

SERVICE MANUAL
W14C LOADER

8-11771

1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4

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W14C Loader

Table of Contents

DIVISION/SECTION	SECTION NO.	FORM NO.
1 GENERAL		
Section Index - General		8-13980
Standard Torque Specifications	1001	8-71600
Fluids and Lubricants	1002	8-13990
2 ENGINES		
Section Index - Engines		8-14000
Engine Removal and Installation and Radiator Removal and Installation	2000	8-14010
Stall Tests	2002	8-14020
Detailed Engine Specifications	2401	8-26062
Cylinder Head and Valve Train	2415	8-26072
Cylinder Block, Pistons, Rods, Camshaft, Main Bearings, Oil Seals, and Flywheel	2425	8-26083
Lubrication System	2445	8-26092
Cooling System	2455	8-26102
Turbocharger	2465	8-26110
Turbocharger Failure Analysis	2565	9-78235
3 FUEL SYSTEM		
Section Index - Fuel System		8-14030
Fuel System and Filters	3410	8-26131
Fuel Injection Pump and Drive Gear	3412	8-26141
Fuel Injectors	3413	8-26151
4 ELECTRICAL SYSTEM		
Section Index - Electrical		8-14041
Electrical Specifications, Troubleshooting, and Schematics	4001	8-14051
Starter and Starter Solenoid	4002	8-11950
45 Amp Alternator A186124	4003	8-73841
Batteries	4004	8-71701
Instrument Cluster and Gauges	4005	8-14070
65 Ampere Alternator	4006	8-73860
45 Amp Alternator A187916	4007	7-43600
5 STEERING		
Section Index - Steering		8-14080
Removal and Installation of Steering Components	5001	8-14090
Specifications, Schematic, and Troubleshooting	5002	8-14100
Steering Control Valve	5003	8-14110
Flow Control Valve	5004	8-73910
Steering Cylinder	5005	8-14120
Center Pivot	5006	8-14130
Auxiliary Steering Pump and Check Valve	5025	8-42830

Reprinted

DIVISION/SECTION	SECTION NO.	FORM NO.
6 POWER TRAIN		
Section Index - Power Train.....		8-14140
Removal and Installation of Power Train Components.....	6001	8-14150
Transmission Specification and Troubleshooting.....	6002	8-14160
Transmission Repair.....	6003	8-14171
Differential and Planetary.....	6004	8-14181
Drive Shafts, Center Bearing, and Universal Joints.....	6005	8-14190
Wheels and Tires.....	6006	8-14200
7 BRAKES		
Section Index - Brakes.....		8-14210
Removal and Installation of Brake Components.....	7000	8-14220
Specifications, Schematics, Pressure Checks, and Adjustments.....	7001	8-14231
Brake Master Cylinder.....	7002	8-73080
Brake Valve.....	7003	8-73090
Parking Brake.....	7004	8-14240
Brakes.....	7005	8-14251
Brake Pump.....	7006	8-14260
NOTE: For parking brake and brake pedal adjustments, see Section 9009.		
8 HYDRAULICS		
Section Index - Hydraulics.....		8-14270
Removal and Installation of Hydraulic Components.....	8001	8-14280
Specifications, Troubleshooting and Schematics.....	8002	8-14291
Cleaning the Hydraulic System.....	8003	8-74160
Loader Control Valve.....	8004	8-14300
Hydraulic Pump.....	8005	8-67401
Cylinders.....	8006	8-14311
9 MOUNTED EQUIPMENT		
Section Index - Mounted Equipment.....		8-14320
Air Conditioning Troubleshooting.....	9001	8-14330
Discharging and Charging the Air Conditioning System.....	9002	8-14340
Removal and Installation of Air Conditioning Components.....	9003	8-14350
Air Conditioning Compressor and Clutch.....	9004	8-14360
Loader.....	9005	8-14370
ROPS Cab and ROPS Canopy.....	9006	8-14380
Seat and Seat Belt.....	9007	8-74271
Suspension Seat.....	9008	8-74280
Pedals and Levers.....	9009	8-14390

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1001

STANDARD TORQUE SPECIFICATIONS


TABLE OF CONTENTS


Torque Specifications - Decimal Hardware	1001-2	Torque Specifications - Steel Hydraulic Fittings	1001-4
Torque Specifications - Metric Hardware ...	1001-3	Torque Specifications - O-ring Face Seal Fittings	1001-5

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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.

TORQUE SPECIFICATIONS - METRIC HARDWARE

Use the following torques 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 is 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	286-338

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	2-1/2	150-180	200-254	1-7/8-12	190-200	258-271

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Section 1002

FLUIDS AND LUBRICANTS

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TABLE OF CONTENTS

CAPACITIES AND LUBRICANTS2

ENGINE OIL RECOMMENDATIONS.....3

DIESEL FUEL4

CAPACITIES AND LUBRICANTS

Engine Oil

Capacity with Filter Change 16.7 U.S. quarts (15.1 litres)

Type of oil.....See Engine Oil Recommendations on page 1002-0

Engine Cooling System

Capacity..... 21 U.S. quarts (22.7 litres)

Type of coolant..... Ethylene glycol and water mixed for lowest ambient temperature
At last 50/50 mix

Fuel Tank

Capacity..... 38 U.S. gallons (143 litres)

Type of Fuel.....See Diesel fuel specifications on page 1002-4

Hydraulic System

Hydraulic reservoir refill capacity 18.5 U.S. gallons (70 litres)

Type of oil..... Case TCH Fluid

Transmission

Capacity..... 5.5 U.S. gallons (20.8 litres)

Type of Oil..... Case TCH Fluid

Axles

Capacity of differential (each) 21.2 U.S. quarts (20 litres)

Capacity of planetary (each) 25 U.S. quarts (2.4 litres)

Type of oil..... Case Transaxle Fluid

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ENGINE OIL RECOMMENDATIONS

CaselH No. 1 Engine Oil is recommended for use in your CaselH Engine. CaselH Engine Oil will lubricate your engine correctly under all operating conditions. If CaselH No. 1 Multi-Viscosity Engine Oil is not available, CaselH No. 1 Single Grade Engine Oil can be used.

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



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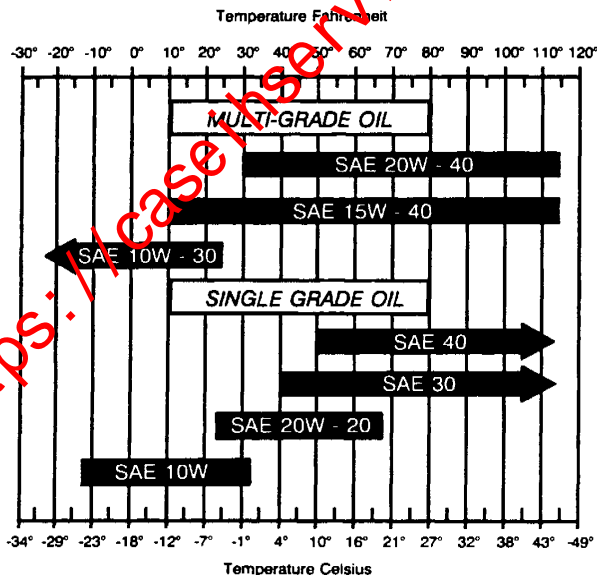


See the chart below for recommended viscosity at ambient air temperature ranges.

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

LUBRICATION OIL VISCOSITY

AMBIENT AIR TEMPERATURE RANGES



737L9

DIESEL FUEL

Use No. 2 diesel fuel in the engine of this machine. The use of other fuels can cause the loss of engine power and high fuel consumption.

In very cold temperatures, a mixture of No.1 and No. 2 diesel fuels is temporarily permitted. See the following Note.

NOTE: See your fuel dealer for winter fuel requirements in your area. If the temperature of the fuel lowers below the cloud point (wax appearance point), wax crystals in the fuel will cause the engine to lose power or not start.

The diesel fuel used in this machine must meet the specifications in the chart below or Specification D975-81 of the American Society for Testing and Materials.

Fuel Storage

If you keep fuel in storage for a period of time, you can get foreign material or water in the fuel storage tank. Many engine problems are caused by water in the fuel.

Keep the fuel storage tank outside and keep the fuel as cool as possible. Remove water from the storage container at regular periods of time.

Fill the fuel tank at the end of the day to prevent condensation in the fuel tank.

Specifications for Acceptable No. 2 Diesel Fuel

API gravity, minimum	34
Flash point, minimum	140°F (60°C)
Cloud point (wax appearance point), maximum	-5°F (-20°C) See Note above
Pour point, maximum	-15°F (-26°C) See Note above
Distillation temperature, 90% point	540 to 640°F (282 to 338°C)
Viscosity, at 100°F (88°C)	
Centistokes	2.0 to 4.3
Saybolt Seconds Universal	32 to 40
Cetane number, minimum	43 (45 to 55 for winter or high altitudes)
Water and sediment, by volume, maximum	0.05 of 1%
Sulfur, by weight, maximum	0.5 of 1%
Copper strips corrosion, maximum	No. 2
Ash, by weight, maximum	0.01 of 1%

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SECTION INDEX - ENGINES

Section Title	Section Number
Engine Removal and Installation and Radiator Removal and Installation	2000
Stall Tests	2002
Cylinder Head and Valve Train	2415
Cylinder Block, Pistons, Rods, Camshaft, Main Bearings, Oil Seals, and Flywheel	2425
Lubrication System	2445
Cooling System	2455
Turbocharger	2465
Turbocharger Failure Analysis	2565

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Section 2000

ENGINE REMOVAL AND INSTALLATION AND
RADIATOR REMOVAL AND INSTALLATION

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TABLE OF CONTENTS

SPECIFICATIONS.....	3
SPECIAL TOOLS.....	4
RADIATOR REMOVAL.....	5
RADIATOR INSTALLATION.....	13
ENGINE REMOVAL.....	22
ENGINE INSTALLATION.....	32

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SPECIFICATIONS

Special Torques

Cap screws that fasten the transmission to the flywheel housing 420 to 504 pound-inches (47 to 57 Nm)

Bolt that fastens the rear engine support to the frame 135 to 165 pound-feet (183 to 223 Nm)

Cap screws that fasten the flex plates to the flywheel 300 to 360 pound-inches (34 to 41 Nm)

Fan Blade Clearance 7/16 Inch (11 mm) Clearance all the way around the fan shroud

Cooling System Capacity 24 U.S. quarts (22.7 litres)

Hydraulic Reservoir Capacity 18.5 U.S. gallons (70 litres)

Belt Tension For The Air Conditioner Compressor

New belt tension 95 to 115 pounds (43 to 52 kg)

Used belt tension 90 to 110 pounds (41 to 50 kg)

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SPECIAL TOOLS

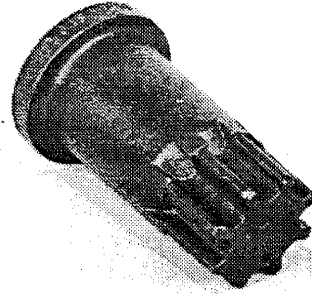
Order special tools from one of the following addresses.

In the U.S.A. and Canada

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

In Europe

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



B430842M

CAS-1690 Tool Used To Rotate The Flywheel

This tool is first used in step 197.

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RADIATOR REMOVAL

STEP 1



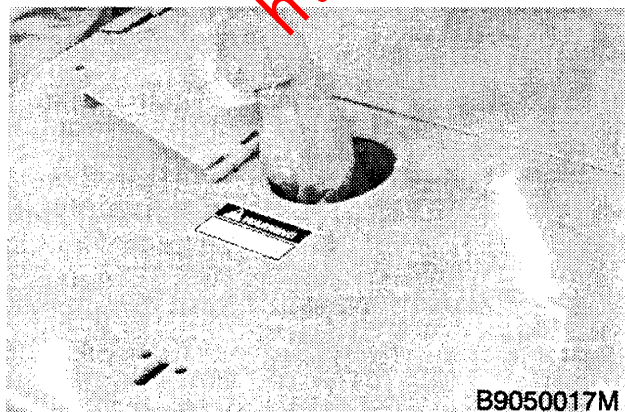
Park the machine on a level surface and lower the bucket to the floor. Stop the engine and apply the parking brake.

STEP 2



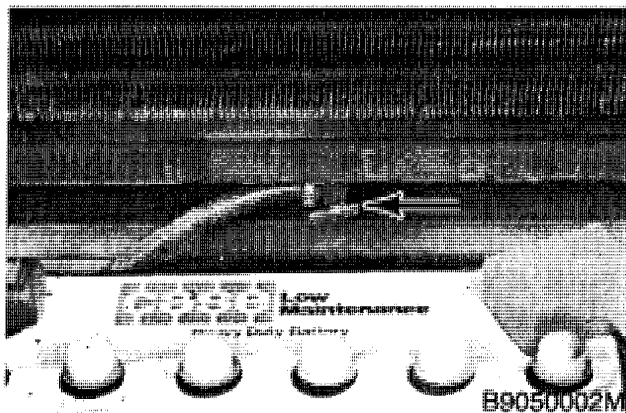
Open the grille.

STEP 3



Let the engine cool. Loosen and remove the radiator cap.

STEP 4



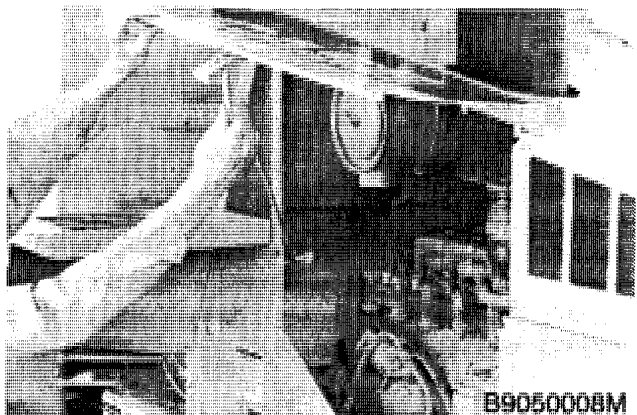
Open the drain valve and drain the cooling system. The cooling system holds 24 U.S. quarts (22.7 litres) of coolant.

STEP 5



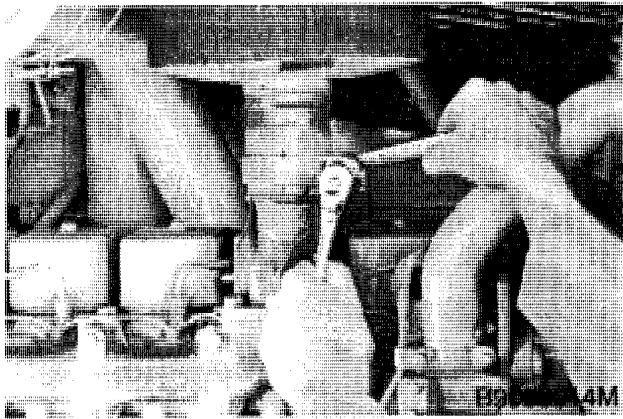
Disconnect the ground cable from the negative post on the battery.

STEP 6



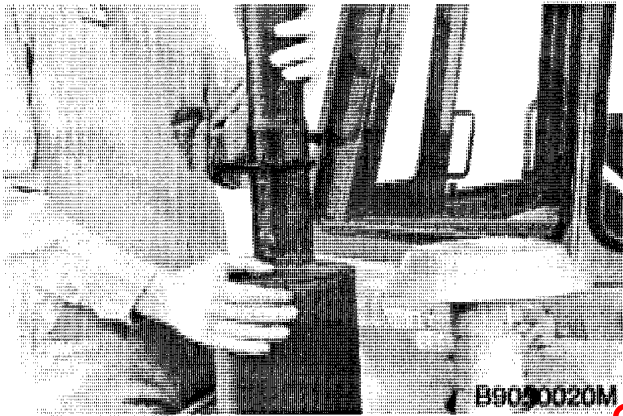
Open the access doors on each side of the engine compartment.

STEP 7



Loosen the clamp for the muffler.

STEP 8



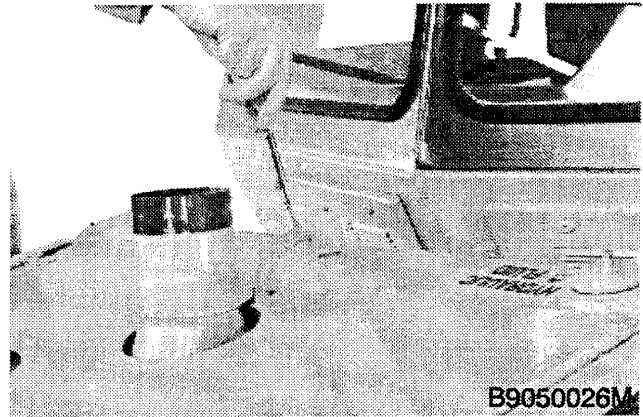
Remove the muffler.

STEP 9



Loosen the clamp and remove the cap for the air cleaner. If the air cleaner is equipped with a precleaner, remove the precleaner.

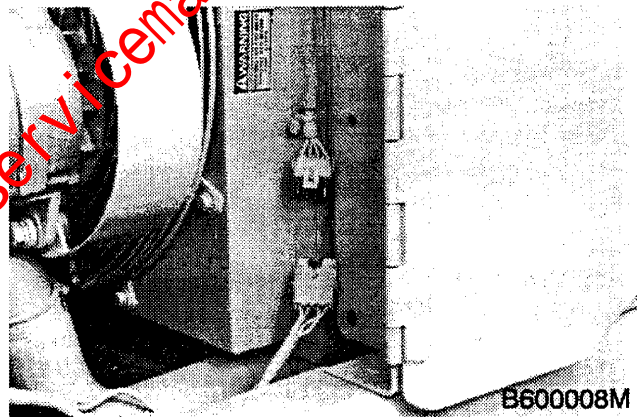
STEP 10



Loosen the clamp and disconnect the hose from the fitting at the top of the reservoir.

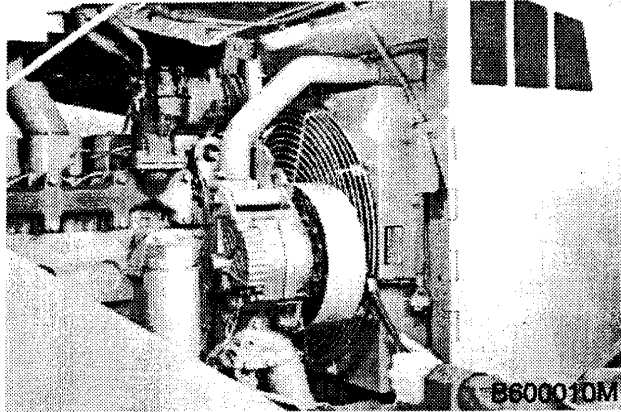
NOTE: If the machine is equipped with an air conditioner, do steps 11 through 17. If the machine is not equipped with an air conditioner, go to step 18.

STEP 11



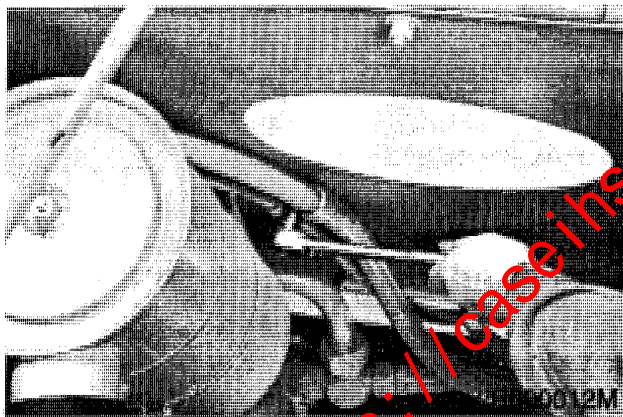
Disconnect the wire harness for the condenser.

STEP 12



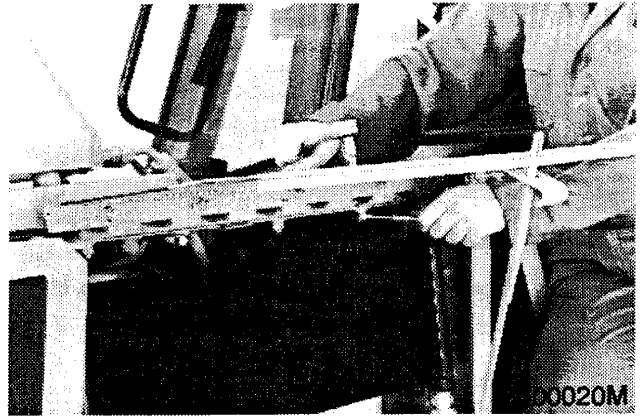
Loosen and remove the cap screws, lock washers, and flat washers that fasten the two clamps for the wire harness to the fan shroud. Loosen and remove the nuts, lock washers, and bolts that fasten the two clamps for the wire harness to the upper inside of the fan shroud.

STEP 13



Loosen and remove the nut, lock washer, flat washer, and bolt that fasten the clamps of the hoses for the compressor and condenser to the hood.

STEP 14



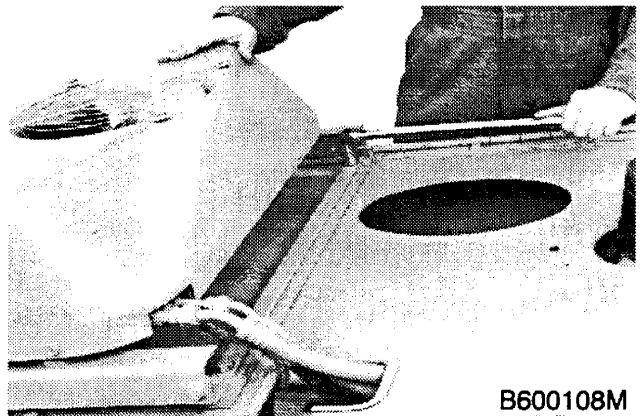
Loosen and remove the nuts, lock washers, flat washers, and bolts that fasten the right access door to the hood.

STEP 15



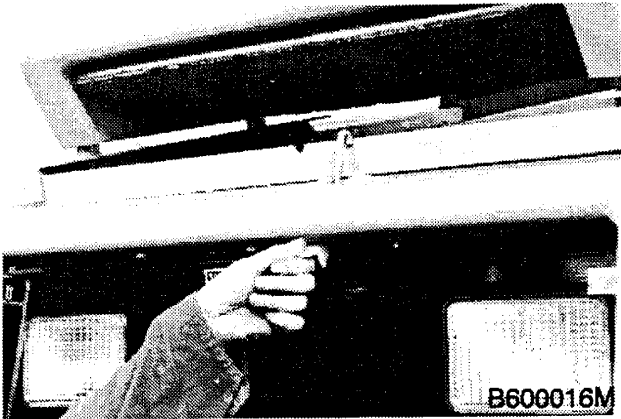
Remove the right access door.

STEP 16



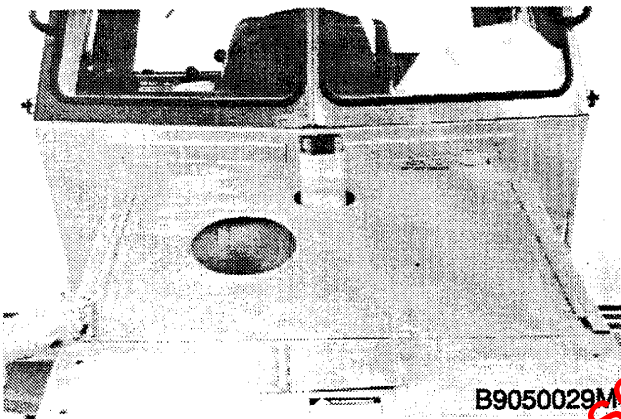
Loosen and remove the nuts, lock washers, flat washers, and bolts that fasten the condenser assembly to the hood.

STEP 17



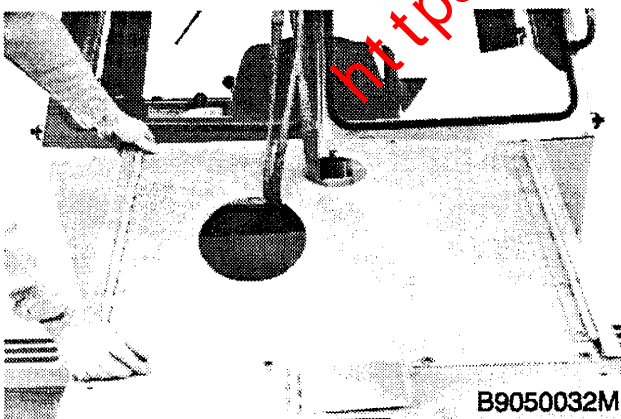
Release the latch that holds the condenser assembly. Move the condenser assembly out of the way.

STEP 18



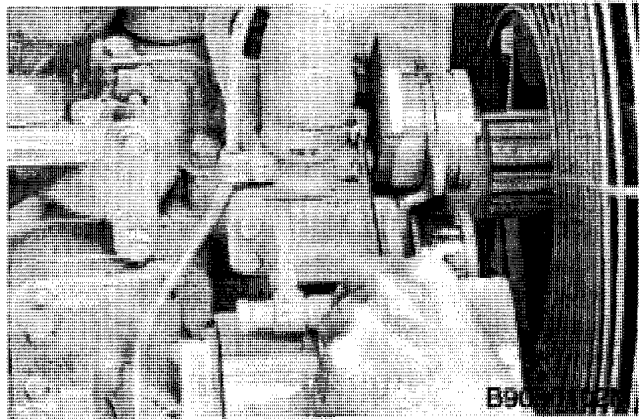
Loosen and remove the cap screws, lock washers, and flat washers that hold the hood.

STEP 19



Remove the hood and access door(s) from the machine.

STEP 20



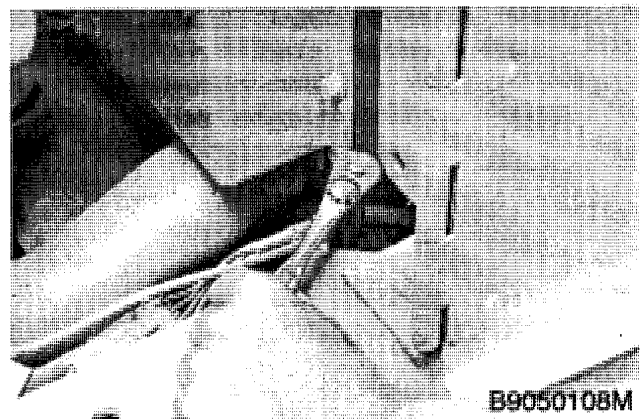
Disconnect the top radiator hose from the engine.

STEP 21



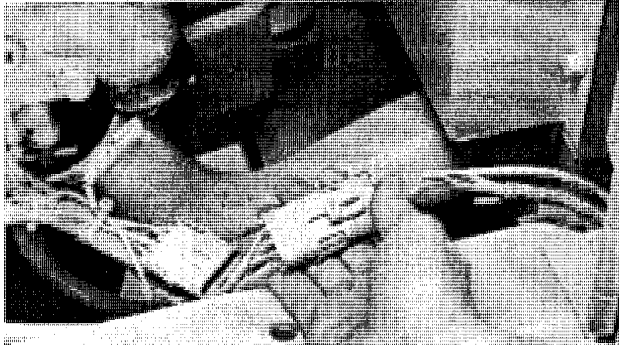
Disconnect the bottom radiator hose from the engine.

STEP 22



Loosen and remove the nut, lock washer, flat washers, and bolt that fasten the clamp on the wire harness for the rear lights to the machine.

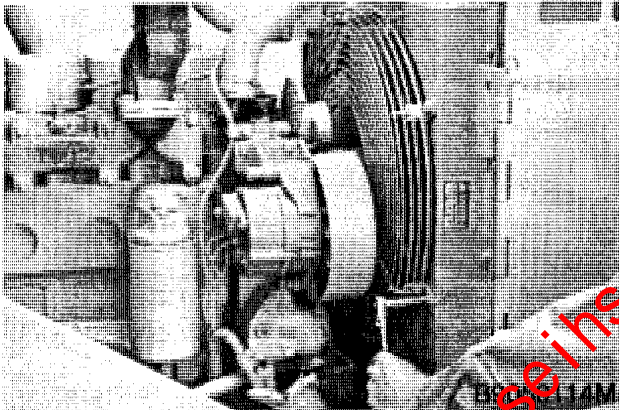
STEP 23



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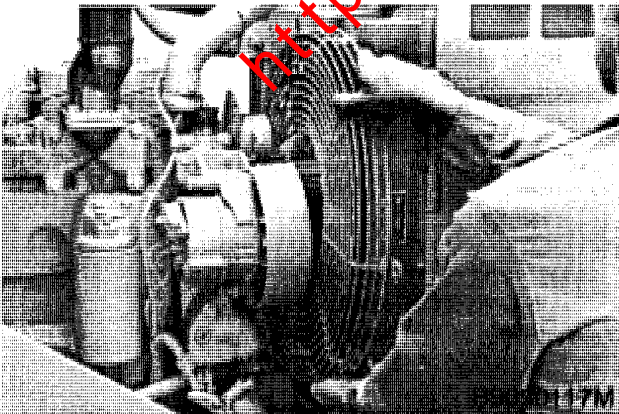
Disconnect the connector for the rear lights and backup alarm from the wire harness.

STEP 24



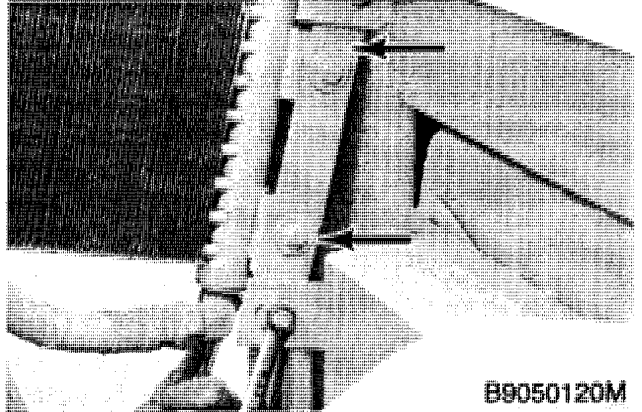
Loosen and remove the cap screws, lock washers, and flat washers that fasten the fan guard to the fan shroud.

STEP 25



Remove the fan guard.

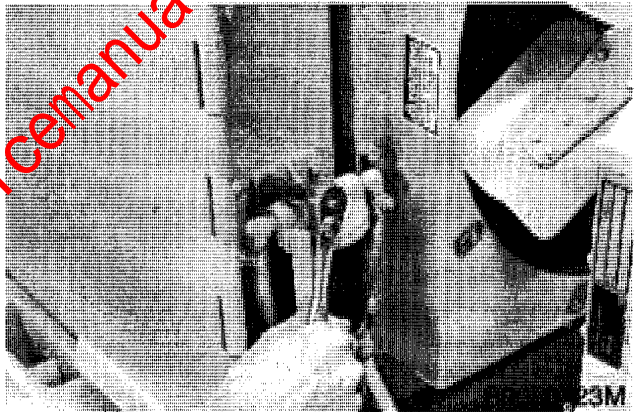
STEP 26



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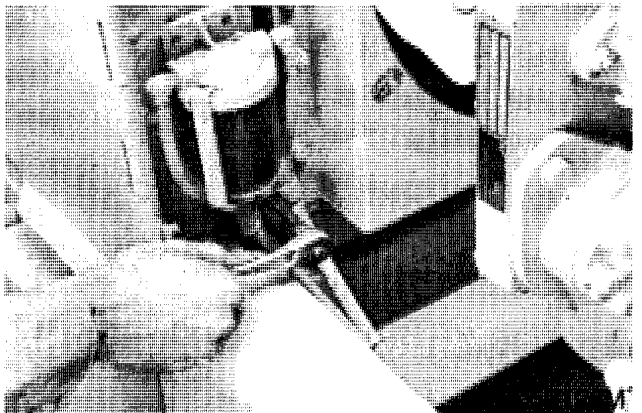
Loosen and remove the nuts, lock washers, flat washers, and bolts that fasten the hydraulic oil cooler to the radiator shroud.

STEP 27



Loosen and remove the nuts, lock washers, flat washers, and bolts that fasten the fuel sediment bowl to the radiator shroud.

STEP 28



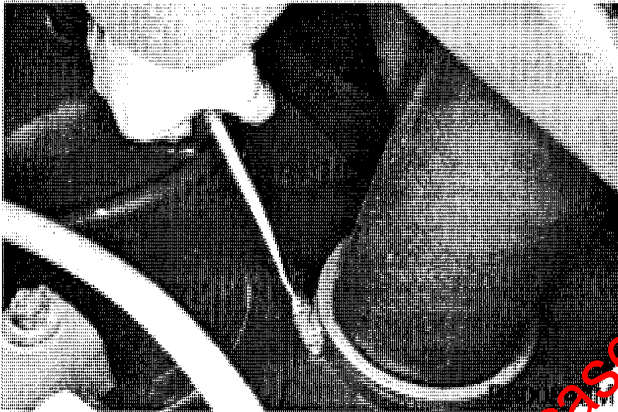
Loosen and remove the nut, flat washers, lock washer, spacer, and bolt that fasten the clamps on the hoses for the fuel sediment bowl to the radiator shroud. Move the fuel sediment bowl out of the way.

STEP 29



Loosen and remove the nut, lock washer, flat washers, and bolt that fasten the fuel filler pipe in the radiator shroud.

STEP 30



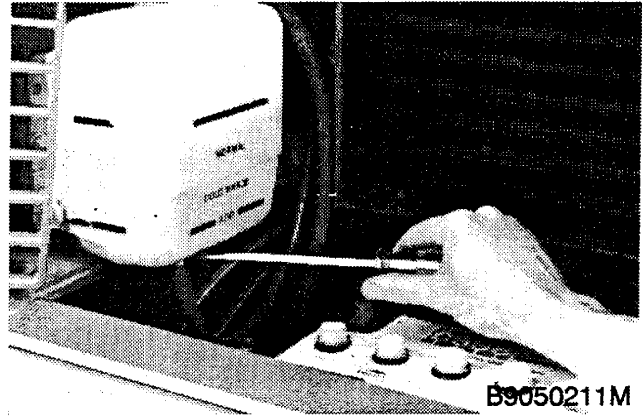
Loosen the clamp on the hose for the fuel filler pipe and remove the fuel filler pipe.

STEP 31



Close or cover the opening for the fuel tank.

STEP 32



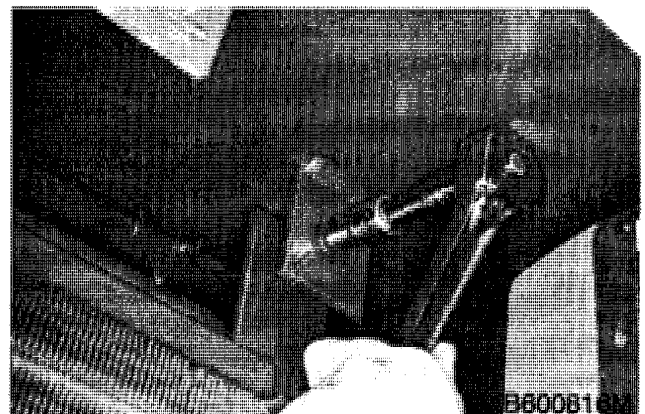
Disconnect the bottom hose and drain the coolant from the coolant reservoir.

STEP 33



Loosen and remove the nuts, lock washers, flat washers, and bolts that fasten the rear of the radiator shroud to the frame.

STEP 34



Loosen and remove the nuts, lock washers, and flat washers that fasten the flex bolts on the radiator to the mounting brackets on the radiator shroud. Move the radiator until the flex bolts disengage the mounting brackets on the radiator shroud.

STEP 35



Loosen and remove the nuts, lock washers, flat washers, and bolts that fasten the front of the radiator shroud to the frame.

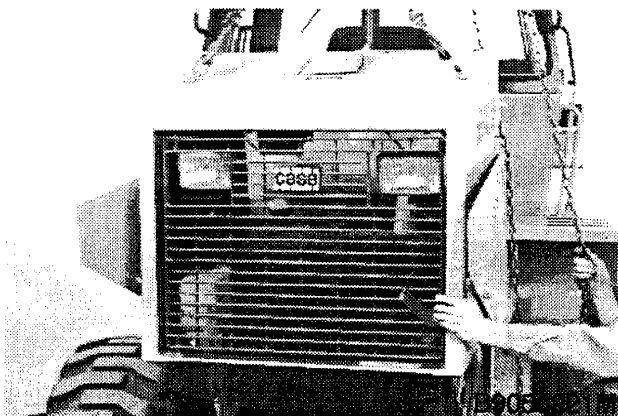
NOTE: Put identification marks on both sides of the frame for correct alignment of the radiator shroud during installation.

STEP 36



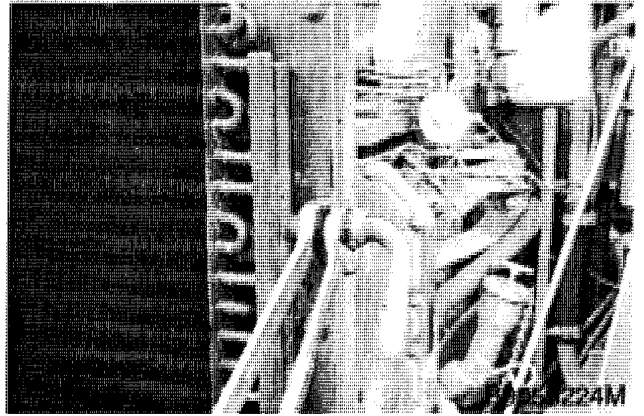
Fasten suitable lifting equipment to the radiator shroud.

STEP 37



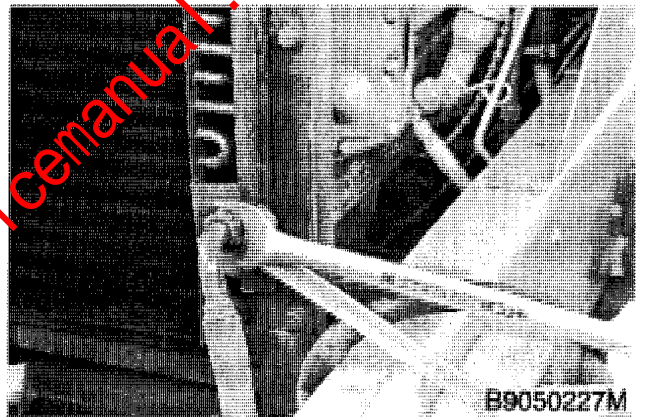
The radiator shroud must be lifted over the top of the radiator. Remove the radiator shroud from the machine.

STEP 38



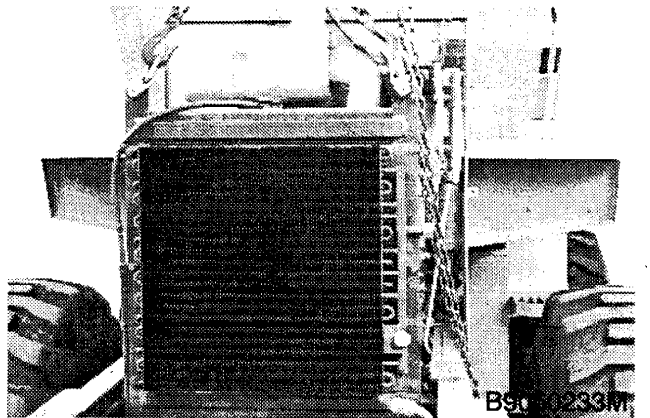
Disconnect the top hose from the transmission oil cooler. Install a plug in the hose and a cap on the fitting.

STEP 39



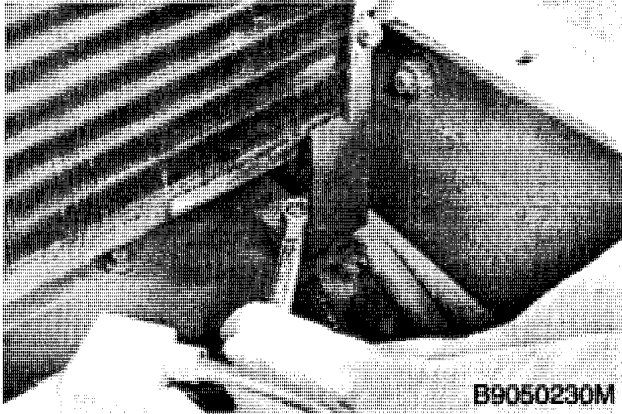
Disconnect the bottom hose from the transmission oil cooler. Install a plug in the hose and a cap on the fitting.

STEP 40



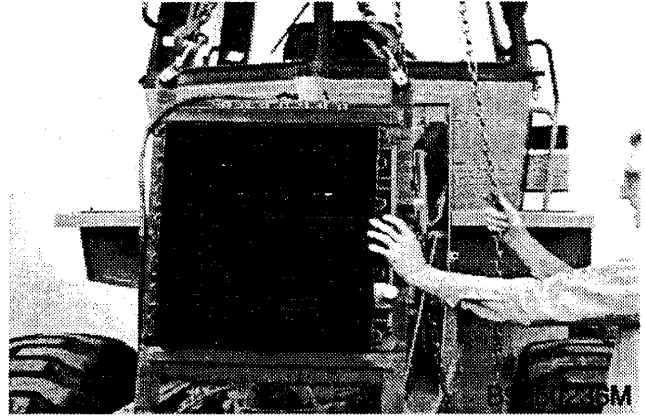
Connect suitable lifting equipment to the radiator.

STEP 41



Loosen and remove the nuts, lock washers, flat washers, and bolts that fasten the radiator to the radiator mounting bracket.

STEP 42



Remove the radiator and transmission oil cooler assembly from the machine.

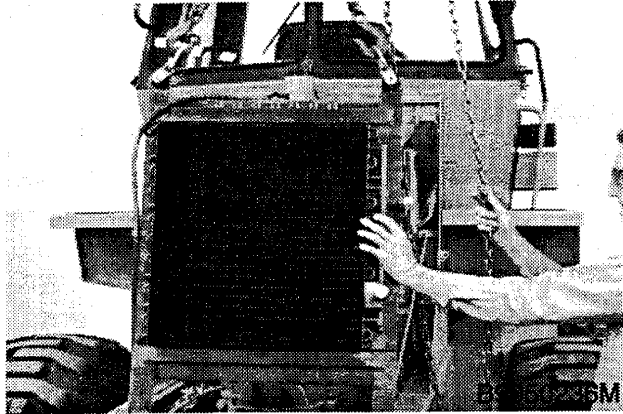
<https://caseihservicemanual.com>

RADIATOR INSTALLATION

STEP 43

Check the condition of the insulators in the radiator mounting bracket. If the insulators are damaged, install new insulators.

STEP 44



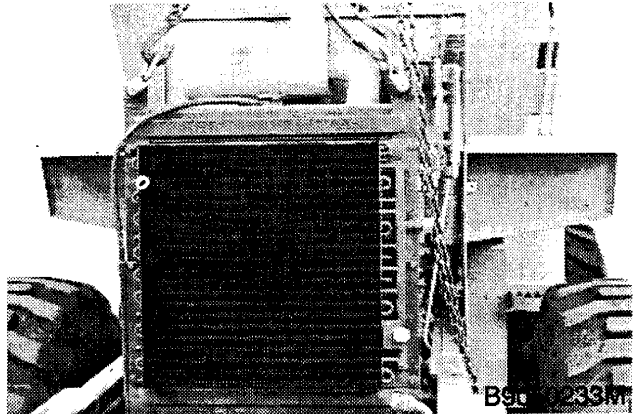
Lift the radiator and transmission oil cooler assembly over the machine and lower the radiator and transmission oil cooler into position.

STEP 45



Install the bolts, flat washers, lock washers, and nuts that fasten the radiator to the radiator mounting bracket. Tighten the nuts.

STEP 46



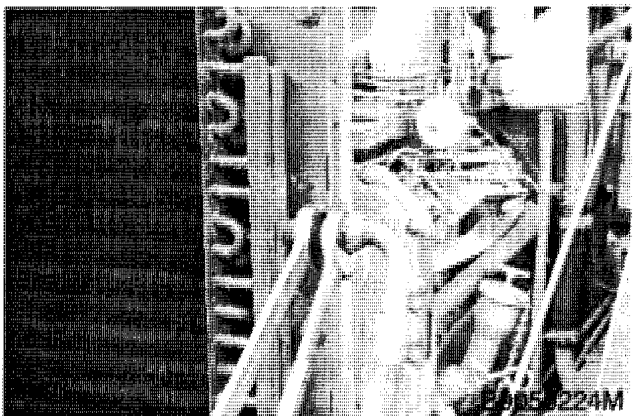
Disconnect and remove the lifting equipment from the radiator.

STEP 47



Remove the plug from the hose and the cap from the fitting and connect the bottom hose to the transmission oil cooler.

STEP 48



Remove the plug from the hose and the cap from the fitting and connect the top hose to the transmission oil cooler.