1150G Crawlers
Service Manual
Table of Contents

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

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

Rac 7-63720

Printed in U.S.A.
March, 1996

Rac 7-63720

Printed in U.S.A.
March, 1996

Section

1001

STANDARD TORQUE SPECIFICATIONS

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

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

Rac 8-71601

Printed in U.S.A.
Issued November, 1991

TABLE OF CONTENTS

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 graphities, Molydisulfide greases, or other extreme pressure lubricants are used.

Grade 5 Bolts, Nuts, and Studs

Size	Pound-Inches	Newton metres
1/4 inch	108 to 132	12 to 15
5/16 inch	204 to 252	23 to 28
3/8 inch	420 to 504	48 to 57
Size	**Pound-Feet**	**Newton metres**
7/16 inch	54 to 64	73 to 87
1/2 inch	80 to 96	109 to 130
9/16 inch	110 to 132	149 to 179
5/8 inch	150 to 180	203 to 244
3/4 inch	270 to 324	366 to 439
7/8 inch	400 to 480	542 to 651
1.0 inch	580 to 696	787 to 944
1-1/8 inch	800 to 880	1085 to 1193
1-1/4 inch	1120 to 1240	1519 to 1681
1-3/8 inch	1460 to 1680	1980 to 2278
1-1/2 inch	1940 to 2200	2631 to 2983

Grade 8 Bolts, Nuts, and Studs

Size	Pound-Inches	Newton metres
1/4 inch	144 to 180	16 to 20
5/16 inch	288 to 348	33 to 39
3/8 inch	540 to 648	61 to 73
Size	**Pound-Feet**	**Newton metres**
7/16 inch	70 to 84	95 to 114
1/2 inch	110 to 132	149 to 179
9/16 inch	160 to 192	217 to 260
5/8 inch	220 to 264	298 to 358
3/4 inch	380 to 456	515 to 618
7/8 inch	600 to 720	814 to 976
1.0 inch	900 to 1080	1220 to 1465
1-1/8 inch	1280 to 1440	1736 to 1953
1-1/4 inch	1820 to 2000	2468 to 2712
1-3/8 inch	2380 to 2720	3227 to 3688
1-1/2 inch	3160 to 3560	4285 to 4827

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

Retyped November,

Rac 8-71601 Issued 11-91 Printed in U.S.A

TORQUE SPECIFICATIONS - METRIC HARDWARE

Use the following torques when specifications 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-Inches	Newton metres
M4	24 to 36	3 to 4
M5	60 to 72	7 to 8
M6	96 to 108	11 to 12
M8	228 to 276	26 to 31
M10	456 to 540	52 to 61
Size	**Pound-Feet**	**Newton metres**
M12	66 to 79	90 to 107
M14	106 to 127	144 to 172
M16	160 to 200	217 to 271
M20	320 to 380	434 to 515
M24	500 to 600	675 to 815
M30	920 to 1100	1250 to 1500
M36	1600 to 1950	2175 to 2600

Grade 10.9 Bolts, Nuts, and Studs

Size	Pound-Inches	Newton metres
M4	36 to 48	4 to 5
M5	84 to 96	9 to 11
M6	132 to 156	15 to 18
M8	324 to 384	37 to 43
Size	**Pound-Feet**	**Newton metres**
M10	54 to 64	73 to 87
M12	93 to 112	125 to 150
M14	149 to 179	200 to 245
M16	230 to 280	310 to 380
M20	450 to 540	610 to 730
M24	780 to 940	1050 to 1275
M30	1470 to 1770	2000 to 2400
M36	2580 to 3090	3500 to 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-Inches	Newton metres
37 Degree Flare Fitting			
1/4 inch 6.4 mm	7/16-20	72 to 144	8 to 16
5/16 inch 7.9 mm	1/2-20	96 to 192	11 to 22
3/8 inch 9.5 mm	9/16-18	120 to 300	14 to 34
1/2 inch 12.7 mm	3/4-16	180 to 504	20 to 57
5/8 inch 15.9 mm	7/8-14	300 to 696	34 to 79
Tube OD Hose ID	Thread Size	Pound-Inches	Newton metres
3/4 inch 19.0 mm	1-1/16-12	40 to 80	54 to 108
7/8 inch 22.2 mm	1-3/16-12	60 to 100	81 to 135
1.0 inch 25.4 mm	1-5/16-12	75 to 117	102 to 158
1-1/4 inch 31.8 mm	1-5/8-12	125 to 165	169 to 223
1-1/2 inch 38.1 mm	1-7/8-12	210 to 250	285 to 338

Tube OD Hose ID	Thread Size	Pound-Inches	Newton metres
Straight Threads with O-ring			
1/4 inch 6.4 mm	7/16-20	144 to 228	16 to 26
5/16 inch 7.9 mm	1/2-20	192 to 300	22 to 34
3/8 inch 9.5 mm	9/16-18	300 to 480	34 to 54
1/2 inch 12.7 mm	3/4-16	540 to 804	57 to 91
Tube OD Hose ID	Thread Size	Pound-Inches	Newton metres
5/8 inch 15.9 mm	7/8-14	58 to 92	79 to 124
3/4 inch 19.0 mm	1-1/16-12	80 to 128	108 to 174
7/8 inch 22.2 mm	1-3/16-12	100 to 160	136 to 216
1.0 inch 25.4 mm	1-5/16-12	117 to 187	159 to 253
1-1/4 inch 31.8 mm	1-5/8-12	165 to 264	224 to 357
1-1/2 inch 38.1 mm	1-7/8-12	250 to 400	339 to 542

Split Flange Mounting Bolts		
Size	Pound-Inches	Newton metres
5/16-18	180 to 240	20 to 27
3/8-16	240 to 300	27 to 34
7/16-14	420 to 540	47 to 61
Size	Pound-Feet	Newton metres
1/2-13	55 to 65	74 to 88
5/8-11	140 to 150	190 to 203

TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

Nom. SAE Dash Size	Tube OD	Thread Size	Pound-Inches	Newton metres	Thread Size	Pound-Inches	Newton metres
O-ring Face Seal End					**O-ring Boss End Fitting or Lock Nut**		
-4	1/4 inch 6.4 mm	9/16-18	120 to 144	14 to 16	7/16-20	204 to 240	23 to 27
-6	3/8 inch 9.5 mm	11/16-16	216 to 240	24 to 27	9/16-18	300 to 360	34 to 41
-8	1/2 inch 12.7 mm	13/16-16	384 to 480	43 to 54	3/4-16	540 to 600	61 to 68
					Thread Size	Pound-Inches	Newton metres
-10	5/8 inch 15.9 mm	1-14	552 to 672	62 to 76	7/8-14	60 to 65	81 to 88
Nom. SAE Dash Size	Tube OD	Thread Size	Pound-Inches	Newton metres	1-1/16-12	85 to 90	115 to 122
					1-3/16-12	95 to 100	129 to 136
-12	3/4 inch 19.0 mm	1-3/16-12	65 to 80	90 to 110	1-5/16-12	115 to 125	156 to 169
-14	7/8 inch 22.2 mm	1-3/16-12	65 to 80	90 to 110	1-5/8-12	150 to 160	203 to 217
-16	1.0 inch 25.4 mm	1-7/16-12	92 to 105	125 to 140	1-7/8-12	190 to 200	258 to 271
-20	1-1/4 inch 31.8 mm	1-11/16-12	125 to 140	170 to 190			
-24	1-1/2 inch 38.1 mm	2-12	150 to 180	200 to 254			

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

1002

FLUIDS AND LUBRICANTS

1150G Crawler

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

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

Printed in U.S.A.
Rac 7-62591 February, 1995 (Revised March,1996)

TABLE OF CONTENTS

CAPACITIES AND LUBRICANTS

Engine Oil
Capacity with filter change ..... 16 U.S. quarts (15.1 litres)

Type of Oil ..... See Engine Oil Selection on Page 3

Engine Cooling System
Capacity without heater ..... 26 U.S. quarts (24.6 litres)

Capacity with cab heater ..... 29 U.S. quarts (27.4 litres)

Type of Coolant ..... Ethylene Glycol and water mixed for lowest ambient temperature at least 50/50 mix

Fuel Tank
Capacity ..... 56 U.S. gallons (212 litres)

Type of Fuel ..... No. 2 Diesel Fuel

Hydraulic System
Capacity - reservoir refill with filter change ..... 17 U.S. gallons (64.4 litres)

System Capacity ..... 22.5 U.S. gallons (85.3 litres)

Type of Oil ..... Case TCH Fluid

Transmission and Torque Converter
Capacity - sump refill with filter change ..... 14 U.S. gallons (53.0 litres)
Capacity - sump refill only ..... 13.25 U.S. gallons (50.2 litres)

System Capacity ..... 15 U.S. gallons (56.8 litres)

Type of Oil ..... Case TCH Fluid

Final Drives
Capacity (each side) ..... 8 U.S. quarts (7.6 litres)

Type of Oil ..... Case 135H EP Gear Lube

Air Conditioning Refrigerant ..... 3.52 pounds (1.6 kg) HFC-134A

ENGINE LUBRICATION
Engine Oil Selection

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

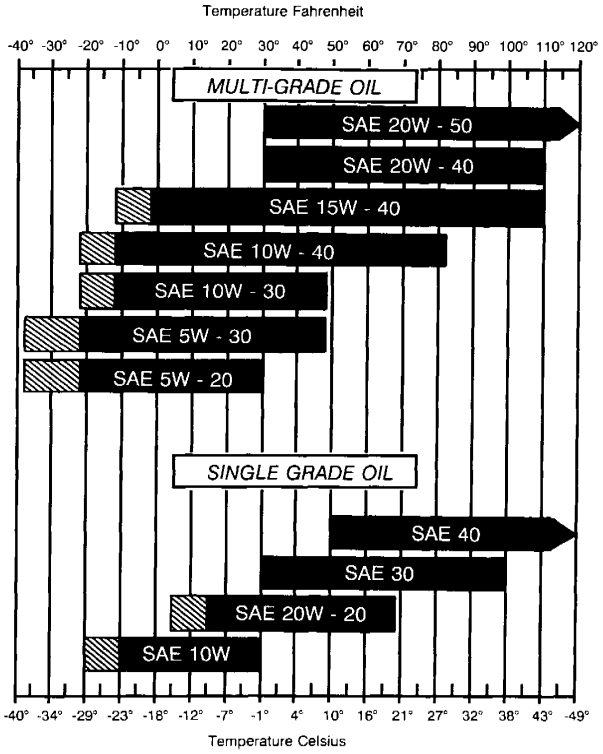
If Case No. 1 Multi-Viscosity or Single Viscosity Engine Oil is not available, use only oil meeting API engine oil service category CE.

292L91

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 Ranges



1036L0

NOTE: *Use of an engine oil pan heater or an engine coolant heater is required when operating temperatures are in the crosshatch area.*

MAINTENANCE SCHEDULE

AS REQUIRED

3.	CHECK THE FAN DRIVE BELT FOR WEAR	REPLACE AS REQUIRED
28.	SERVICE THE AIR CLEANER ELEMENT IF RED BAND IN RESTRICTION INDICATOR IS IN FULL VIEW	SEE OPERATORS MANUAL
5.	CHECK TRACK TENSION AND ADJUST AS REQUIRED - SEE NOTE 1	SEE OPERATORS MANUAL
31.	CHECK TRACK SHOE BOLT TORQUE	SEE OPERATORS MANUAL
21.	CLEAN THE FUEL TANK FILLER SCREEN	CLEAN WITH SOLVENT
23.	DRAIN WATER AND SEDIMENT FROM FUEL TANK	SEE OPERATORS MANUAL
28.	CLEAN THE PRECLEANER DUST BOWL	SEE OPERATORS MANUAL
17.	REPLACE THE TRANSMISSION FLUID FILTER IF THE WARNING LAMP FOR THE TRANSMISSION FLUID FILTER ILLUMINATES	USE CASE FILTER
32.	CHECK COOLANT RESERVOIR FLUID LEVEL IF THE WARNING LAMP FOR THE COOLANT LEVEL ILLUMINATES - SEE NOTE 2	ETHYLENE GLYCOL AND WATER

EVERY 10 HOURS OF OPERATION OR EACH DAY - WHICHEVER OCCURS FIRST

30.	CHECK ENGINE OIL LEVEL	SEE PAGE 3 THIS SECTION
18.	CHECK TRANSMISSION OIL LEVEL	CASE TCH FLUID
16.	CHECK HYDRAULIC RESERVOIR OIL LEVEL	CASE TCH FLUID

EVERY 50 HOURS OF OPERATION

28.	CHECK AIR CLEANER DUST VALVE AND COVER WING NUT	SEE OPERATORS MANUAL
29.	DRAIN WATER AND SEDIMENT FROM FIRST STAGE FUEL FILTER	SEE OPERATORS MANUAL
	LUBRICATE EQUIPMENT PIVOT POINTS (NOT SHOWN)	SEE OPERATORS MANUAL
27.	LUBRICATE EQUALIZER ARM CENTER PIVOT	MOLYDISULFIDE GREASE
6.	LUBRICATE EQUALIZER ARM OUTER PIVOTS	MOLYDISULFIDE GREASE

EVERY 250 HOURS OF OPERATION

30.	CHANGE ENGINE OIL - 16 QUARTS (15 LITRES)	SEE PAGE 3 THIS SECTION
4.	REPLACE ENGINE OIL FILTER	USE CASE FILTER
11.	CHECK FINAL DRIVE OIL LEVEL (EACH SIDE)	CASE 135-H EP GEAR LUBE
	CHECK CONDITION OF AIR CONDITIONING DRIVE BELT (NOT SHOWN)	SEE OPERATORS MANUAL
20.	CHECK BATTERY FLUID LEVEL	CLEAN OR DISTILLED WATER
1.	CHECK RADIATOR FLUID LEVEL (COOLANT COLD) - SEE NOTE 2	ETHYLENE GLYCOL AND WATER

EVERY 500 HOURS OF OPERATION

29.	REPLACE FUEL FILTERS	USE CASE FILTERS
14.	REPLACE HYDRAULIC FLUID FILTER	USE CASE FILTER
9.	LUBRICATE PIVOT SHAFT HOUSING	SEE OPERATORS MANUAL
	INSPECT ROPS CAB OR ROPS CANOPY AND SEAT (NOT SHOWN)	SEE OPERATORS MANUAL

EVERY 1000 HOURS OF OPERATION

17.	REPLACE TRANSMISSION FLUID FILTER	USE CASE FILTERS
26.	CHECK BRAKE WEAR	SEE OPERATORS MANUAL
19.	CLEAN TRANSMISSION DIPSTICK BREATHER	CLEAN WITH SOLVENT
22.	CHANGE TRANSMISSION FLUID	CASE TCH FLUID
25.	CLEAN TRANSMISSION SUCTION SCREEN	CLEAN WITH SOLVENT
12.	CLEAN HYDRAULIC FLUID RESERVOIR BREATHER	CLEAN WITH SOLVENT
13.	CHANGE HYDRAULIC FLUID	CASE TCH FLUID
15.	CLEAN HYDRAULIC FLUID SCREEN	CLEAN WITH SOLVENT
11.	CHANGE FINAL DRIVE OIL	CASE 135-H EP GEAR LUBE
33.	CHECK ENGINE VALVE CLEARANCES	SEE SERVICE MANUAL - SECTION 2401
21.	CLEAN BREATHER IN THE FUEL TANK CAP	CLEAN WITH SOLVENT
7.	LUBRICATE DRIVE SHAFT SPLINE	MOLYDISULFIDE GREASE

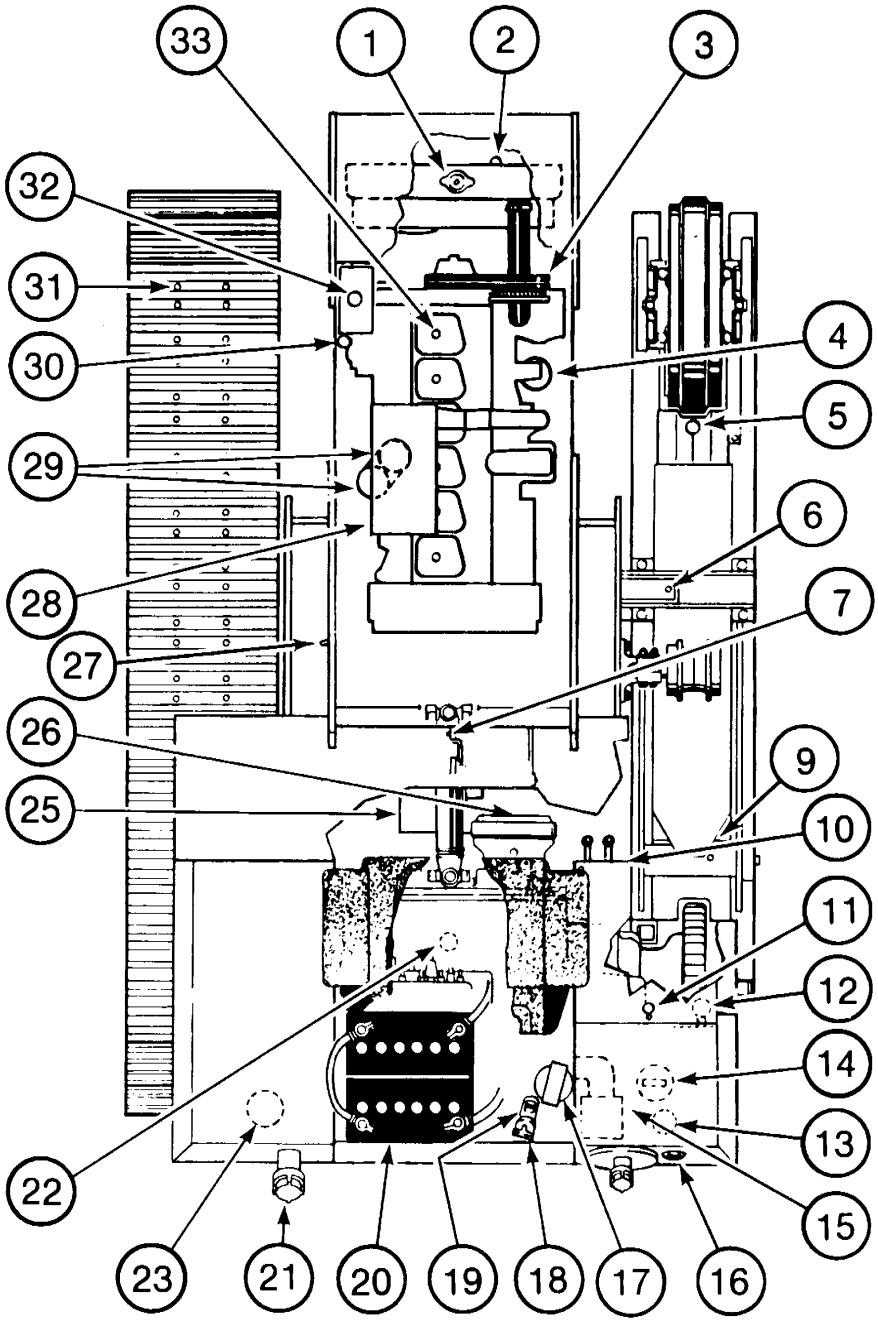
EVERY 2000 HOURS OF OPERATION OR EACH YEAR - WHICHEVER OCCURS FIRST

28.	REPLACE BOTH AIR CLEANER ELEMENTS EACH YEAR	SEE OPERATORS MANUAL
2.	DRAIN, FLUSH AND REFILL THE COOLING SYSTEM - SEE NOTE 2	SEE OPERATORS MANUAL
	WITH HEATER - 29 QUARTS (27.4 LITRES)	
	WITHOUT HEATER - 26 QUARTS (24.6 LITRES)	

NOTE 1: *For increased track life, always keep the track tension correct. Adjust the tracks for 1.5 to 2 inches (38 to 51 mm) of track sag. See the operators manual for correct procedure.*

NOTE 2: *Use a 50/50 mixture of Ethylene Glycol and Water in the cooling system, when adding coolant. If the ambient temperature is lower than -34˚F (-37˚C), adjust the mixture.*

MAINTENANCE LOCATIONS



648L94

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 ANALYSIS PROGRAM.

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

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.

LOCTITE PRODUCT CHART

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

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

LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Farenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
518	Red	515	0.030	500psi	-65 to +300	1hr/24 hrs	764	Gasket Eliminator 518 for Aluminum
542	Brown	569	N/A	132/92 in lbs	-65 to +300	2 hr/24 hrs	747	Hydraulic Sealant
545	Purple		N/A	25/20 in lbs	-65 to +300	4 hr/24 hrs	747	Low Strength Pneumatic/Hydraulic Sealant
549	Orange	504	0.020	2500 psi	-65 to +300	2 hr/24 hrs	747	Instant Seal Plastic Gasket
554	Red	277	0.015	240/240 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Refrigerant Sealant
567	White	592	N/A	500 psi	-65 to +400	4 hrs/24 hrs	764	Pipe Sealant for Stainless Steel
568	Orange	277	0.015	2500 psi	-65 to +300	12 hrs/24 hrs	764	Plastic Gasket
569	Brown	545	0.010	40/25 in lbs	-65 to +300	1 hr/24 hrs	764	Hydraulic Sealant
570	Brown	592	N/A	25/40 in lbs	-65 to +300	6 hrs/72 hrs	764	Steam Sealant
571	Brown	592	0.015	40/20 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Pipe Sealant
572	White	578.575	N/A	80/27 in lbs	-65 to +300	24 hrs/72 hrs	None	Gasketing
592	White		0.020	500 psi	-65 to +400	4 hrs/72 hrs	736	Pipe Sealant with Teflon
593	Black		0.250	400 psi	-95 to +400	30 min/24 hrs	N/A	RTV Silicone
601	Green	609	0.005	3000 psi	-65 to +300	10 min/24 hrs	764	Current PIN #609
609	Green		0.005	3000 psi	-65 to +300	10 min/24 hrs	764	General Purpose Retaining Compound
620	Green	640	0.015	3000 psi	-65 to +450	30 min/24 hrs	747	High Temperature Retaining Compound
635	Green	680	0.010	4000 psi	-65 to +300	1 hr/24 hrs	747	High Strength Retaining Compound
638	Green	680	0.015	4100 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
640	Green	620	0.007	3000 psi	-65 to +400	1 hr/24 hrs	747	High Temperature Retaining Compound
660	Silver		0.020	3000 psi	-65 to +300	20 min/24 hrs	764	Quick Metal
675	Green	609	0.005	3000 psi	-65 to +300	20 min/24 hrs	747	General Purpose Retaining Compound
680	Green	635	0.015	4000 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
706	Clear	755	N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
707	Amber		N/A	N/A	N/A	N/A	N/A	Activaltor for Structural Adhesives
736	Amber		N/A	N/A	N/A	N/A	N/A	Primer NF
738	Amber		N/A	N/A	N/A	N/A	N/A	Depend Activator
747	Yellow	N/A	N/A	N/A	N/A	N/A	N/A	Primer T
751	Clear		N/A	N/A	N/A	N/A	N/A	Activator for Structural Adhesives
755	Clear		N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
764	Green		N/A	N/A	N/A	N/A	N/A	Primer N
767	Silver		N/A	N/A	-65 to +1600	N/A	N/A	Anti-Seize Lubricant

Printed in U.S.A.

2001

Section

2001

ENGINE AND RADIATOR
REMOVAL AND INSTALLATION

1150G Crawler

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

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

Rac 7-64740

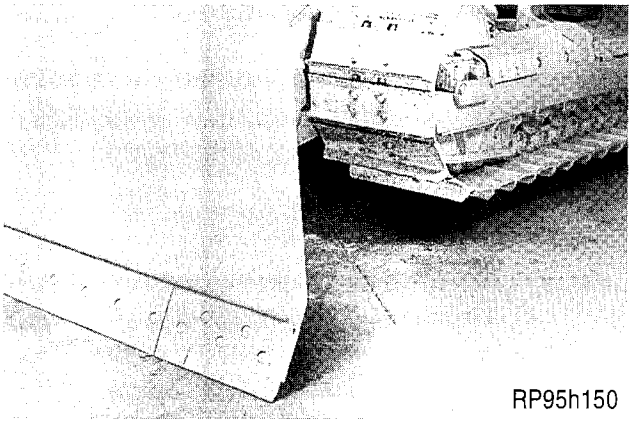
Printed in U.S.A.
March, 1996

TABLE OF CONTENTS

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

ENGINE REMOVAL

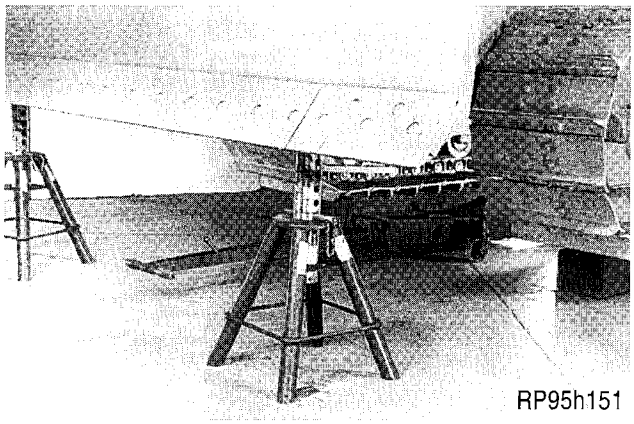
STEP 1



RP95h150

Place the crawler on blocks at least 8 inches high to allow the C-Frame to drop below the bolts mounting the radiator shroud. Alternate Method is to remove the dozer blade and C-Frame as an assembly.

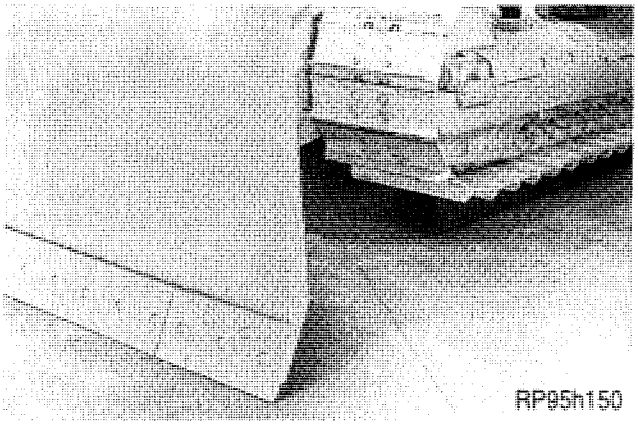
STEP 2



RP95h151

Raise and block the dozer blade up. Use a floor jack to support the undercarriage guards and remove the guards from under the engine and torque converter.

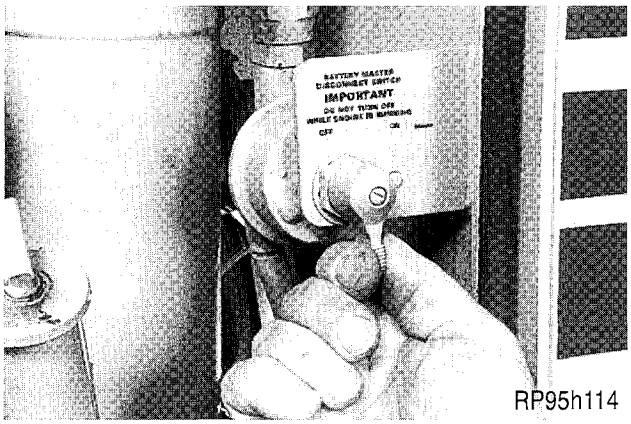
STEP 3



RP95h150

Remove the blocking from under the dozer blade and lower dozer blade to the floor.

STEP 4



RP95h114

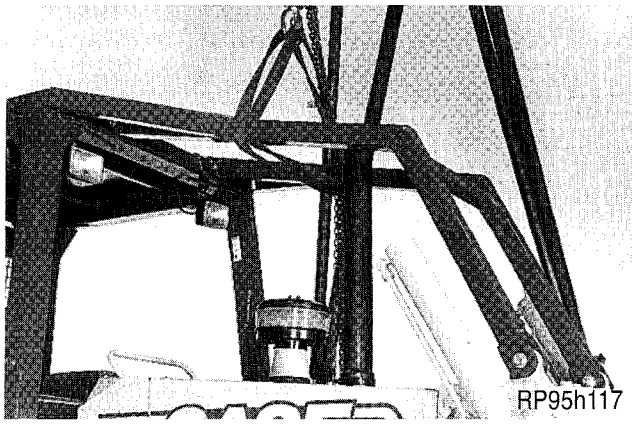
Turn the master disconnect switch for the battery to the OFF position.

STEP 5

Obtain three clean 5 gallon (20 liter) containers. Remove the drain plug in the bottom of the transmission housing and drain the transmission fluid into the clean containers, approximately 14 U.S. gallons (53.0 liters). Store the transmission fluid in a safe and clean area if the fluid is to be reused.

> ⚠ **WARNING:** *When handling lubricants (oil, grease, etc.) and other chemical products, always follow the instructions for their proper use. Use proper containers to collect the fluid. Dispose of fluids and filters in a way that will protect the environment and in accordance with the laws. DO NOT smoke or use an open flame during the servicing procedure. Use eye protection.* SM475

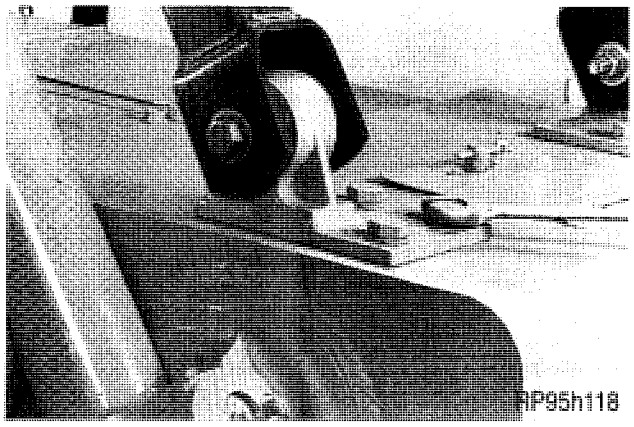
STEP 6



RP95h117

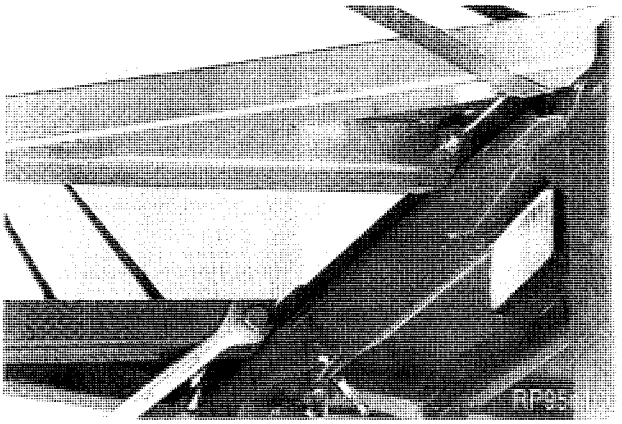
Attach a sling and overhead hoist to the brush guard assembly.

STEP 7



Remove the bolts, nuts and washers holding the right and left hand mounting bases for the brush guard.

STEP 8

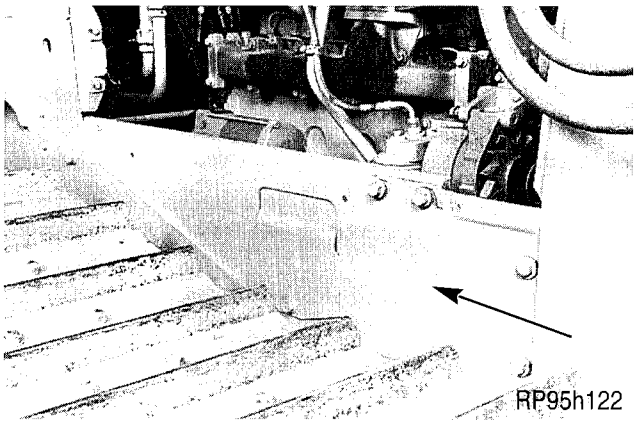


Remove the bolts, nuts and washers fastening the brush guard to the ROPS canopy and remove the brush guard.

STEP 9

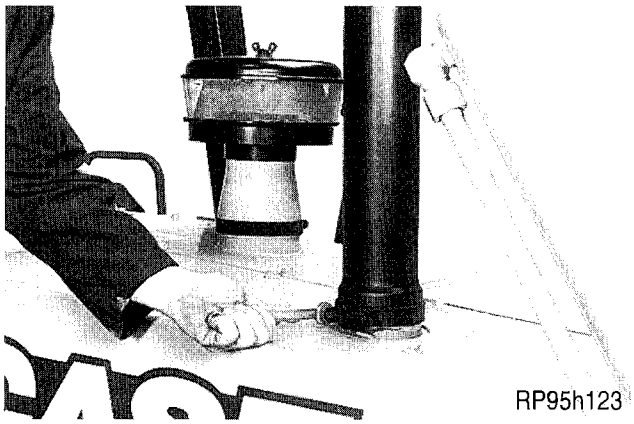
Remove the right and left hand side screens for the engine compartment.

STEP 10



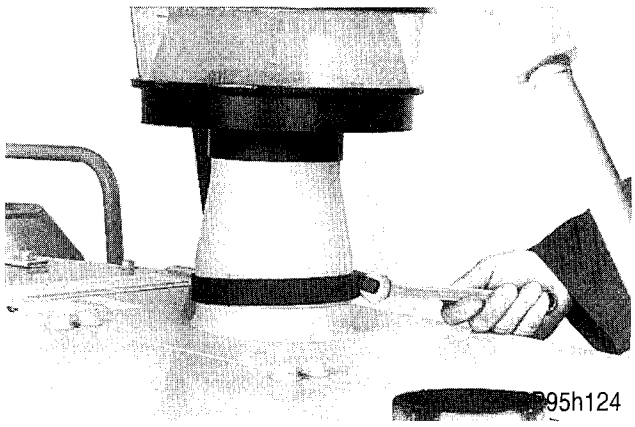
Remove the right and left hand lower side shields for the engine compartment.

STEP 11



Loosen the clamp holding the exhaust pipe and remove the exhaust pipe.

STEP 12

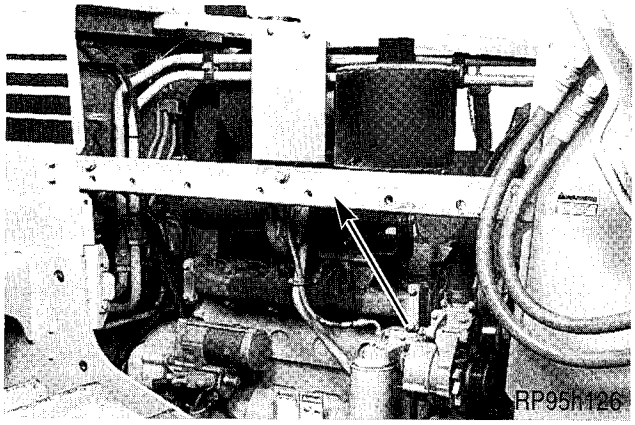


Loosen the clamp holding the inlet stack and precleaner for the air intake and remove the inlet stack.

STEP 13

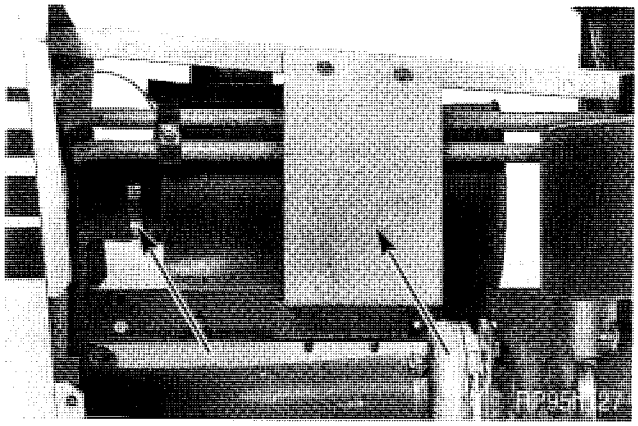
Only loosen the lower cap screws on each side and remove the cap screws from the top side of the hood. Remove the right and left hand hood sections.

STEP 14



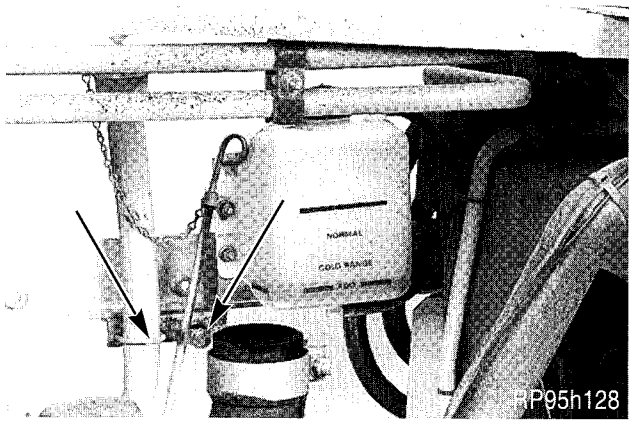
Remove RH side shield to hood mounting bracket.

STEP 15



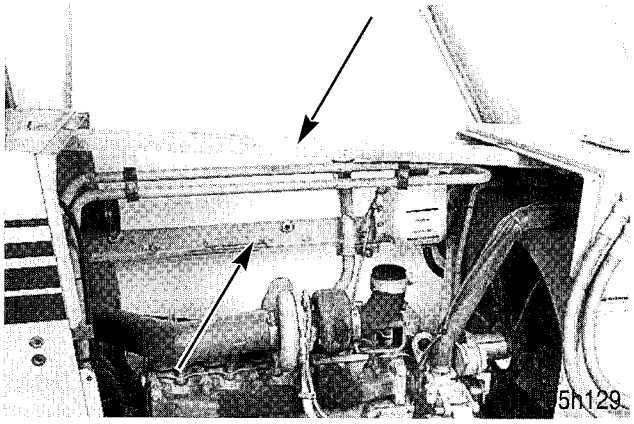
Loosen the hose clamp for the air cleaner outlet and remove the hose. Remove the mounting bracket and air cleaner as an assembly.

STEP 16



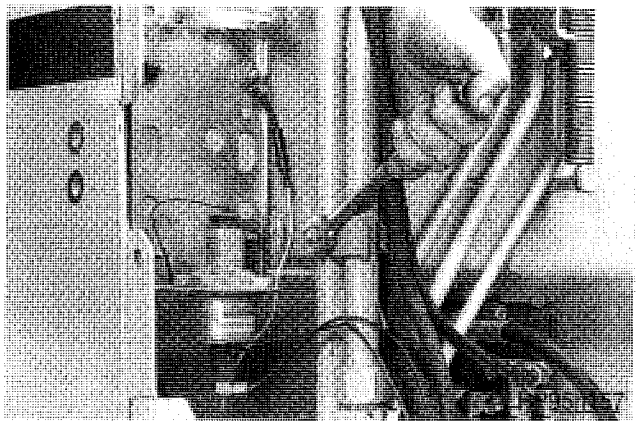
Loosen and remove the U-bolt for the oil filler tube and the bolt in the clamp for the dipstick.

STEP 17



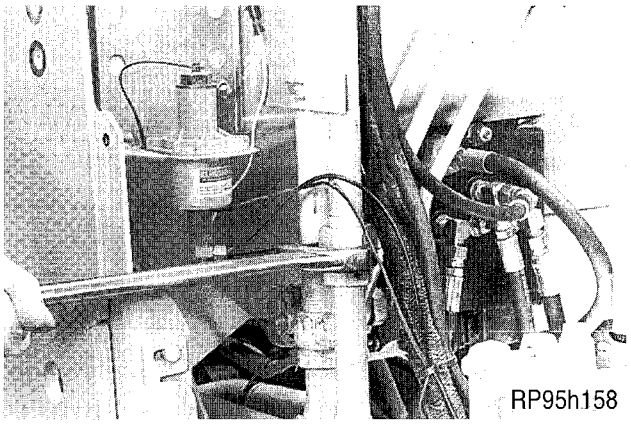
Remove the LH side shield to hood mounting bracket and the radiator surge tank as an assembly. Remove the center mounting bracket for the hood.

STEP 18



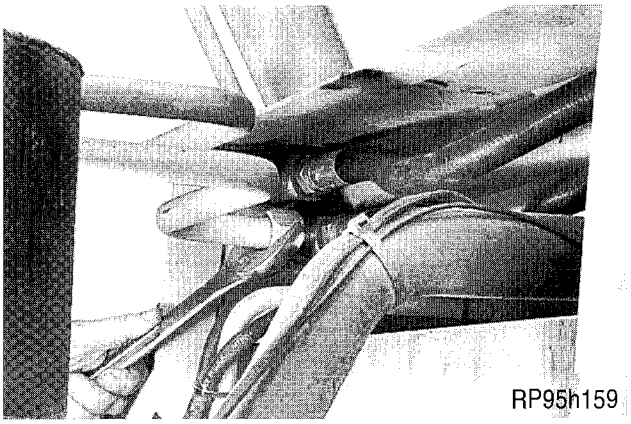
Remove the bolt, nut and clamp for the hydraulic tubes to the lift cylinders.

STEP 19



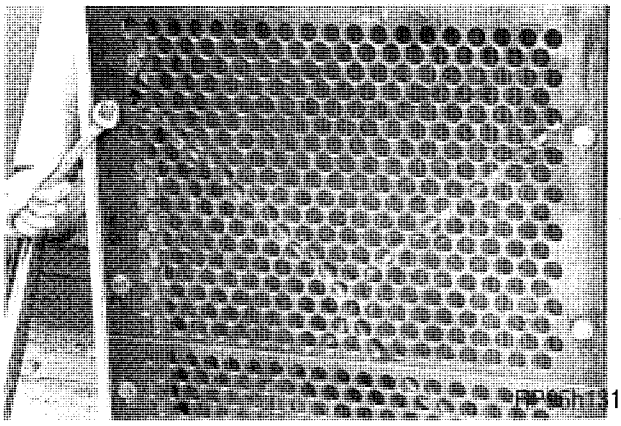
Loosen and disconnect the two hydraulic tubes to the lift cylinders at the connection behind the engine. Make sure to plug and cap the fittings on the tubes.

STEP 20



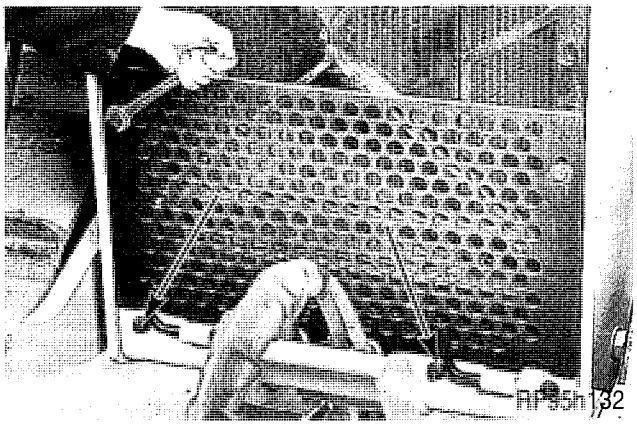
Loosen and disconnect the two hydraulic tubes to the lift cylinder at the connection above the radiator. Remove the two tubes from over the top of the engine. Make sure to plug and cap the fittings on the tubes.

STEP 21



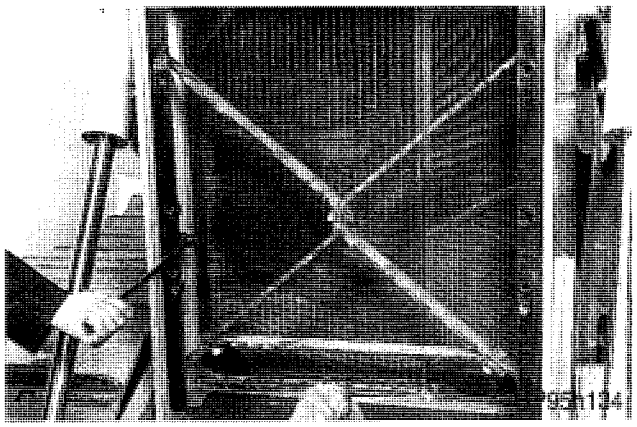
Remove the cap screws retaining the upper grille and remove the grille.

STEP 22



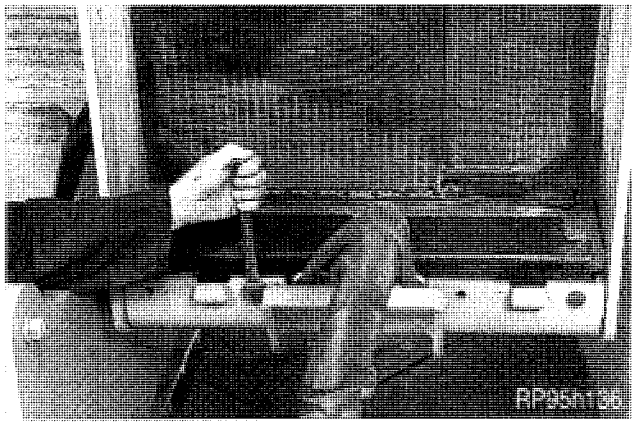
Remove two cap screws in the mainframe to clear the hinge for the lower grille. Remove the two cap screws retaining the lower grille and remove the grille.

STEP 23



Remove both the LH and RH mounting brackets for the grille and the X support brace.

STEP 24

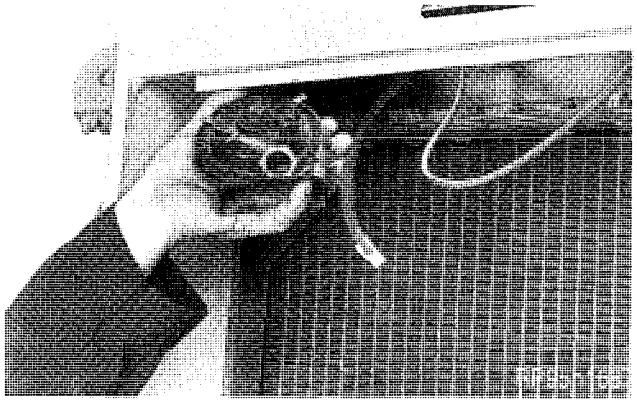


Remove the two cap screws still retaining the lower baffle panel for the radiator and remove the baffle panel.

STEP 25

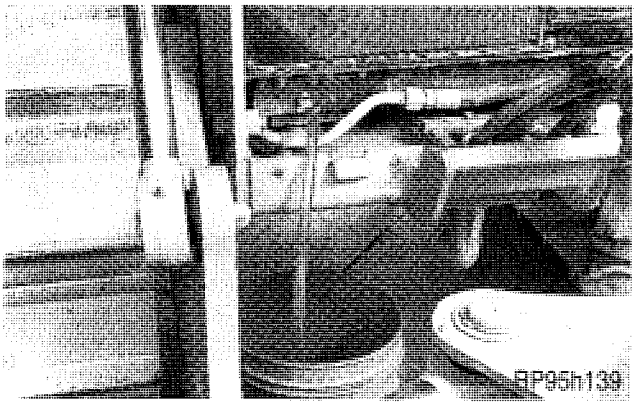
Remove the upper baffle panel for the radiator

STEP 26



Remove both the LH and RH horns, if equipped.

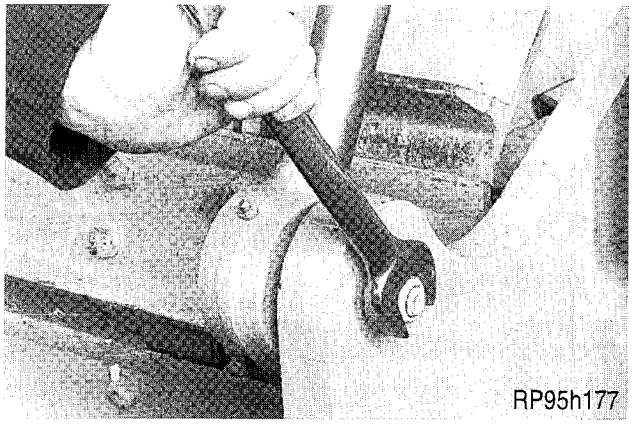
STEP 27



Drain the coolant from the radiator into a clean bucket.

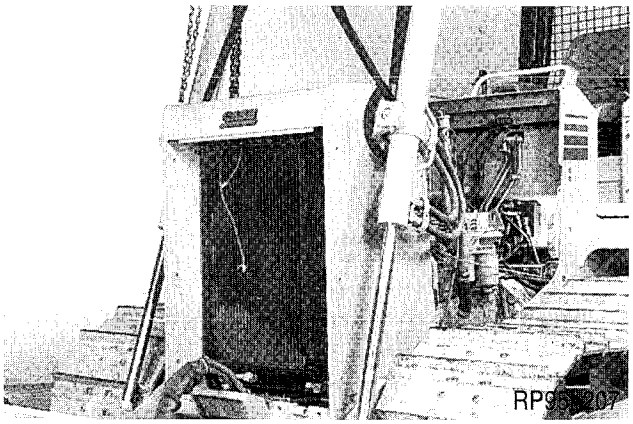
> ⚠ **WARNING:** *When handling lubricants (oil, grease, etc.) and other chemical products, always follow the instructions for their proper use. Use proper containers to collect the fluid. Dispose of fluids and filters in a way that will protect the environment and in accordance with the laws. DO NOT smoke or use an open flame during the servicing procedure. Use eye protection.* SM475

STEP 28



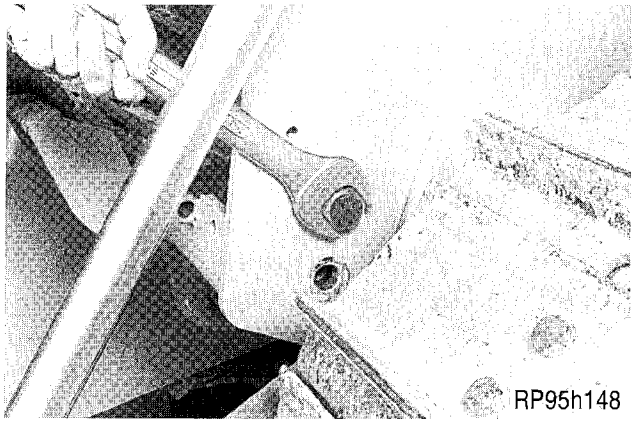
Loosen and remove both the LH and RH nut, bolt and mount for the piston rod eye to C-frame.

STEP 29



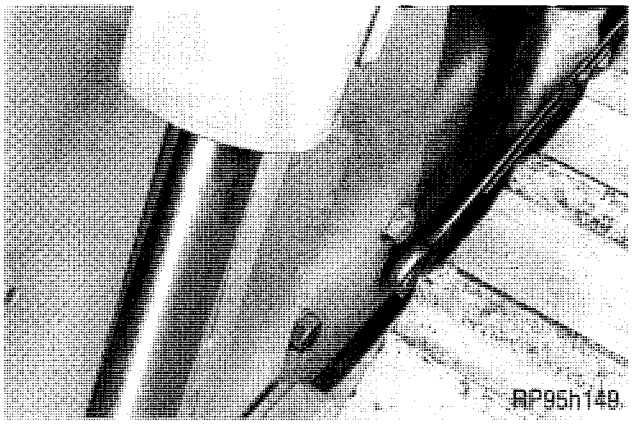
Attach a sling and overhead hoist to the radiator shroud and lift cylinders assembly.

STEP 30



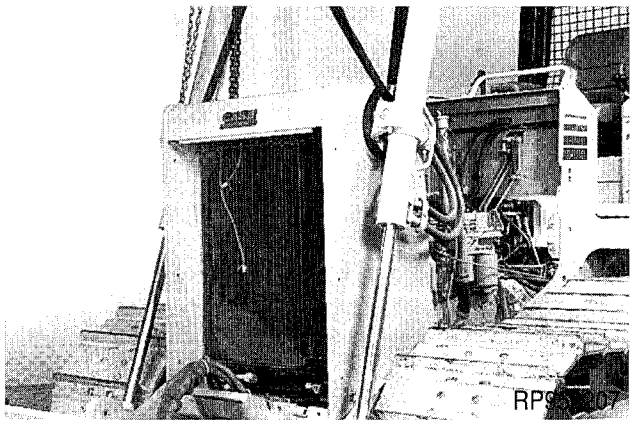
Remove the two front cap screws on each side fastening the radiator shroud to the main frame.

STEP 31



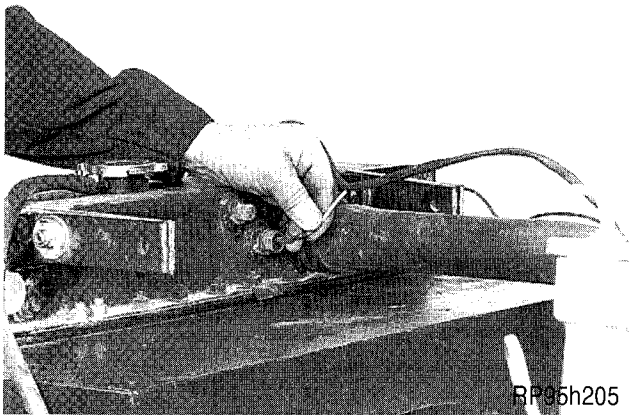
Remove the three rear cap screws on each side fastening the radiator shroud to the main frame.

STEP 32



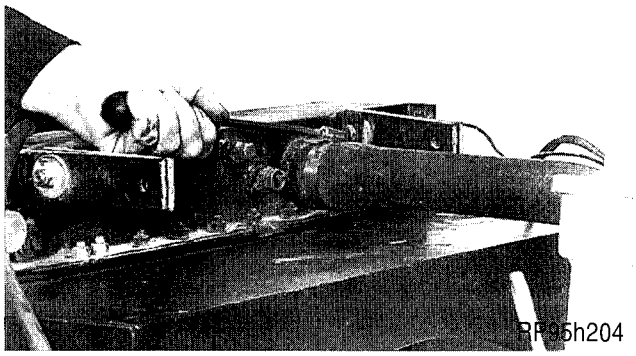
Use the overhead hoist to lift the radiator shroud straight up until the shroud is clear of the radiator and main frame. Set the radiator shroud down on the floor away from the machine.

STEP 33



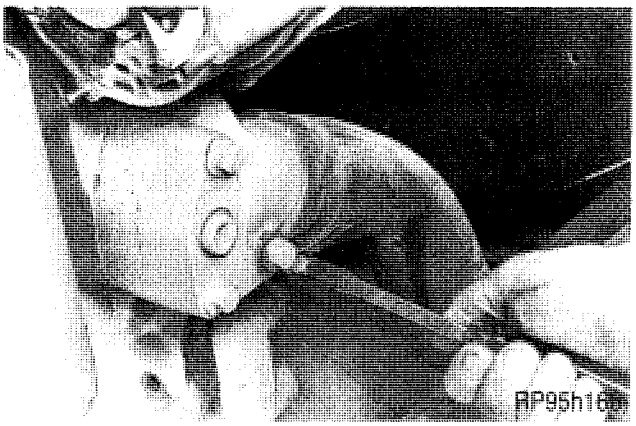
Disconnect the wire harness from the coolant level indicator.

STEP 34



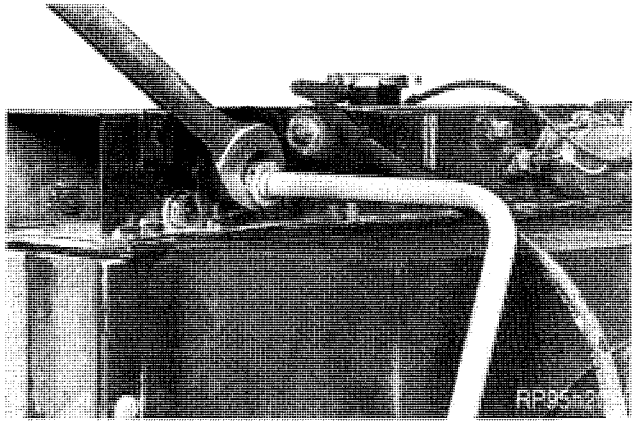
Loosen the hose clamp on the top radiator hose and remove the hose from the radiator.

STEP 35



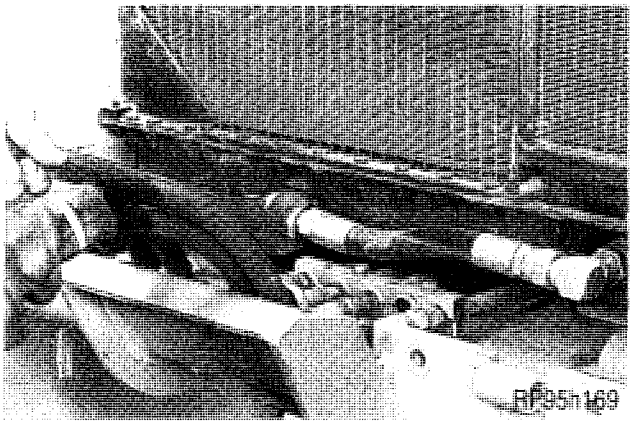
Loosen the hose clamp on the bottom radiator hose and remove the hose from the coolant inlet to the engine.

STEP 36



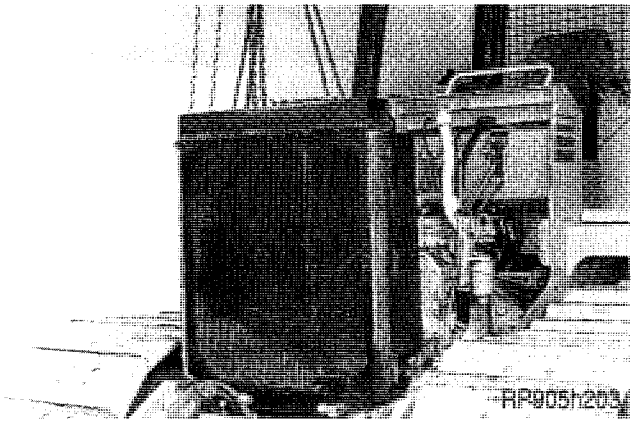
Loosen and disconnect the fitting on the tube to the inlet of the cooler for the transmission fluid. Make sure to plug and cap the fittings.

STEP 37



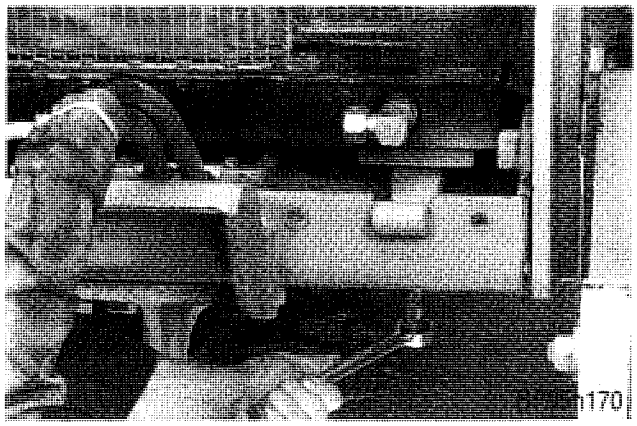
Disconnect and remove the hose from the outlet of the cooler to the tube for the transmission fluid. Make sure to plug and cap the hose and tube fittings.

STEP 38



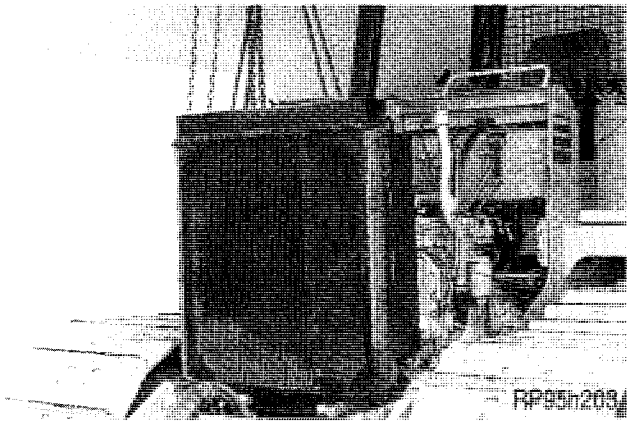
Attach a sling and overhead hoist to the top of the radiator.

STEP 39



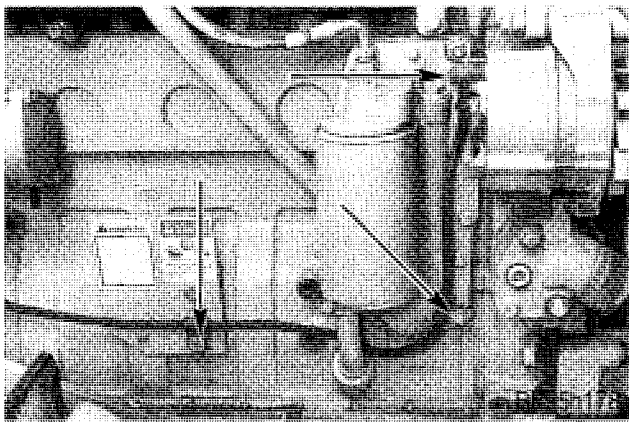
Remove the two bolts from the two bottom mounts for the radiator.

STEP 40



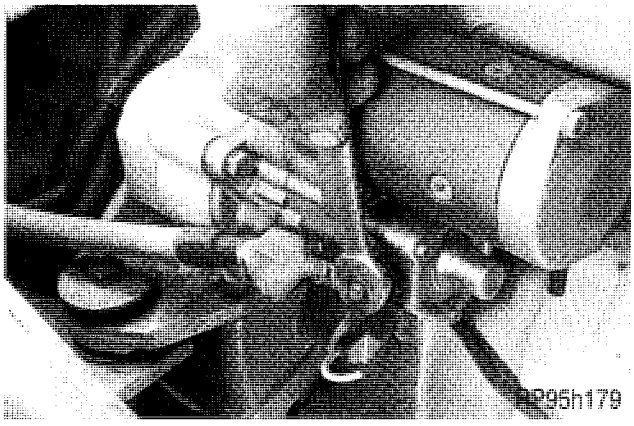
Remove the radiator and place it on the floor away from the machine.

STEP 41



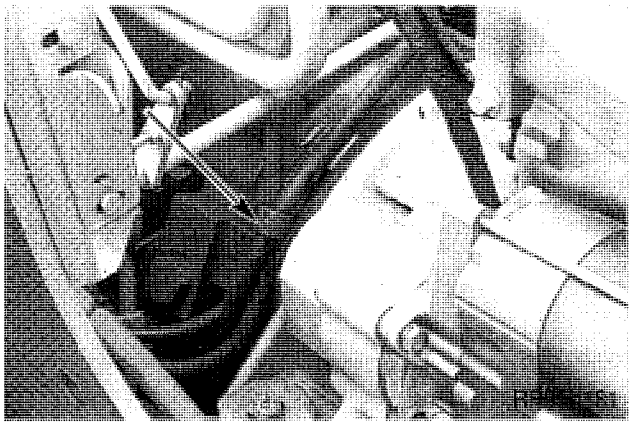
Disconnect the wire harness from the alternator. Remove the cap screws from the clamps fastening the wire harness to the engine block.

STEP 42



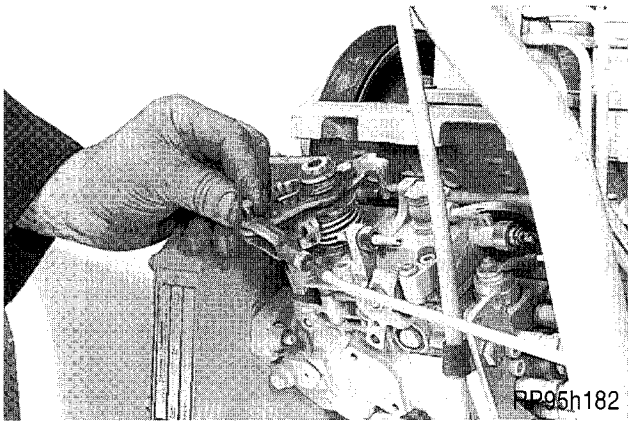
Make sure the Master Disconnect switch is in the OFF position. Loosen the nut on the starter solenoid and remove the positive battery cable and wire harness wires from the starter.

STEP 43



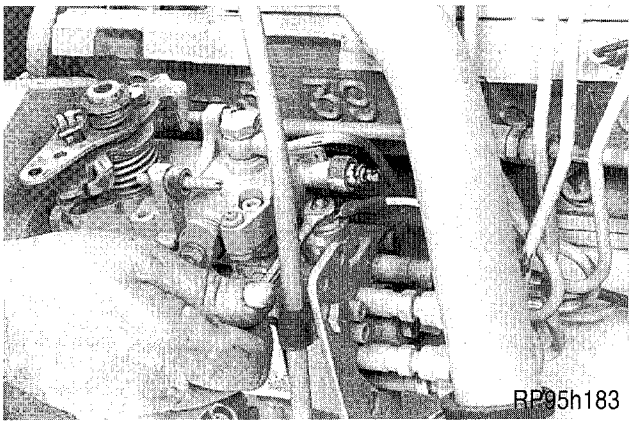
Remove the cap screw from the clamp fastening the hoses and wire harness to the torque converter housing.

STEP 44



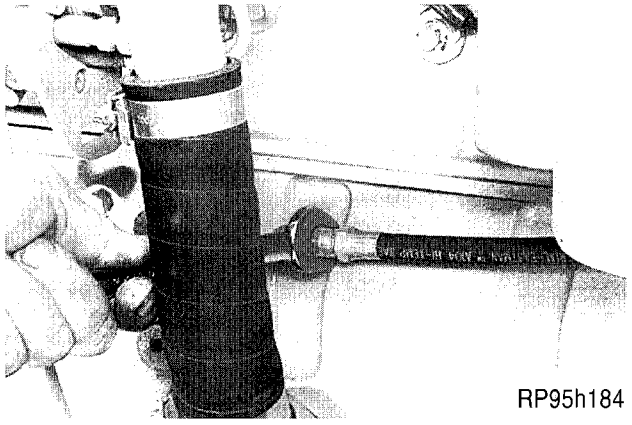
Remove the clevis pin attaching the clevis for the control rod to the control arm on the injection pump.

STEP 45



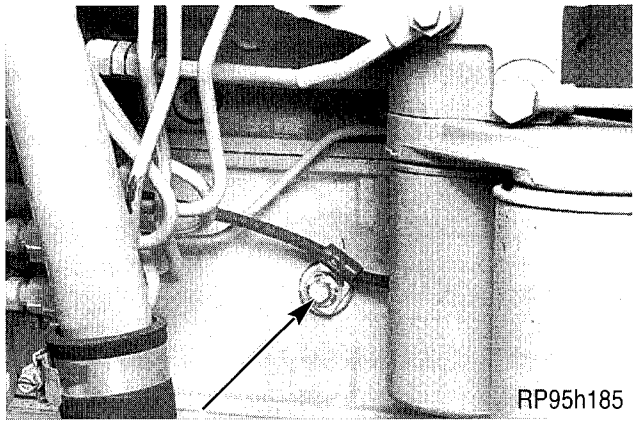
Disconnect the wire harness from the fuel shutoff solenoid on the injection pump.

STEP 46



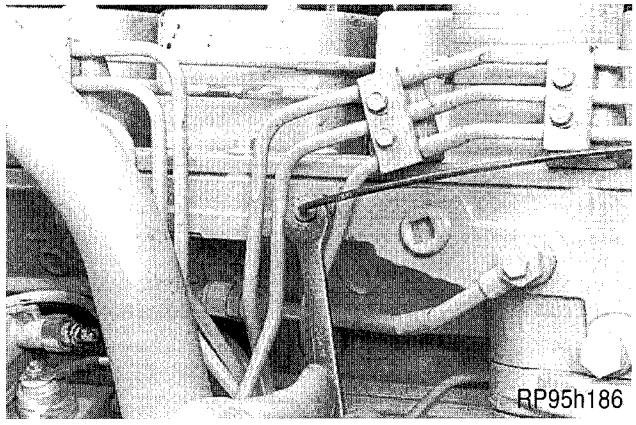
Disconnect the hose to the engine oil pressure gauge from the fitting in the engine block. Make sure to plug and cap the fittings.

STEP 47



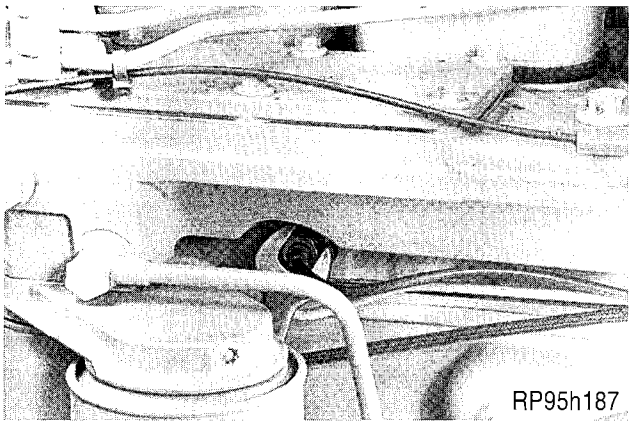
Remove the cap screw from the clamp fastening the wire harness to the engine block.

STEP 48



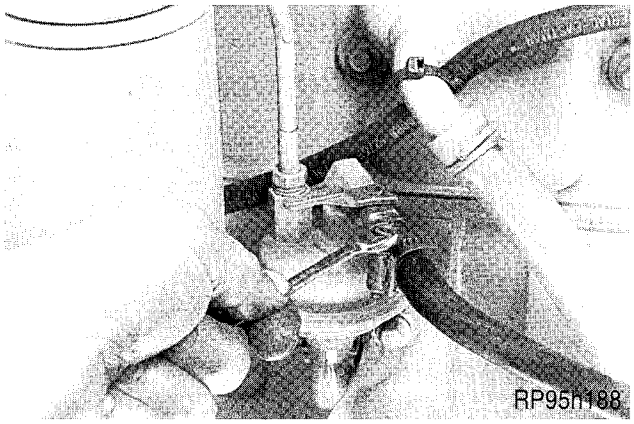
Loosen the fitting and remove from the intake manifold the tube from the cold start solenoid, if equipped.

STEP 49



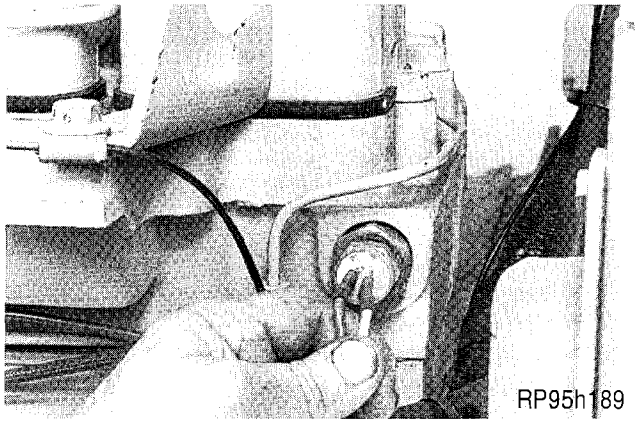
Loosen and remove the capillary tube for the engine coolant temperature gauge from the engine block.

STEP 50



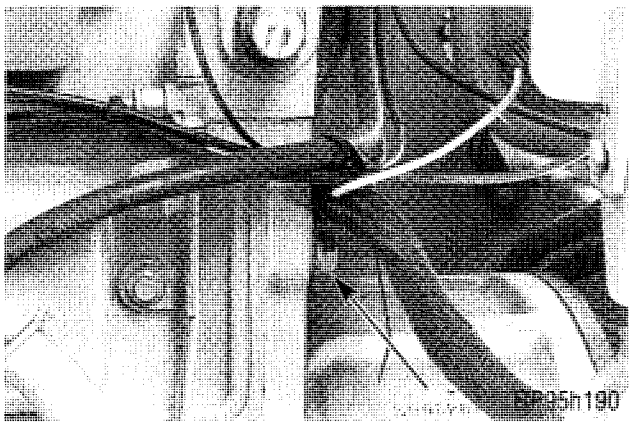
Crimp the fuel line hose to prevent fuel leakage. Loosen the clamp on the hose and remove the hose from the fuel pump.

STEP 51



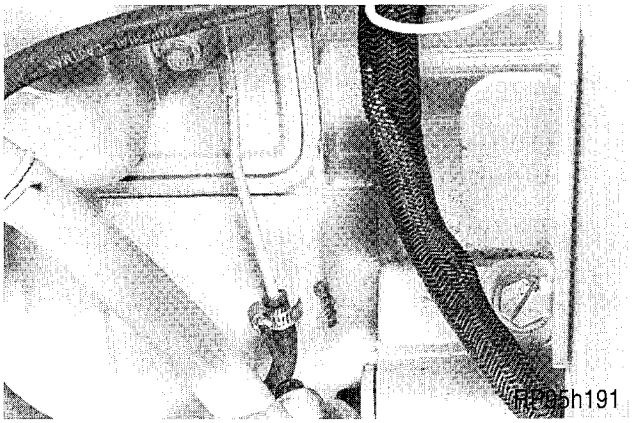
Disconnect the wire harness from the thermocouple switch for the cold start solenoid, if equipped.

STEP 52



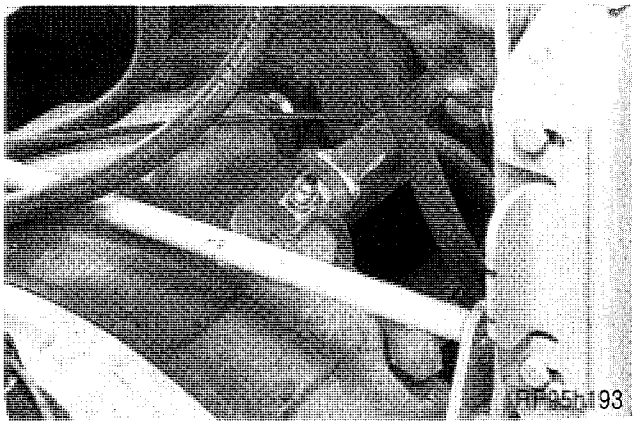
Remove the cap screw fastening the clamp for the wire harness and hoses to the engine block.

STEP 53



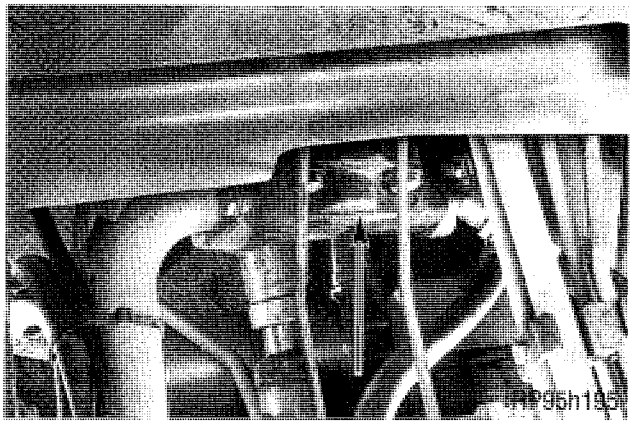
Loosen the clamp and remove the fuel line drain back hose from the tube fastened to the engine side cover.

STEP 54



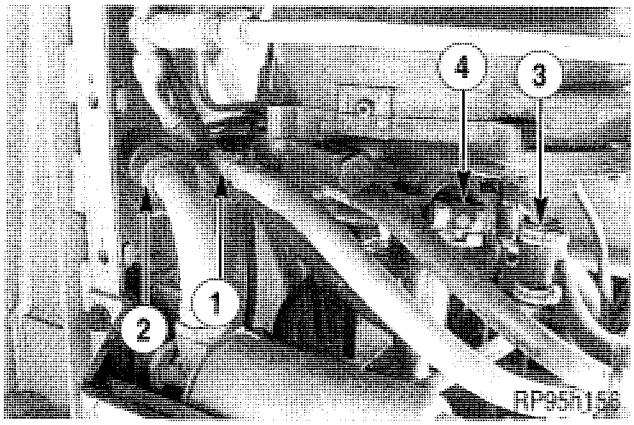
Disconnect the hoses from the tee on the top of the torque converter housing. Make sure to cap and plug all of the fittings.

STEP 55



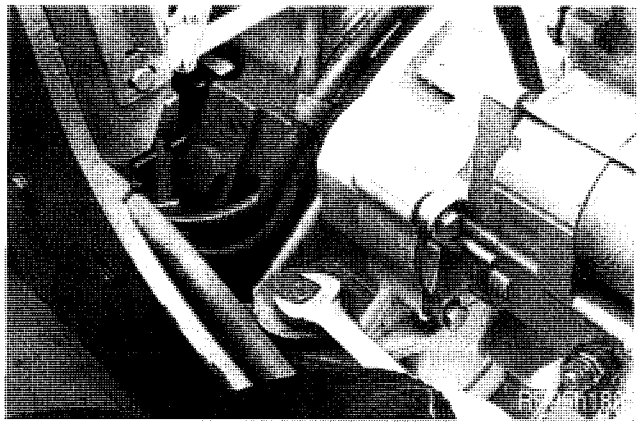
1. Remove the brake floor plate. Attach a sling around the hydraulic system pump and to the frame of the crawler, to support the pump and the hydraulic lines when the torque converter is removed with the engine.
2. Remove the four cap screws fastening the hydraulic system pump to the torque converter.

STEP 56



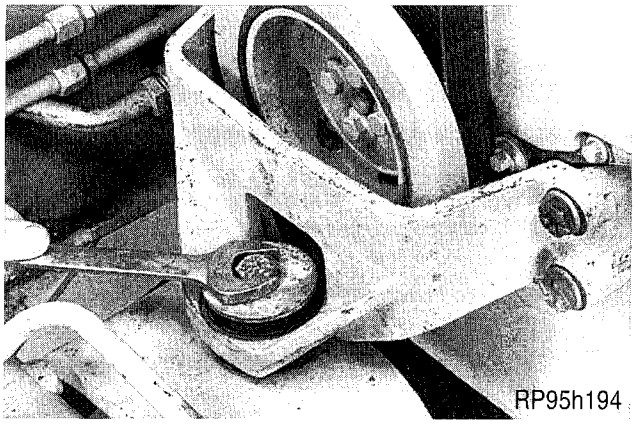
1. Disconnect the hoses from the tee at the inlet of the regulator valve. Make sure to cap and plug the fittings.
2. Loosen the clamps on the hose and move the hose to disconnect the tube to the transmission charge pump from the tube to the filter.
3. Loosen the clamps on the hose connecting the drain line to the torque converter housing. Disconnect the hose from the fitting in the torque converter housing.
4. Remove the four cap screws fastening the drive shaft to the companion flange on the torque converter output shaft.

STEP 57



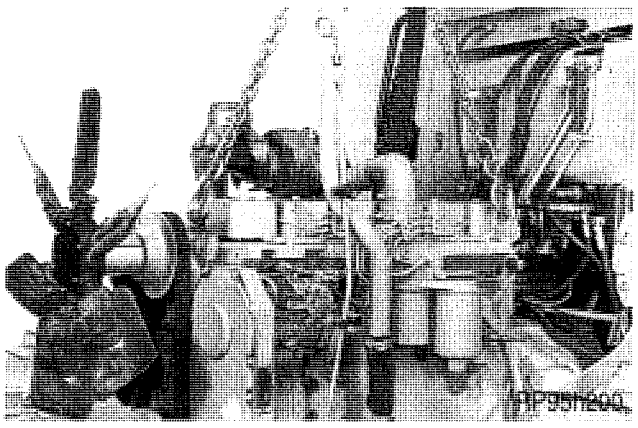
Remove the bolts and nuts securing the rear engine mounts.

STEP 58



Remove the bolt and nut securing the front engine mount.

STEP 59



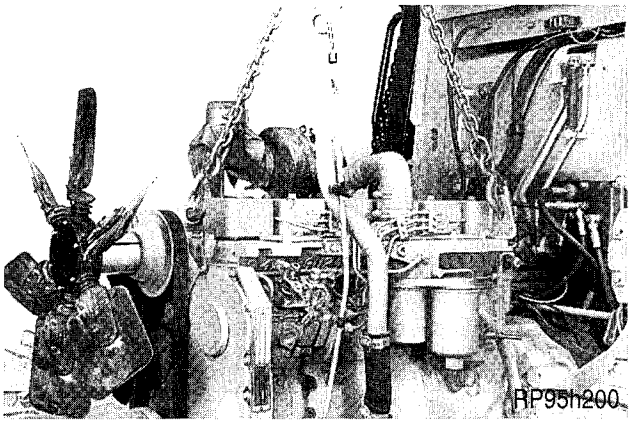
Attach an engine lifting device to an overhead hoist and to the lifting eyes on the engine. Remove the engine and torque converter assembly from the crawler frame.

STEP 60

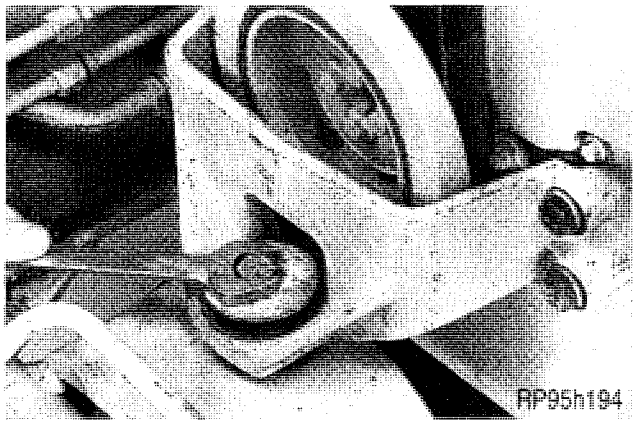
Remove the torque converter from the engine. See Section 6001 for torque converter removal.

ENGINE INSTALLATION

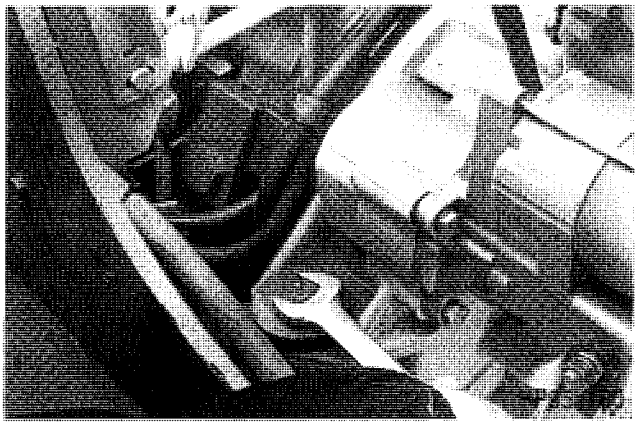
STEP 61
See Section 6001 for installing the torque converter onto the engine.

STEP 62


Attach an engine lifting device to an overhead hoist and to the lifting eyes on the engine. Install the engine and torque converter assembly into the main frame.

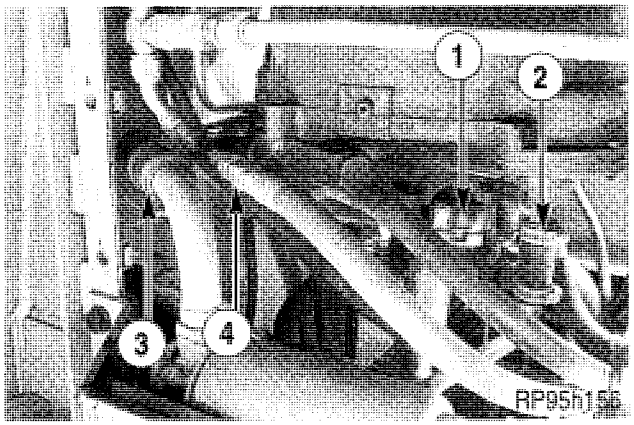
STEP 63


Install the bolt and nut into the front engine mount and leave loose.

STEP 64


Install the bolts and nuts into the two rear engine mounts.

STEP 65
Tighten the three bolts and nuts securing the engine mounts to a torque of 150 to 180 foot pounds (203 to 244 Nm).

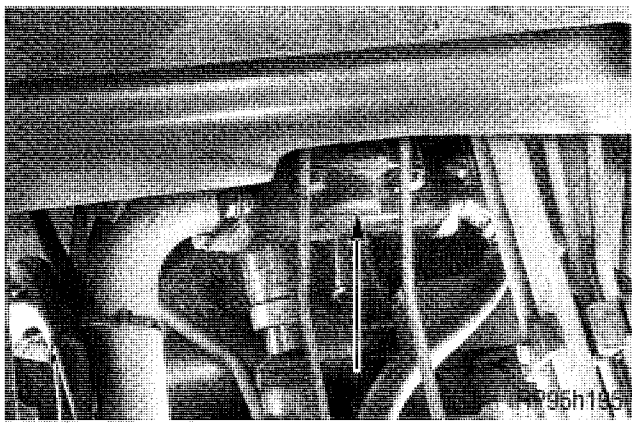
STEP 66


1. Install the four cap screws fastening the drive shaft to the companion flange on the torque converter output shaft and tighten to a torque of 37 to 49 foot pounds (50 to 66 Nm).

2. Install the hose connecting the drain line to the fitting in the bottom of the torque converter housing and secure the hose clamps on the hose.

3. Install the hose connecting the tube from the filter to the tube to the transmission pump inlet and secure the hose clamps on the hose.

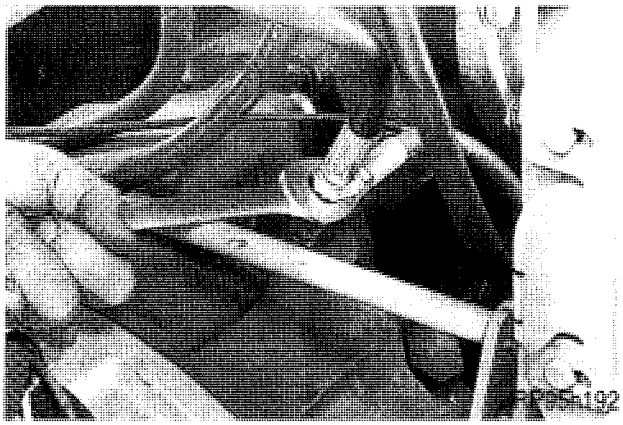
4. Install and tighten the two hoses to the tee at the inlet of the regulator valve.

STEP 67


1. Install the hydraulic system pump into the drive coupling in the torque converter. Install and tighten the four cap screws fastening the pump to the torque converter housing.

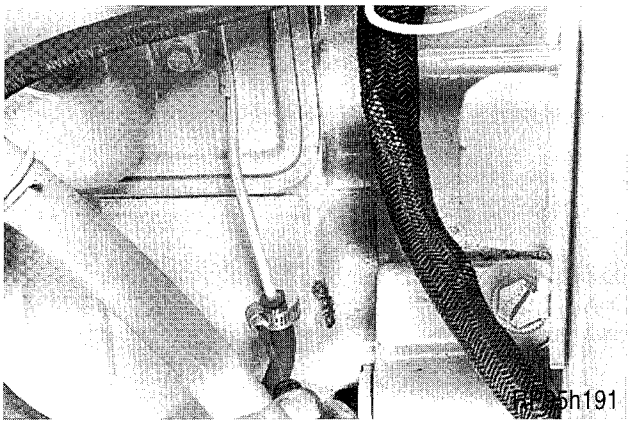
2. Remove the sling used to support the pump while the torque converter was removed.

STEP 68



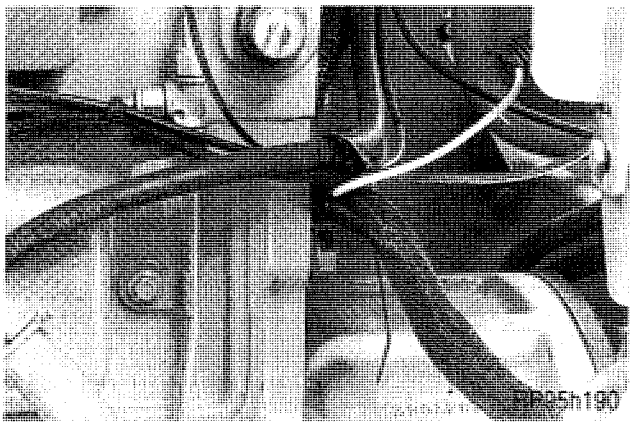
Connect and tighten the two hoses to the tee on the top of the torque converter housing.

STEP 69



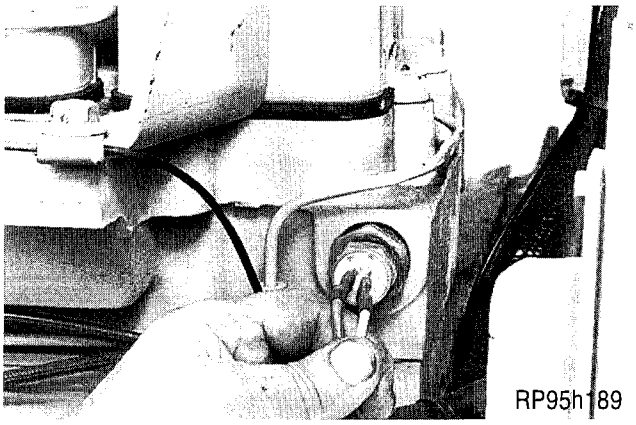
Install the drain back hose for the fuel line onto the tube fastened to the engine side cover and secure the hose clamp on the hose.

STEP 70



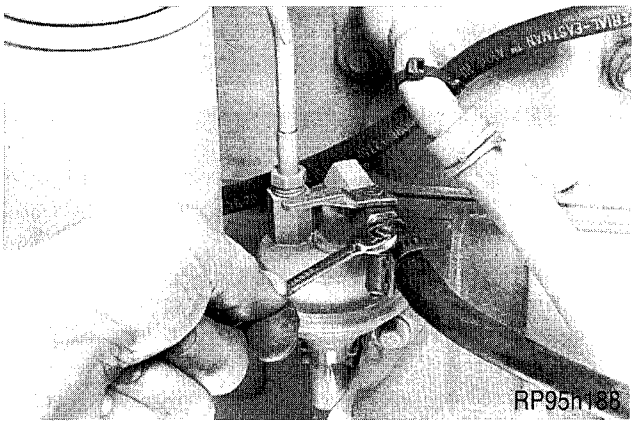
Install and tighten the cap screw fastening the clamp for the wire harness and hoses to the engine block.

STEP 71



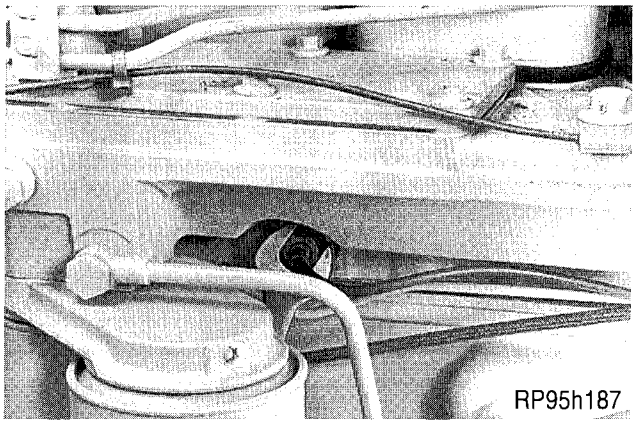
Connect the wire harness to the thermocouple switch for the cold start solenoid, if equipped.

STEP 72



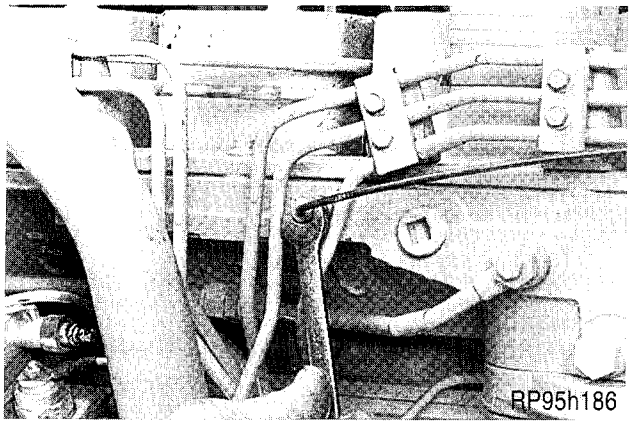
Install the hose for the fuel line onto the fitting on the fuel pump and secure the hose clamp on the hose.

STEP 73



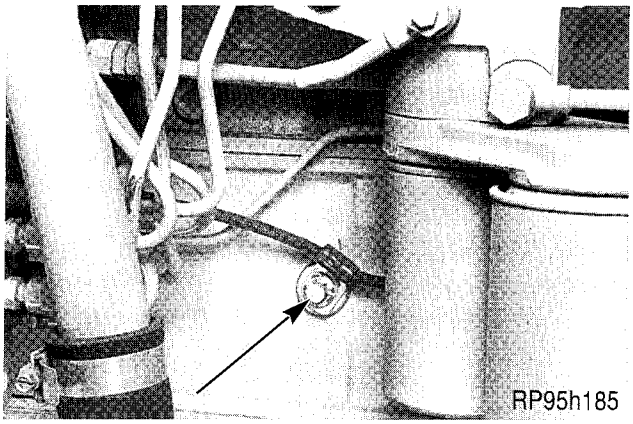
Install the capillary tube for the engine coolant temperature gauge into the fitting in the engine block and tighten the retaining nut.

STEP 74



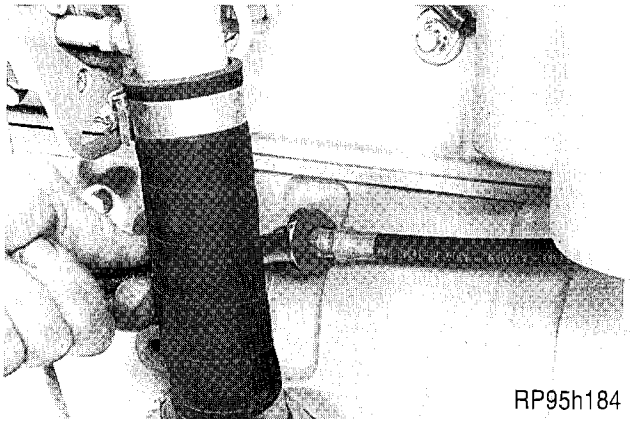
Install the tube from the cold start solenoid into the fitting in the intake manifold and tighten the retaining nut, if equipped.

STEP 75



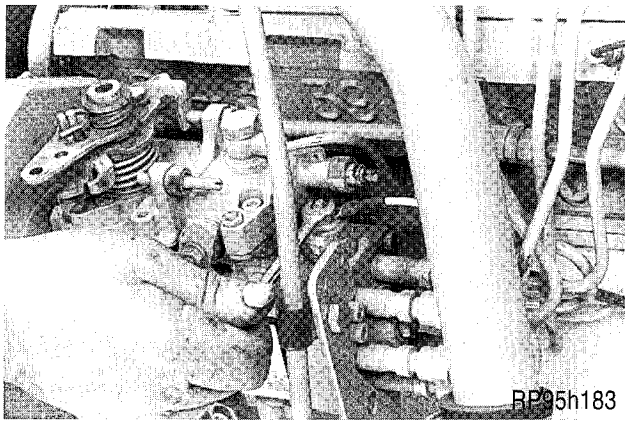
Install and tighten the cap screw fastening the clamp for the wire harness to the engine block.

STEP 76



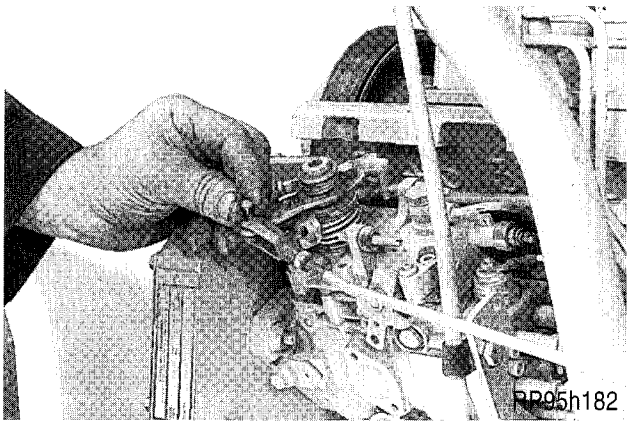
Connect the hose to the engine oil pressure gauge to the fitting in the engine block and tighten the fitting.

STEP 77



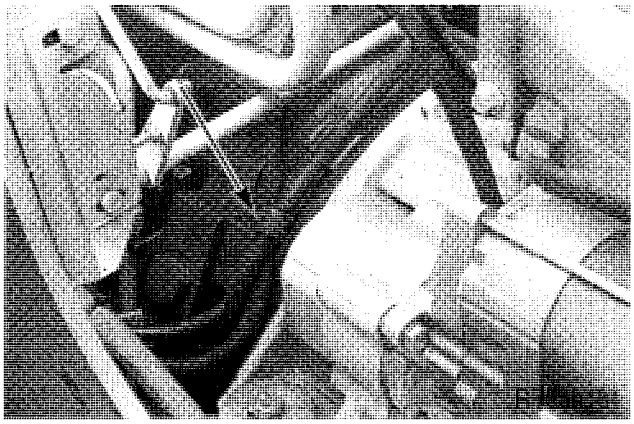
Connect the wire harness to the fuel shutoff solenoid on the injection pump and tighten the retaining nut.

STEP 78



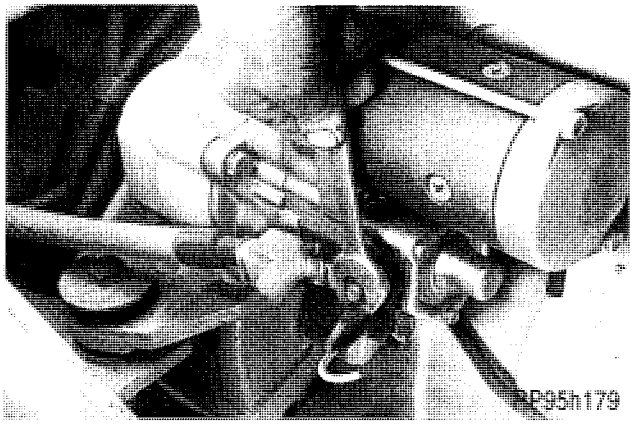
Install the clevis pin attaching the clevis for the throttle control rod to the outer hole in the control arm on the injection pump and secure with a cotter pin.

STEP 79



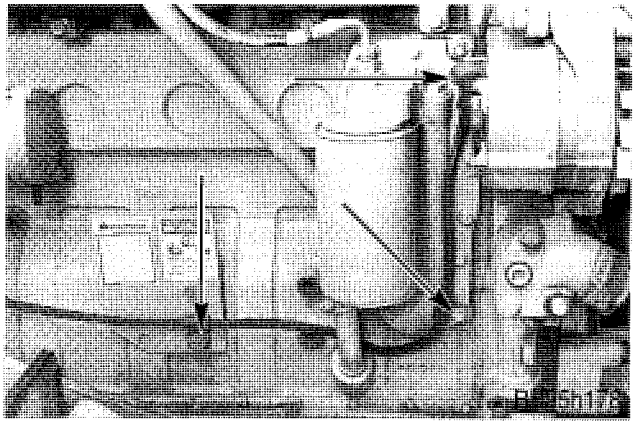
Install and tighten the cap screw fastening the clamp for the hoses and wire harness to the top of the torque converter housing.

STEP 80



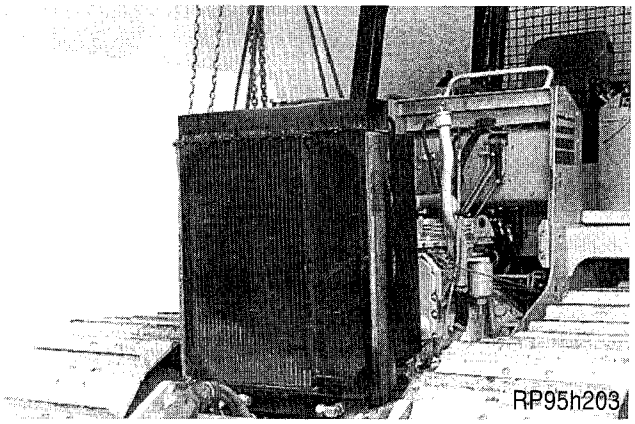
Make sure the Master Disconnect switch is in the OFF position. Install the positive battery cable and wire harness wires on the terminal of the starter solenoid and tighten the hut that secures the cable.

STEP 81



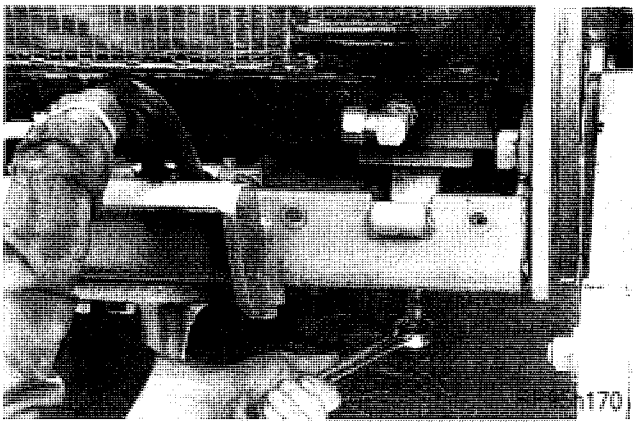
Connect the wire harness to the terminal on the alternator and tighten the nut securing the wire. Install and tighten the cap screws fastening the clamps for the wire harness to the engine block.

STEP 82



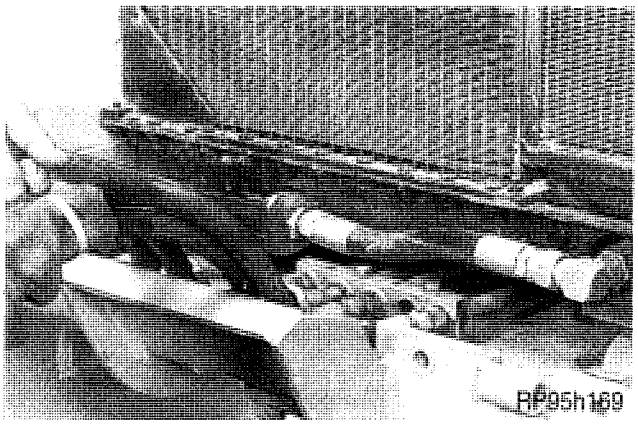
Attach a sling and over head hoist to the top of the radiator and place the radiator on the mounts in the main frame. Make sure the foam insulation strips are installed on both sides of the radiator.

STEP 83



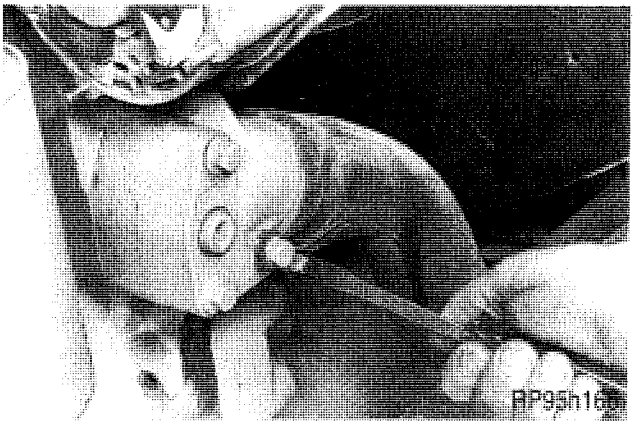
Install and tighten the two bolts and washers that secure the bottom mounts for the radiator.

STEP 84



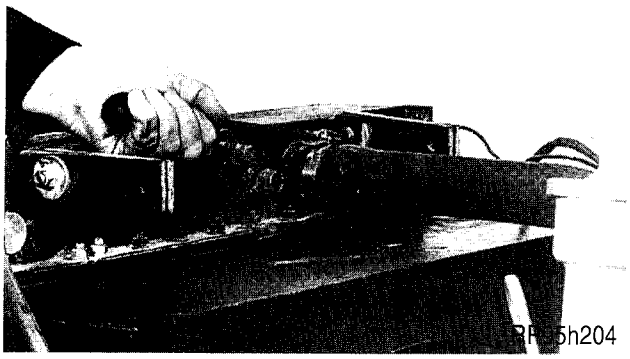
Connect the hose from the outlet of the cooler for the transmission fluid to the tube to the transmission and tighten the tube fitting.

STEP 85



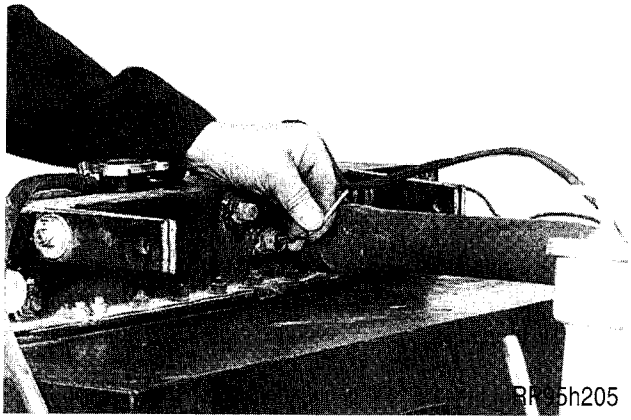
Install the bottom radiator hose onto the coolant inlet to the engine and tighten the hose clamp securing the hose.

STEP 86



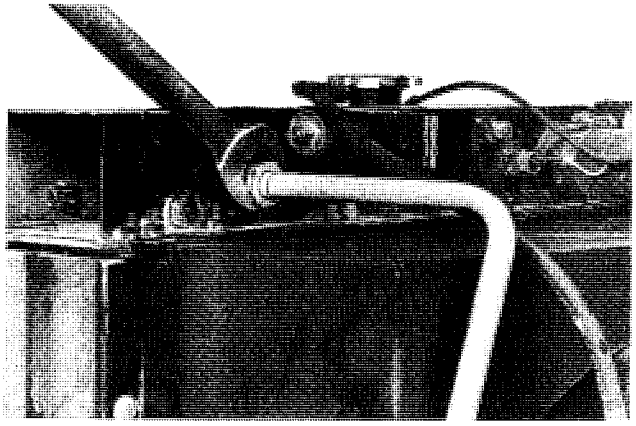
Install the top radiator hose onto the inlet to the radiator and tighten the hose clamp securing the hose.

STEP 87



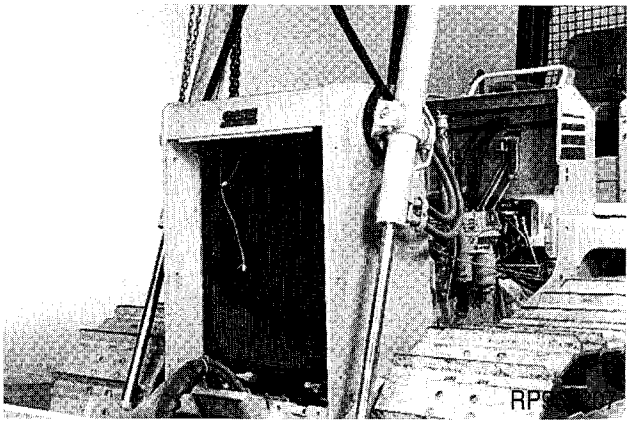
Connect the wire harness to the coolant level indicator.

STEP 88



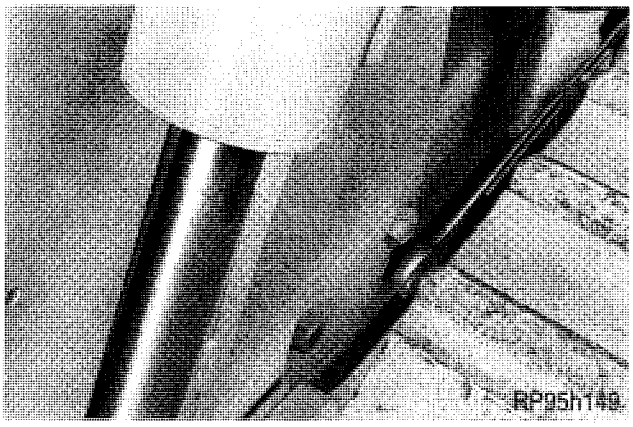
Connect the tube from the torque converter to the fitting at the inlet of the cooler for the transmission fluid and tighten the tube fitting.

STEP 89



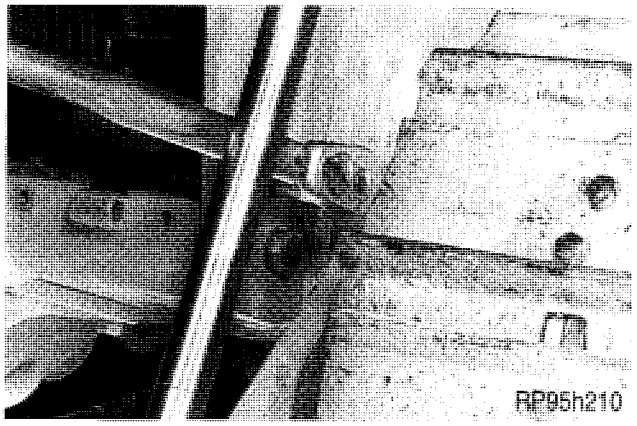
Use an over head hoist to lift the radiator shroud up over the radiator and then lower the shroud straight down into place on the main frame.

STEP 90



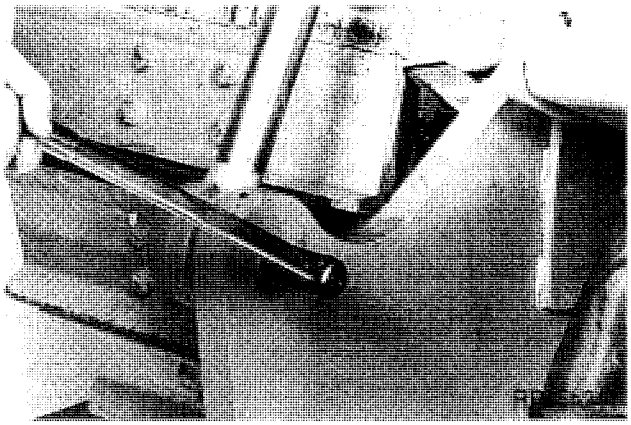
Install the three rear cap screws and washers on each side fastening the radiator shroud to the main frame, leave the cap screws loose.

STEP 91



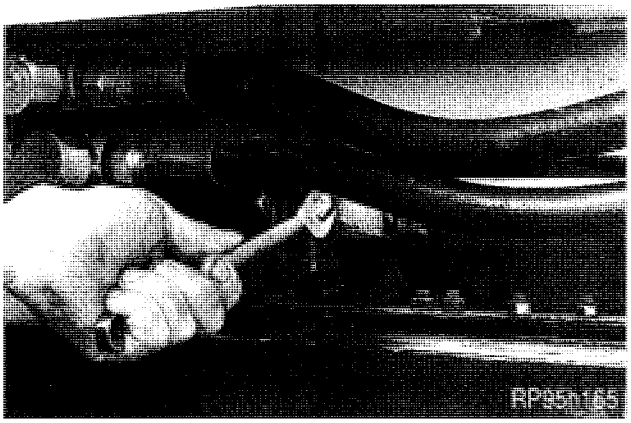
Install the two front cap screws and washers on each side fastening the radiator shroud to the main frame. Tighten all five cap screws on each side to a torque of 580 to 696 foot pounds (787 to 944 Nm).

STEP 92



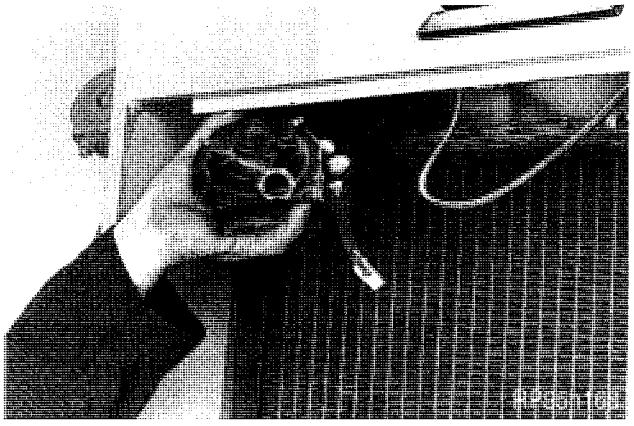
Install the bolt through the mount for the piston rod eye to the C-frame and tighten the nut to a torque of 270 to 324 foot pounds (366 to 439 Nm).

STEP 93



Install and tighten the bolts and nuts securing the top radiator mounting straps to the radiator shroud on both sides.

STEP 94

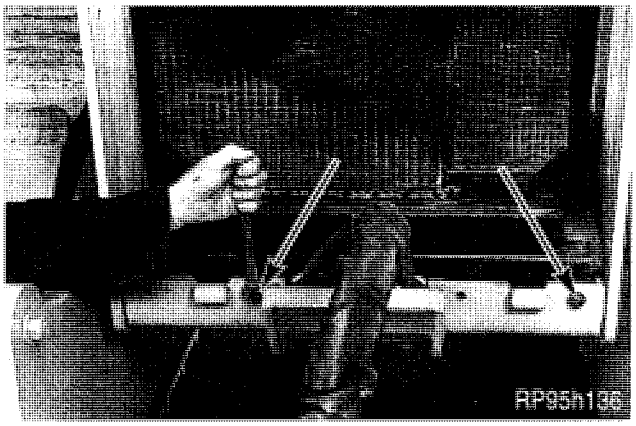


Install both the LH and RH horns, if equipped.

STEP 95

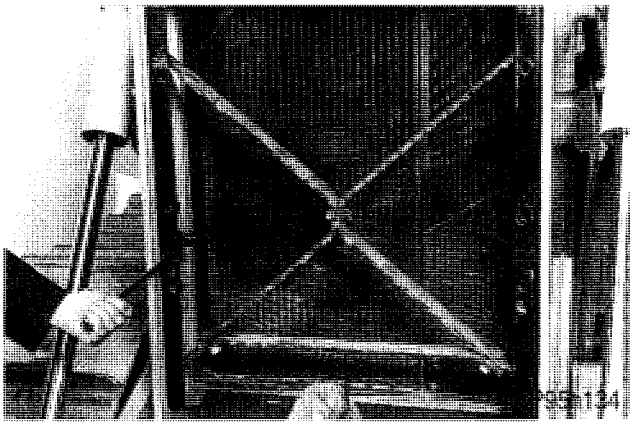
Install and secure the upper baffle panel and foam insulation for the radiator.

STEP 96



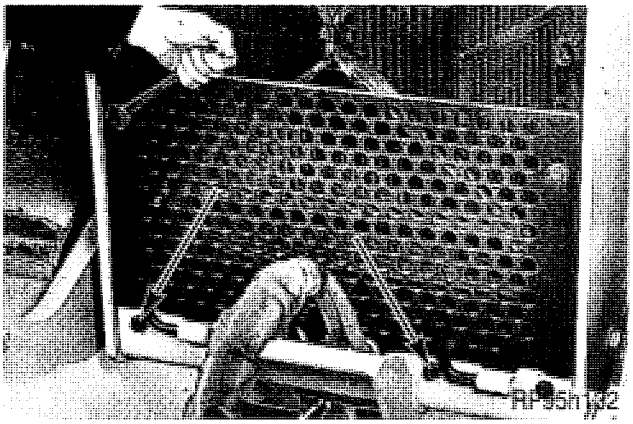
Install the lower baffle panel for the radiator and secure the baffle with the two cap screws as shown.

STEP 97



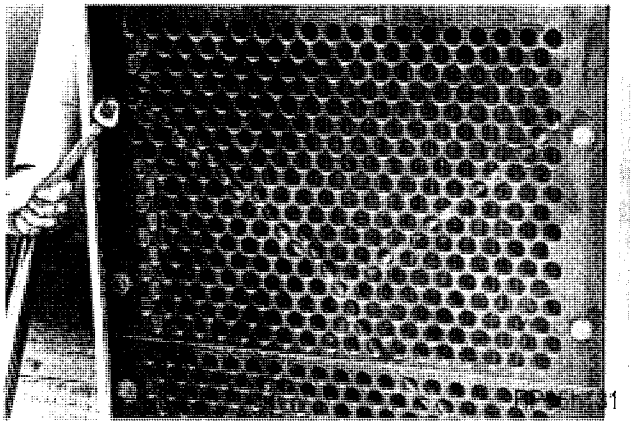
Install both the LH and RH mounting brackets for the grille and the X support brace

STEP 98



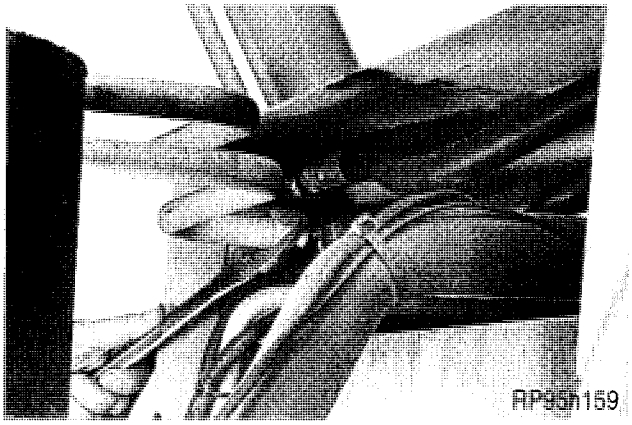
Install the lower grille and secure the grille with the two upper cap screws. Install and tighten the two cap screws that retain the lower baffle panel.

STEP 99



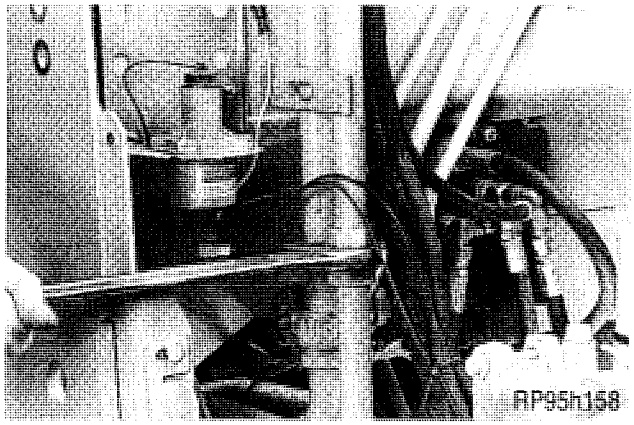
Install the upper grille and fasten in place by tightening the four cap screws.

STEP 100



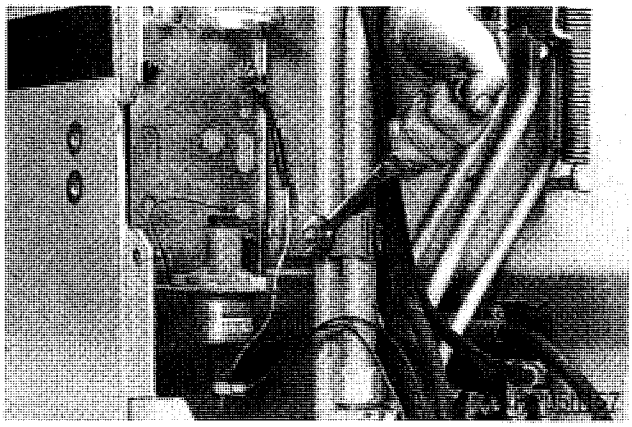
Connect the two hydraulic tubes to the tees to the lift cylinders in the shroud above the radiator and tighten the tube fittings.

STEP 101



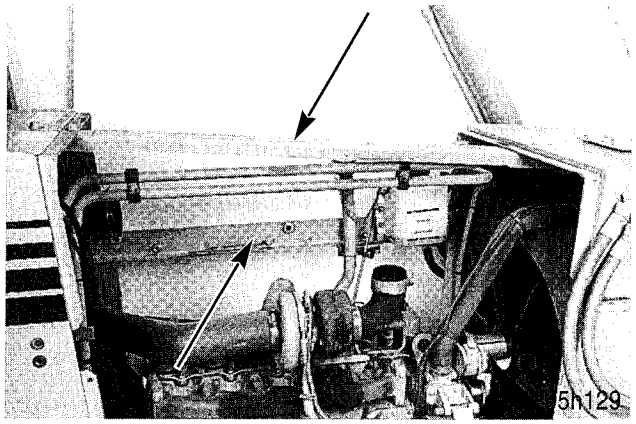
Connect the two hydraulic tubes to the lift cylinders to the tubes from the control valve at the rear of the engine and tighten the tube fittings.

STEP 102



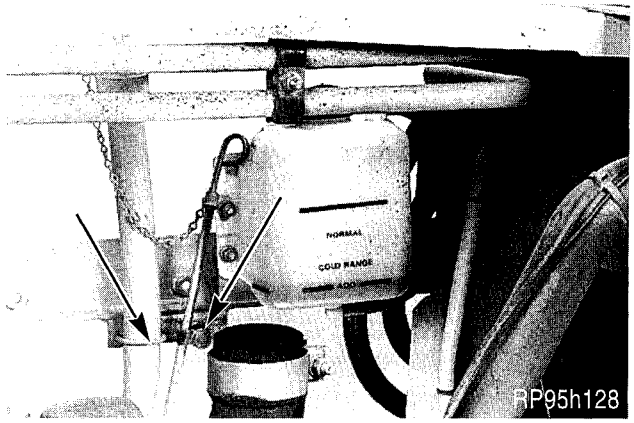
Install and tighten the bolt, nut and clamp for the hydraulic tubes to the lift cylinders.

STEP 103



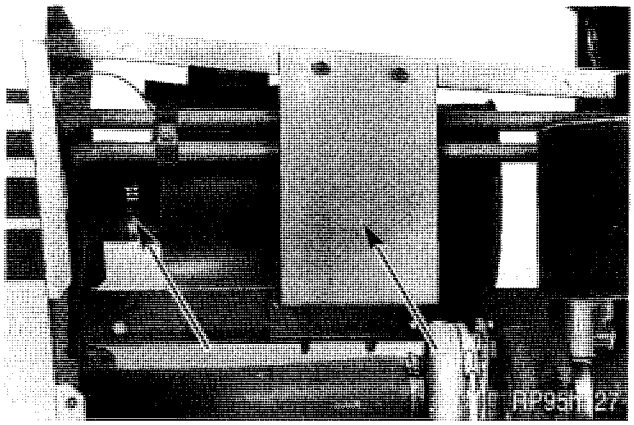
Install the LH side shield to hood mounting bracket and the radiator surge tank as an assembly. Install the center mounting bracket for the hood.

STEP 104



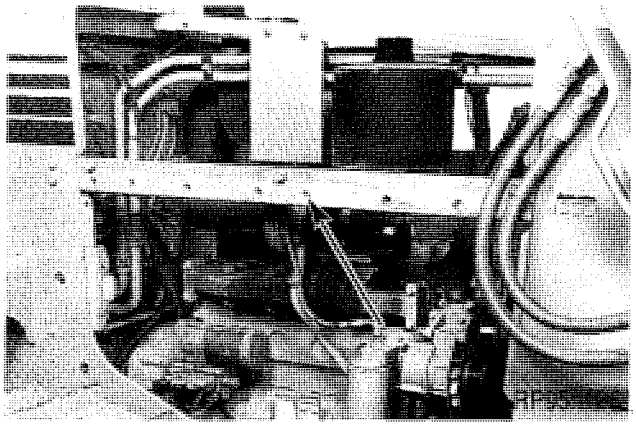
Install and tighten the U-bolt for the oil filler tube and the bolt in the clamp retaining the dipstick.

STEP 105



Install the air cleaner and mounting bracket and secure by tightening the bolts and nuts fastening the bracket to the hood mounting brackets. Install the hose from the air cleaner to the turbocharger and secure by tightening the hose clamps.

STEP 106

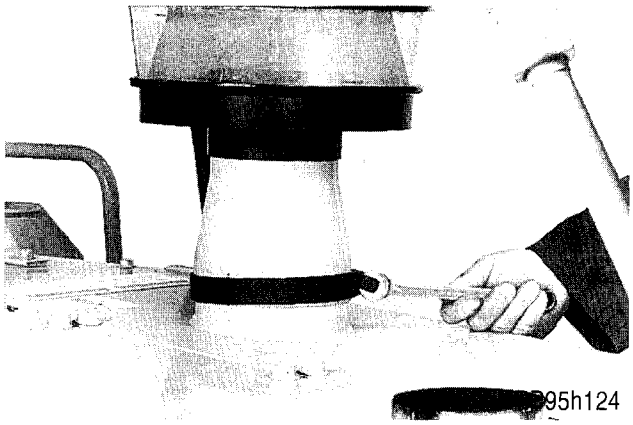


Install the RH side shield to hood mounting bracket.

STEP 107

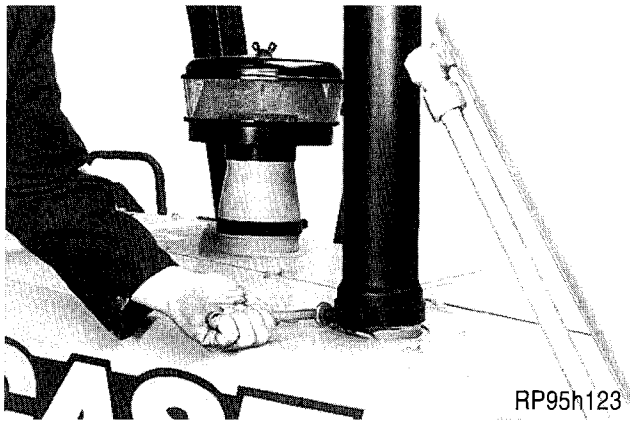
Install the LH and RH hood sections and tighten the cap screws securing the hood to the mounting brackets.

STEP 108



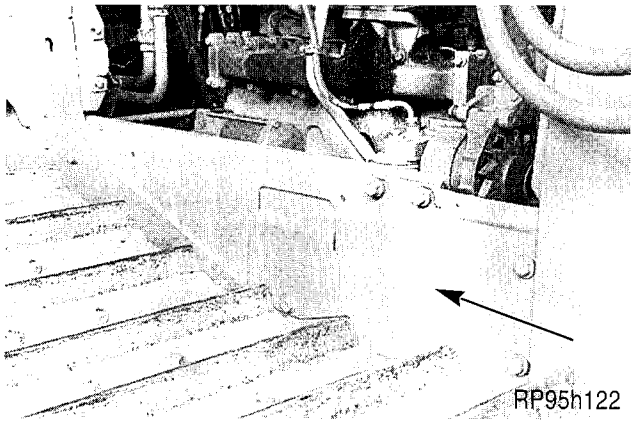
Install the inlet stack and precleaner for the air intake system and secure by tightening the clamp.

STEP 109



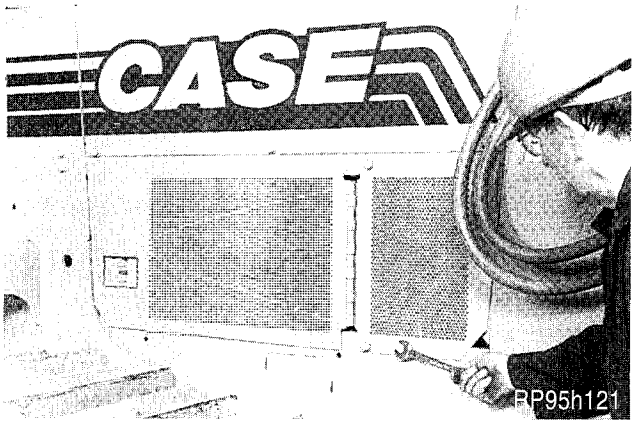
Install the exhaust pipe and secure by tightening the clamp.

STEP 110



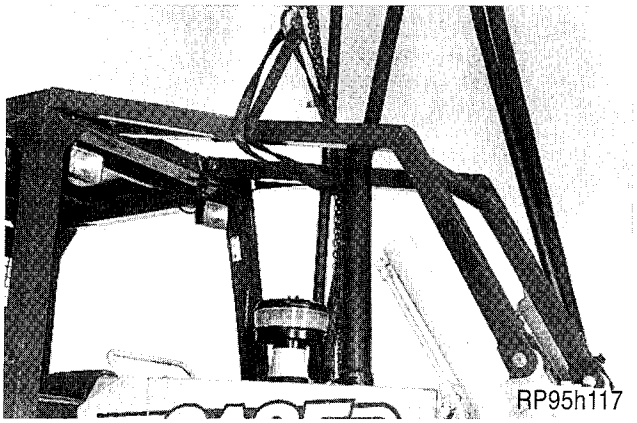
Install the right and left hand lower side shields for the engine compartment and secure by tightening the cap screws.

STEP 111



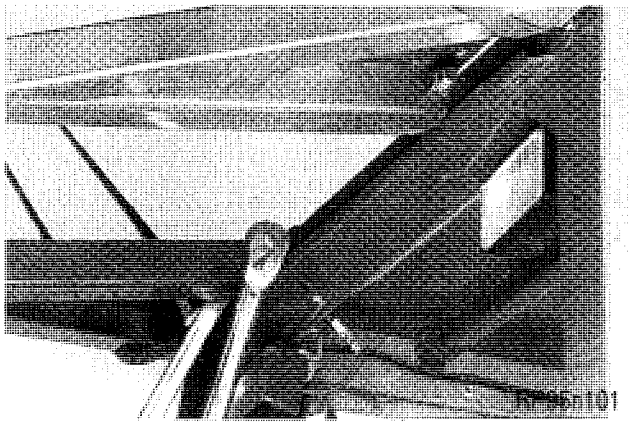
Install the right and left hand side screens for the engine compartment and secure by tightening the cap screws.

STEP 112



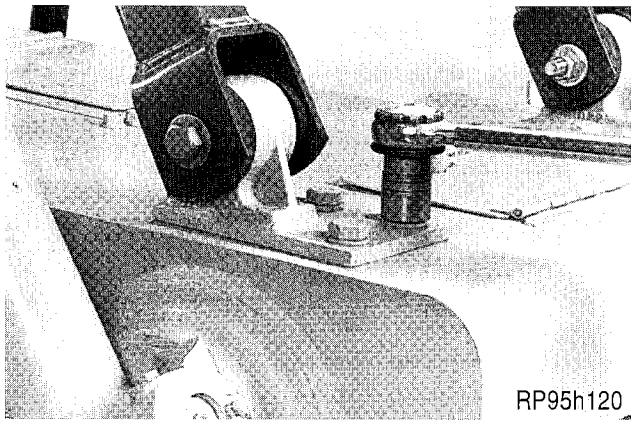
Attach a sling and overhead hoist to the brush guard and lift the guard into place.

STEP 113



Install the bolts and nuts attaching the brush guard to the ROPS and tighten to a torque of 580 to 680 foot pounds (790 to 921 Nm).

STEP 114



Install the three bolts and nuts on each side securing the brush guard mounts to the radiator shroud and tighten to a torque of 190 to 210 foot pounds (258 to 285 Nm).

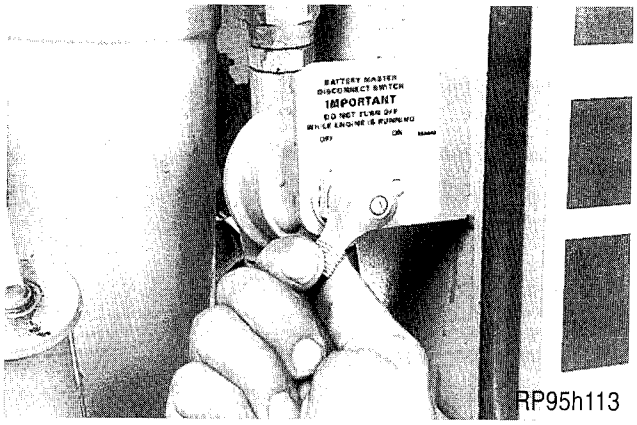
STEP 115

1. Fill the radiator and cooling system with coolant as specified in Section 1002.

2. Fill the transmission sump with the transmission fluid as specified in Section 1002.

3. Check the hydraulic system reservoir is filled to the correct level with fluid specified in Section 1002.

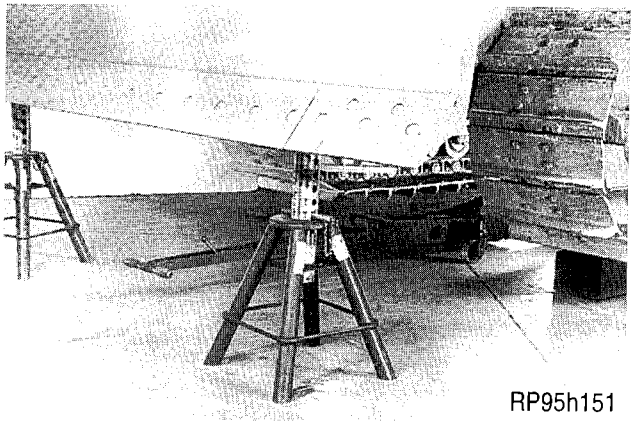
STEP 116



RP95h113

Turn the master disconnect switch for the battery to the ON position.

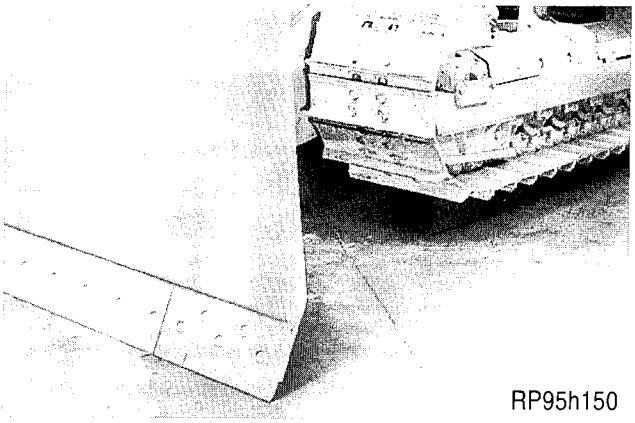
STEP 117



RP95h151

Raise and block the dozer blade up. Use a floor jack to support the undercarriage guards and secure the guards by tightening the cap screws.

STEP 118

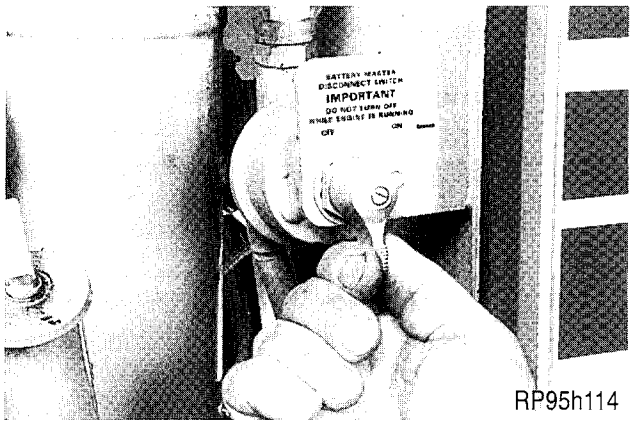


RP95h150

Remove the blocking from under the dozer blade and lower the dozer blade to the floor.

RADIATOR REMOVAL

STEP 119

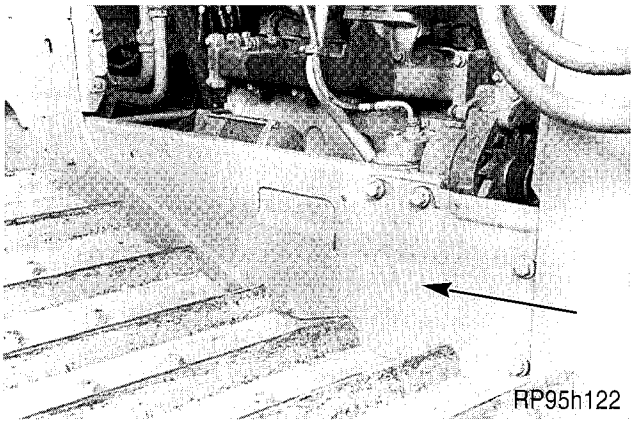


Turn the master disconnect switch for the battery to the OFF position.

STEP 120

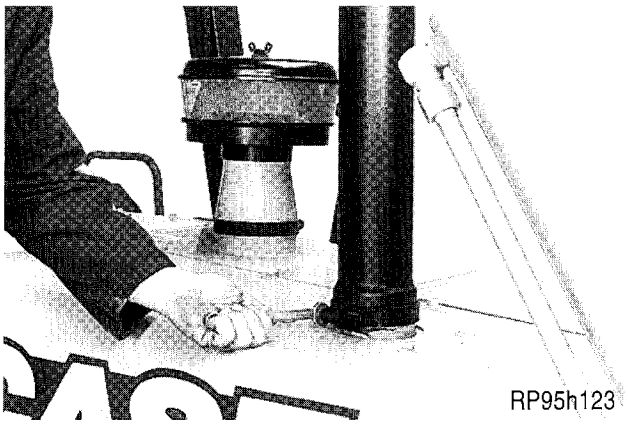
Remove the right and left hand side screens for the engine compartment.

STEP 121



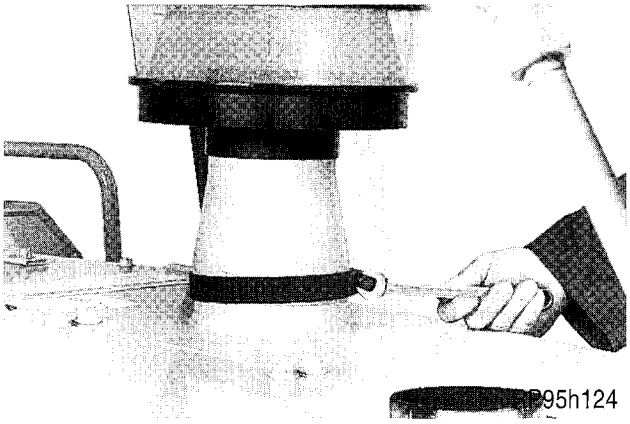
Remove the right and left hand lower side shields for the engine compartment.

STEP 122



Loosen the clamp holding the exhaust pipe and remove the exhaust pipe.

STEP 123

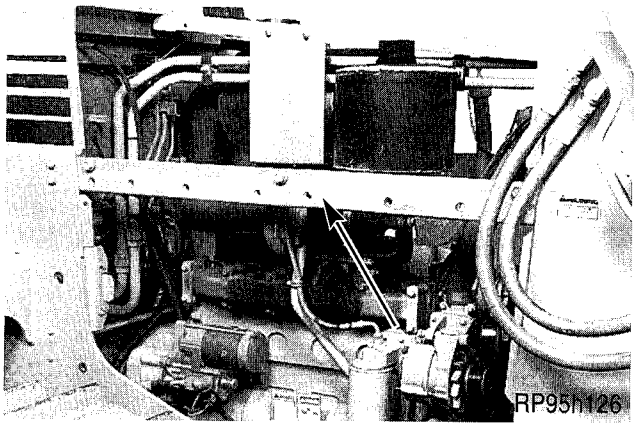


Loosen the clamp holding the inlet stack and precleaner for the air intake and remove the inlet stack.

STEP 124

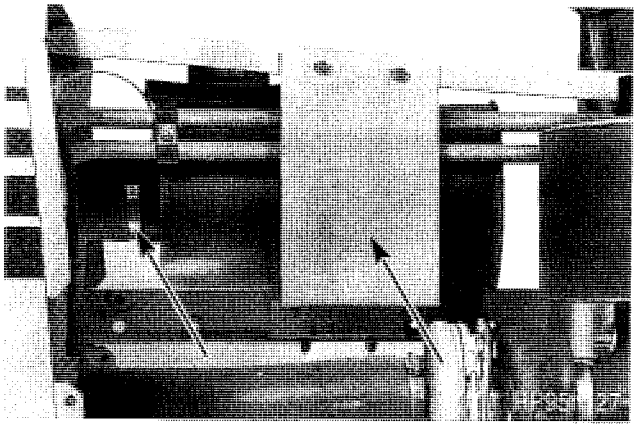
Only loosen the lower cap screws on each side and remove the cap screws from the top side of the hood. Remove the right and left hand hood sections.

STEP 125



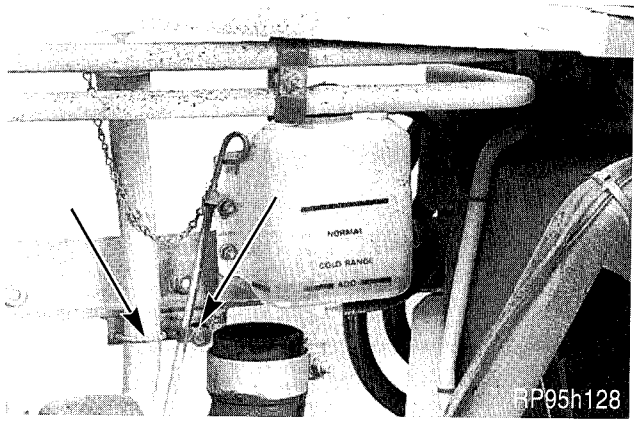
Remove the RH side shield to hood mounting bracket.

STEP 126



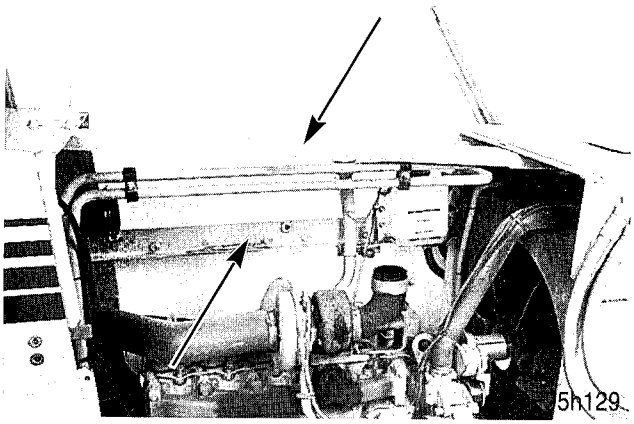
Loosen the hose clamp for the air cleaner outlet and remove the hose. Remove the mounting bracket and air cleaner as an assembly.

STEP 127



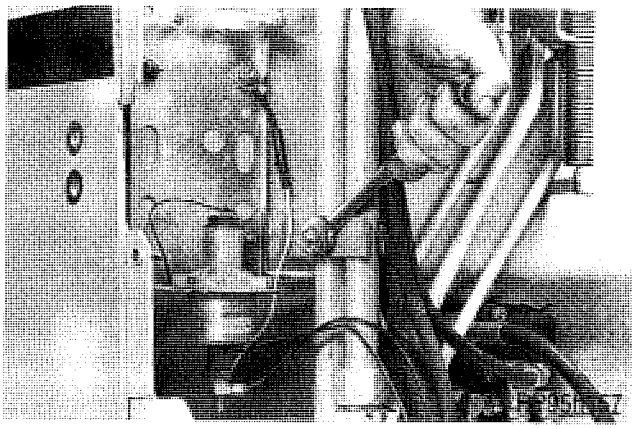
Loosen and remove the U-bolt for the for the oil filler tube and the bolt in the clamp for the dipstick.

STEP 128



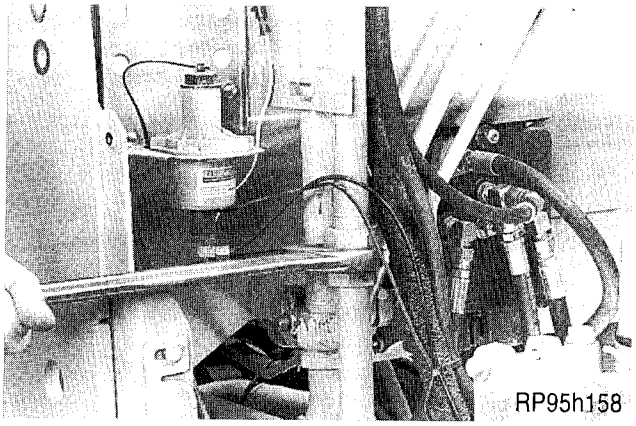
Remove the LH side shield to hood mounting bracket and the radiator surge tank as an assembly. Remove the center mounting bracket for the hood.

STEP 129



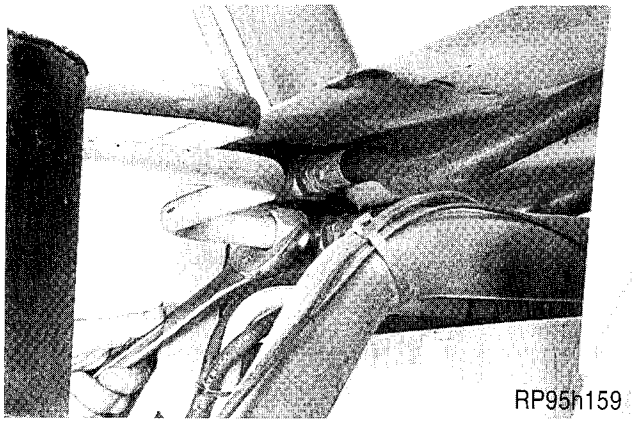
Remove the bolt, nut and clamp for the hydraulic tubes to the lift cylinders.

STEP 130



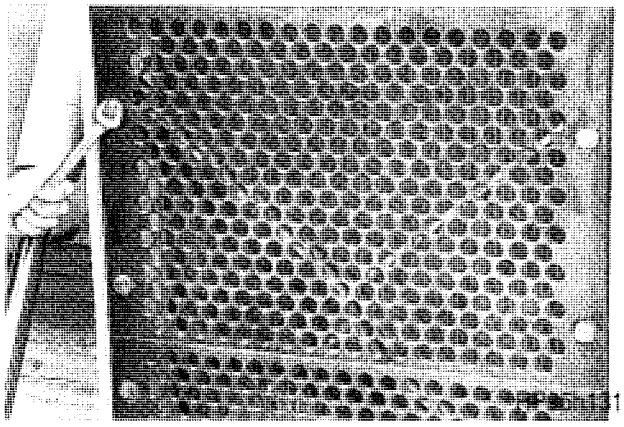
Loosen and disconnect the two hydraulic tubes to the lift cylinders at the connection behind the engine. Make sure to plug and cap the fittings on the tubes.

STEP 131



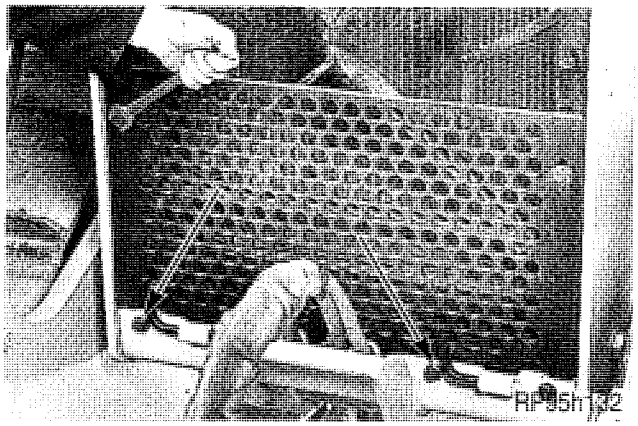
Loosen and disconnect the two hydraulic tubes to the lift cylinders at the tees above the radiator. Remove the two tubes from over the top of the engine. Make sure to plug and cap the fittings on the tubes and tees.

STEP 132



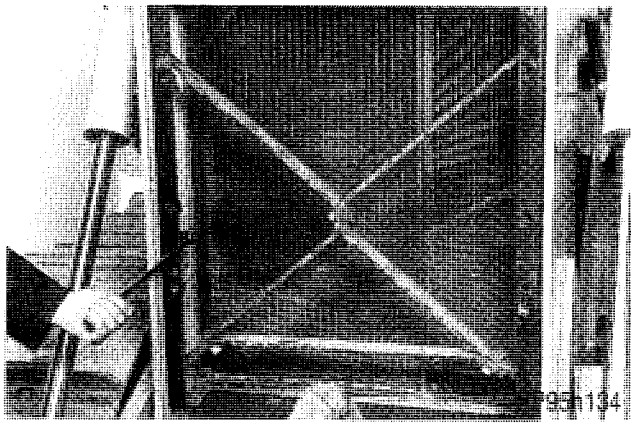
Remove the cap screws retaining the upper grille and remove the grille.

STEP 133



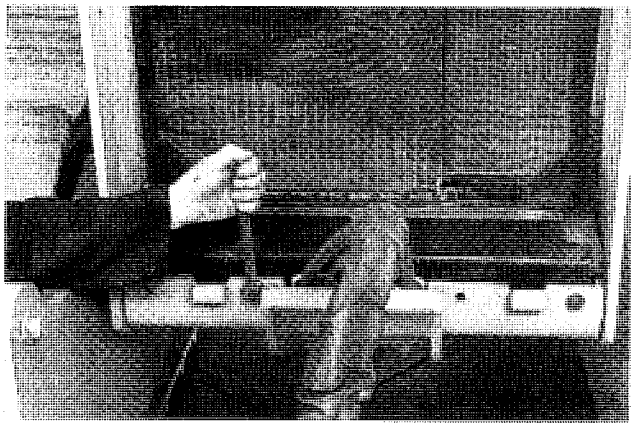
Remove two cap screws in the mainframe to clear the hinge for the lower grille. Remove the two cap screws retaining the lower grille and remove the grille.

STEP 134



Remove both the LH and RH mounting brackets for the grille and the X support brace.

STEP 135

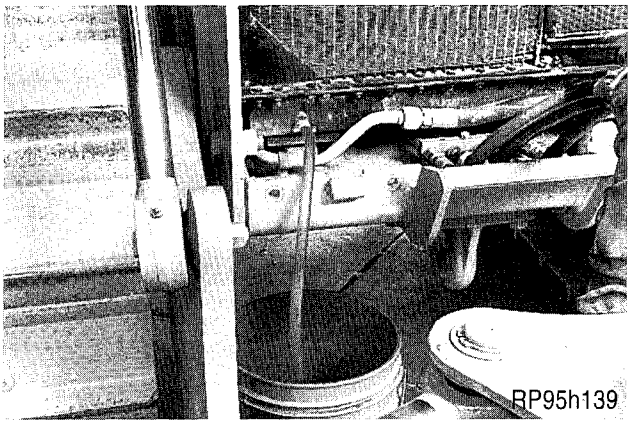


Remove the two cap screws still retaining the lower baffle panel for the radiator and remove the baffle panel.

STEP 136

Remove the upper baffle panel for the radiator.

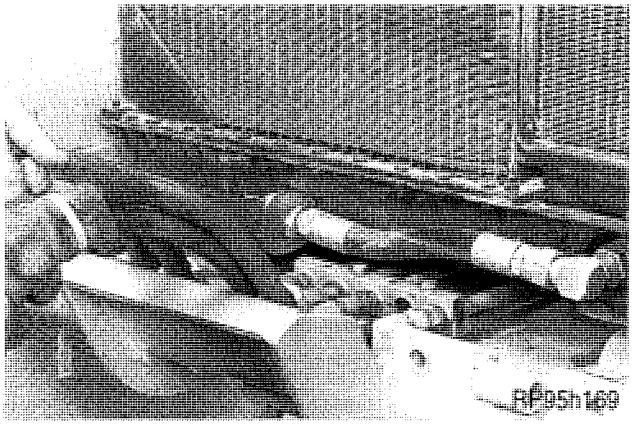
STEP 137



Drain the coolant from the radiator into a clean bucket.

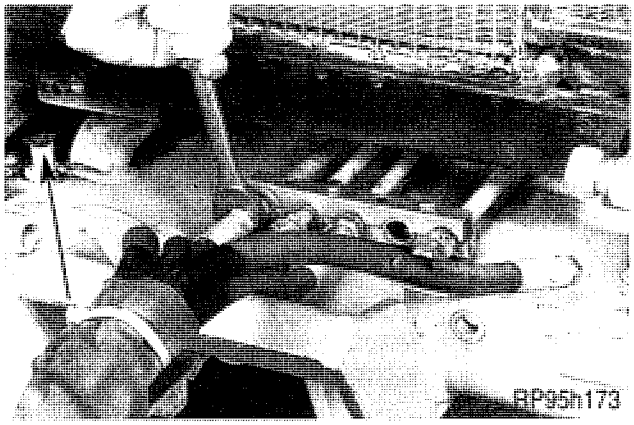
> **WARNING:** *When handling lubricants (oil, grease, etc.) and other chemical products, always follow the instructions for their proper use. Use proper containers to collect the fluid. Dispose of fluids and filters in a way that will protect the environment and in accordance with the laws. DO NOT smoke or use an open flame during the servicing procedure. Use eye protection.* SM475

STEP 138



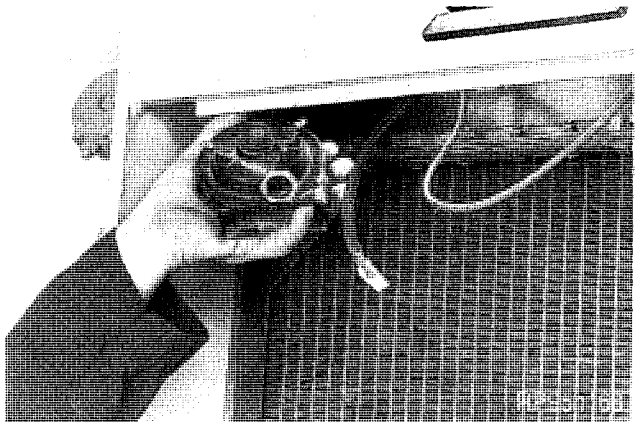
Disconnect and remove the hose from the outlet of the cooler for the transmission fluid. Make sure to plug and cap the tube and cooler fittings.

STEP 139



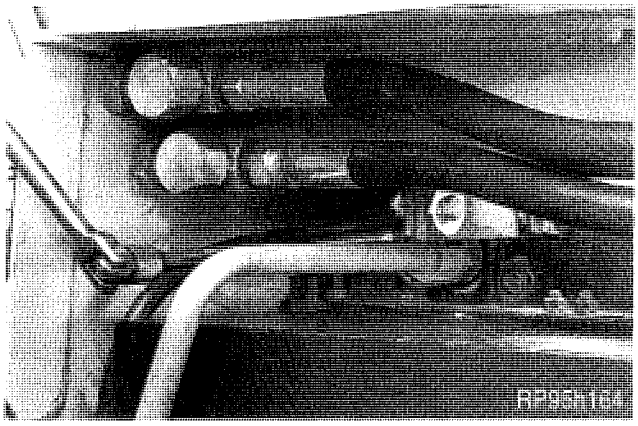
Remove the cap screw securing the clamp on the tube from the oil cooler and move the tube against the main frame. Disconnect the four hoses to the dozer blade cylinders and make sure to plug and cap the hoses and tubes. Move the hoses down toward the dozer blade.

STEP 140



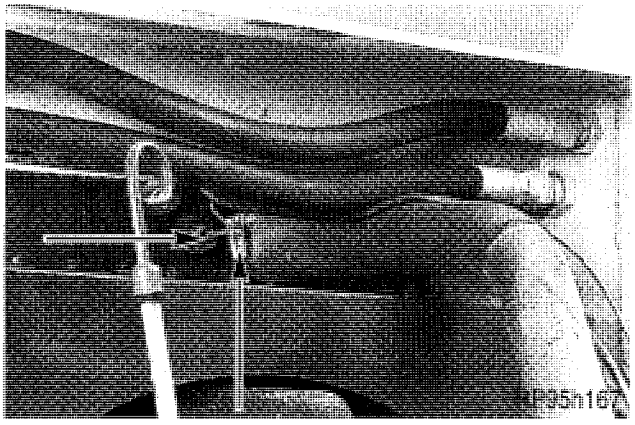
Remove both the LH and RH horns, if equipped.

STEP 141



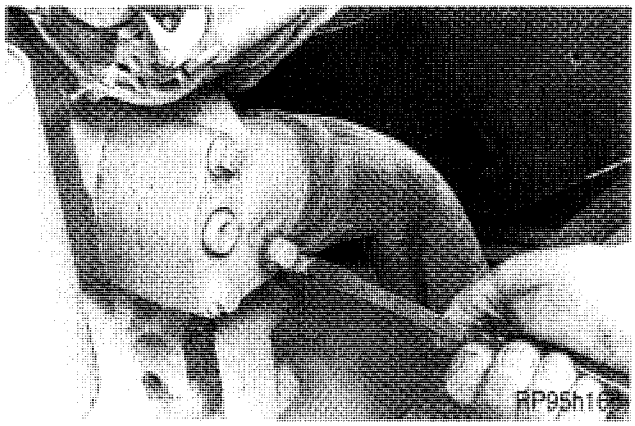
Use a tubing wrench to disconnect the tube to the inlet of the cooler for the transmission fluid. Make sure to plug and cap the fittings.

STEP 142



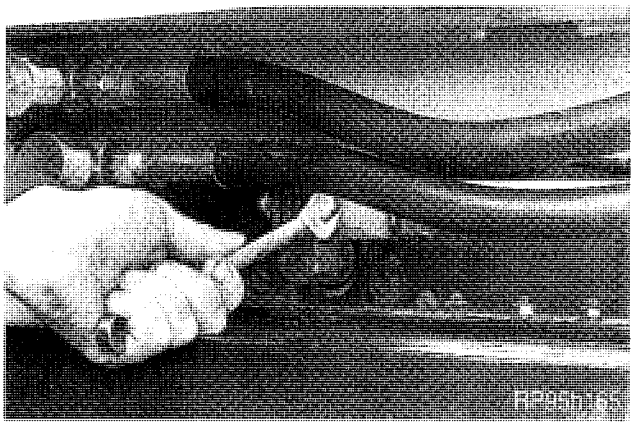
Disconnect the wire harness from the coolant level indicator. Loosen the clamp on the top radiator hose and remove the hose from the radiator and the engine thermostat housing.

STEP 143



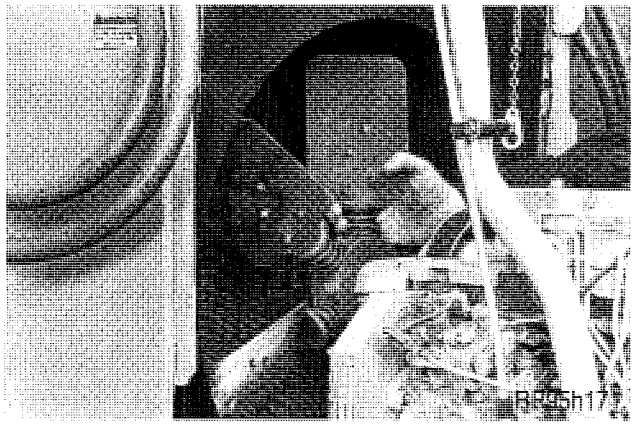
Loosen the hose clamp on the bottom radiator hose and remove the hose from the coolant inlet to the engine.

STEP 144



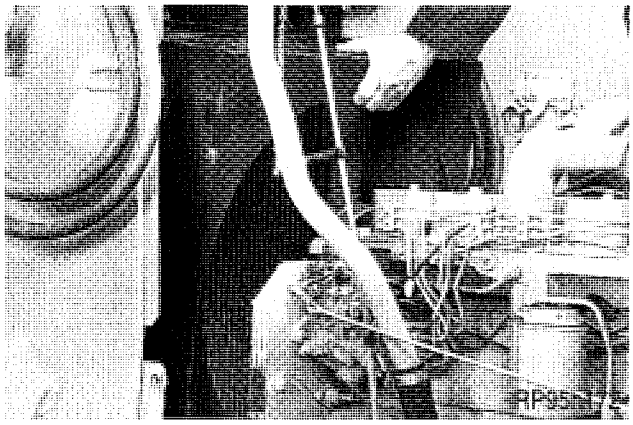
Remove the bolt, nut and washer securing the top radiator mounting straps on both sides to the radiator shroud.

STEP 145



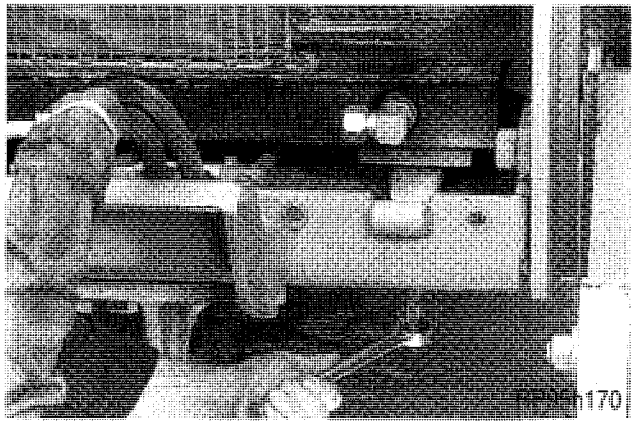
Remove the fan from the pulley on the engine.

STEP 146



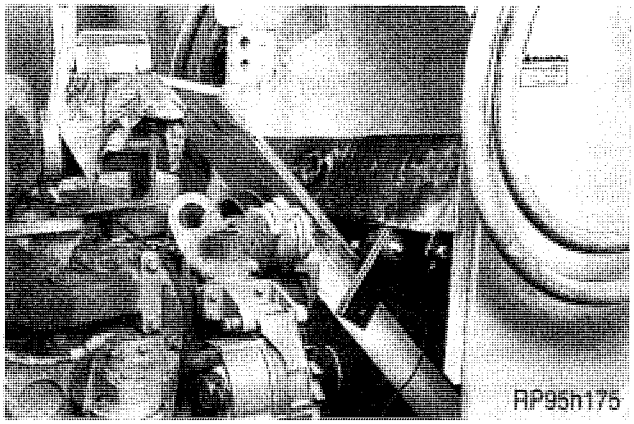
Remove the fan shroud from the radiator.

STEP 147



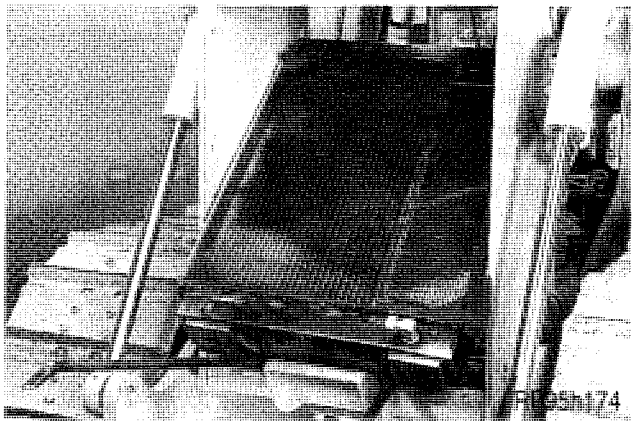
Remove the two bolts from the two bottom mounts for the radiator.

STEP 148



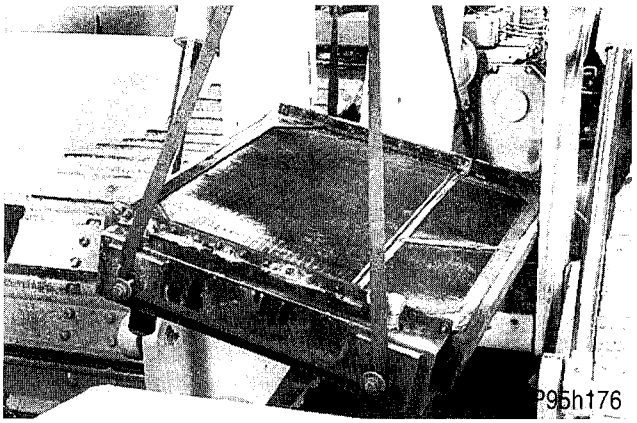
Place an board down in front of the engine to protect the radiator from damage to the core and fins. Tip the top of the radiator back toward the engine until the radiator is resting on the board.

STEP 149



Have another person use two pry bars under each front corner of the radiator. Slide the radiator down the board and on the pry bars to a horizontal position.

STEP 150



Attach a sling to the radiator and to an overhead hoist. Remove the radiator from the machine.

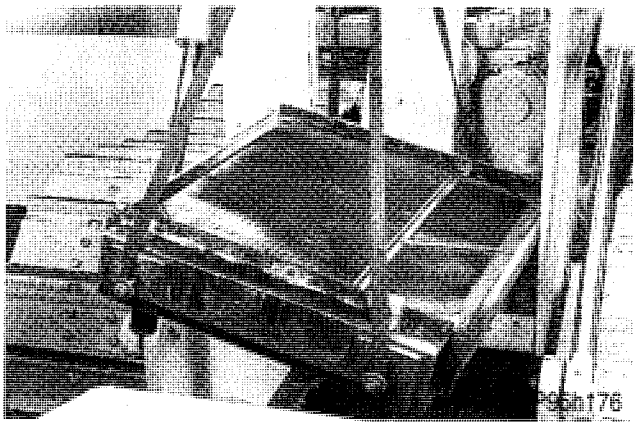
STEP 151

Test and repair the radiator or transmission oil cooler as required.

NOTE: *The cooler for the transmission fluid can be replaced without disturbing the radiator core.*

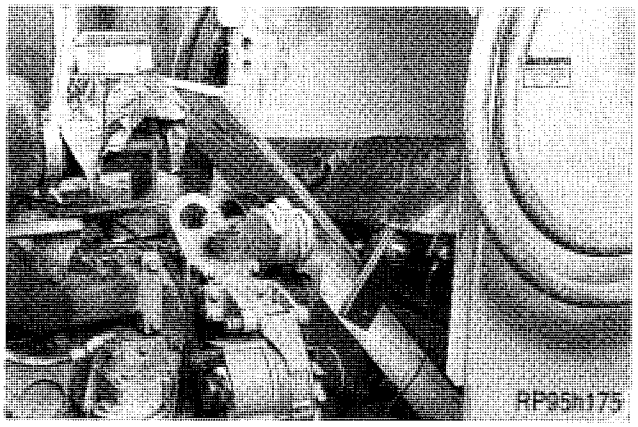
RADIATOR INSTALLATION

STEP 152



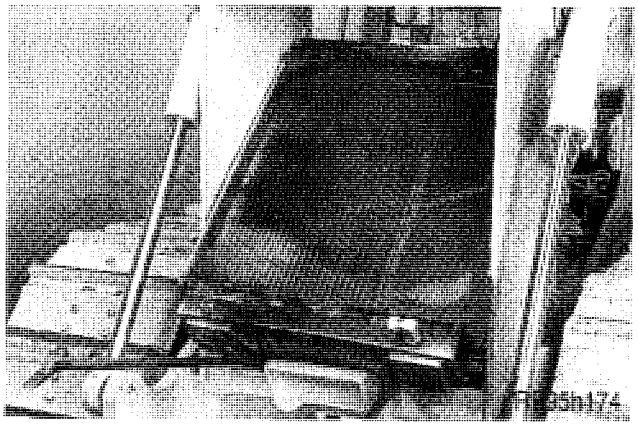
Attach a sling to the radiator and to an overhead hoist. Lift the radiator into the shroud of the machine. Place a board down in front of the engine to prevent damage to the radiator core and fins.

STEP 153



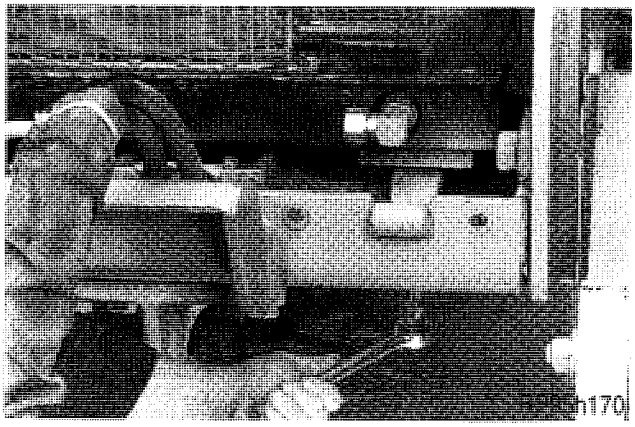
Rest the top of the radiator on the board and remove the slings.

STEP 154



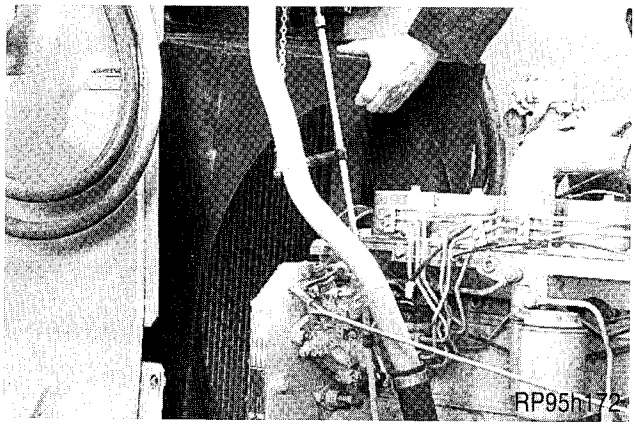
Have another person use pry bars under each front corner of the bottom of the radiator and slide the radiator up the board and into place.

STEP 155



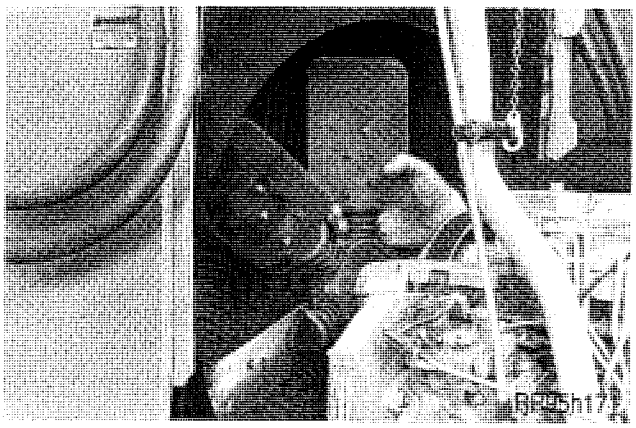
Install and tighten the two bolts and washers that secure the bottom mounts for the radiator.

STEP 156



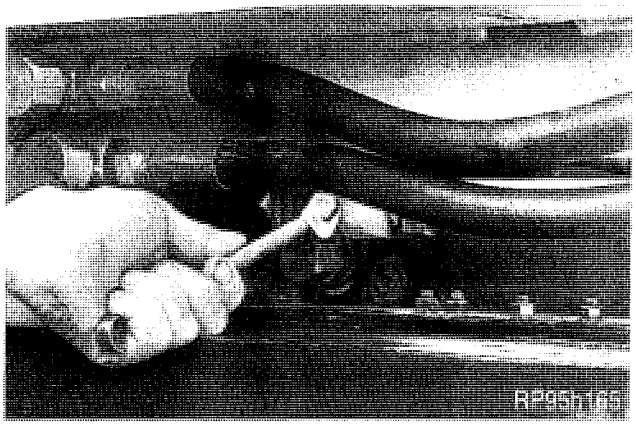
Install the fan shroud on the radiator.

STEP 157



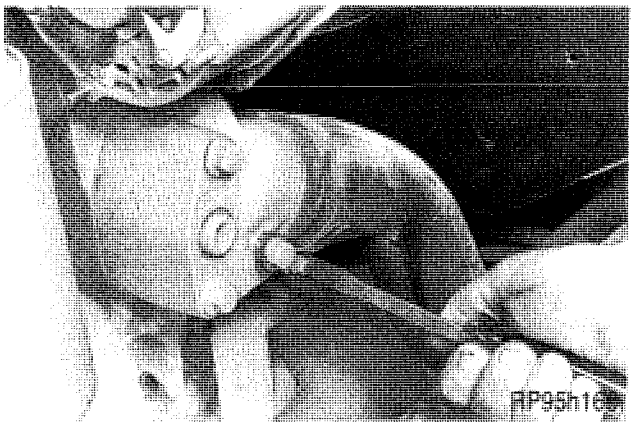
Install the fan onto the pulley on the engine.

STEP 158



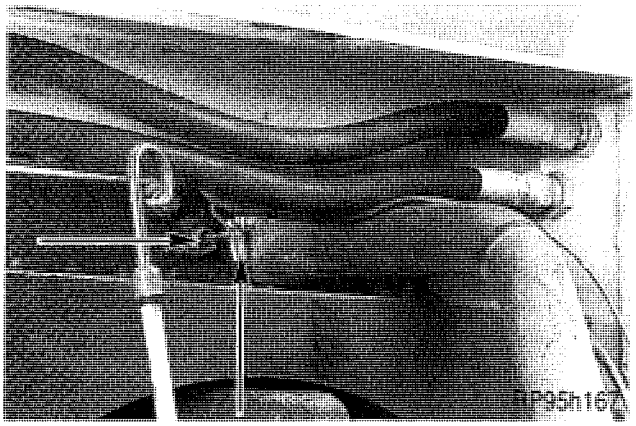
Install and tighten the bolts, nuts and washers for top radiator mounting straps to the radiator shroud on both sides.

STEP 159



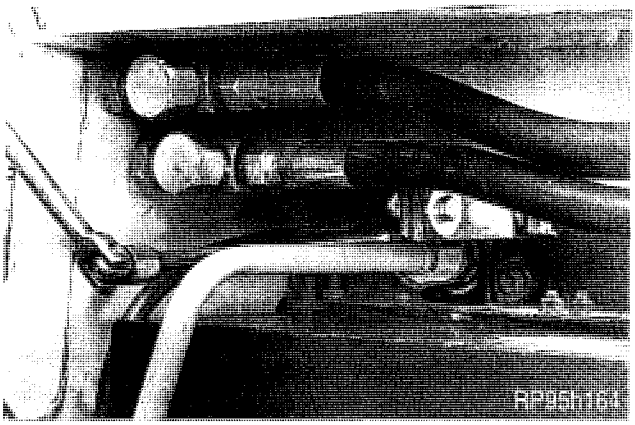
Install the bottom radiator hose onto the coolant inlet to the engine and tighten the hose clamp securing the hose.

STEP 160



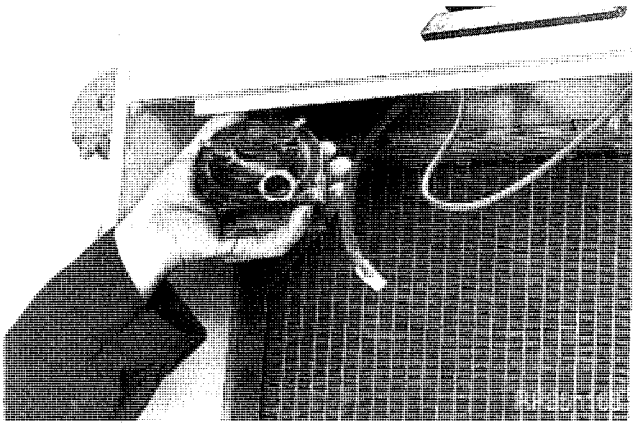
Install the top radiator hose and tighten the hose clamps to secure the hose. Connect the wire harness to the coolant level indicator.

STEP 161



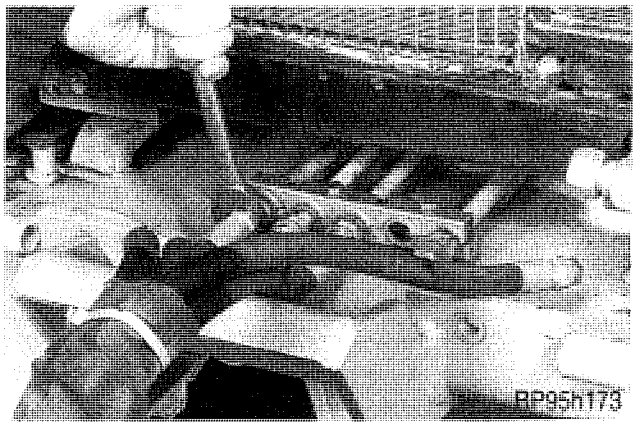
Connect the tube to the fitting at the inlet of the cooler for the transmission fluid and use a tubing wrench to tighten the fitting.

STEP 162



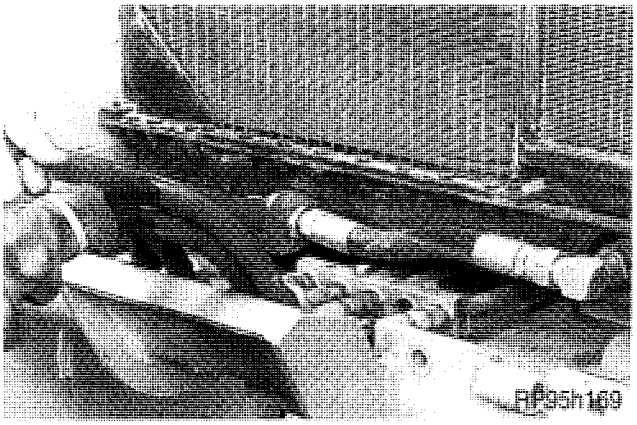
Install both the LH and RH horns, if equipped.

STEP 163



Connect and tighten the fittings for the four hoses to the dozer blade cylinders.

STEP 164

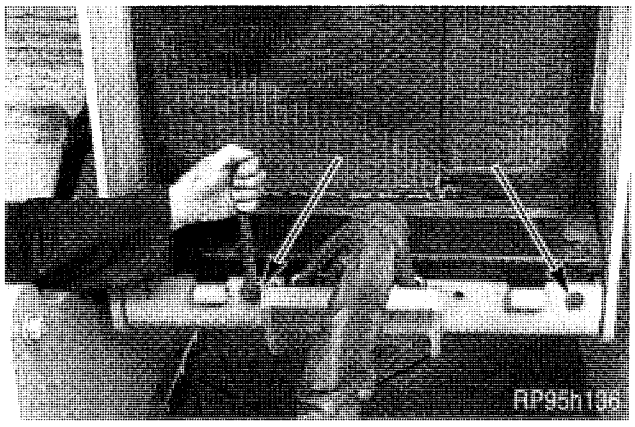


Install the hose from the outlet of the cooler for the transmission fluid to the tube and tighten the fittings. Install and tighten the cap screw securing the clamp on the tube.

STEP 165

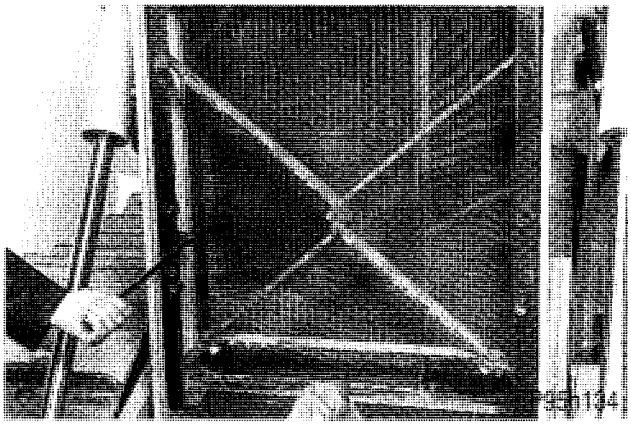
Install and secure the upper baffle panel and foam insulation for the radiator.

STEP 166



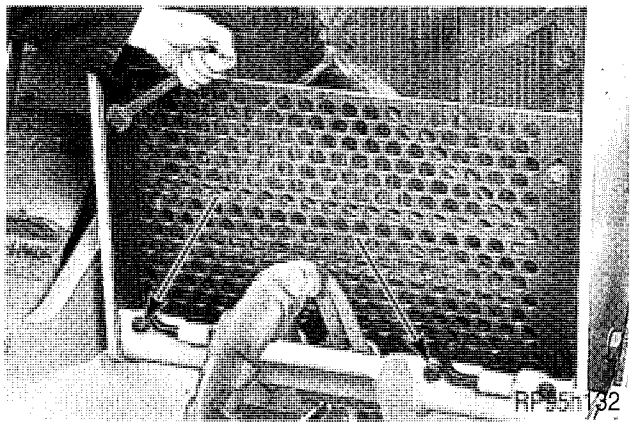
Install the lower baffle panel for the radiator and secure the baffle with the two cap screws as shown.

STEP 167



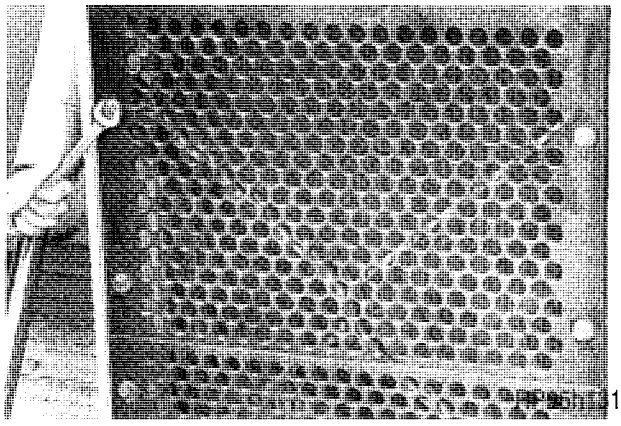
Install both the LH and RH mounting brackets for the grille and the X support brace.

STEP 168



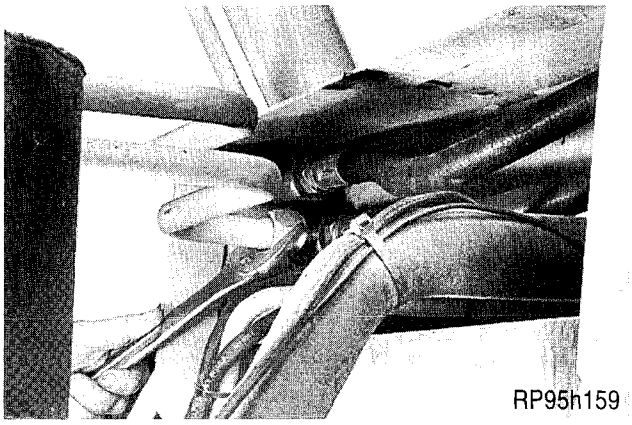
Install the lower grille and secure the grille with the two upper cap screws. Install and tighten the two cap screws that retain the lower baffle panel.

STEP 169



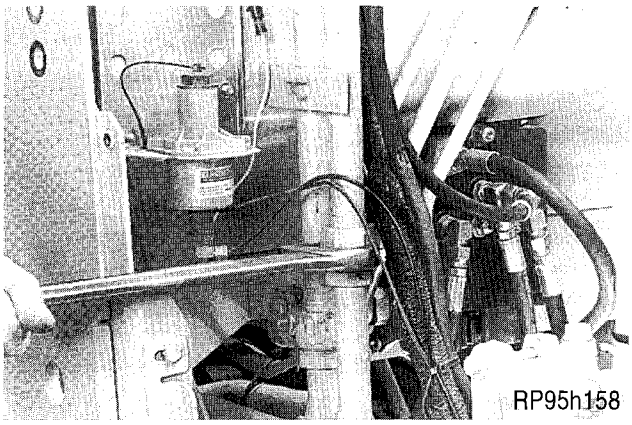
Install the upper grille and fasten in place by tightening the four cap screws.

STEP 170



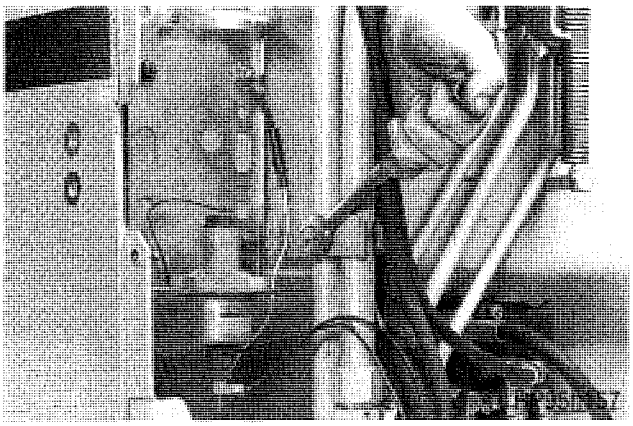
Connect the two hydraulic tubes to the tees to the lift cylinders in the shroud above the radiator and tighten the tube fittings.

STEP 171



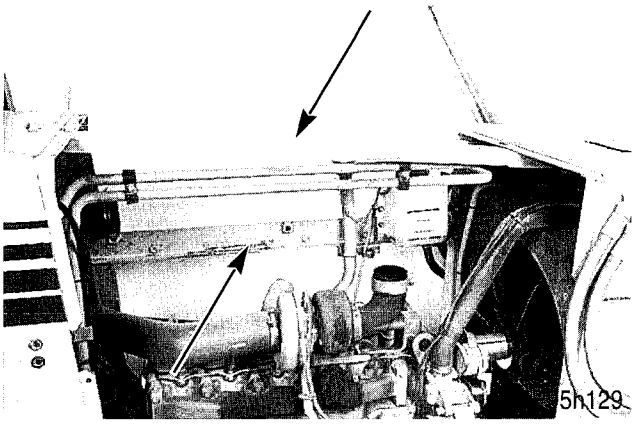
Connect the two hydraulic tube to the lift cylinders to the tubes from the control valve at the rear of the engine and tighten the tube fittings.

STEP 172



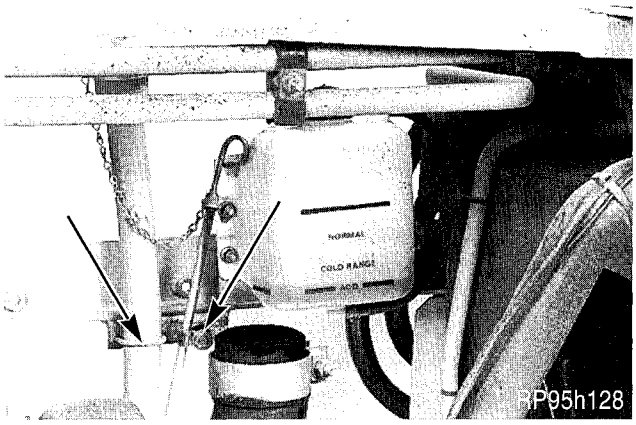
Install and tighten the bolt, nut and clamp for the hydraulic tubes to the lift cylinders.

STEP 173



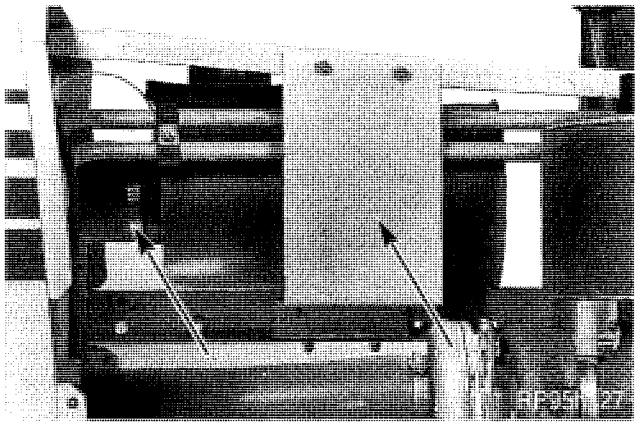
Install the LH side shield to hood mounting bracket and the radiator surge tank as an assembly. Install the center mounting bracket for the hood.

STEP 174



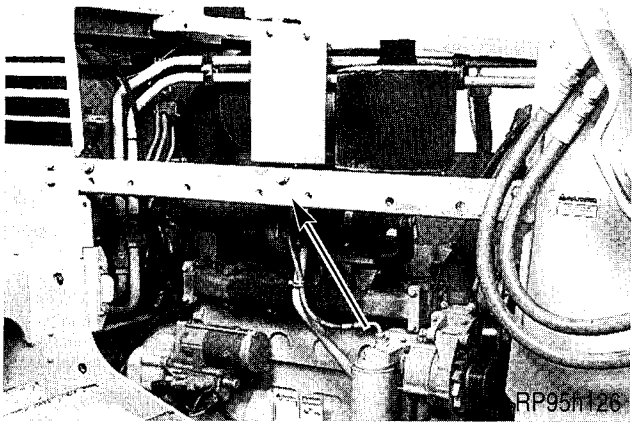
Install and tighten the U-bolt for the oil filler tube and the bolt in the clamp retaining the dipstick.

STEP 175



Install the air cleaner and mounting bracket and secure by tightening the bolts and nuts fastening the bracket to the hood mounting brackets. Install the hose from the air leaner to the turbocharger and secure by tightening the hose clamps.

STEP 176

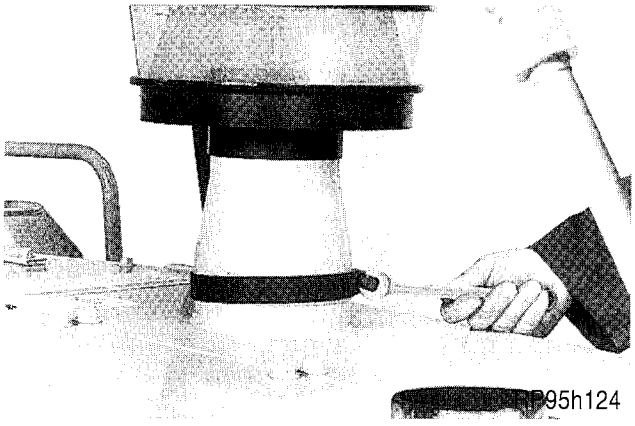


Install the RH side shield to hood mounting bracket.

STEP 177

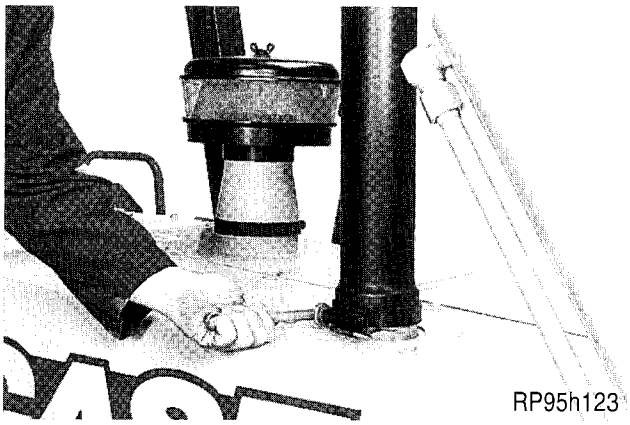
Install the LH and RH hood sections and tighten the cap screws securing the hood to the mounting brackets.

STEP 178



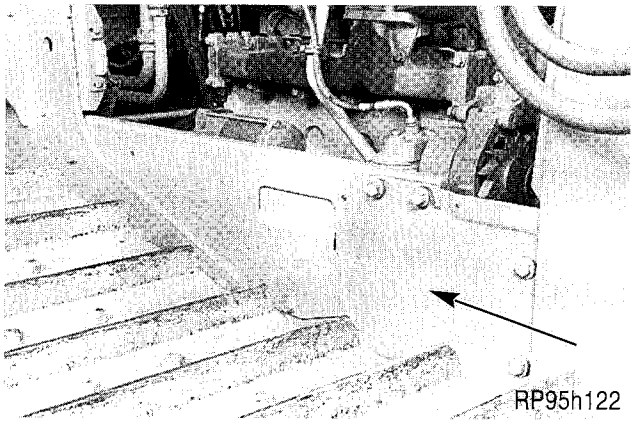
Install the inlet stack and precleaner for the air intake system and secure by tightening the clamp.

STEP 179



Install the exhaust pipe and secure by tightening the clamp.

STEP 180



Install the right and left hand lower side shields for the engine compartment and secure by tightening the cap screws.

STEP 181

Install the right and left hand side screens for the engine compartment and secure by tightening the cap screws.

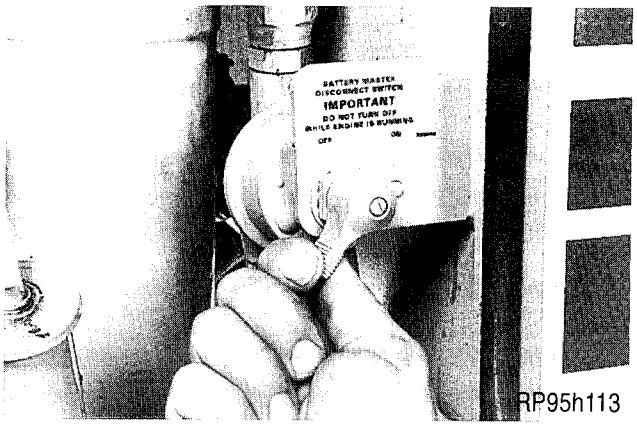
STEP 182

1. Fill the radiator and cooling system with coolant as specified in Section 1002.

2. Check the transmission sump is filled to the correct level with the transmission fluid as specified in Section 1002.

3. Check the hydraulic system reservoir is filled to the correct level with the fluid specified in Section 1002.

STEP 183



Turn the master disconnect switch for the battery to the ON position.