1840 SKID STEER

Service Manual
8-11093

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CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

CASE CANADA CORPORATION
3350 South Service Road
Burlington, ON L7N 3M6 CANADA

Reprinted

Bur 8-11653

Issued May, 1992 (Revised February, 2001)

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NOTE: 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.

SECTION INDEX - GENERAL

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STANDARD TORQUE SPECIFICATIONS

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CASE CORPORATION

Bur 8-71600

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TORQUE SPECIFICATIONS - DECIMAL 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, molydisulfide greases, or other extreme pressure lubricants are used.

Grade 5 Bolts, Nuts, and Studs

Size	Pound-Feet	Newton metres
1/4 in	9-11	12-15
5/16 in	17-21	23-28
3/8 in	35-42	48-57
7/16 in	54-64	73-87
1/2 in	80-96	109-130
9/16 in	110-132	149-179
5/8 in	150-180	203-244
3/4 in	270-324	366-439
7/8 in	400-480	542-651
1.0 in	580-696	787-944
1-1/8 in	800-880	1085-1193
1-1/4 in	1120-1240	1519-1681
1-3/8 in	1460-1680	1980-2278
1-1/2 in	1940-2200	2631-2983

Grade 8 Bolts, Nuts, and Studs

Size	Pound-Feet	Newton metres
1/4 in	12-15	16-20
5/16 in	24-29	33-39
3/8 in	45-54	61-73
7/16 in	70-84	95-114
1/2 in	110-132	149-179
9/16 in	160-192	217-260
5/8 in	220-264	298-358
3/4 in	380-456	515-618
7/8 in	600-720	814-976
1.0 in	900-1080	1220-1465
1-1/8 in	1280-1440	1736-1953
1-1/4 in	1820-2000	2468-2712
1-3/8 in	2380-2720	3227-3688
1-1/2 in	3160-3560	4285-4827

NOTE: *Use thick nuts with Grade 8 bolts.*

811360B

TORQUE SPECIFICATIONS - METRIC HARDWARE

Use the following toques when special torques are not given.

These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or molydisulfide grease or oil if used.

Grade 8.8 Bolts, Nuts, and Studs

Size	Pound-Feet	Newton metres
M4	2-3	3-4
M5	5-6	6.5-8
M6	8-9	10.5-12
M8	19-23	26-31
M10	38-45	52-61
M12	66-79	90-107
M14	106-127	144-172
M16	160-200	217-271
M20	320-380	434-515
M24	500-600	675-815
M30	920-1100	1250-1500
M36	1600-1950	2175-2600

Grade 10.9 Bolts, Nuts, and Studs

Size	Pound-Feet	Newton metres
M4	3-4	4-5
M5	7-8	9.5-11
M6	11-13	15-17.5
M8	27-32	37-43
M10	54-64	73-87
M12	93-112	125-15
M14	149-179	200-245
M16	230-280	310-380
M20	450-540	610-730
M24	780-940	1050-1275
M30	1470-1770	2000-2400
M36	2580-3090	3500-4200

Grade 12.9 Bolts, Nuts, and Studs

Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.

TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

Tube OD Hose ID	Thread Size	Pound-Feet	Newton metres
37 Degree Flare Fittings			
1/4 in 6.4 mm	7/16-20	6-12	8-16
5/16 in 7.9 mm	1/2-20	8-16	11-21
3/8 in 9.5 mm	9/16-18	10-25	14-33
1/2 in 12.7 mm	3/4-16	15-42	20-56
5/8 in 15.9 mm	7/8-14	25-58	34-78
3/4 in 19.0 mm	1-1/16-12	40-80	54-108
7/8 in 22.2 mm	1-3/16-12	60-100	81-135
1.0 in 25.4 mm	1-5/16-12	75-117	102-158
1-1/4 in 31.8 mm	1-5/8-12	125-165	169-223
1-1/2 in 38.1 mm	1-7/8-12	210-250	285-338

Tube OD Hose ID	Thread Size	Pound-Feet	Newton metres
Straight Threads with O-ring			
1/4 in 6.4 mm	7/16-20	12-19	16-25
5/16 in 7.9 mm	1/2-20	16-25	22-23
3/8 in 9.5 mm	9/16-18	25-40	34-54
1/2 in 12.7 mm	3/4-16	42-67	57-90
5/8 in 15.9 mm	7/8-14	58-92	79-124
3/4 in 19.0 mm	1-1/16-12	80-128	108-174
7/8 in 22.2 mm	1-3/16-12	100-160	136-216
1.0 in 25.4 mm	1-5/16-12	117-187	159-253
1-1/4 in 31.8 mm	1-5/8-12	165-264	224-357
1-1/2 in 38.1 mm	1-7/8-12	250-400	339-542

Split Flange Mounting Bolts		
Size	Pound-Feet	Newton metres
5/16-18	15-20	20-27
3/8-16	20-25	26-33
7/16-14	35-45	47-61
1/2-13	55-65	74-88
5/8-11	140-150	190-203

TORQUE SPECIFICATIONS - O-RING FACE SEAL FITTING

Nom. SAE Dash Size	Tube OD	Thread Size	Pound-Feet	Newton Metres	Thread Size	Pound-Feet	Newton Metres
		O-ring Face Seal End			**O-ring Boss End Fitting or Locknut**		
-4	**1/4 In** 6.4 mm	9/16-18	10-12	14-16	7/16-20	17-20	23-27
-6	**3/8 in** 9.5 mm	11/16-16	18-20	24-27	9/16-18	25-30	33-40
-8	**1/2 in** 12.7 mm	13/16-16	32-40	43-54	3/4-16	45-50	61-68
-10	**5/8 in** 15.9 mm	1-14	46-56	60-75	7/8-14	60-65	81-88
-12	**3/4 in** 19.0 mm	1-3/16-12	65-80	90-110	1-1/16-12	85-90	115-122
-14	**7/8 in** 22.2 mm	1-3/16-12	65-80	90-110	1-3/16-12	95-100	129-136
-16	**1.0 in** 25.4 mm	1-7/16-12	92-105	125-140	1-5/16-12	115-125	156-169
-20	**1-1/4 in** 31.8 mm	1-11/16-12	125-140	170-190	1-5/8-12	150-160	203-217
-24	**1-1/2 in** 38.1 mm	2-12	150-180	200-254	1-7/8-12	190-200	258-271

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Section

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FLUIDS AND LUBRICANTS

1840 Skid Steer

CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

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3350 SOUTH SERVICE ROAD
BURLINGTON, ON L7N 3M6 CANADA

Bur 8-11292

Printed in U.S.A.
August, 1998

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CAPACITIES AND LUBRICANTS

ENGINE OIL
- Capacity with filter change ..... 10.4 litres (11 U.S. quarts)
- Type of oil ..... See Engine Oil Recommendations on Page 3
- Oil Level Check Interval ..... Every 10 Hours of Operation or One Time Each Day
- Oil Change and Filter Replacement Interval ..... Every 250 Hours of Operation

ENGINE COOLING SYSTEM
- Capacity ..... 17 litres (18 U.S. quarts)
- Type of coolant ..... Ethylene glycol and water mixed for lowest ambient temperature at least 50/50 mix

FUEL TANK
- Capacity ..... 73.8 litres (19.5 U.S. gallons)

HYDRAULIC SYSTEM
- System capacity ..... 39.7 litres (10.5 U.S. gallons)
- Reservoir capacity with filter change ..... 23.7 litres (6.25 U.S. gallons)
- Reservoir capacity without filter change ..... 22.7 litres (6 U.S. gallons)
- Type of oil (Specifications) ..... Case No. 1 engine oil SAE 10W30 (API Service CE, CD, CC/SG) mixed with Case HTO additive

NOTE: *Machines prior to PIN JAF0067438 do not need the Case HTO additive. All machines PIN JAF0067438 and after must have the Case HTO additive mixed as instructed.*

WHEN CHANGING OIL: When you change the hydraulic oil, you must add 1.4 litres (1.5 U.S. quarts) of Case HTO additive (Case part number B17508).

WHEN ADDING OIL: When you add oil to the hydraulic reservoir between oil changes, you must use a mixture of Case HTO additive and SAE 10W-30 engine oil. Completely mix one U.S. quart of Case HTO additive to 19 litres (5 U.S. gallons) of 10W-30 engine oil (20 to 1 ratio).

DRIVE CHAIN COMPARTMENTS
- Capacity (each) ..... 5.7 litres (6 U.S. quarts)
- Type of oil (Specifications) ..... Case No. 1 engine oil - SAE 10W30

PLANETARIES (Only Before PIN JAF0067438)
- Capacity (each side) ..... 0.5 litres (1 U.S. pint)
- Type of oil (Specifications) ..... Case No. 1 engine oil - SAE 10W30

GREASE FITTINGS
- Quantity ..... As required
- Specifications ..... Case molydisulfide grease

BATTERY
- Quantity ..... As required
- Specifications ..... Drinking or distilled water

ENGINE LUBRICATION
Engine Oil Selection

Case No. 1 Engine Oil is recommended for use in your Case Uni-Loader Engine. Case Engine Oil will lubricate your engine correctly under all operating conditions.

ts98h007

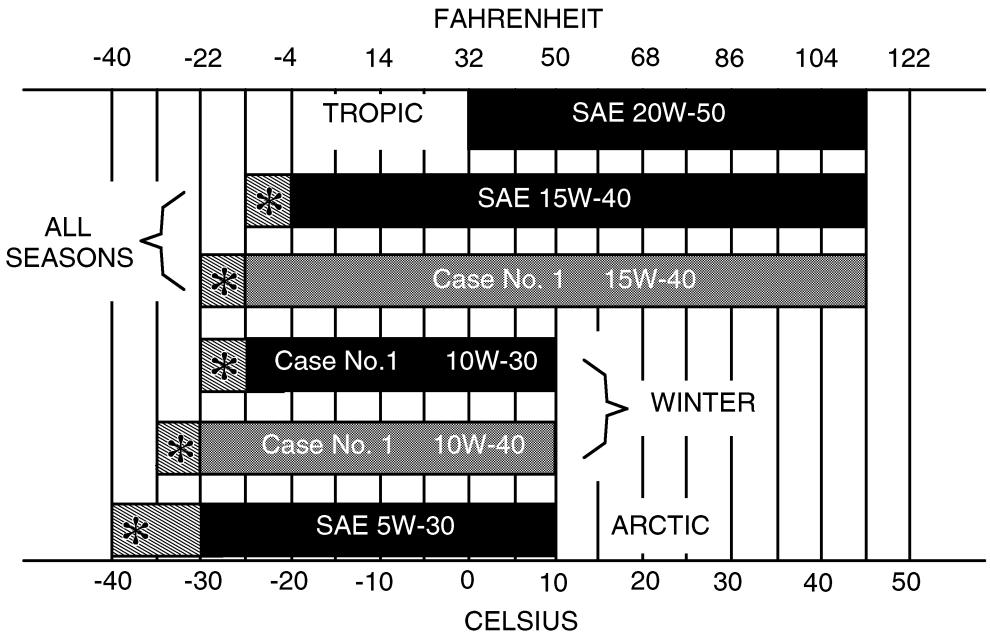
If Case No. 1 Multi-Viscosity or Single Viscosity Engine Oil is not available, use only oil meeting API engine oil service category CE.

tr98h001

See the chart below for recommended viscosity at ambient air temperature ranges.

NOTE: *Do not put Performance Additives or other oil additive products in the engine crankcase. The oil change intervals given in this manual are according to tests with Case Lubricants.*

Oil Viscosity / Temperature Usage Recommendation



* Use of an engine oil heater, or an engine coolant heater, is required in crosshatched area.

ts98h006

MAINTENANCE SCHEDULE

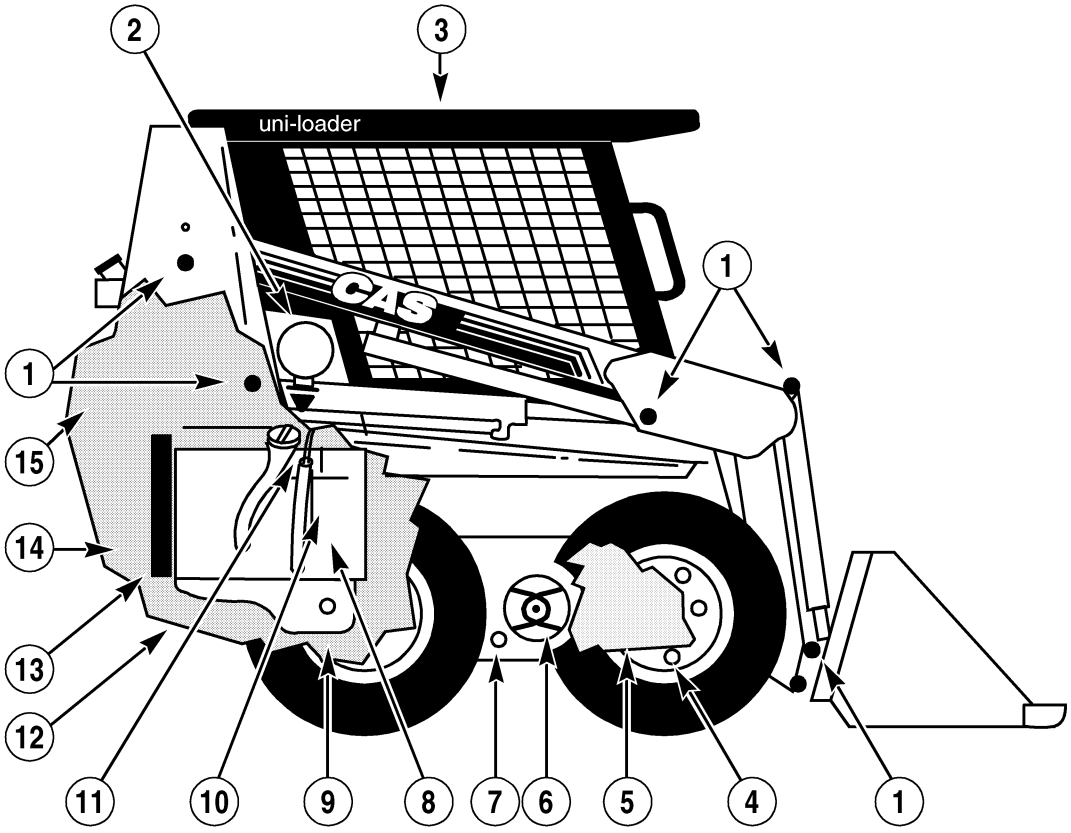
	SERVICE ITEM	AS REQUIRED	EVERY 10 HOURS OF OPERATION OR DAILY	EVERY 50 HOURS OF OPERATION	EVERY 100 HOURS OF OPERATION	EVERY 250 HOURS OF OPERATION	EVERY 500 HOURS OF OPERATION	EVERY 1000 HOURS OF OPERATION	EVERY 2000 HOURS OF OPERATION
1.	Lubricate the Loader Pivot Points (16 Grease Fittings) Case Molydisulfide Grease.		●						
2.	Service the Air Cleaner if the Air Cleaner Warning Lamps On. See Operators Manual.	●							
2.	Clean and Check the Air Cleaner Dust Valve. See Operators Manual.			●					
2.	Replace the Air Cleaner Elements. Use Case Filter.								●
3.	Inspect the Rops. See Operators Manual.						●		
4.	Check the Wheel Nut Torque, 115 to 125 lb ft (156 To 170 Nm). See Section 6008	●							
5.	Clean the Battery and Check the Battery Fluid Level. Add drinking or distilled water.					●			
6.	Check the Drive Chain Tension (Each Side). See Section 9001.					●			
7.	Change the Chain Compartment Oil (Each Side). Case No. 1 Engine Oil (SAE 10W30).						●		
8.	Drain Water from the Fuel Filter. See Operators Manual.			●					
9.	Change Engine Oil and Replace the Engine Oil Filter. Case No. 1 Engine Oil, Use Case Filters.					●			
10.	Replace the Fuel Filter(s). See Operators Manual.						●		
11.	Check Engine Oil Level Case No. 1 Engine Oil.		●						
12.	Clean Dirt and Debris from the Engine Area.	●							
13.	Check the Fan Belt for Wear Replace if Damaged.	●							
14.	Drain, Flush and Refill the Engine Cooling System (See Note 3). Ethylene Glycol and Water.								●
15.	Check and Clean the Hydraulic Oil Cooler. See Operators Manual.		●						

NOTE 1: *When adding oil to the hydraulic reservoir between oil changes, use a mixture of Case HTO additive and SAE 10W30 engine oil. Completely mix one U.S. quart of Case HTO additive to 19 litres (5 U.S. gallons) of SAE 10W30 oil (20 to 1 ratio).*

NOTE 2: *When changing the hydraulic oil in the reservoir, add 1.7 litres (1.6 U.S. gallons) of Case HTO additive (Case Part No. B17508).*

NOTE 3: *Use Ethylene Glycol and water that is mixed 50/50. When adding to the engine, use this mixture.*

MAINTENANCE LOCATIONS



ts98h002

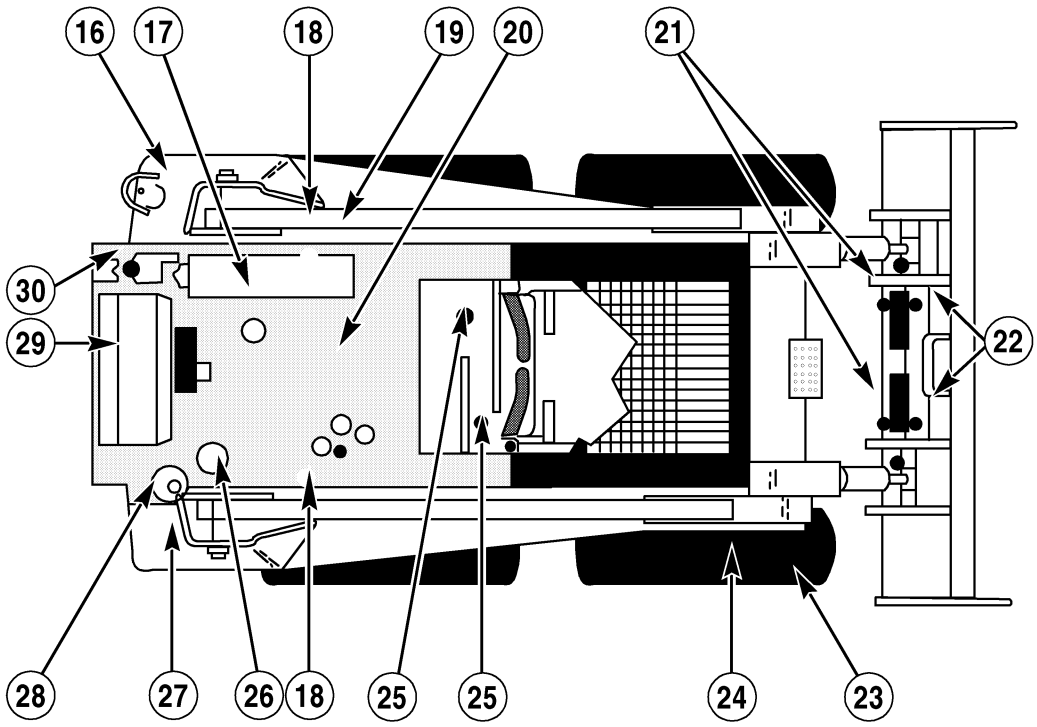
IF YOU OPERATE THE MACHINE IN SEVERE CONDITIONS, LUBRICATE AND SERVICE THE MACHINE MORE FREQUENTLY. IT IS RECOMMENDED THAT YOU SEE YOUR **CASE** DEALER FOR INFORMATION ON THE SYSTEMGARD LUBRICATION SYSTEM.

SEE YOUR OPERATORS MANUAL FOR MAINTENANCE OF SAFETY RELATED ITEMS AND FOR DETAILED INFORMATION OF THE SERVICE ITEMS ON THIS CHART. OPERATORS AND SERVICE MANUALS ARE AVAILABLE FOR THIS MACHINE FROM YOUR **CASE** DEALER.

MAINTENANCE SCHEDULE

	SERVICE ITEM	AS REQUIRED	EVERY 10 HOURS OF OPERATION OR DAILY	EVERY 50 HOURS OF OPERATION	EVERY 100 HOURS OF OPERATION	EVERY 250 HOURS OF OPERATION	EVERY 500 HOURS OF OPERATION	EVERY 1000 HOURS OF OPERATION	EVERY 2000 HOURS OF OPERATION
16.	Drain Water from the Fuel Tank. See Operators Manual.							●	
17.	Change Engine Oil and Replace the Engine Oil Filter. Case No. 1. Engine Oil, Use Case Filters.					●			
18.	Change the Chain Compartment Oil (Each Side) Case No. 1 Engine Oil (SAE 10W30).						●		
19.	Clean the Spark Arrester Muffler. See Operators Manual.				●				
20.	Check the Engine Valve Clearance. See Service Manual.							●	
21.	Lubricate the Coupler Wedges (2 Grease Fittings) if Equipped. Case Molydisulfide Grease.		●						
22.	Lubricate the Case Coupler Latch Pivots (2 Grease Fittings. Case Molydisulfide Grease.					●			
23.	Check the Tire Air Pressure and Tire Condition. See Section 6008.			●					
24.	Lubricate Each Axle Bearing (4 Grease Fittings). Case Molydisulfide Grease.					●			
25.	Lubricate the Loader Cross Shaft Pivot (2 Grease Fittings). Case Molydisulfide Grease.					●			
26.	Replace the Hydraulic Oil Filter. Use Case Filters.						●		
26.	Replace the Hydraulic Filter if the Hydraulic Filter Warning Lamp Is On. Use Case Filters.	●							
27.	Change the Hydraulic Oil (See Note 2). Case No.1 Engine Oil.							●	
28.	Check the Hydraulic Reservoir Oil Level. (See Note 1). Case No. 1 Engine Oil.		●						
29.	Check the Radiator Coolant Level (See Note 3). Ethylene Glycol and Water.					●			
30.	Check the Engine Coolant Reservoir Fluid Level (See Note 3). Ethylene Glycol And Water.		●						

MAINTENANCE LOCATIONS



ts98h003

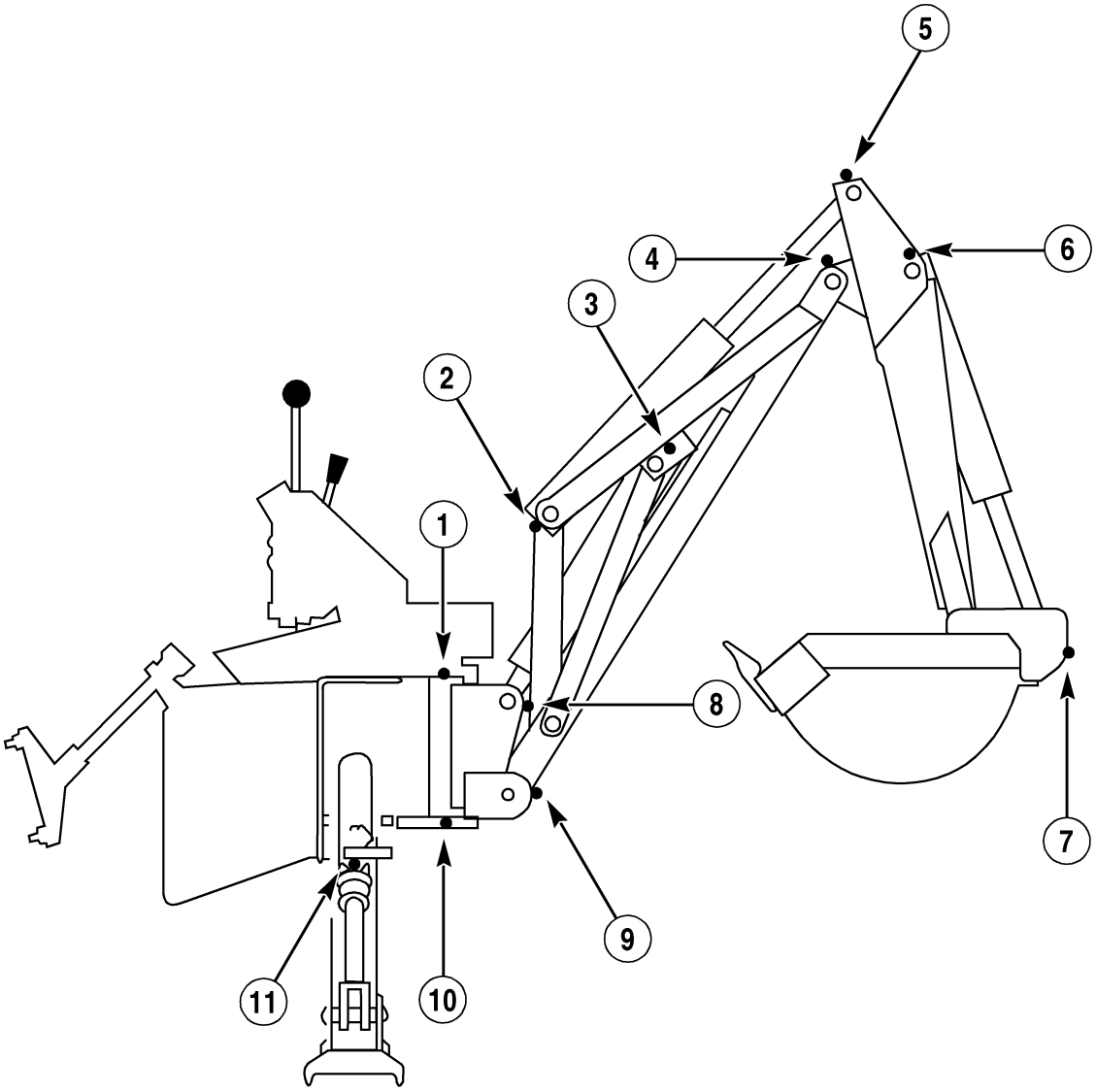
IF YOU OPERATE THE MACHINE IN SEVERE CONDITIONS, LUBRICATE AND SERVICE THE MACHINE MORE FREQUENTLY. IT IS RECOMMENDED THAT YOU SEE YOUR **CASE** DEALER FOR INFORMATION ON THE SYSTEMGARD LUBRICATION SYSTEM.

SEE YOUR OPERATORS MANUAL FOR MAINTENANCE OF SAFETY RELATED ITEMS AND FOR DETAILED INFORMATION OF THE SERVICE ITEMS ON THIS CHART. OPERATORS AND SERVICE MANUALS ARE AVAILABLE FOR THIS MACHINE FROM YOUR **CASE** DEALER.

D100 - D100XR BACKHOE PIVOTS (IF EQUIPPED)
Use Case Molydisulfide Grease

	SERVICE ITEM	AS REQUIRED	EVERY 10 HOURS OF OPERATION OR DAILY	EVERY 50 HOURS OF OPERATION	EVERY 100 HOURS OF OPERATION	EVERY 250 HOURS OF OPERATION	EVERY 500 HOURS OF OPERATION	EVERY 1000 HOURS OF OPERATION	EVERY 2000 HOURS OF OPERATION
	Lubricate the Backhoe Pivot Points (8 Fittings D100 Backhoe and 12 Fittings D100XR Backhoe). Case Molydisulfide Grease.		●						
	Lubricate the Manure Fork Grapple (2 Grease Fittings) if Equipped. Not Shown. Case Molydisulfide Grease.		●						
	Check the Control Linkages and Test Seat Bar Operation. See Section 9001.		●						
1.	Upper Swing Pivot - 1 Fitting		●						
2.	Dipper Cylinder, Closed End - 1 Fitting		●						
3.	Boom Cylinder, Closed End - 1 Fitting		●						
4.	Dipper Pivot - 1 Fitting		●						
5.	Dipper Cylinder, Rod End - 1 Fitting		●						
6.	Bucket Cylinder, Closed End - 1 Fitting		●						
7.	Bucket Cylinder, Rod End - 1 Fitting		●						
8.	Boom Cylinder, Rod End - 1 Fitting		●						
9.	Boom Pivot		●						
10.	Lower Swing Pivot - 1 Fitting		●						
11.	Stabilizer Pivot - 2 Fittings (One Each Side)		●						

D100 - D100XR BACKHOE PIVOTS (IF EQUIPPED)
Use Case Molydisulfide Grease



ts98h008

IF YOU OPERATE THE MACHINE IN SEVERE CONDITIONS, LUBRICATE AND SERVICE THE MACHINE MORE FREQUENTLY. IT IS RECOMMENDED THAT YOU SEE YOUR **CASE** DEALER FOR INFORMATION ON THE SYSTEMGARD LUBRICATION SYSTEM.

SEE YOUR OPERATORS MANUAL FOR MAINTENANCE OF SAFETY RELATED ITEMS AND FOR DETAILED INFORMATION OF THE SERVICE ITEMS ON THIS CHART. OPERATORS AND SERVICE MANUALS ARE AVAILABLE FOR THIS MACHINE FROM YOUR **CASE** DEALER.

SECTION INDEX - ENGINE

2001

ENGINE REMOVAL AND INSTALLATION AND RADIATOR REMOVAL AND INSTALLATION

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Bur 8-11310

Printed in U.S.A.
Issued June 1989

SPECIFICATIONS

Cooling system capacity.....18 U.S. quarts (17 litres)

Special torques

Self-locking nuts that fasten the front and rear engine mounts to the frame.135 to 165 pound-feet (183 to 224 Nm)

Cap screws that fasten the fan to the engine .....276 to 324 pound-inches (31 to 37 Nm)

Cap screws that fasten the tandem pump to the pump mounting plate.....Apply 271 Loctite on the threads and tighten to 85 to 95 pound-feet (115 to 129 Nm)

Cap screws that fasten the pump mounting bracket to the pump mounting plate.....Apply 271 Loctite on the threads and tighten to 85 to 95 pound-feet (115 to 129 Nm)

Cap screws that fasten the radiator to the radiator mounting brackets..15 to 20 pound-inches (1.68 to 2.25 Nm)

SPECIAL TOOLS

Order special tools from one of the following addresses:

In the U.S.A.

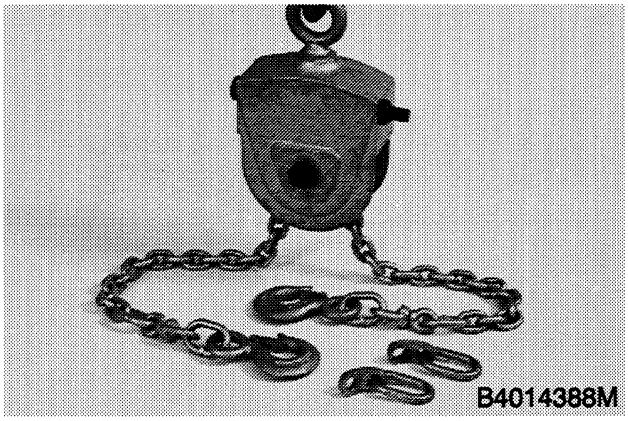
Service Tools
P.O. Box 314
Owatonna, Minnesota 55060

In Canada

Jobborn Manufacturing Company
97 Frid Street
Hamilton, Ontario L8P 4M3

In Eruope

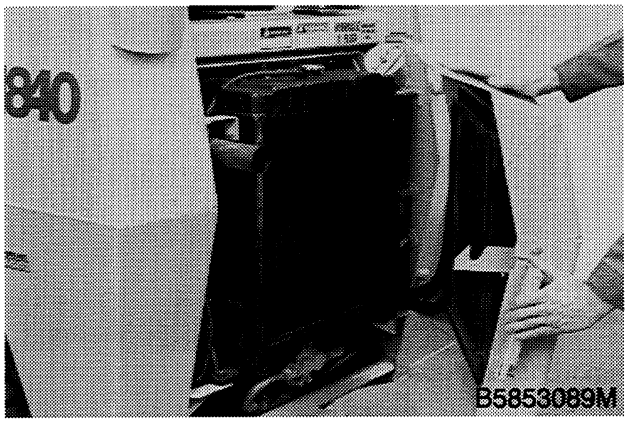
VL Church Ltd.
P.O. Box 3, Daventry
Northants, NN11 4NF
England



The lifting sling is used to remove and install the engine. The part number of the tool is CAS-10119. This tool is first used on page 2001-9.

ENGINE REMOVAL

STEP 1

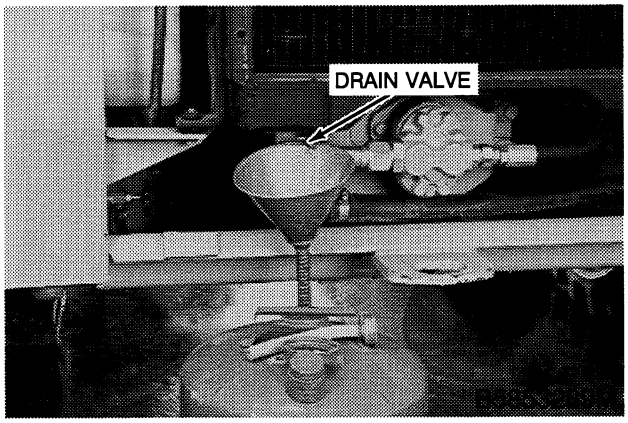


Open the rear door.

STEP 2

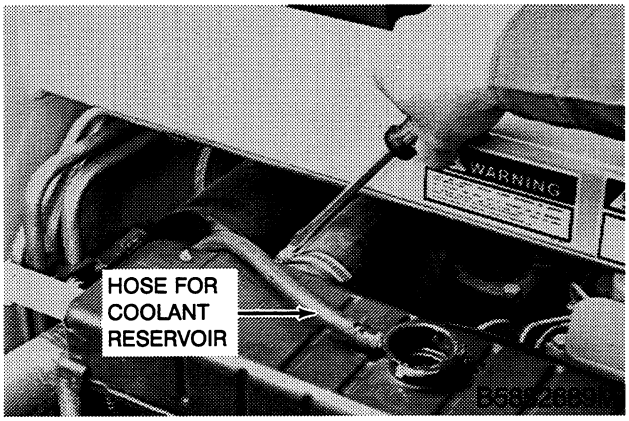
Remove the radiator cap.

STEP 3



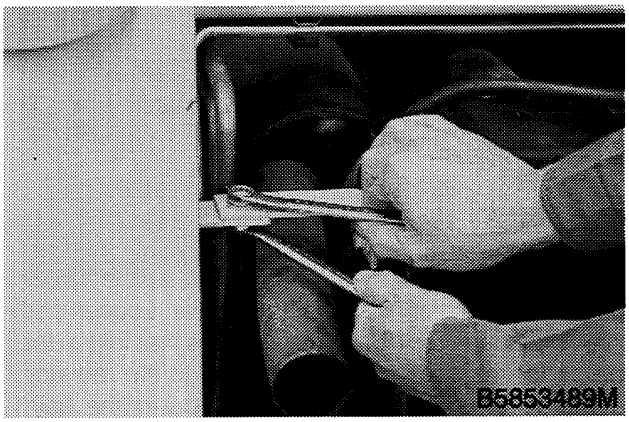
Open the drain valve and drain the cooling system. The cooling system capacity is approximately 18 U.S. quarts (17 litres) of coolant.

STEP 4



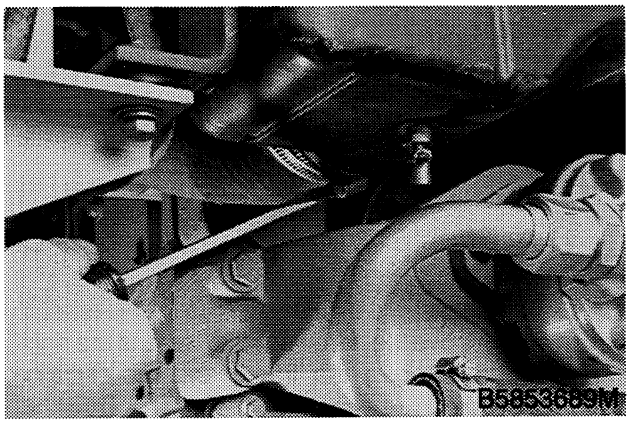
Loosen the clamp and disconnect the top hose from the radiator. Disconnect the hose for the coolant reservoir from the radiator. Install a plug in the coolant reservoir hose.

STEP 5



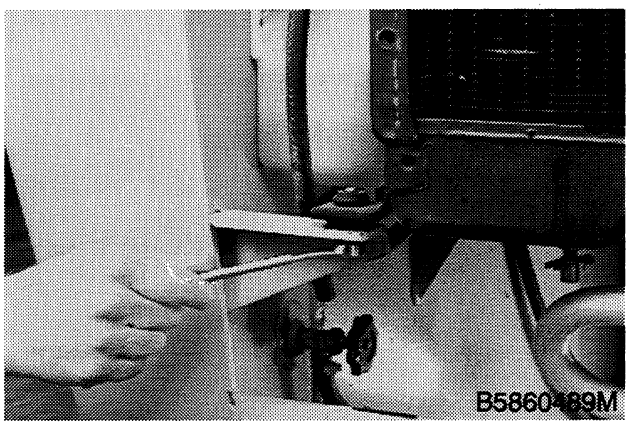
Loosen and remove the self-locking nut, flat washer, and bolt that fasten the top left radiator support to the frame.

STEP 6



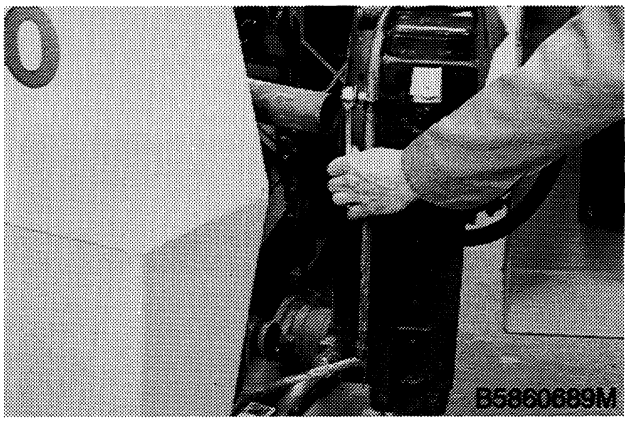
Loosen the clamp and disconnect the bottom hose from the radiator.

STEP 7



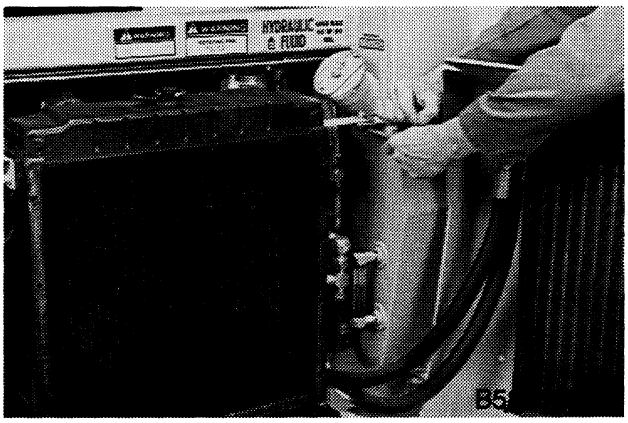
Loosen and remove the cap screw and flat washers that fasten the radiator to the left radiator mounting bracket.

STEP 8



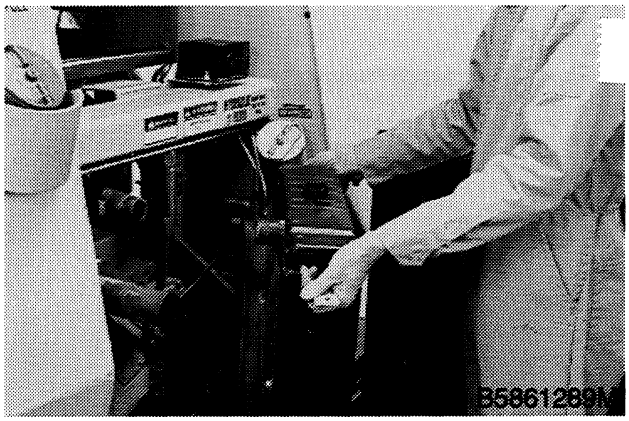
Pull the left side of the radiator to the rear. Loosen and remove the cap screws and flat washers that fasten the clamps for the coolant reservoir hose to the radiator. Put the hose for the coolant reservoir out of the way.

STEP 9



Loosen and remove the hardware that fastens the right side of the radiator to the frame and the radiator mounting bracket.

STEP 10



Remove the radiator from the machine.

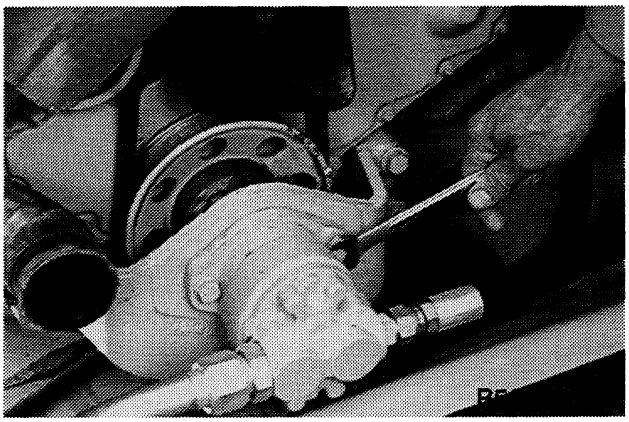
STEP 11

Remove the floor plate. Disconnect the ground cable from the negative post on the battery.

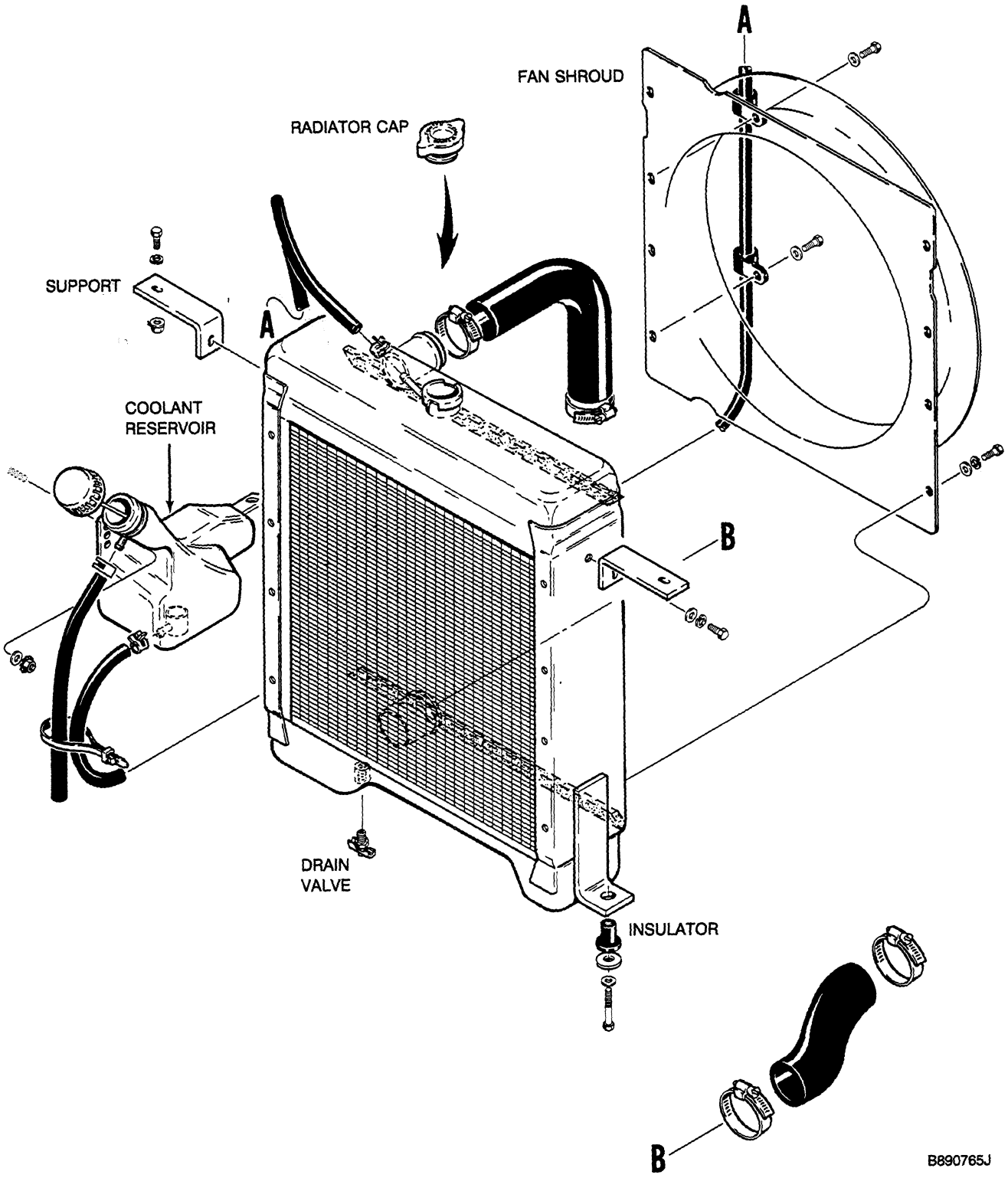
STEP 12

Move the operators compartment forward according to the instructions in Section 9003.

STEP 13

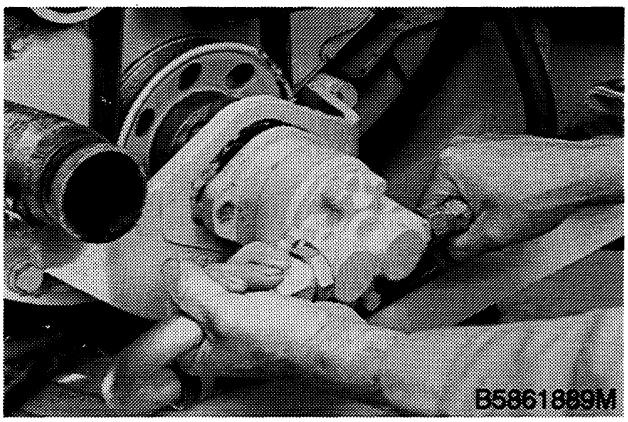


Loosen and remove the cap screws and flat washers that fasten the equipment pump to the rear engine mount.



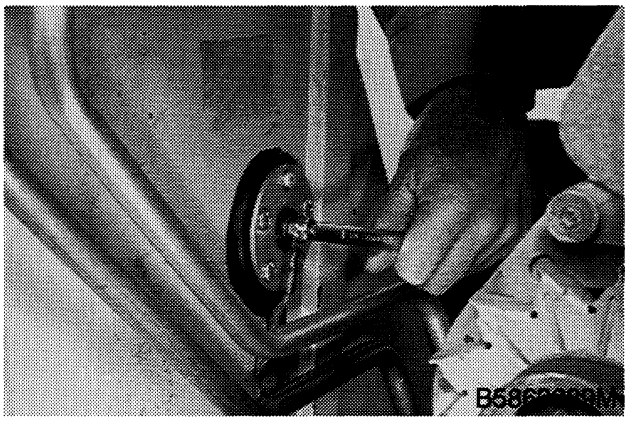
Radiator Installation

STEP 14



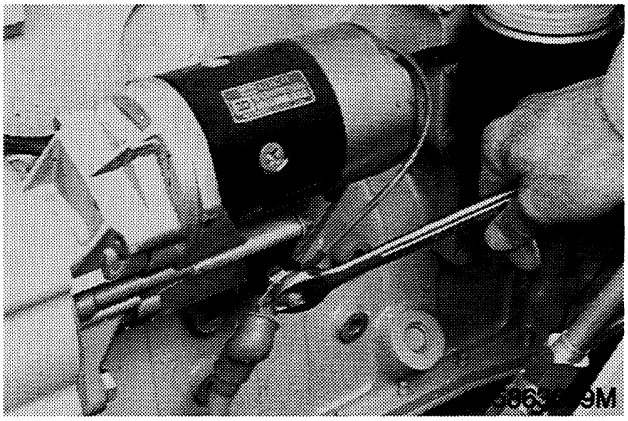
Pull the equipment pump away from the rear engine mount to disengage the drive shaft of the equipment pump from the coupling on the crankshaft pulley.

STEP 15



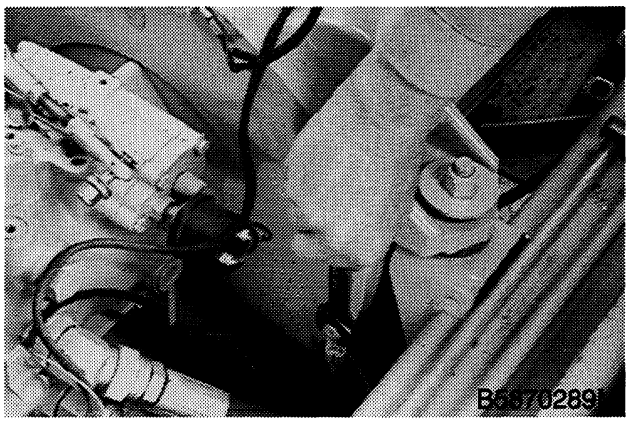
Disconnect the wire from the fuel level sender.

STEP 16



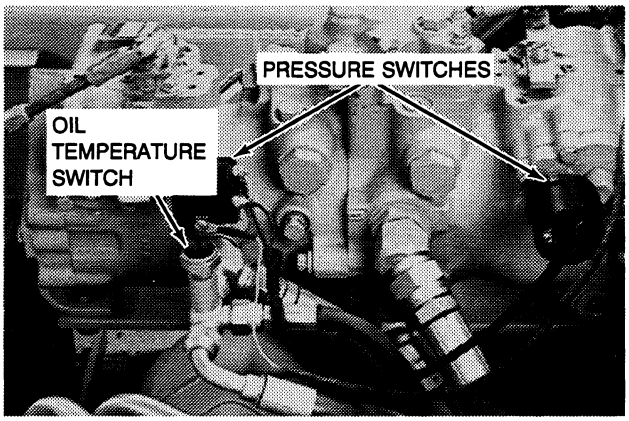
Disconnect the positive cable from the battery terminal on the starter solenoid.

STEP 17



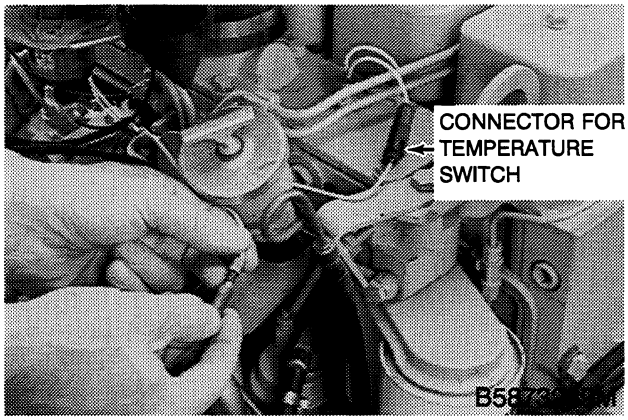
Loosen and remove the cap screw and lock washer that fasten the ground cable to the pump mounting plate. Remove the ground cable.

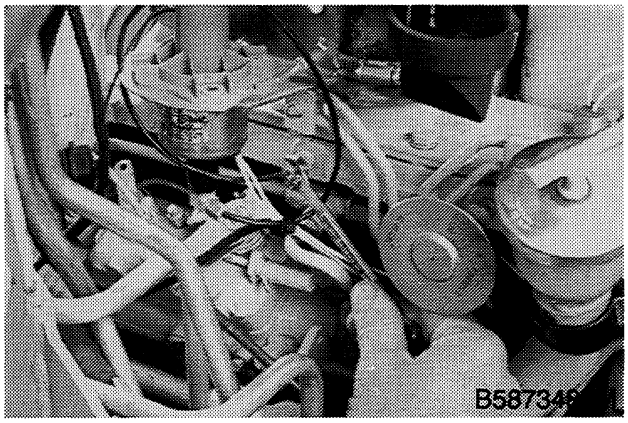
STEP 18



Disconnect the wire from the oil temperature switch. If the machine is equipped with a backup alarm, disconnect the wires from the pressure switches.

STEP 19





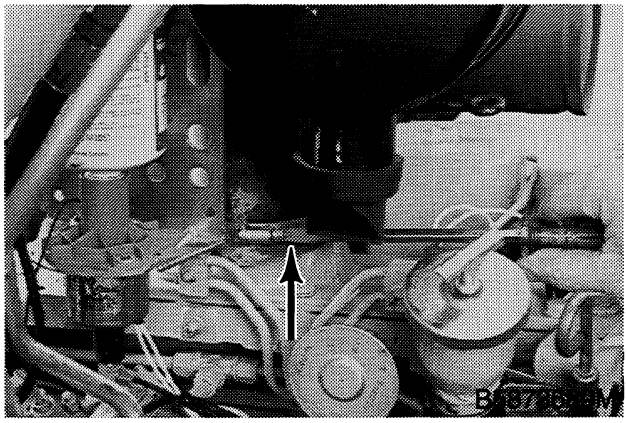
If the machine is equipped with ether injection:

1. Disconnect the wire to the valve assembly.

2. Disconnect the wire for the temperature switch.

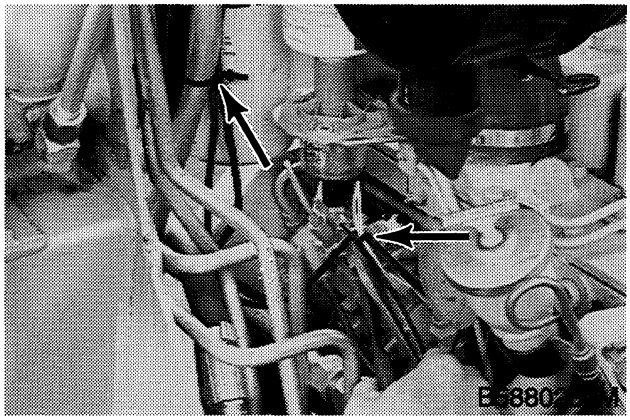
3. Disconnect the tube from the intake manifold.

STEP 20



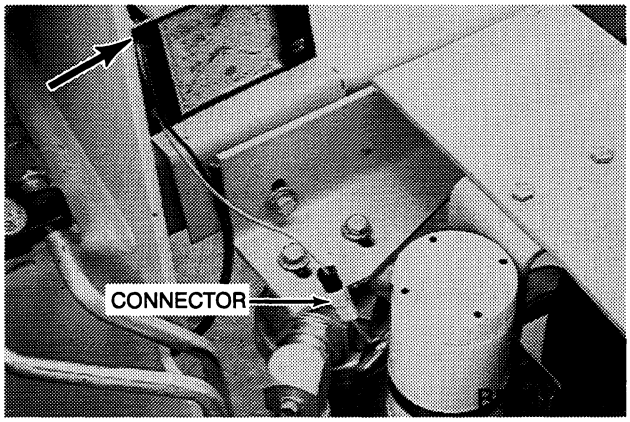
Loosen the clamp on the hose at the intake manifold.

STEP 21



Cut the tie straps shown.

STEP 22

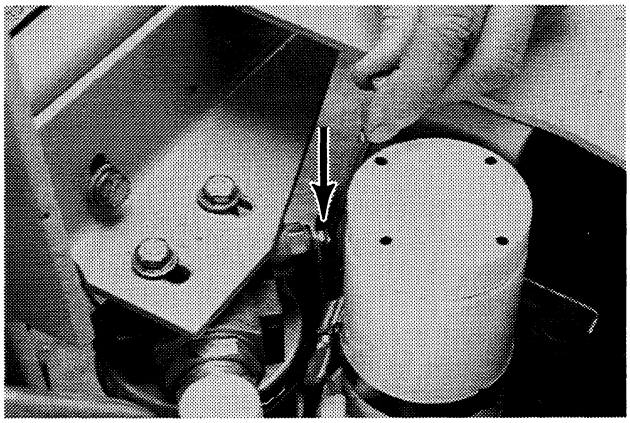


If the machine is equipped with a backup alarm:

1. Disconnect the connector for the backup alarm.

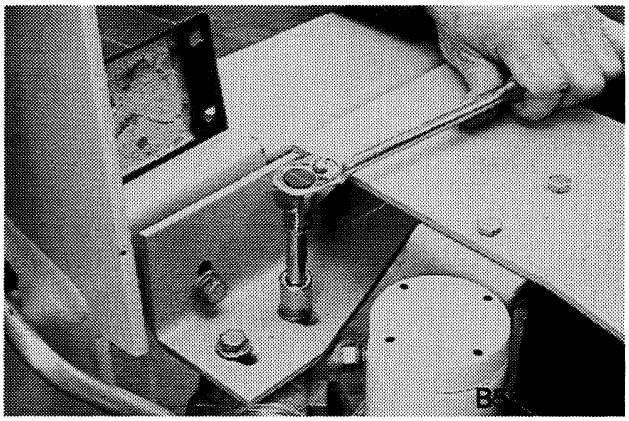
2. Disconnect the black wire from the side of the backup alarm.

STEP 23



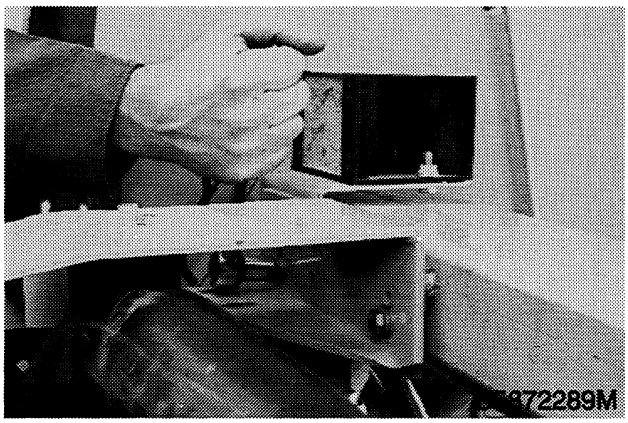
Disconnect the wire from the hydraulic oil filter.

STEP 24



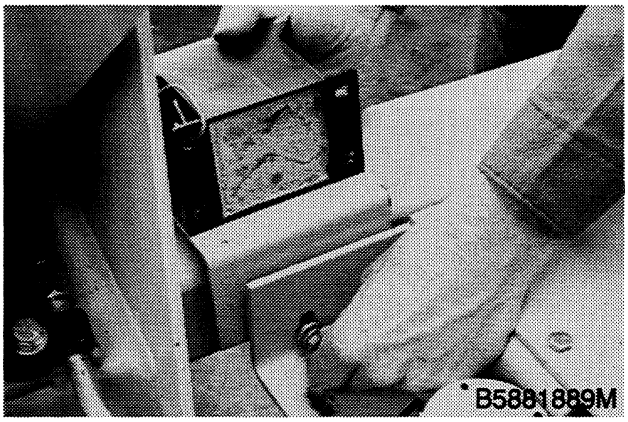
Loosen and remove the cap screws and hardened washers that fasten the hydraulic oil filter to the bracket.

STEP 25



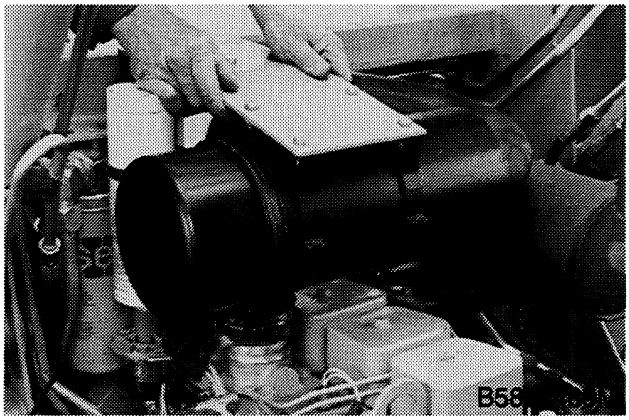
Loosen the cap screws, lock washers, and hardened washers that fasten the bracket for the air cleaner, and the bracket for the backup alarm, if equipped.

STEP 26



If the machine is equipped with a backup alarm, hold the backup alarm and remove the cap screw, lock washer, and hardened washer. Remove the bracket for the backup alarm.

STEP 27

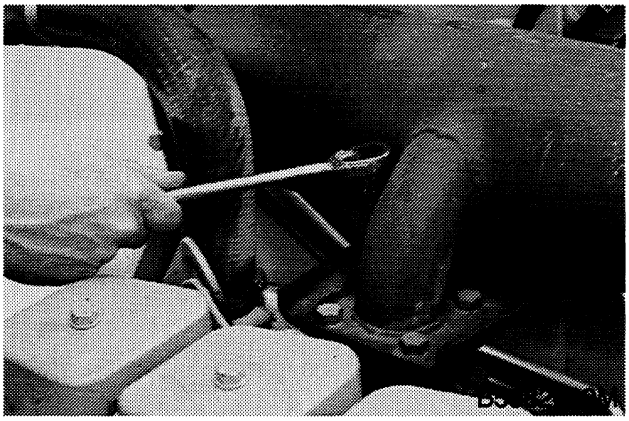


Remove the hardware for the bracket for the air cleaner, disconnect the hose from the intake manifold, and remove the air cleaner.

STEP 28

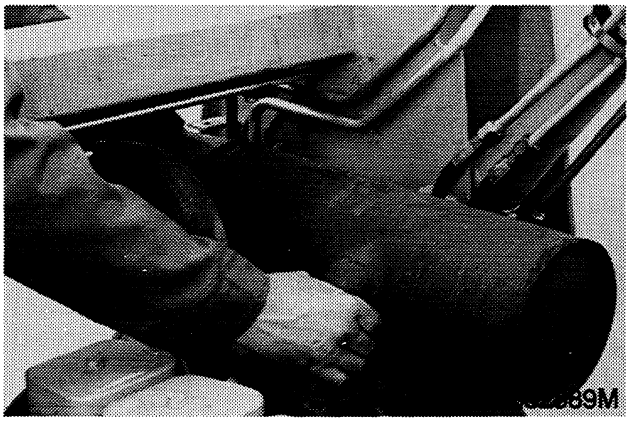
Cover or close the opening in the intake manifold.

STEP 29



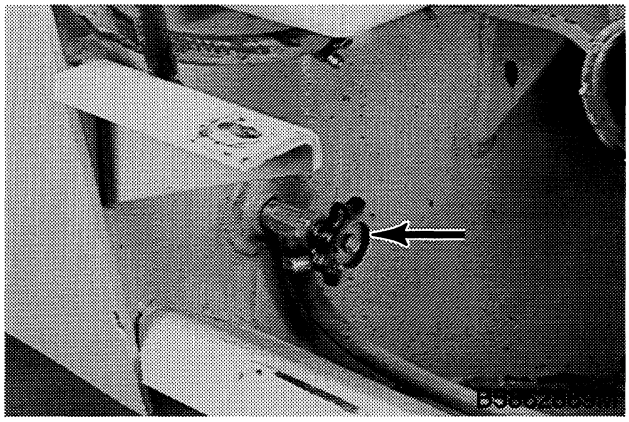
Loosen and remove the cap screws and lock washers that fasten the muffler to the exhaust manifold.

STEP 30



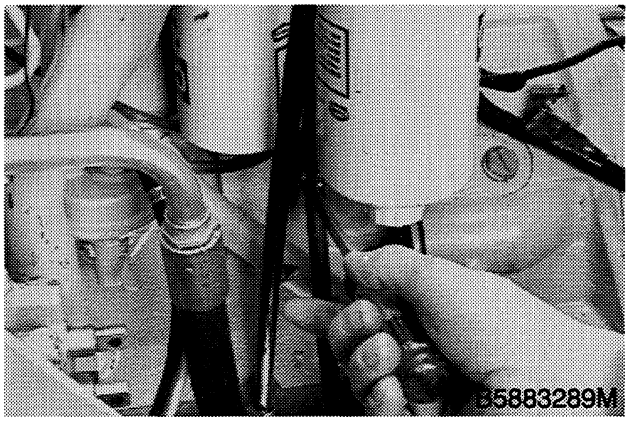
Remove the muffler.

STEP 31



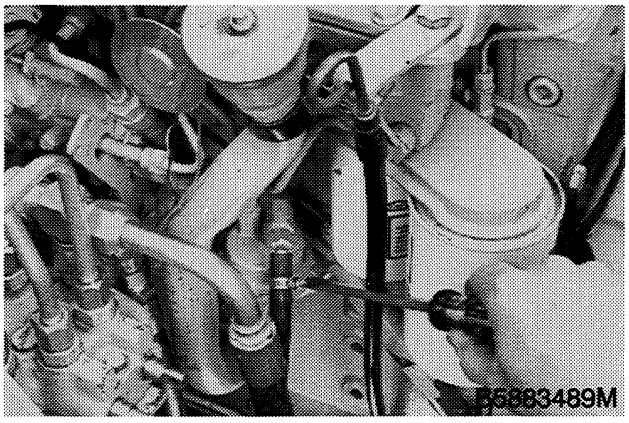
Close the shutoff valve for the fuel supply line.

STEP 32



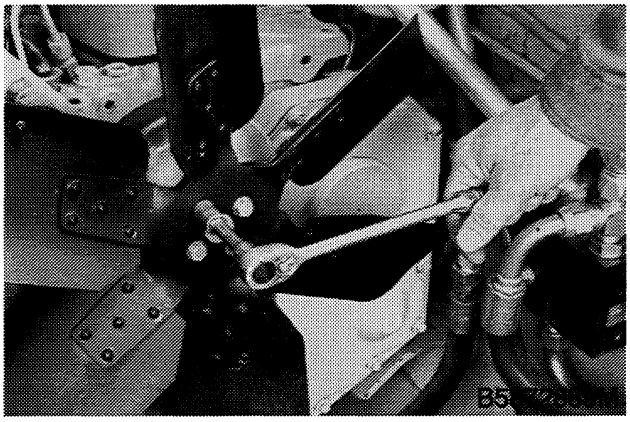
Loosen the clamp and disconnect the hose from the fuel return line. Install a plug in the hose.

STEP 33



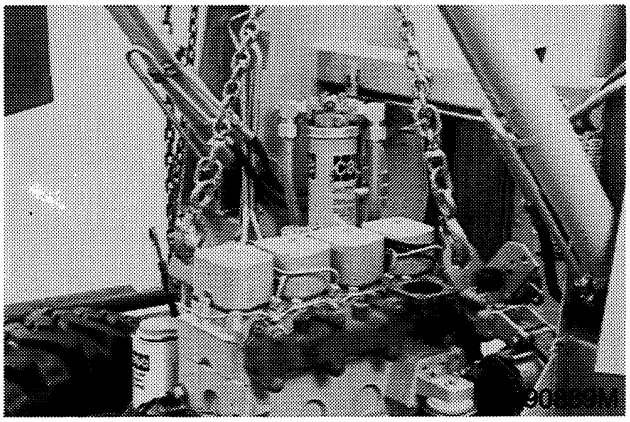
Loosen the clamp and disconnect the fuel supply hose from the hand primer pump. Install a plug in the hose.

STEP 34



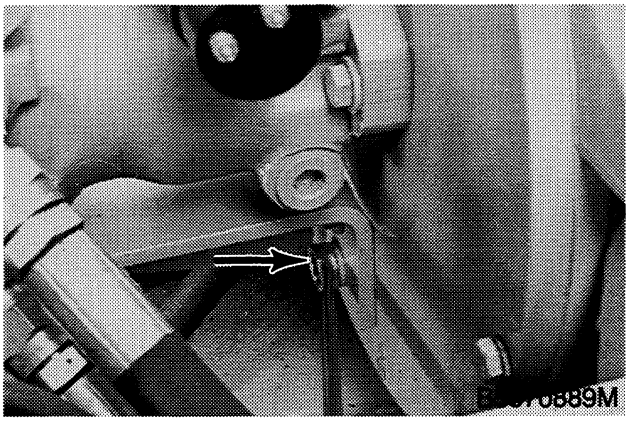
Hold the fan in position and loosen and remove the cap screws and lock washers that fasten the fan to the engine. Remove the fan.

STEP 35



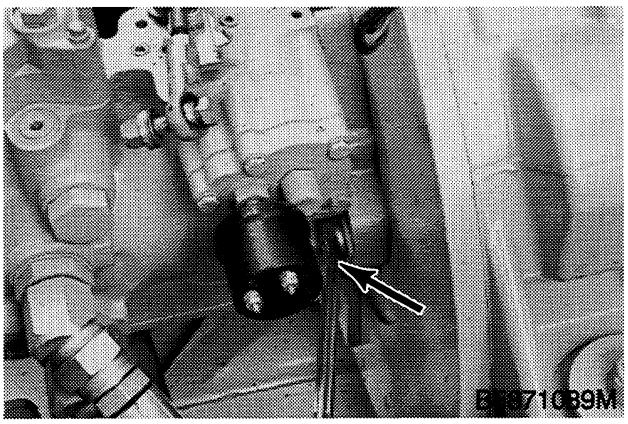
Connect the CAS-10119 lifting sling to the lifting eyes on the engine.

STEP 36



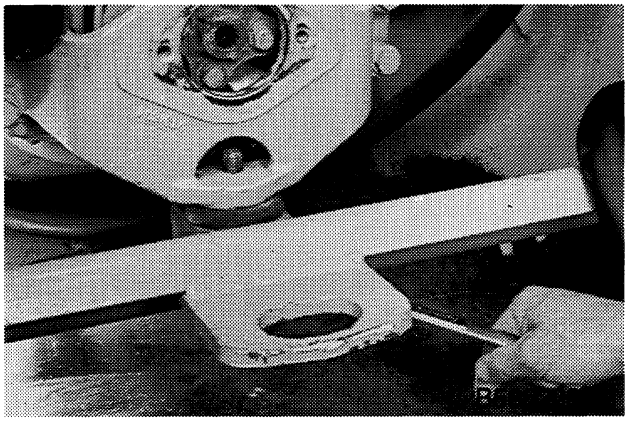
Loosen and remove the cap screws and flat washers that fasten the tandem pump mounting bracket to the tandem pump mounting plate.

STEP 37



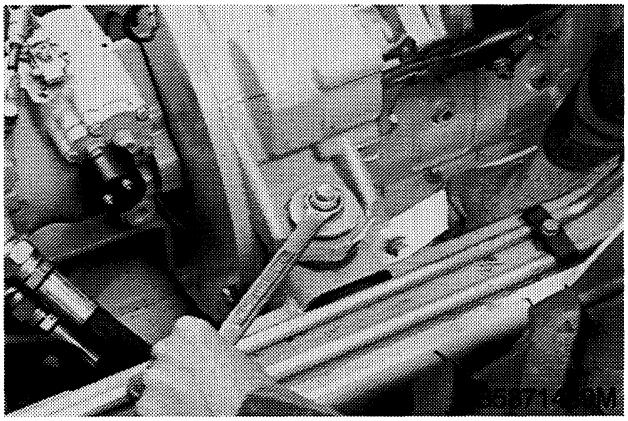
Loosen and remove the cap screws and flat washers that fasten the tandem pump to the tandem pump mounting plate.

STEP 38



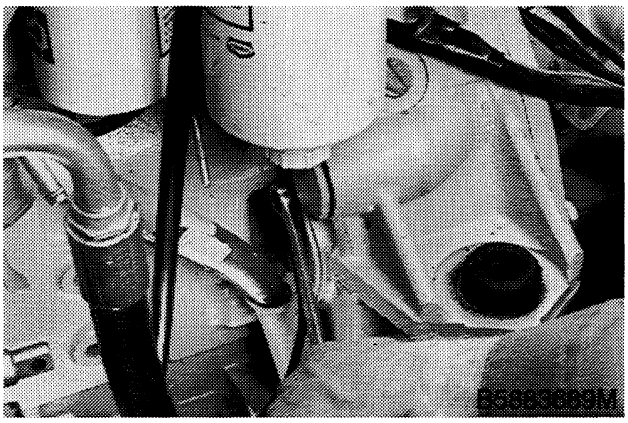
Loosen and remove the cap screw and hardened washer that fasten the rear engine mount to the frame.

STEP 39



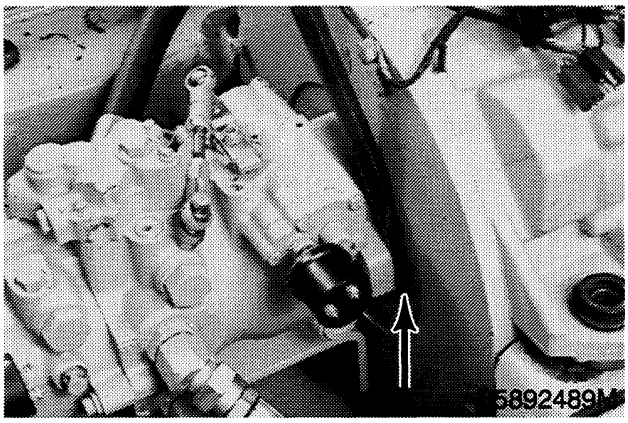
Loosen and remove the self-locking nuts, hardened washers, and bolts that fasten both front engine mounts to the frame.

STEP 40



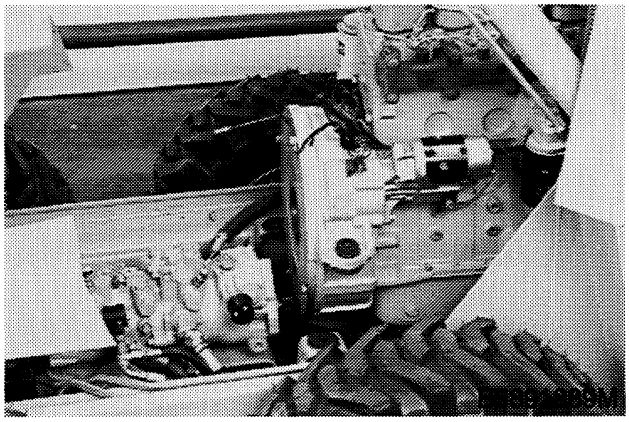
Loosen and remove the cap screw and lock washer that fastens the ground wire to the engine. Remove the ground wire.

STEP 41



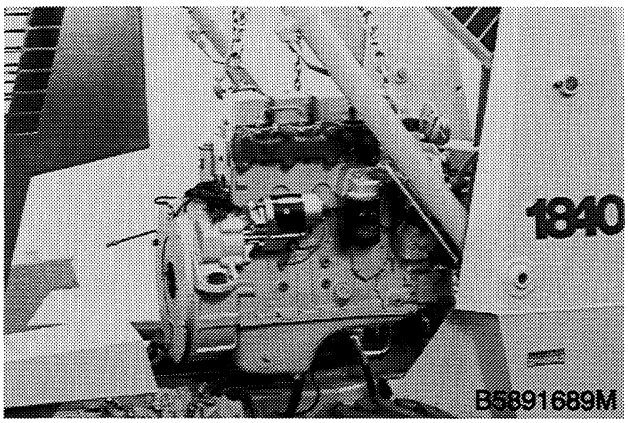
Use a prybar to help separate the tandem pump from the pump mounting plate.

STEP 42



Move the engine toward the rear to disengage the drive coupling on the flywheel from the drive shaft on the tandem pump. Raise the engine.

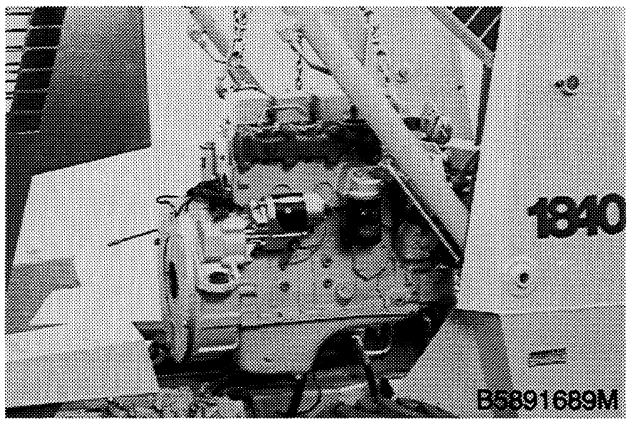
STEP 43



Remove the engine from the machine.

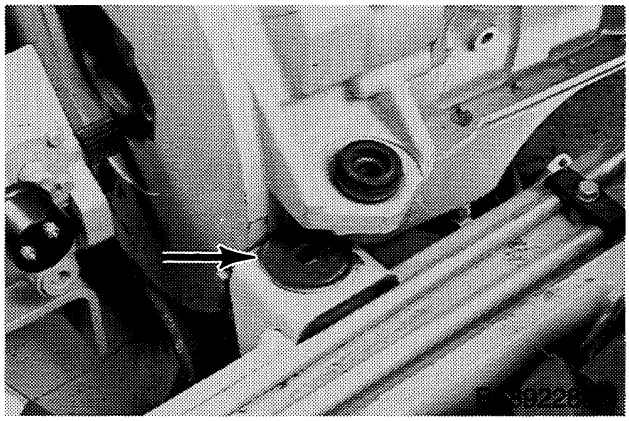
ENGINE INSTALLATION

STEP 44



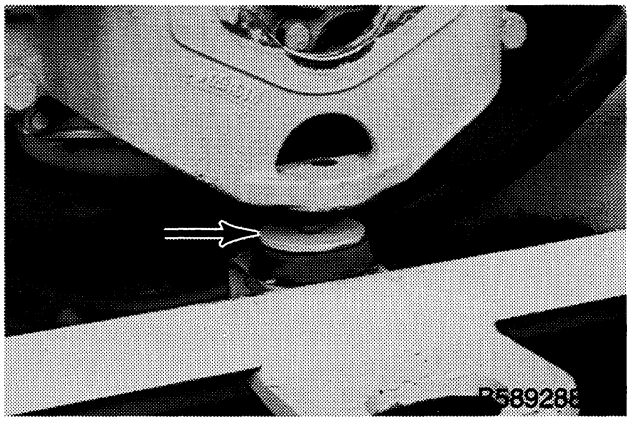
Lift the engine over the machine and lower the engine.

STEP 45



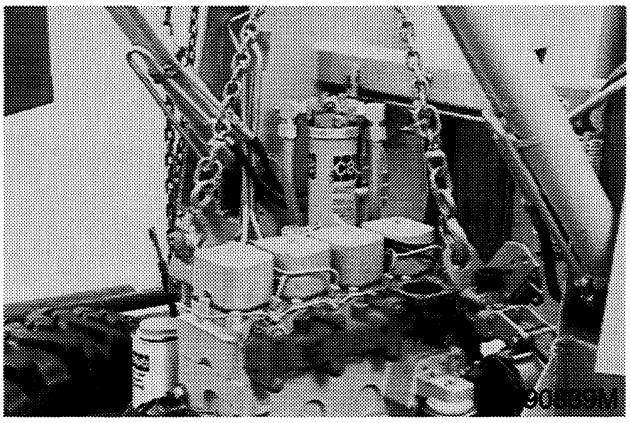
STEP 46

Engage the drive coupling on the flywheel with the drive shaft of the tandem pump and push the engine forward.



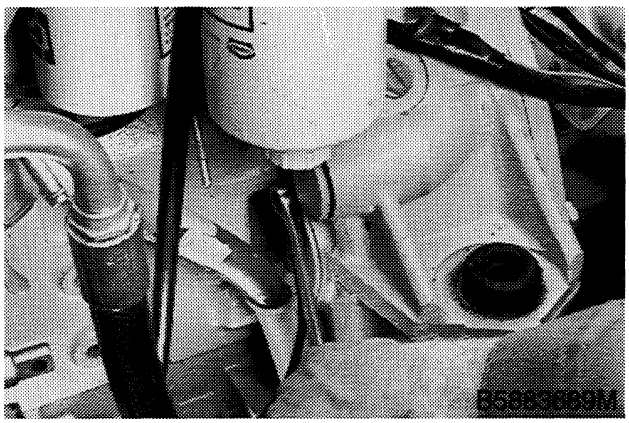
Make sure the hardened washers are installed as shown.

STEP 47



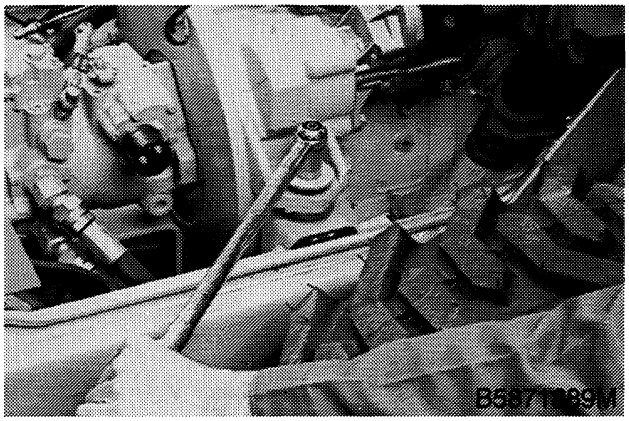
Lower the engine into place.

STEP 48



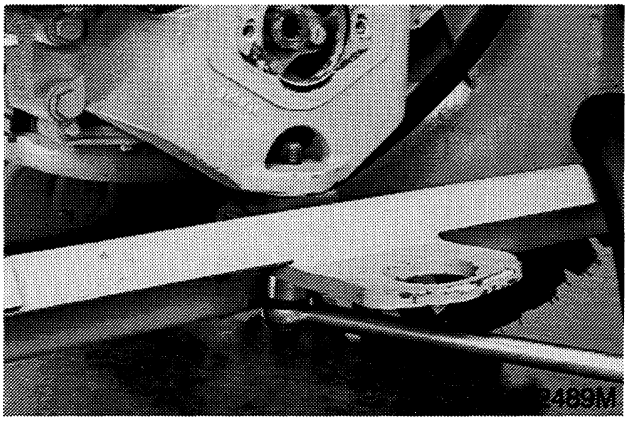
Install the cap screw, lock washer, and ground wire. Tighten the cap screw.

STEP 49



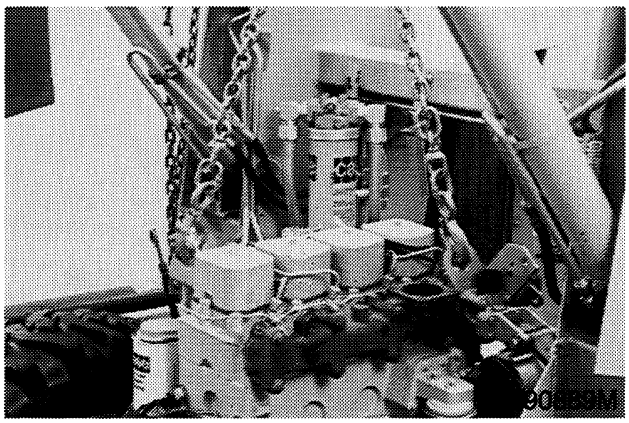
Install the bolts, hadened washers, and self-locking nuts that fasten the front engine mounts to the frame. Tighten the self-locking nuts to 135 to 165 pound-feet (183 to 224 Nm).

STEP 50



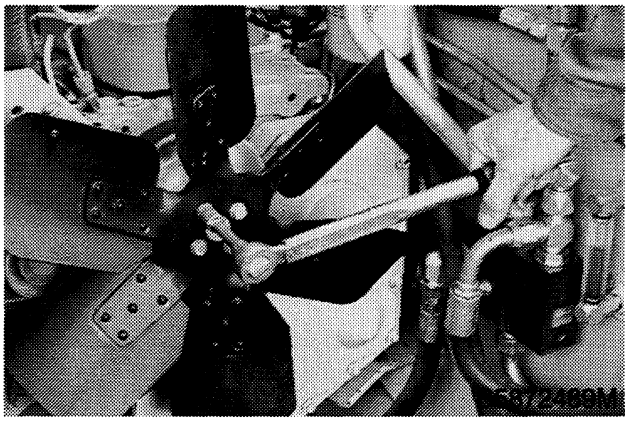
Install the cap screw and hardened washer that fastens the rear engine mount to the frame. Tighten the self-locking nut to 135 to 165 pound-feet (183 to 224 Nm).

STEP 51



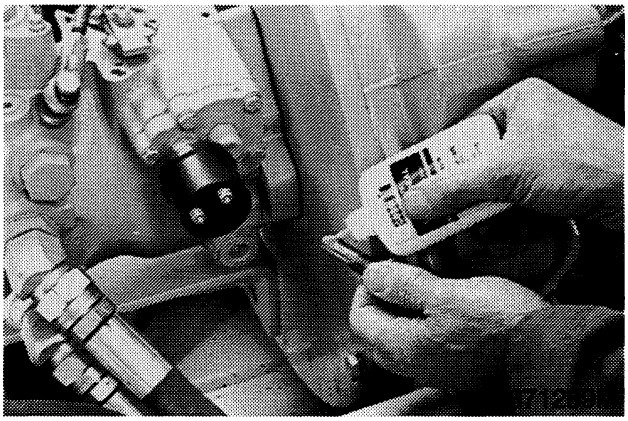
Disconnect the CAS-10119 lifting sling from the engine.

STEP 52



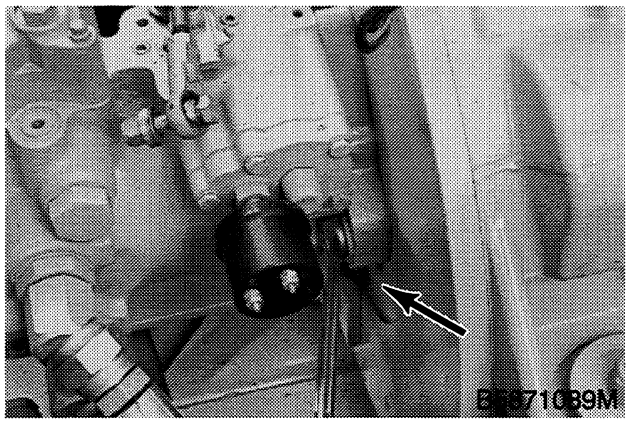
Put the fan in position on the engine. Install the cap screws and lock washers and tighten the cap screws to 276 to 324 pound-inches (31 to 37 Nm).

STEP 53



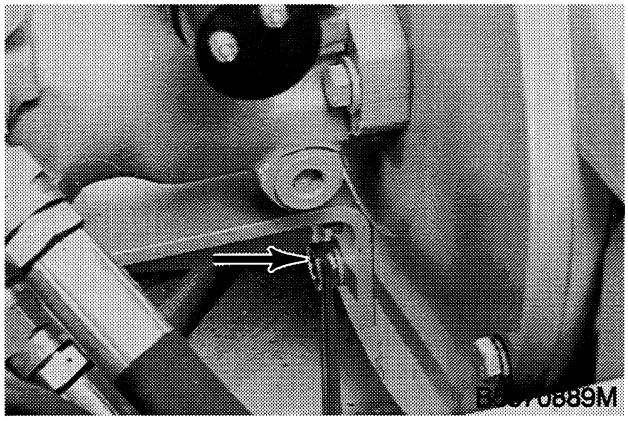
Apply 271 Loctite to the threads of the cap screws that fasten the tandem pump and the tandem pump mounting bracket to the tandem pump mounting plate.

STEP 54



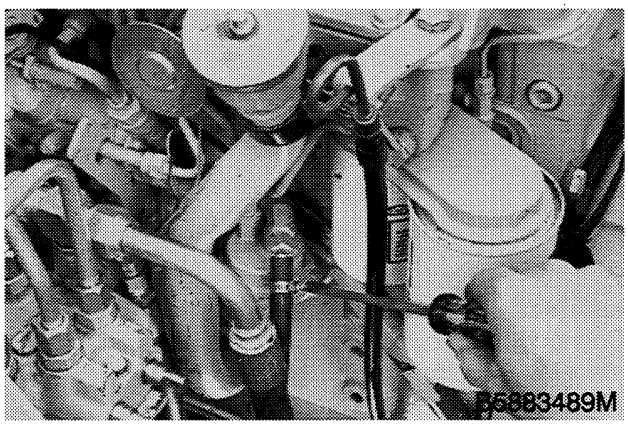
Install and tighten the cap screws that fasten the tandem pump to the pump mounting plate to 85 to 95 pound-feet (115 to 129 Nm).

STEP 55



Install and tighten the cap screws that fasten the pump mounting bracket to the pump mounting plate to 85 to 95 pound-feet (115 to 129 Nm).

STEP 56

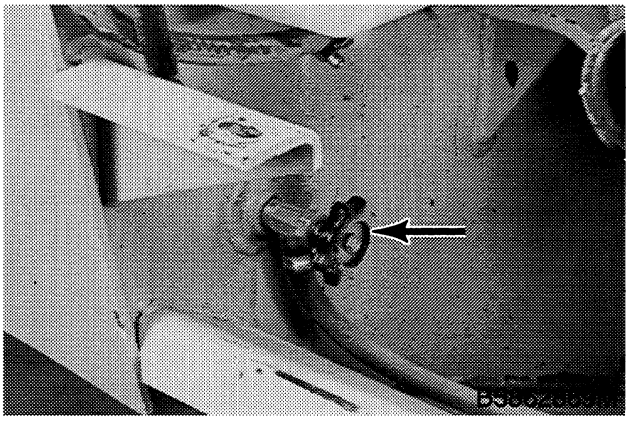


Connect the fuel supply hose to the hand primer pump and tighten the clamp.

STEP 57

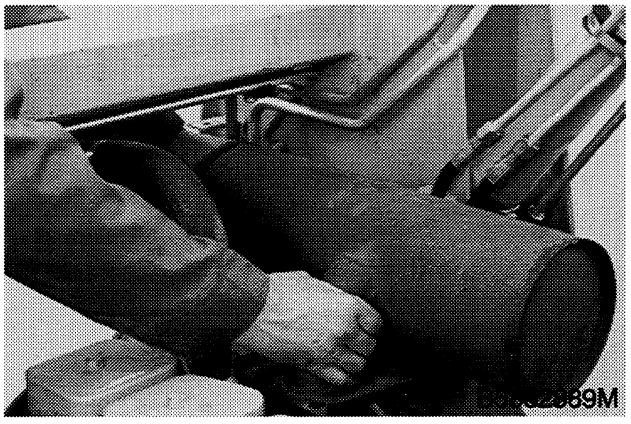
Connect the hose to the fuel return line and tighten the clamp.

STEP 58



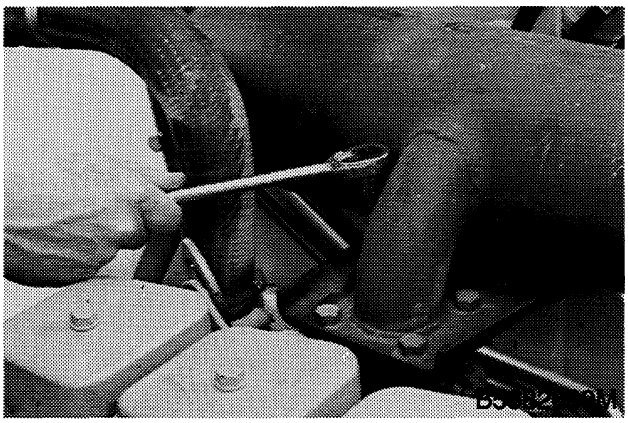
Open the shutoff valve for the fuel supply line.

STEP 59



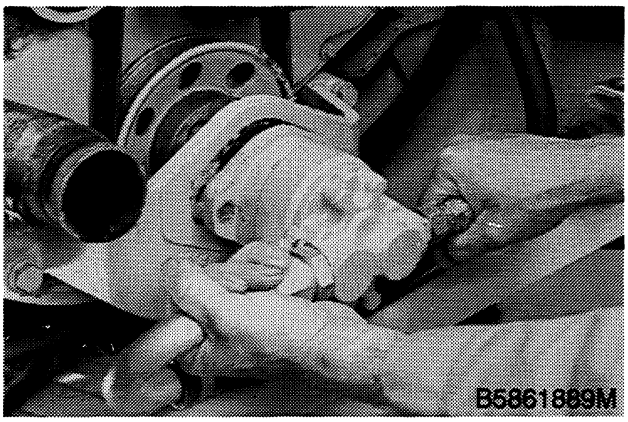
Install the muffler.

STEP 60



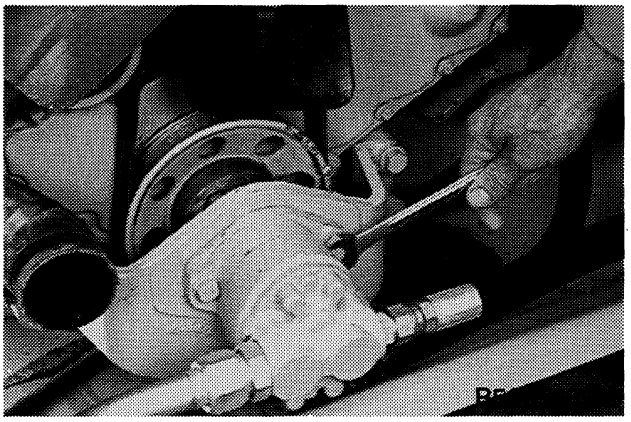
Install the cap screws and lock washers that fasten the muffler. Tighten the cap screws.

STEP 61



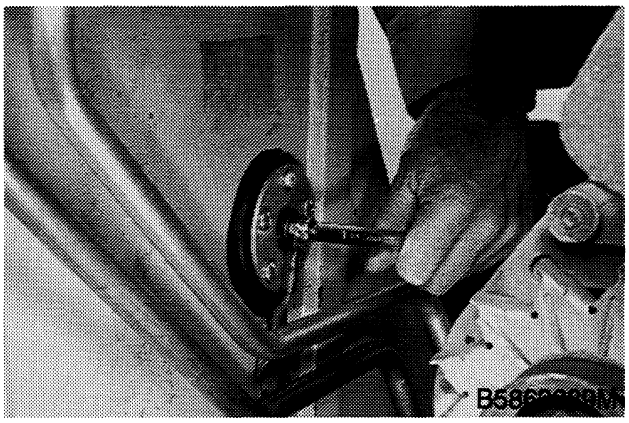
Lubricate the drive shaft with Molykote Type G lubricant. Engage the drive shaft of the equipment pump with the coupling on the crankshaft pulley. Push the equipment pump against the rear engine mount and install the cap screws and lock washers.

STEP 62



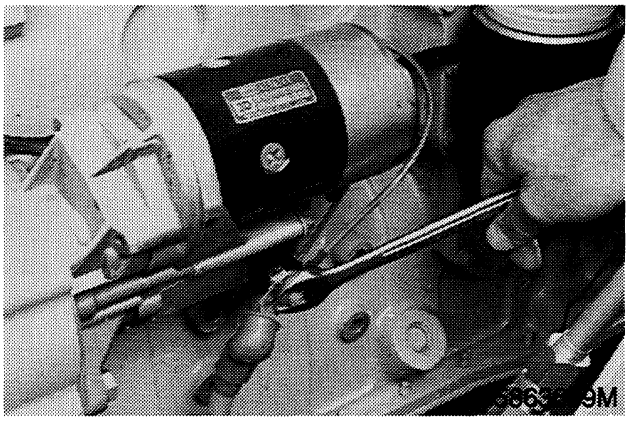
Tighten the cap screws.

STEP 63



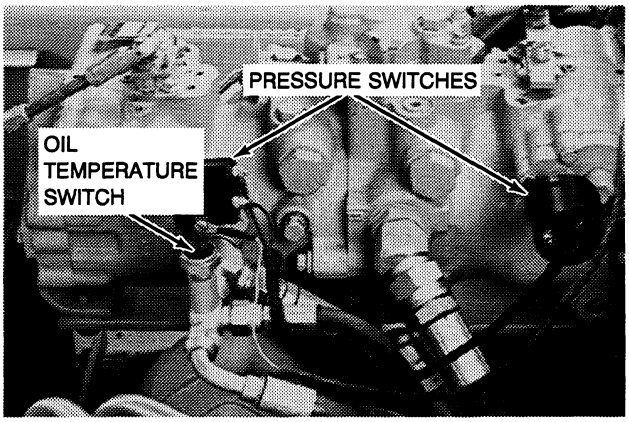
Connect the wire to the fuel level sender.

STEP 64



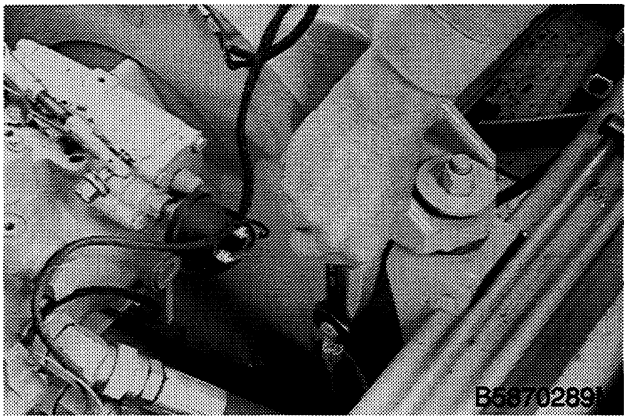
Connect the positive cable to the battery terminal on the starter solenoid.

STEP 65



Connect the wire to the oil temperature switch. If the machine is equipped with a backup alarm, connect the wires to the pressure switches.

STEP 66

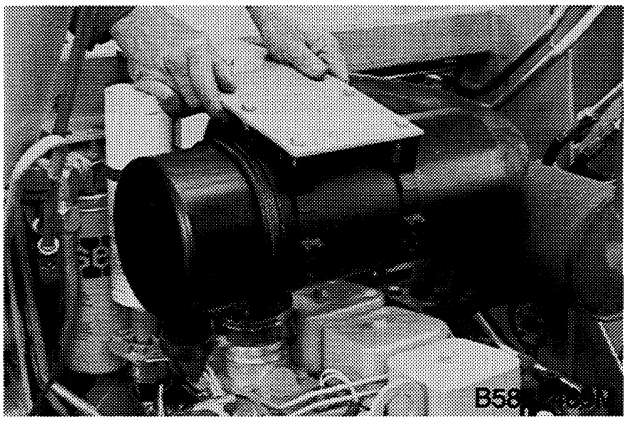


Install the cap screw, flat washer, and ground cable to the pump mounting plate. Tighten the cap screw.

STEP 67

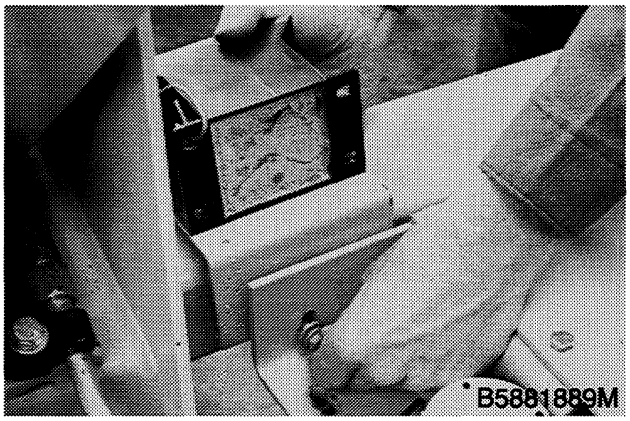
Remove the tape or cover from the opening for the intake manifold.

STEP 68



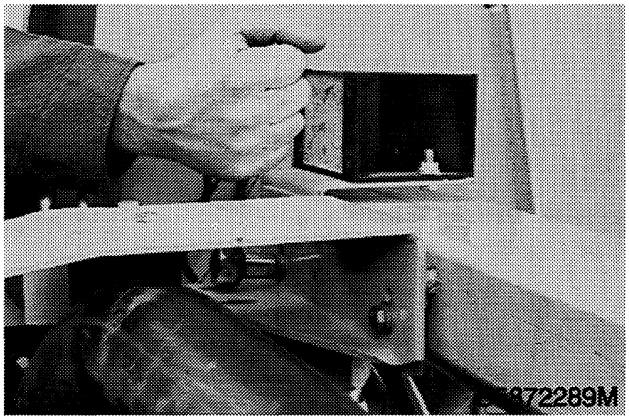
Install the air cleaner and connect the hose to the intake manifold.

STEP 69



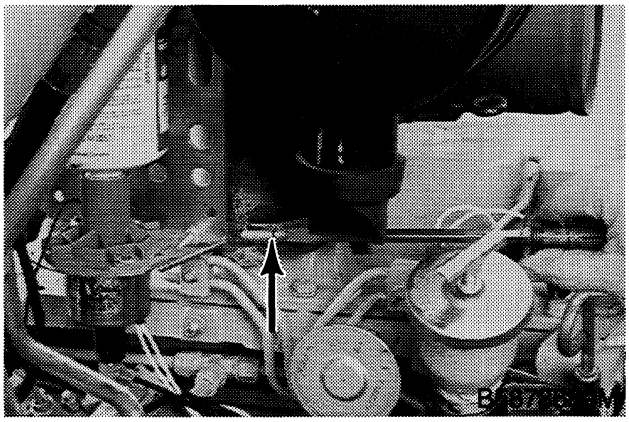
If the machine is equipped with a backup alarm, install the bracket for the backup alarm between the bracket for the air cleaner and the frame. Hold the backup alarm and install the cap screw, lock washer, and hardened washer.

STEP 70



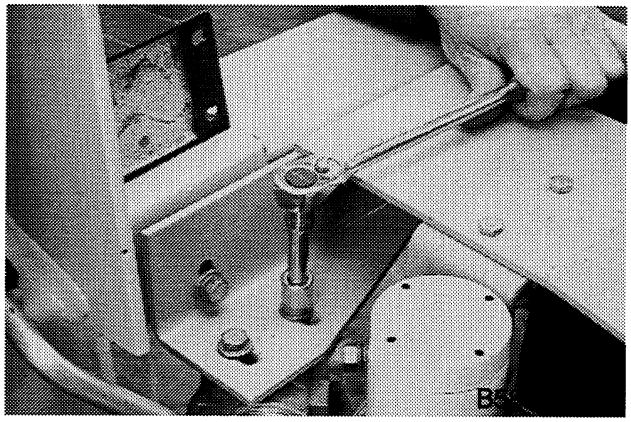
Install the other cap screw, lock washer, and hardened washer. Tighten the cap screws.

STEP 71



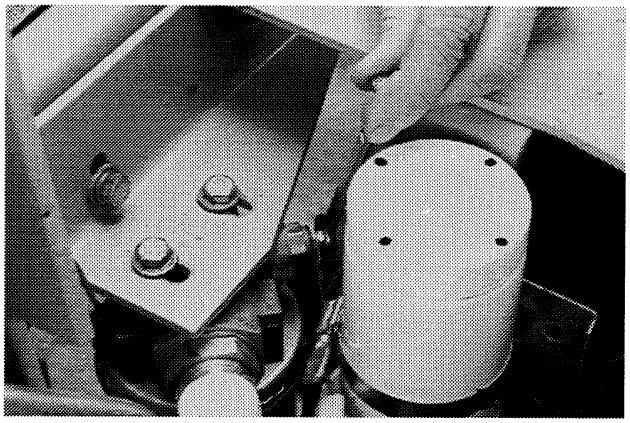
Tighten the clamp on the hose at the intake manifold.

STEP 72



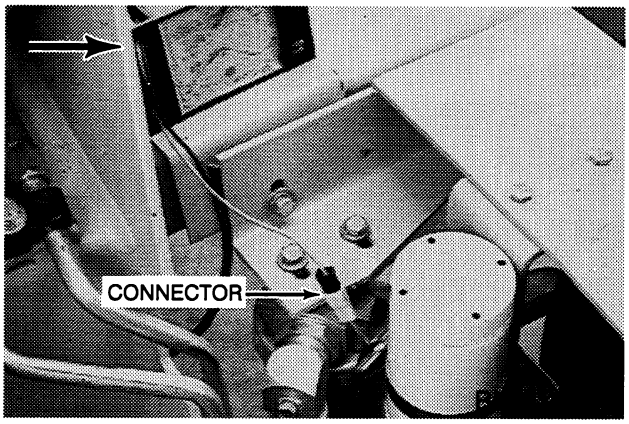
Install the cap screws and hardened washers that fasten the hydraulic oil filter to the bracket. Tighten the cap screws.

STEP 73



Connect the wire to the hydraulic oil filter.

STEP 74

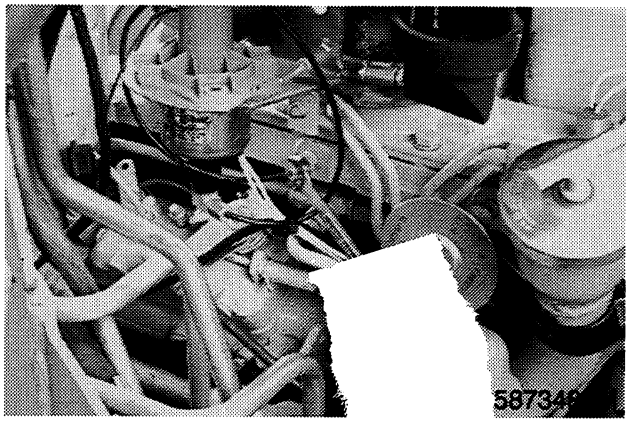


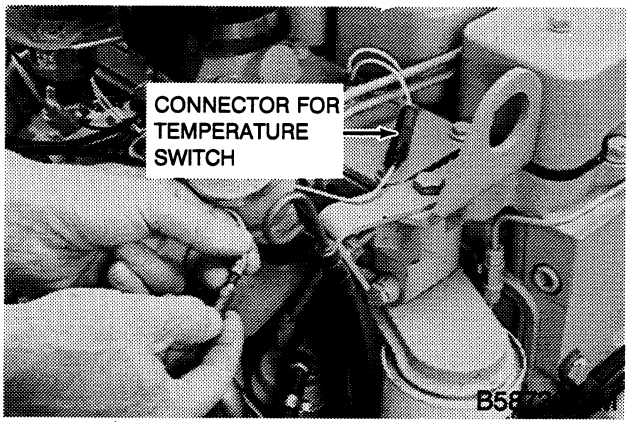
If the machine is equipped with a backup alarm:

1. Connect the black wire to the side of the backup alarm.

2. Connect the connector for the wire harness.

STEP 75





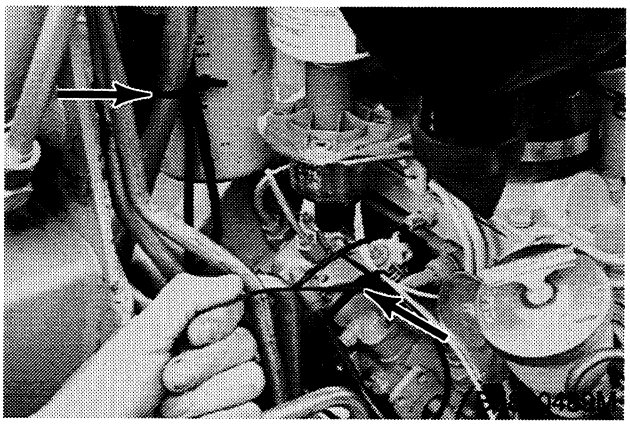
If the machine is equipped with ether injection:

1. Connect the tube to the intake manifold.

2. Connect the wire for the temperature switch.

3. Connect the wire to the valve assembly.

STEP 76



Install new tie straps as shown.

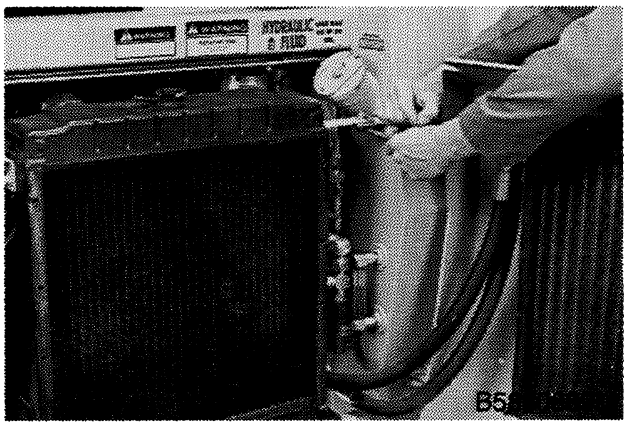
STEP 77

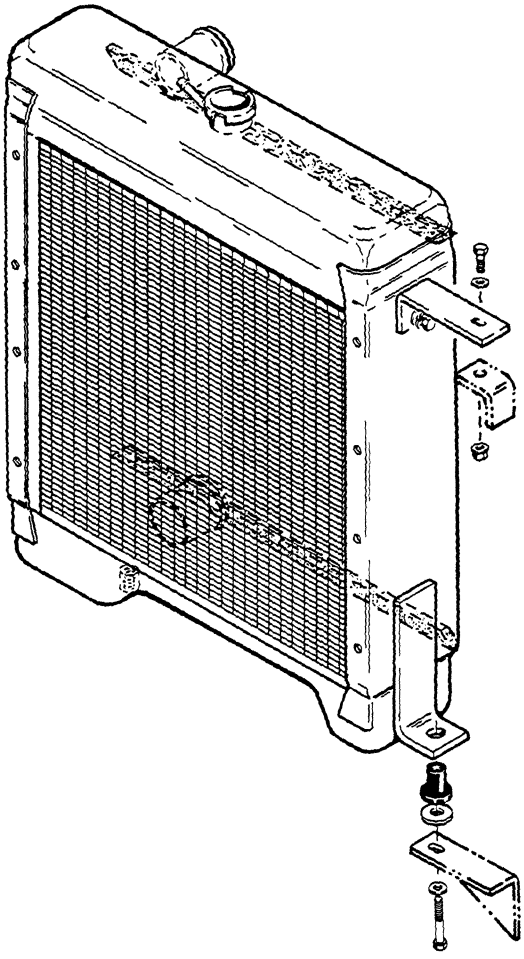
Fasten the operators compartment in the operating position according to the instructions in Section 9003.

STEP 78

Connect the ground cable to the negative post on the battery. Install the floor plate.

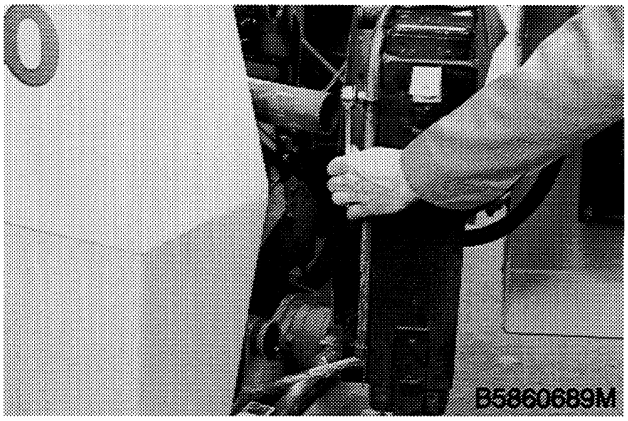
STEP 79





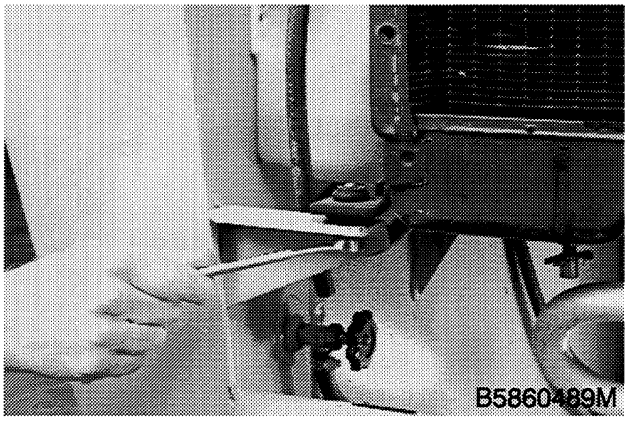
Install the hardware for the right side of the radiator as shown. Tighten the bottom cap screw to 15 to 20 pound-inches (1.68 to 2.25 Nm).

STEP 80



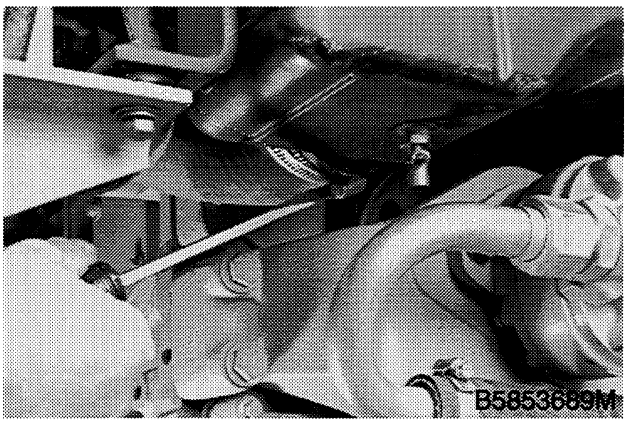
Install the clamps for the coolant reservoir hose and install the cap screws and flat washers. Tighten the cap screws.

STEP 81



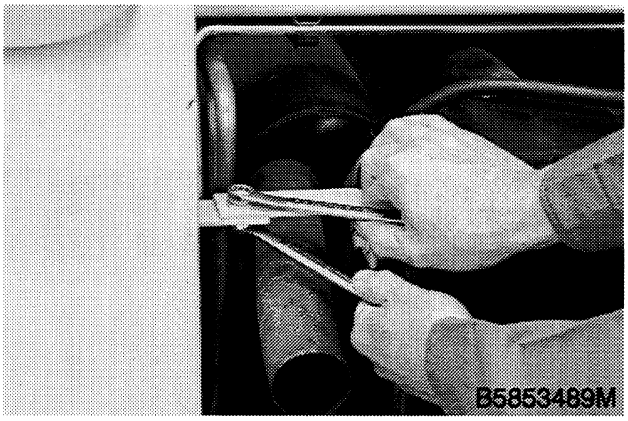
Push the left side of the radiator to the front. Install the cap screw and flat washers that fasten the left side of the radiator to the left radiator mounting bracket. Tighten the cap screw to 15 to 20 pound-inches (1.68 to 2.25 Nm).

STEP 82



Connect the bottom radiator hose and tighten the clamp.

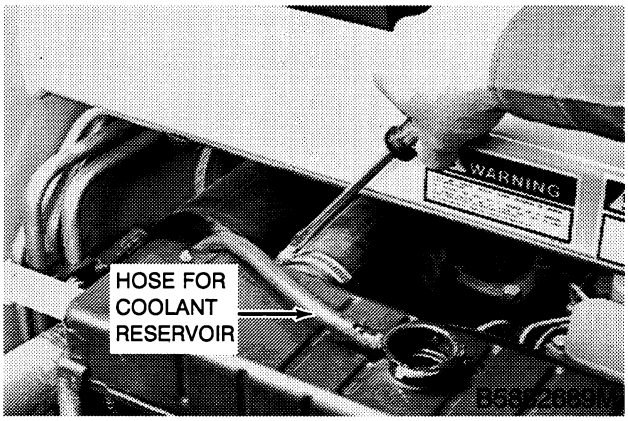
STEP 83



Install the bolt, flat washer, and self-locking nut that fasten the top left radiator support to the frame. Tighten the self-locking nut.

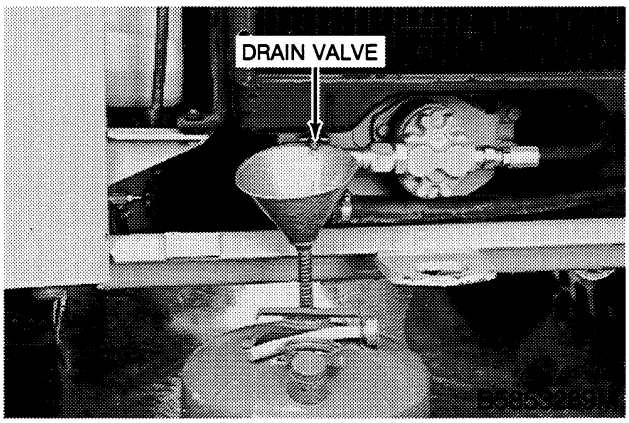
NOTE: *Make sure the fan is centered in the fan shroud. Loosen radiator mounting hardware and move radiator as required.*

STEP 84



Connect the hose for the coolant reservoir to the radiator. Connect the top radiator hose and tighten the clamp.

STEP 85



Close the drain valve in the radiator and fill the radiator with coolant. See Section 1002 for coolant specifications.

STEP 86

Install the radiator cap.

STEP 87

Fill the coolant reservoir to the FULL mark.

STEP 88

Make sure that the crankcase has been filled with engine oil. See Section 1002.

STEP 89

Start the engine and run the engine at idle until the engine is at operating temperature. If necessary see Section 3410 to bleed air from the fuel system. Check for coolant and fuel leaks.

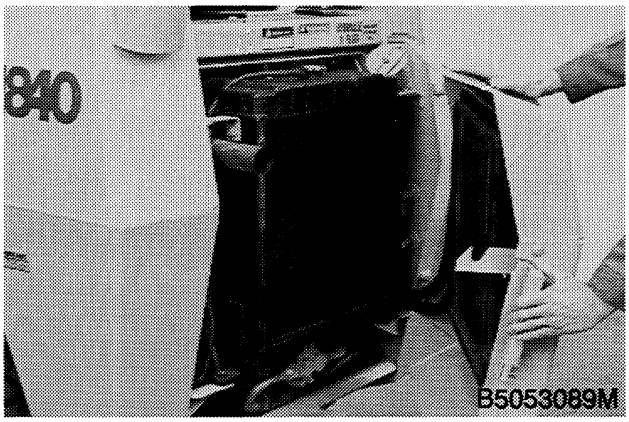
STEP 90

Stop the engine.

STEP 91

Check the level of the coolant in the coolant reservoir and add coolant as required.

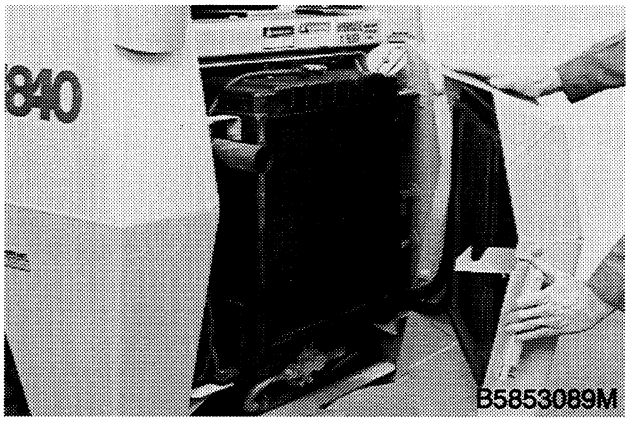
STEP 92



Close the rear door.

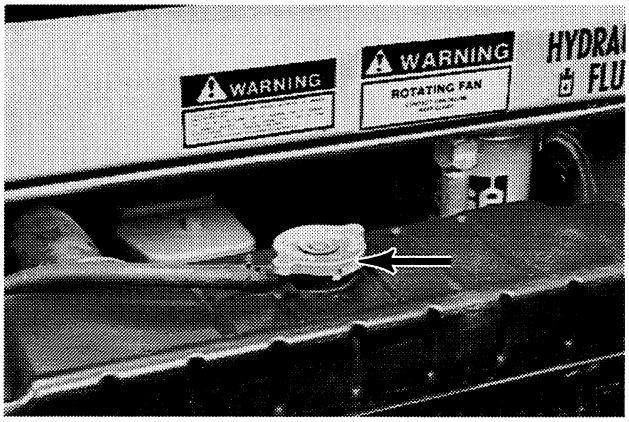
RADIATOR REMOVAL

STEP 93



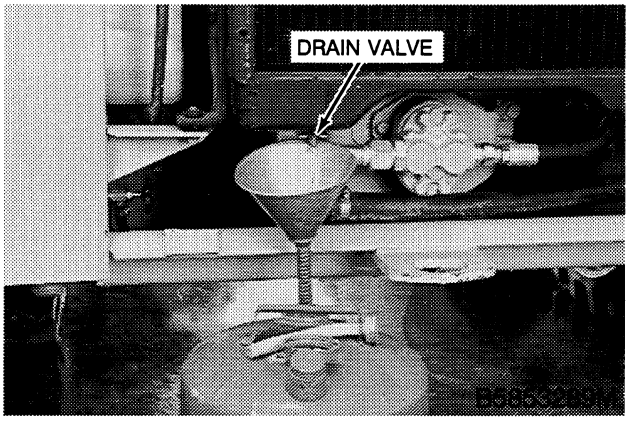
Open the rear door.

STEP 94



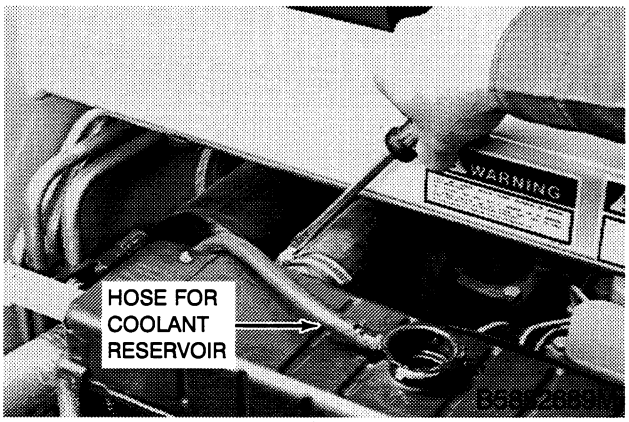
Remove the radiator cap.

STEP 95



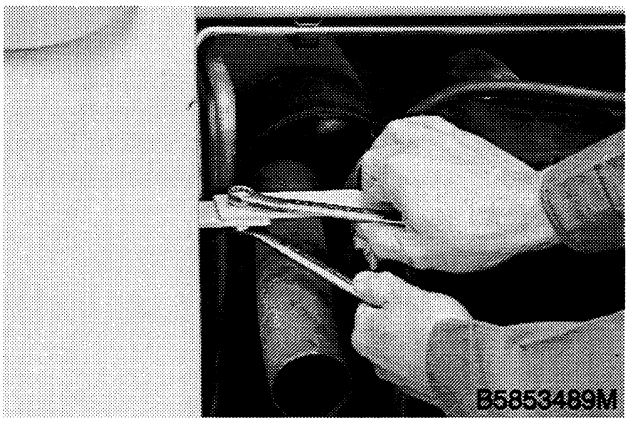
Open the drain valve and drain the cooling system. The cooling system capacity is approximately 18 U.S. quarts (17 litres) of coolant.

STEP 96



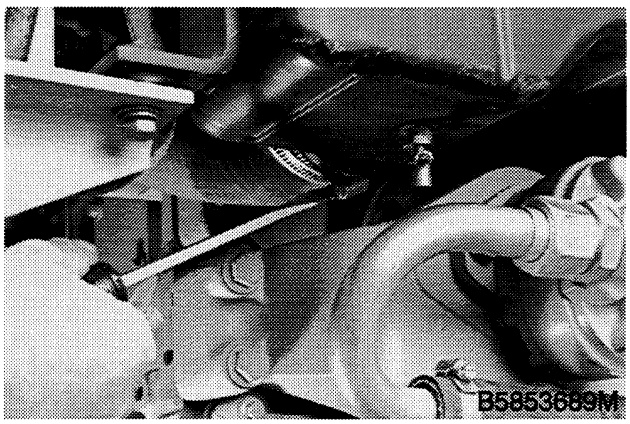
Loosen the clamp and disconnect the top hose from the radiator. Disconnect the hose for the coolant reservoir from the radiator. Install a plug in the coolant reservoir hose.

STEP 97



Loosen and remove the self-locking nut, flat washer, and bolt that fasten the top left radiator support to the frame.

STEP 98



Loosen the clamp and disconnect the bottom hose from the radiator.