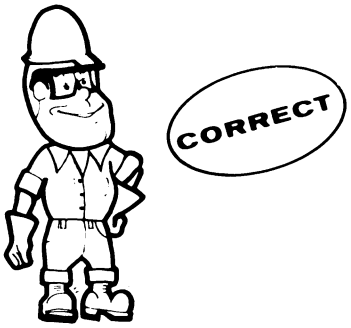
WARNING: *Operate tractor and equipment controls from the seat position only. Any other method could result in serious injury.* 48-55

WARNING: *This is a one man machine, no riders allowed.* 35-8

WARNING: ***Before starting engine, study operator's manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.***

It is your responsibility to understand and follow manufacturer's instructions on machine operation, service, and to observe pertinent laws and regulations. Operator's and service manuals may be obtained from your J I Case dealer. 45-2

WARNING: *If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.* 45-3-A



WARNING: *When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution.* 35-4

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PARTS LISTING FOR FIGURE 50

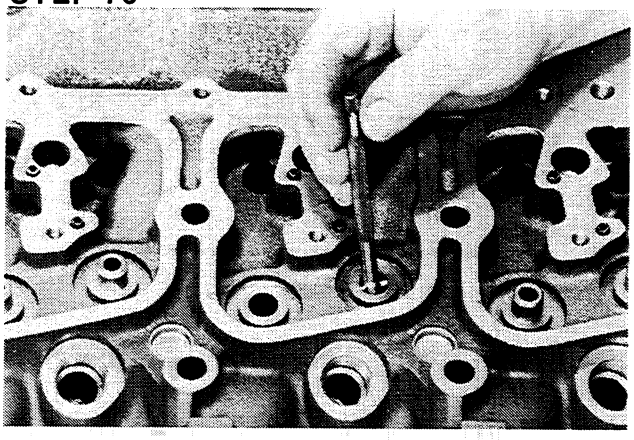
ITEM	DESCRIPTION	QTY.
1	Pump Gear Snap Ring	3
2	Pump Drive Gear	3
3	Breather (Not Used)	1
4	Name Plate	1
5	Name Plate Screw	2
6	Pressure Regulating Valve to Housing Gasket	1
7	Valve to Housing O-ring	1
8	Spring	1
9	Poppet	1
10	Seat	1
11	Pressure Port Pipe Plugs	2
12	Valve Stop O-ring	1
13	Valve Stop	1
14	Roll Pin	1
15	Regulating Valve to Housing Screw Lockwasher	4
16	Regulating Valve to Housing Screw	4
17	Regulating Valve Assembly	1
18	Roll Pin	1
19	Regulating Valve Spring (Outer)	1
20	Regulating Valve Spring (Inner)	1
21	Regulating Valve Piston	1
22	Valve Stop O-ring	1
23	Valve Stop	1
24	Pump Drive Front Bearing	3
25	Pump Shaft Spacer	3
26	Pump Drive Rear Bearing	3
27	Rear Bearing Locating Ring	3
28	Pump Drive Shaft	3
29	Rear Bearing Retainer Ring	3
30	Pump Shaft Retaining Washer	3
31	Pump Shaft Retaining Ring	3
32	Pump Drive Sleeve Assembly	1
33	Pump Gasket	1
34	Charging Pump	1
35	Pump Mounting Screw	3
36	Pump Mounting Screw Lockwasher	3
37	Pipe Plug	3
38	Converter "Out" Temperature Port	1
39	Oil Baffle Screw Lockwasher	3
40	Oil Baffle Screw	3
41	Output Shaft Oil Seal	1
42	Output Bearing Retainer Lockwasher	3
43	Output Bearing Retainer Screw	3
44	Output Flange Nut	1
45	Output Flange Washer	1
46	Flange Washer O-ring	1
47	Output Flange	1
48	Bearing Retainer Stud Nut	2
49	Bearing Retainer Stud Nut Lockwasher	2
50	Output Bearing Retainer	1
51	Output Bearing Retainer Stud	2
52	Output Bearing Retainer O-ring	1
53	Output Shaft Rear Bearing	1
54	Rear Bearing Retainer Ring	1
55	Output Shaft	1
56	Output Shaft Gear	1
57	Output Shaft Front Bearing	1
58	Front Bearing Retainer Ring	1
59	Converter Out Pressure Port	1
60	Converter Housing	1
61	Oil Baffle O-ring	1
62	Oil Baffle	1
63	Oil Baffle Oil Seal	1
64	Impeller Hub O-ring	1
65	Impeller Hub Gear	1
66	Impeller Hub Gear Bearing	1
67	Support Oil Sealing Ring	1
68	Sealing Ring Expander Spring	1
69	Support Screw	6
70	Support Screw Lockwasher	6
71	Reaction Member Support	1
72	Turbine Shaft Oil Sealing Ring	1
73	Turbine Shaft	1
74	Turbine Shaft Bearing	1
75	Bearing Retainer Ring	1
76	Turbine Shaft Gear	1
77	Gear Retainer Ring	1
78	Impeller	1
79	Impeller to Hub Screw Lock Tab	4
80	Impeller to Hub Screw	8
81	Reaction Member Spacer	1
82	Reaction Member	1
83	Reaction Member Retainer Ring	1
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85	Turbine	1
86	Turbine Hub Bearing Locating Ring	1
87	Turbine Hub Bearing	1
88	Bearing Retainer Washer	1
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90	Impeller Cover	1
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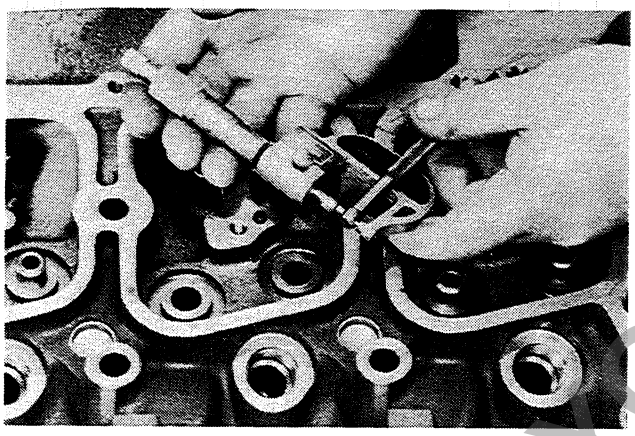
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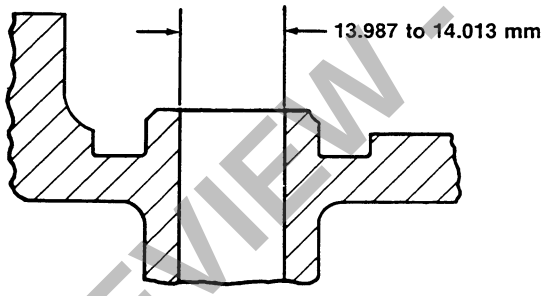
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VALVE GUIDE REPLACEMENT

STEP 76





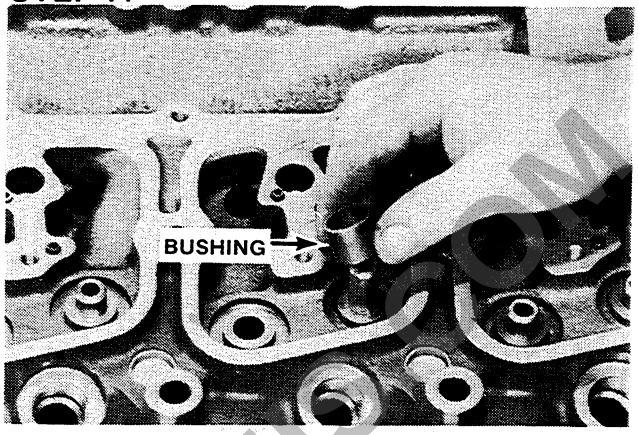


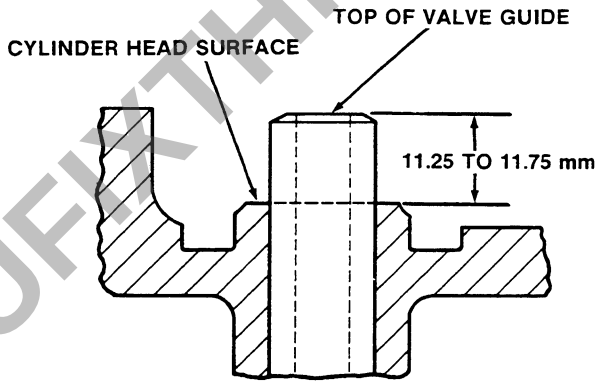
Machine the bore to a diameter of 13.987 to 14.013 mm.

Valve Guide Installation Specifications:

Valve Guide Outside Diameter	14.026 to 14.038 mm
Diameter of Bore	13.987 to 14.013 mm
Press Fit	0.013 to 0.051 mm
Installed Height	11.25 to 11.75 mm

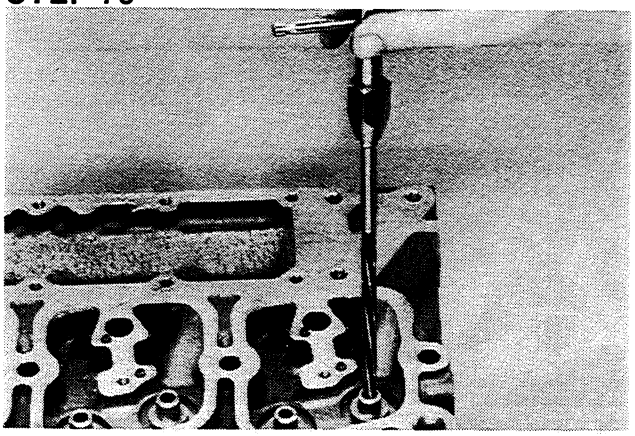
STEP 77





Make a bushing 16.038 mm minimum diameter ID x 11.25 to 11.75 mm long. Install the bushing over the valve guide. Push the valve guides into the cylinder head until the bushing makes contact with the cylinder head surface.

STEP 78

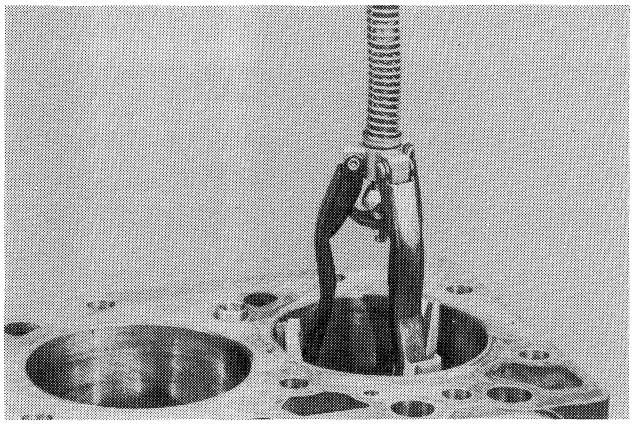


Ream the new valve guides to a diameter of 8.029 mm ± 0.010 mm with a reamer.

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STEP 154



If new rings are used, the glaze must be removed from the cylinder bore so that the piston rings can correctly seat against the cylinder wall during the run-in time.

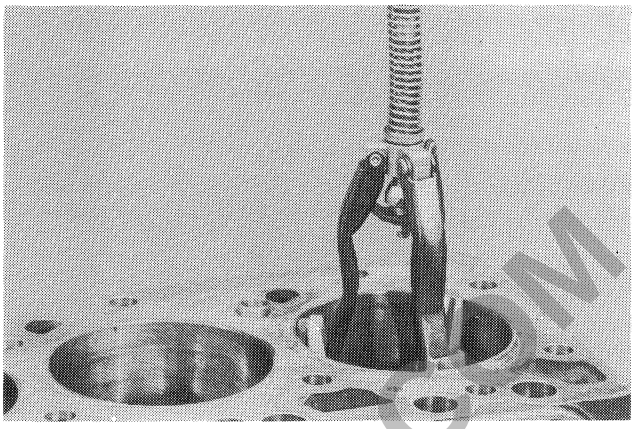
Removing glaze can be done by using a cylinder hone with 250 to 300 grit stone.

Too much glaze (smooth surface) on cylinder walls of a new engine or an engine with an overhaul is caused by run-in procedure that is not correct.

Glaze does not permit the piston rings to seat correctly in the cylinder sleeves. This will cause too much oil consumption.

Too much glaze on the cylinder walls can be prevented by giving your customer instructions in the correct run-in procedure. See Section 1024 in the service manual for the correct run-in procedure.

STEP 155



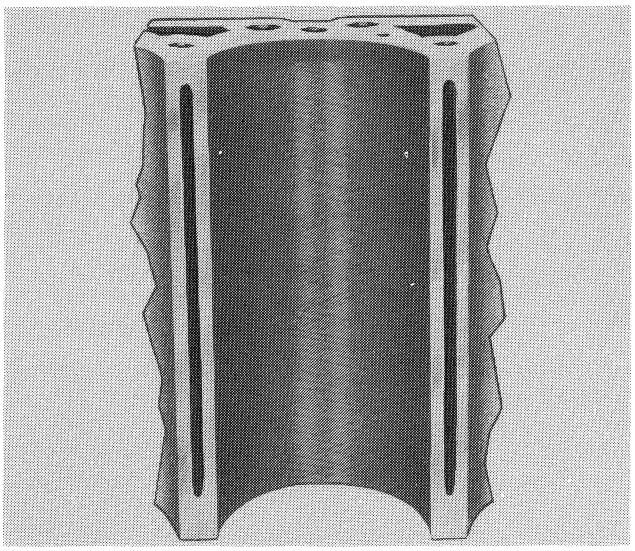
Use a 3/8 inch or 1/2 inch drill to power the cylinder hone. Use a lubricant/coolant with the hone to keep the hone and the stones free of foreign material.

Start the hone at the top of the cylinder bore and actuate the hone up and down until the correct cross-hatch pattern is reached. The correct cross-hatch pattern is 40 to 60 degrees from horizontal.

Use a 80 to 150 grit stone to reach the correct cross-hatch pattern.

Use a 250 to 300 grit stone to reach the correct cylinder bore finish.

STEP 156



After removing the glaze, clean the cylinder walls with a clean cloth, warm water and a mild detergent soap. After cleaning the cylinder walls, clean the cylinder walls again with clean engine oil.

NOTE: *Clean the cylinder walls until a clean white cloth keeps completely clean, one cleaning operation is not enough.*

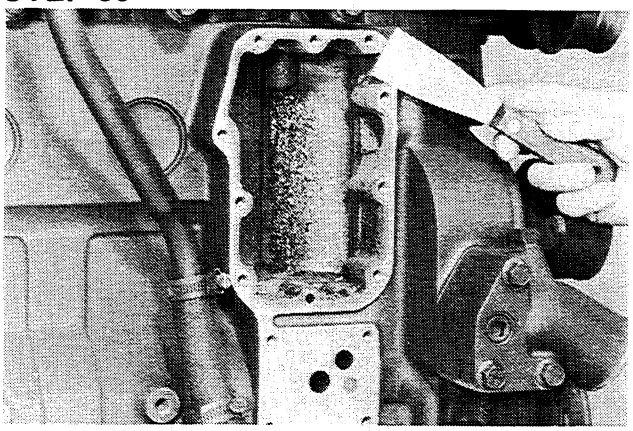
IMPORTANT: *Do not use gasoline, diesel fuel or kerosene to clean cylinders because these materials will not remove the abrasives from the sleeve surface.*

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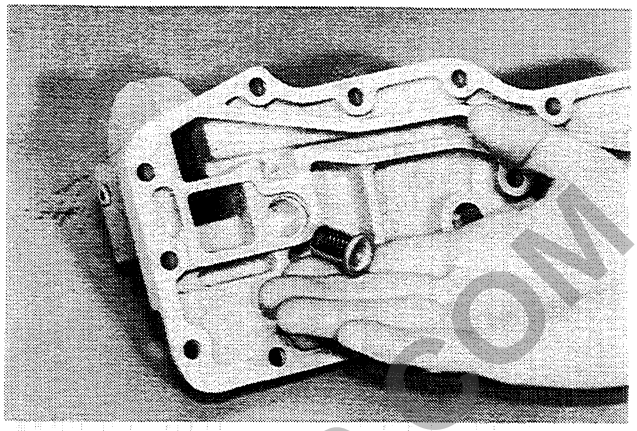
Revised 3-85 Printed in U.S.A.

STEP 39



Clean all surfaces of foreign material.

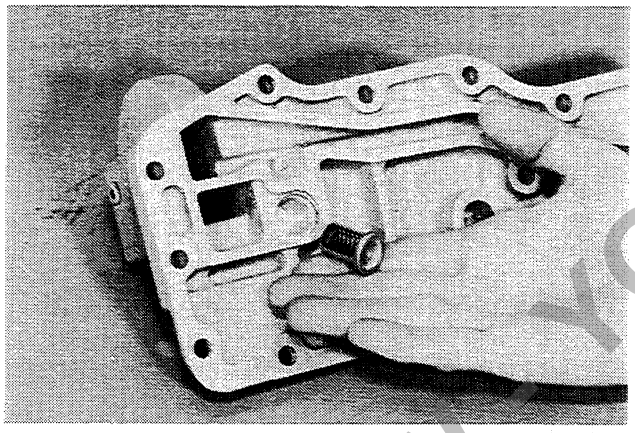
STEP 40



Put the oil filter head on a clean work surface and remove the cold oil relief valve.

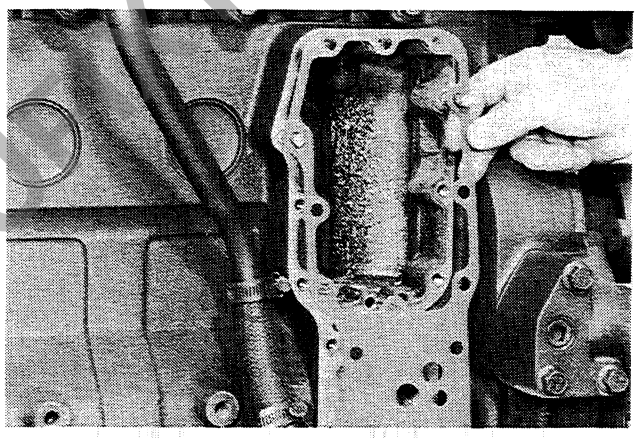
Oil Cooler and Filter Housing Installation

STEP 41



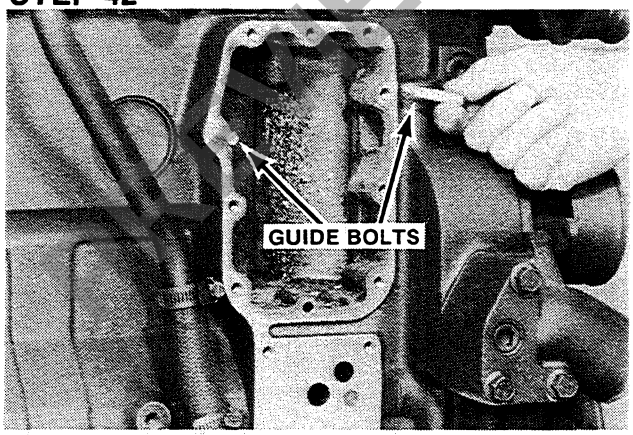
Install the cold oil relief valve in the oil filter head.

STEP 43



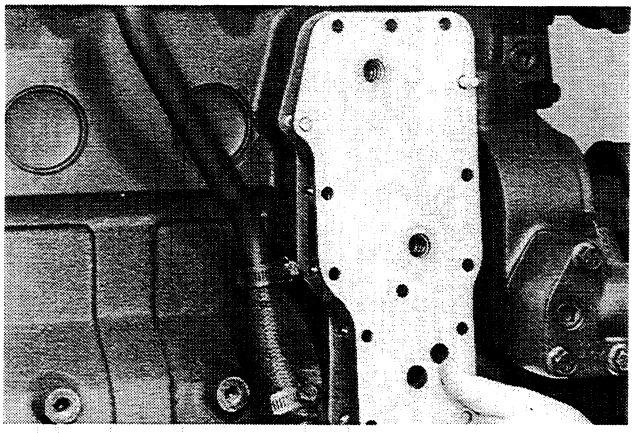
Install a new oil cooler gasket.

STEP 42



Install two guide bolts, 8M x 1.25 x 75, into the engine block.

STEP 44



Install the oil cooler.

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SPECIFICATIONS

Filter Replacement (First and Second Stage)	Every 500 hours or when loss of engine power occurs
First Stage Filter	Full Flow, turn on type
Second Stage Filter	Full Flow, turn on type
Fuel System Operating Pressure	5 to 7 PSI (34.475 to 48.265 kPa) (3.448 to 4.827 Bar)

For Acceptable Number Two Diesel Fuel

A.P.I. Gravity (Min)	30
OPour Point (Max)	10°F (5°C) below ambient operating temperature.
Distillation (90% Point)	540 to 625°F (282 to 329°C)
Flash Point (Min)	125° (52°C) or legal
Kinematic Viscosity Centistokes	
At 100°F (38°C)	2.0 to 4.3 Seconds*
Cetane Number (Min)	40 (45 to 55 For Cold Temperature or High Altitude Use).
Water and Sediment Volume (Max)	0.05%
Ash Weight (Max)	0.01°
Sulphur Weight (Max)	0.5°
Carbon Residue or 10° Residuum (Max)	0.2°
Corrosion, Copper Strip, 3 hours at 212°F (100°C)	Number 3

(* 32 to 40 Saybolt Universal Seconds)

FUEL SYSTEM

Filter Removal and Installation

NOTE: *At the first filter change and each filter change after that, always install filter kit, Case Part Number A77470.*

1. Clean the filter head, elements and the engine area next to the filters.

2. Remove the drain plug from the first stage filter.

3. To remove the filters, use a clamp type filter wrench.

4. Put a small amount of clean oil or grease on the seals of the new filters. Install the filters. Turn the filters clockwise until the seal comes in contact with the filter head. Use your hand to tighten the filter one half of a turn. To get the correct seal, loosen the filters and again tighten one half to three fourths of a turn after the seal comes in contact with the filter head.

NOTE: *When the filters are too tight, you can cause damage to the gaskets and filters.*

5. Make sure there is fuel in the fuel tank.

6. Loose the air removal screw above the filter head. Actuate the hand primer pump. Close the air removal screw when clear fuel with no air bubbles flows from the screw.

7. The ignition switch must be turned to the ON position to energize the fuel shutoff solenoid. Do not turn the engine over until Step 8 is completed.

8. Loosen the air removal screw on the fuel injection pump. Actuate the hand primer pump, close the air removal screw when clear fuel with no air bubbles flows from the screw. Actuate the hand primer pump five more times to finish the air removal.

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General Inspection

1. Park the machine on a level surface.

2. Lower the boom onto the boom support.

3. Stop the engine and apply the parking brake.

4. Check the condition of the batteries according to the instructions in Section 4005.

5. Clean the battery posts and the connectors on the battery cables.

6. Make sure there is no oil or grease on the alternator drive belt and the alternator drive belt is tight.

7. Make sure the connections in the charging circuit are clean and tight. See the electrical circuit in this section.

8. If the alternator still does not operate correctly, do the following test.

Checking Voltage at the Alternator Terminals

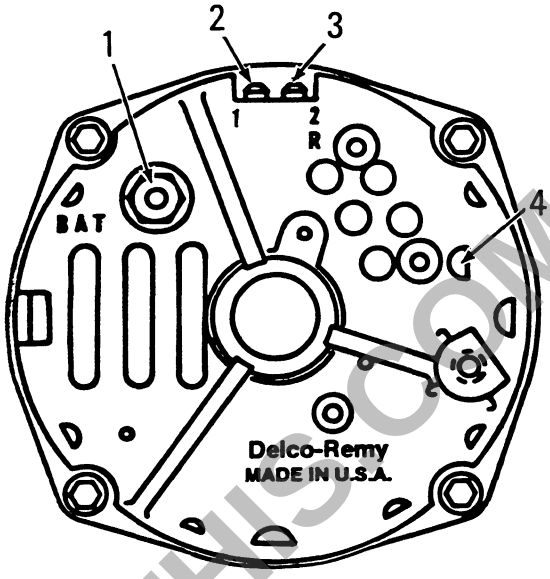
Use a voltmeter to check the voltage at the alternator terminals.

1. Do the General Inspection procedure above.

2. The engine must not be running for this check.

3. Put the master disconnect switch in the ON position.

4. Connect the negative voltmeter lead to the housing of the alternator. Connect the positive voltmeter lead to the BAT terminal on the alternator.



1. BAT Terminal
2. No. 1 Terminal
3. No. 2 Terminal
4. Test Hole

a. If the voltmeter indicates system voltage, do step 5.

b. If the voltmeter does not indicate system voltage, use the voltmeter to check the charging circuit between the BAT terminal on the alternator and the ground connection at the starter. See the electrical schematic in this section. Be sure to check the operation of the master disconnect switch.

5. Disconnect the connector from the alternator.

6. Connect the negative voltmeter lead to the housing of the alternator. Connect the positive voltmeter lead to the terminal in the connector that was connected to the No. 2 terminal in the alternator.

a. If the voltmeter indication is system voltage, do step 7.

b. If the voltmeter does not indicate system voltage, replace the wire that connects the connector to the battery terminal on the starter solenoid.

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COLLECTOR RING

Maintenance

Periodic inspection and adjustment is necessary maintenance of the collector ring. Correct care of brushes, brush rigging, rings and springs is necessary for good performance of the collector ring.

Make a periodic inspection of the protective cover. If there is oil on the collector ring, for example, from a broken hose or other leak, it is necessary to completely clean the collector ring to remove all oil, tarnish, dust and foreign material.

Special care must by used to prevent distortion of the brush springs either during servicing, storage or handling and shipment. Replace any spring that is bent.

Figure 1 shows a typical collector ring. Learn the different parts of the assembly.

Inspection

Visual Test – The following visual tests are useful in finding the cause of a malfunction in the collector ring.

1. See that the collector assembly is free from oil, dust and foreign material. Clean as necessary, using a clean, lint-free dry cloth and/or flexible abrasive.

2. See that the cover gives full protection to the collector ring. Repair or replace if there is damage.

3. See that the hydraulic hoses and tubes around the collector ring do not cause interference with the collector ring. Adjust or replace if necessary.

4. See that the upper electrical connector is not near the boom where damage can be caused to the connector when the boom is raised.

5. See that the transmission control rods are at the center or middle of the collector ring in all positions of the turntable. If not, adjust the brackets to keep the rods at the center and prevent distortion of the collector ring assembly.

6. See that the upper brackets for the collector ring are at the center in relation to the lower mounting. As the turntable is rotated, look to see that the upper bracket does not put any severe side forces against the collector ring. Adjust the brackets so that there is free floating movement in relation to the bracket for the collector ring.

7. Check that the brush springs are in full contact with the brushes and that the springs are not bent. Adjust or repair as necessary.

8. See that the brush holders are aligned and tight. See page 4016-6.

9. See that the bearing surfaces are without distortion. If there is distortion, remove and repair the collector ring.

10. Check for pitting of the rings. If there is pitting, repair or replace the collector ring.

11. Check the wire insulations for cuts or damage. Repair, adjust or replace.

12. If intermittent electrical operation of the collector ring occurs, remove and repair or replace the collector ring.

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REMOVAL

1. Loosen and remove the cap screws that hold the cover over the top of the torque converter.

2. Remove the cover.

3. Loosen and remove the nuts and bolts that fasten the drive shaft to the torque converter.

4. Loosen and remove the nuts and bolts that fasten the drive shaft to the transmission and remove the drive shaft.

5. Disconnect the hoses from the charging pump. Install a plug in each hose.

6. Disconnect the hoses connected to the pressure regulator valve. Install a plug in each hose.

7. Disconnect the hoses connected to the housing of the torque converter. Install a plug in each hose.

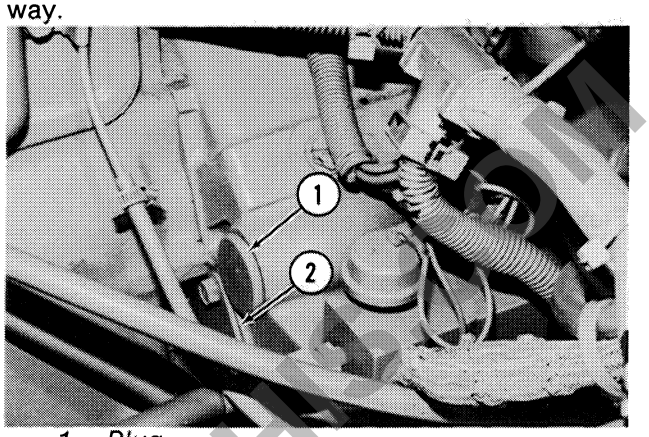
8. Loosen and remove the cap screws that hold the left pump and move the pump out of the way.

9. Loosen and remove the cap screws that hold the right pump and move the pump out of the way.

10. Disconnect the wiring from the switch in the pressure regulator valve.

11. Fasten acceptable lifting equipment to the torque converter.

12. Remove the plug from the left side of the flywheel housing and loosen the cap screws that hold the cover below the plug. Move the cover out of the way.



1. *Plug*
2. *Cover*

Figure 1

13. Install tool CAS-1690 in the top hole. Turn the tool with a wrench to align a cap screw that holds the flex plates with the bottom hole.

14. Loosen and remove the cap screw.

15. Repeat steps 13 and 14 until eight cap screws have been removed.

16. Loosen and remove the cap screws that fasten the torque converter to the flywheel housing.

17. Remove the torque converter from the machine.

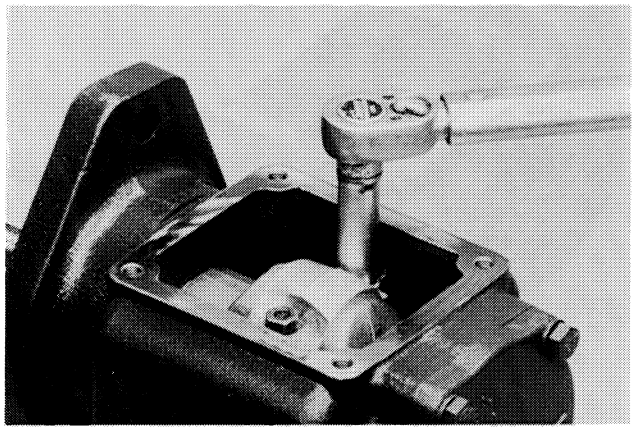
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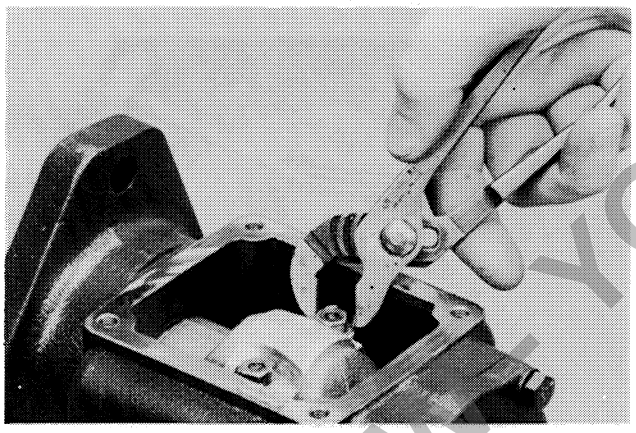
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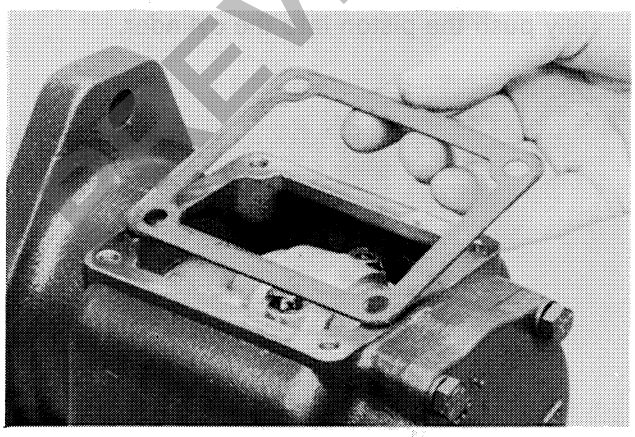
7. Install the connecting rod cap and tighten the bolts to a torque of 10 to 12 lb ft (14 to 16 Nm (1.4 to 1.6 kgm).



8. Bend the lock tab against the rod bolt.



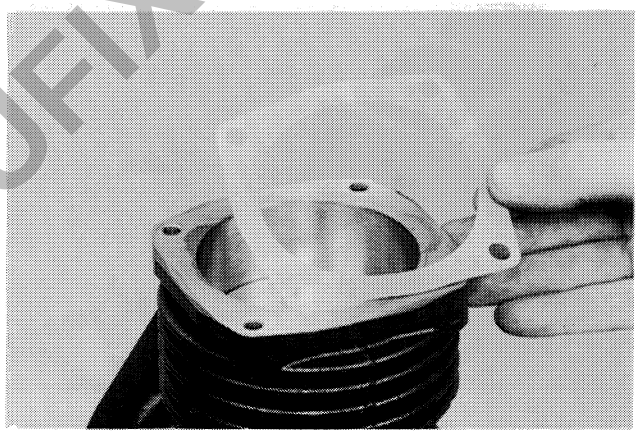
9. Install a new bottom cover gasket.



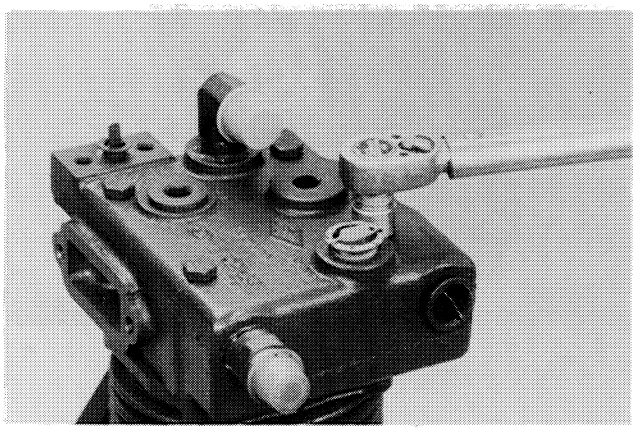
10. Install the bottom cover and tighten the bolts to a torque of 17 to 20 lb ft (23 to 27 Nm) (2.3 to 2.7 kgm).



11. Install a new head gasket.



12. Install the cylinder head and tighten the bolts to a torque of 17 to 20 lb ft (23 to 27 Nm) (2.3 to 2.7 kgm).

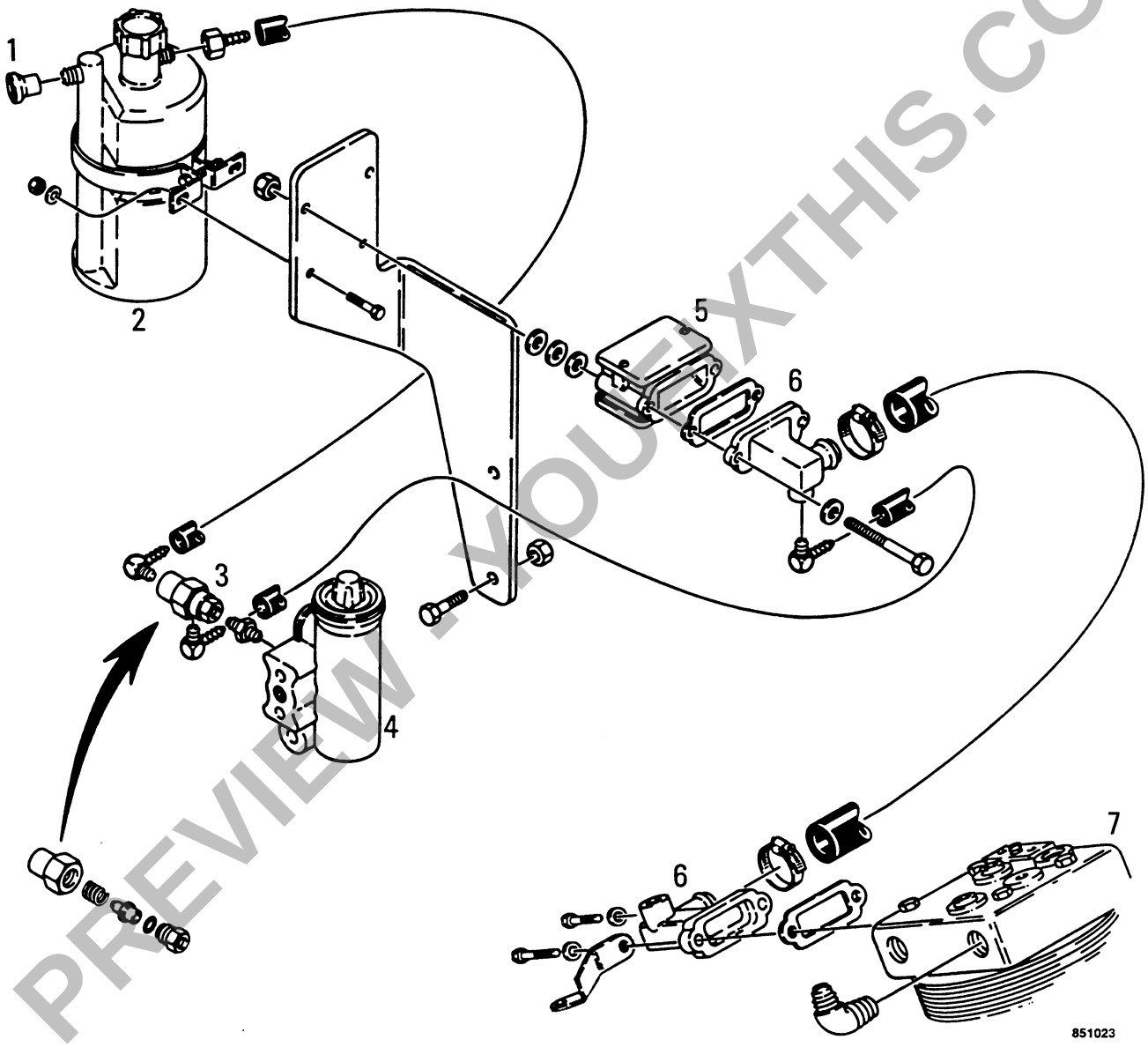


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OPERATION

During freezing conditions moisture in the air system for the brakes can cause damage to the air system. The alcohol evaporator helps prevent freezing of the moisture. As the air compressor is compressing air, alcohol vapor is taken from the top of the evaporator bottle and enters the air intake of the air compressor. When the air pressure in the air reservoir reaches 125 psi (862 kPa, 8.8 kg/cm²), the unloader circuit in the governor causes the air compressor to stop compressing air. The unloader circuit also closes the check valve at the governor so that the vapor from the evaporator bottle cannot enter the air system. When the air pressure in the air reservoir goes below 105 psi (724 kPa, 7.4 kg/cm²), the unloader circuit in the governor allows the air compressor to compress air. The check valve will also open to allow vapor to enter the air system.



1. *Filter*
2. *Evaporator Bottle*
3. *Check Valve*
4. *Governor*
5. *Air Cleaner*
6. *Adapter*
7. *Air Compressor*

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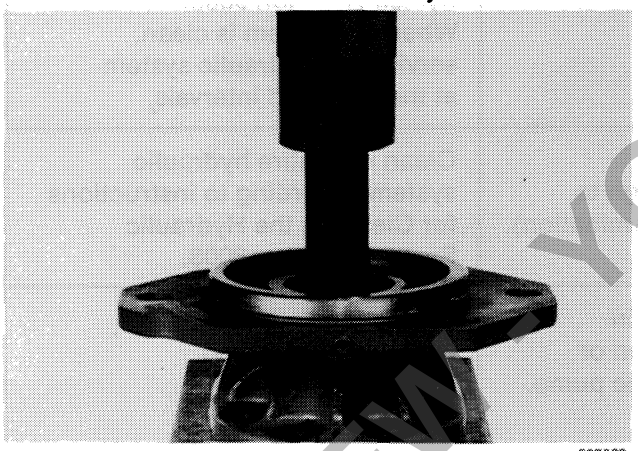
ASSEMBLY

1. Install the inner seal on an acceptable driver and lubricate the inner seal and bore with clean hydraulic oil. Make sure that the lips of the inner seal are toward the inside of the drive end cover.



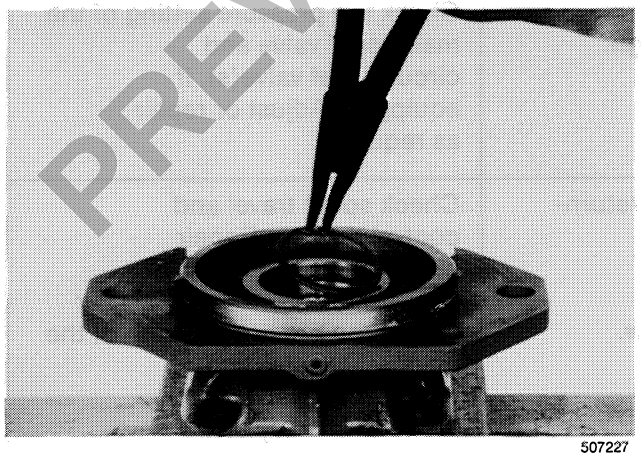
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2. Press the inner seal all the way into the bore.



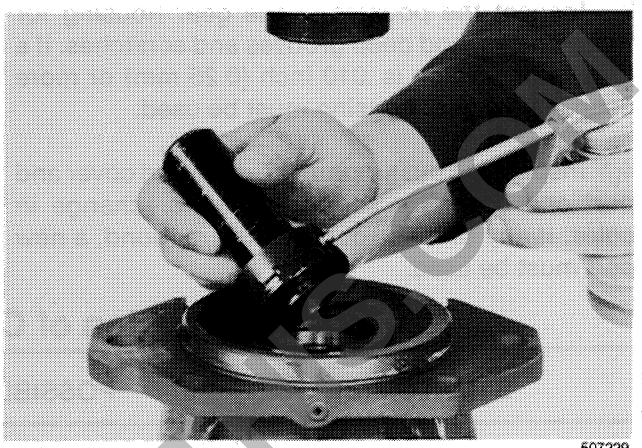
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3. Install the snap ring.



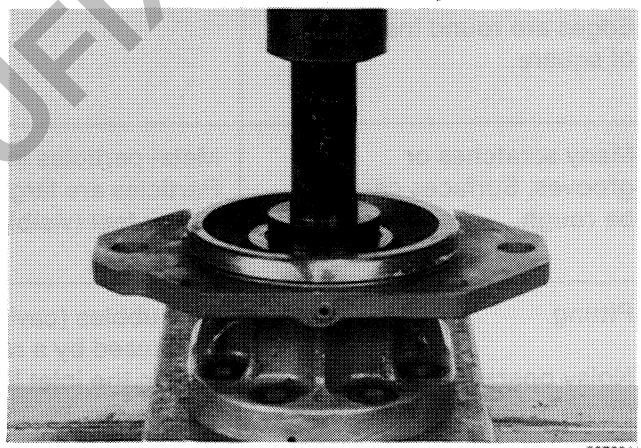
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4. Install the outer seal on the driver and lubricate the outer seal and bore. Make sure that the lips of the outer seal are toward the outside of the drive end cover.



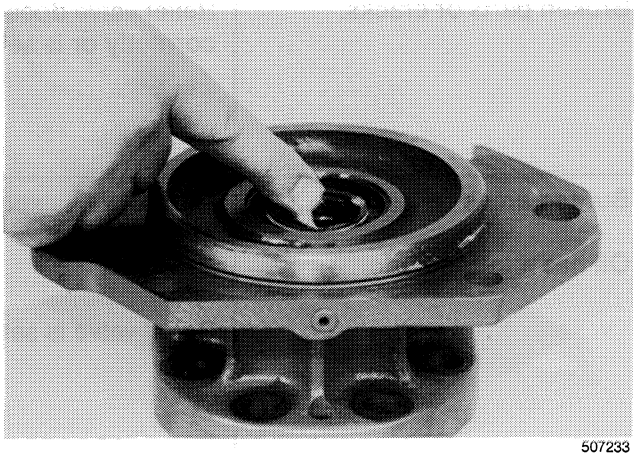
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5. Press the outer seal all the way into the bore.



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6. Lubricate the seal with petroleum jelly.



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