1150K
Crawler Dozer

Repair Manual

87364101

CE

CASE

1150K

CRAWLER

87364101

Use for Repair Manual

SECTION INDEX

GENERAL

CNH America LLC.
700 State Street
Racine, WI 53404 U.S.A.

Bur 5-4120

Issued February, 2007

Section
1001

GENERAL TORQUE SPECIFICATIONS

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Bur 8-71603

Issued April, 2003 Revised July, 2005

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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 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.*

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.

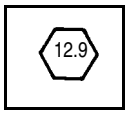
Grade 8.8 Bolts, Nuts, and Studs

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

37 Degree Flare Fitting			
Tube OD Hose ID	Thread Size	Pound-Inches	Newton metres
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-Feet	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

Straight Threads with O-ring			
Tube OD Hose ID	Thread Size	Pound-Inches	Newton metres
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-Feet	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

O-ring Face Seal End					O-ring Boss End Fitting or Lock Nut		
Nom. SAE Dash Size	Tube OD	Thread Size	Pound-Inches	Newton metres	Thread Size	Pound-Inches	Newton metres
-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-Feet	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-Feet	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			

Section 1002

FLUIDS AND LUBRICANTS

CNH America LLC.
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Bur 5-4130

Issued February, 2007

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CONVERSION FORMULAS

Imperial quart = litres x 0.879877

Imperial gallon = litres x 0.219969

CAPACITIES AND LUBRICANTS

Engine Oil
- Capacity with Filter Change ..... 16.4 Litres (17.3 U.S. Quarts)
- Capacity without Filter Change ..... 15.6 Litres (16.5 U.S. Quarts)
- Type of Oil ..... See Engine Oil Recommendations on page 4

Engine Cooling System
- Capacity without Heater ..... 32.47 Litres (8.6 U.S. Gallons)
- Type of Coolant ..... Ethylene glycol and water mixed for the lowest ambient temperature (at least 50/50 mix)

Fuel Tank
- Capacity ..... 246 Litres (65 U.S. Gallons)
- Type of Fuel ..... See Diesel Fuel Specifications on page 5

Transmission and Hydraulic System
- Hydraulic Reservoir Refill Capacity ..... 98.4 Litres (26 U.S. Gallons)
- Type of Oil ..... MS-1209, Hy-Tran® Ultra

Final Drives
- Capacity ..... 14.2 Litres (15 U.S. Quarts)
- Type of Lubricant ..... Case AKCELA 135H EP Gear Lubricant

Track Rollers
- Capacity ..... 450 mL (15.2 U.S. fluid ounces)
- Type of Lubricant ..... Case AKCELA 135H EP Gear Lubricant

Front Idlers
- Capacity ..... 460 mL (15.5 U.S. fluid ounces)
- Type of Lubricant ..... Case AKCELA 135H EP Gear Lubricant

Carrier Rollers
- Capacity ..... 290 mL (9.8 U.S. fluid ounces)
- Type of Lubricant ..... Case AKCELA 135H EP Gear Lubricant

CLT and CELT track pins
- Capacity ..... 28.1 mL (0.95 U.S. fluid ounces)
- Type of Lubricant ..... Case AKCELA 135H EP Gear Lubricant

CAB/ROPS Tilt System
- Reservoir Refill Capacity ..... 0.36 Litres (0.38 U.S. Quarts)
- Type of Oil ..... Case AKCELA MS-1209, Hy-Tran® Ultra

ENVIRONMENT

Before you service this machine and dispose of oil, fluids and lubricants, always remember the environment. Do not put oil or fluids into the ground or into containers that can leak. Check with your local environmental, recycling center or your Case dealer for correct disposal information.

NOTE: *See operators manual and equipment lubrication chart for service intervals.*

ENGINE OIL RECOMMENDATIONS

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

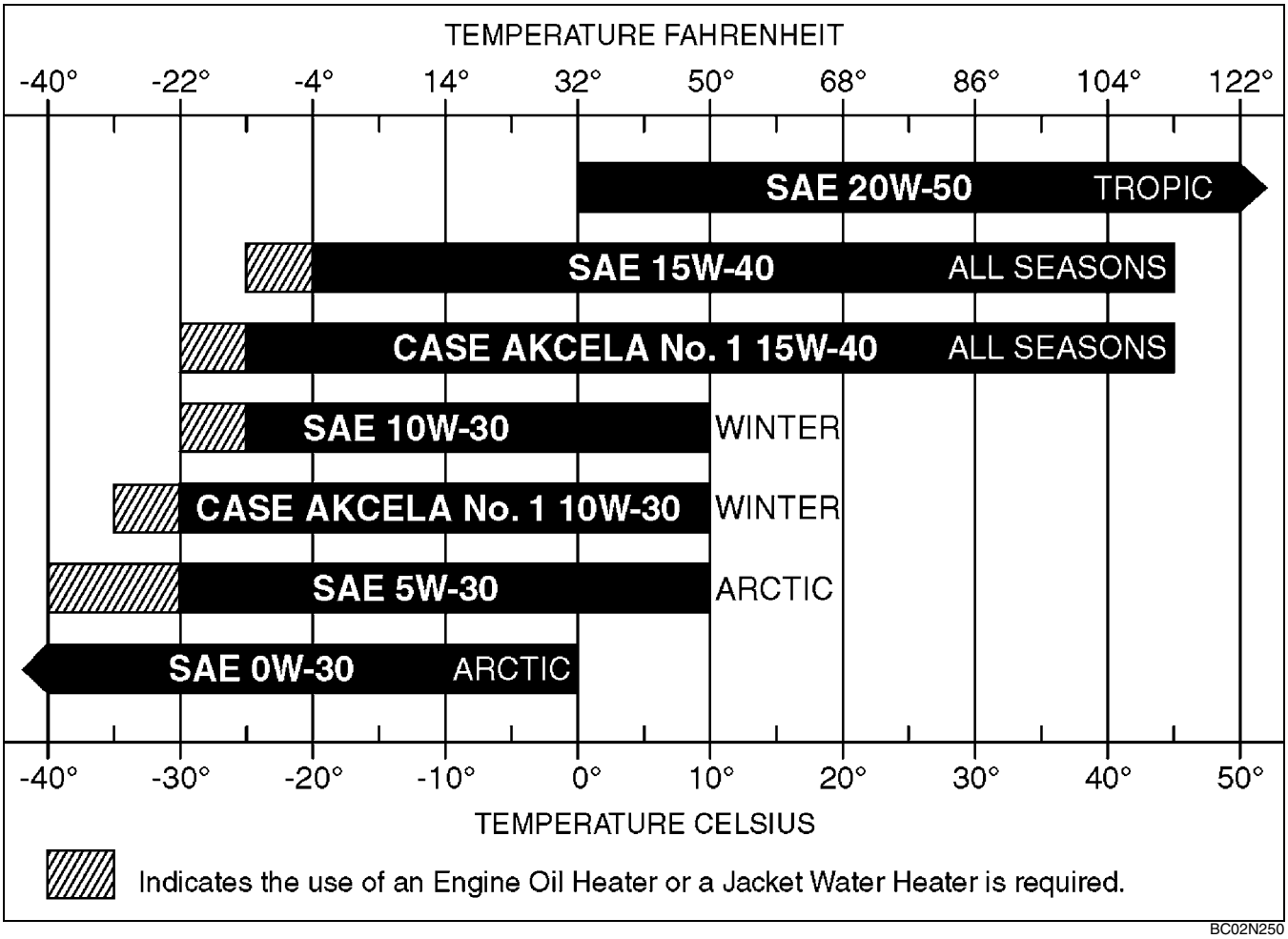
If Case AKCELA No. 1 Multi-Viscosity Oil is not available, use only oil meeting API engine oil service category CH-4 (preferred) or CG-4.

BD03A102

RH99K130

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 AKCELA lubricants.*



BC02N250

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 is 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 intervals.

Specifications for Acceptable No. 2 Diesel Fuel

API gravity, minimum	34
Flash point, minimum	60° C (140° F)
Cloud point (wax appearance point), maximum	-20° C (-5° F) See Note above
Pour point, maximum	-26° C (-15° F) See Note above
Viscosity, at 88° C (100° F)	
Centistokes	2.0 to 4.3
Saybolt Seconds Universal	32 to 40

NOTES

Section
1003

METRIC CONVERSION CHART

CASE, LLC.
700 State Street
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Bur 7-52590

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Issued April, 2003

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CONVERSION FACTORS

Metric to U.S.

	MULTIPLY	BY	TO OBTAIN
Area:	sq. meter hectare	10.763 91 2.471 05	square foot acre
Force:	newton newton	3.596 942 0.224 809	ounce force pound force
Length:	millimeter meter kilometer	0.039 370 3.280 840 0.621 371	inch foot mile
Mass:	kilogram	2.204 622	pound
Mass/Area:	kilogram/hectare	0.000 466	ton/acre
Mass/Energy:	gr/kW/hr.	0.001 644	lbs/hp/hr.
Mass/Volume:	kg/cubic meter	1.685 555	lb/cubic yd.
Power:	kilowatt	1.341 02	horsepower
Pressure:	kilopascal bar	0.145 038 14.50385	lb/sq. inch lb/sq. inch
Temperature:	degree C	1.8 x C +32	degree F
Torque:	newton meter newton meter	8.850 748 0.737 562	lb/inch lb/foot
Velocity:	kilometer/hr.	0.621 371	miles/hr.
Volume:	cubic centimeter cubic meter cubic meter milliliter litre litre litre litre	0.061 024 35.314 66 1.307 950 0.033 814 1.056 814 0.879 877 0.264 172 0.219 969	cubic inch cubic foot cubic yd. ounce (US fluid) quart (US liquid) quart (Imperial) gallon (US liquid) gallon (Imperial)
Volume/Time:	litre/min. litre/min.	0.264 172 0.219 969	gallon/min. (US liquid) gallon/min. (Imperial)

U.S. to Metric

	MULTIPLY	BY	TO OBTAIN
Area:	square foot acre	0.092 903 0.404 686	square meter hectare
Force:	ounce force pound force	0.278 014 4.448 222	newton newton
Length:	inch foot mile	25.4 * 0.304 8 * 1.609 344 *	millimeter meter kilometer
Mass:	pound ounce	0.453 592 28.35	kilogram gram
Mass/Area:	ton/acre	2241 702	kilogram/hectare
Mass/Energy:	lb/hp/hr	608.277 4	gr/kW/hr
Mass/Volume:	lb/cubic yd.	0.593 276	kg/cubic meter
Power:	horsepower	0.745 700	kilowatt
Pressure:	lbs/sq. in. lbs/sq. in. lbs/sq. in.	6.894 757 0.069 0.070 303	kilopascal bar kg/sq. cm
Temperature:	degree F	1.8 F - 32	degree C
Torque:	pound/inch pound/foot	0.112 985 1.355 818	newton meter newton meter
Velocity:	miles/hr.	1.609 344 *	kilometer/hr.
Volume:	cubic inch cubic foot cubic yard ounce (US fluid) quart (US liquid) quart (Imperial) gallon (US) gallons (Imperial)	16.387 06 0.028 317 0.764.555 29.573 53 0.946 353 1.136 523 3.785 412 4.546 092	cubic centimeter cubic meter cubic meter milliliter litre litre litre litre
Volume/Time:	gallon/min.	3.785 412	litre/min.

* = exact

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ENGINE

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Section
2000

ENGINE AND RADIATOR REMOVAL AND INSTALLATION

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Bur 5-4150

Issued February, 2007

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SPECIFICATIONS

Torques

Engine mount bolts	205 to 230 Nm (151 to 170 pound-feet)
Radiator mount bolts	68 to 82 Nm (50 to 60 pound-feet)
Drive shaft to flywheel mount bolts	335 to 375 Nm (245 to 275 pound-feet)

RADIATOR

Removal

STEP 1

Park the machine on a level surface. Lower the blade to the floor and stop the engine.

STEP 2

Put the master disconnect switch in the OFF position.

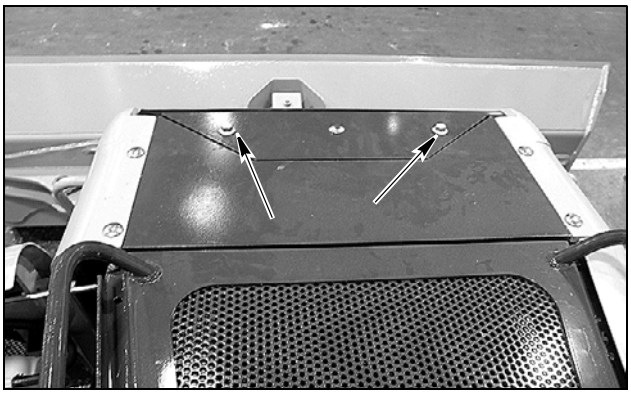
STEP 3

Open and remove the engine side panels.

STEP 4

Make sure the engine is cool and slowly remove the radiator cap. Attach a hose to the drain cock and drain the radiator into a suitable container.

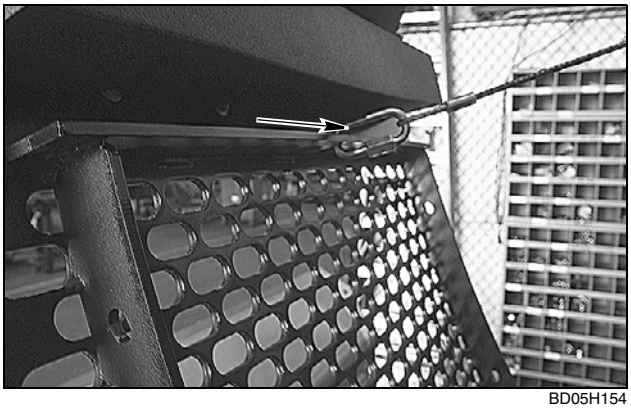
STEP 5



BD05H158

Remove the two bolts securing the grille. Lower the grille.

STEP 6



BD05H154

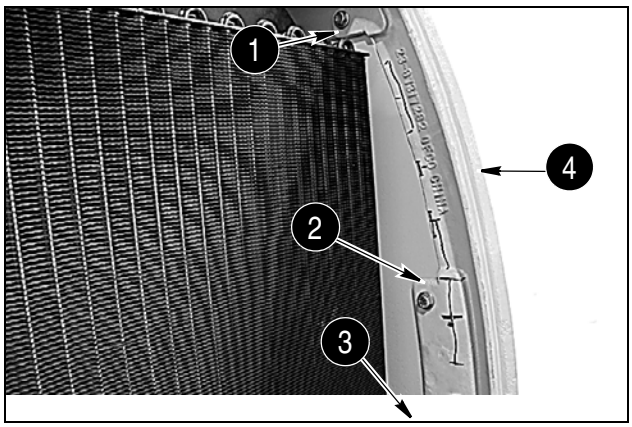
Connect suitable lifting equipment to the grille. Raise the grille to get slack in the cable. Disconnect the hook from the grille.

STEP 7

BD05H153

Lower the grille to gain access to the three bolts securing the grille hinge to the machine. Loosen the three bolts. Raise the grille and remove the three bolts. Remove the grille from the machine.

STEP 8



BD05H152

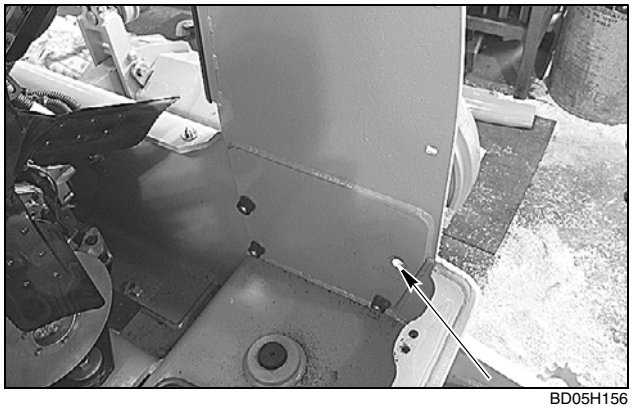
NOTE: *Have another person assist you, the plates are heavy and have no lifting point.*

Remove the upper mount bolt (1), the middle mount bolt (2), the step up handle on the side you are working, the lower bolt (3 not shown) and the radiator front wrap plate (4). Repeat the procedure for the opposite side.

STEP 9

Remove the horn and place on the back side of the radiator.

STEP 10



BD05H156

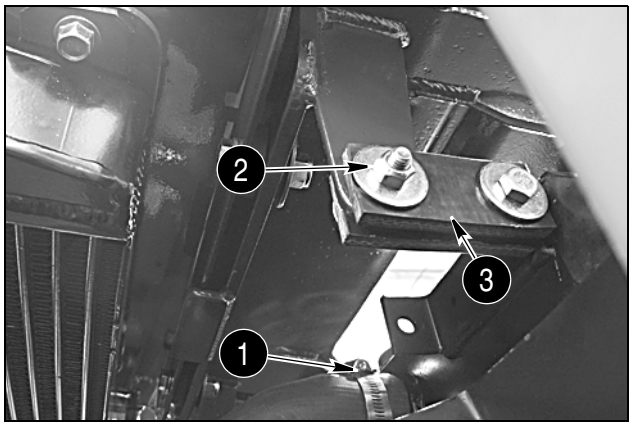
Remove the nuts from the two lower radiator wrap mounting bolts, remove the bolts so the radiator will have clearance during removal.

NOTE: *Radiator is shown removed for clarity only.*

STEP 11

Disconnect and remove the coolant recover hose.

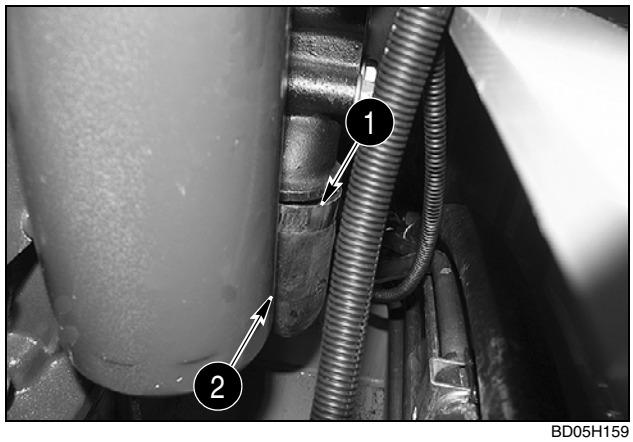
STEP 12



BD05H151

Loosen the clamp (1) and disconnect the radiator hose. Remove the bolt (2) and two washers securing the mounting straps (3) to the machine. Remove the bolt and washers from the strap on the other side of the machine.

STEP 13



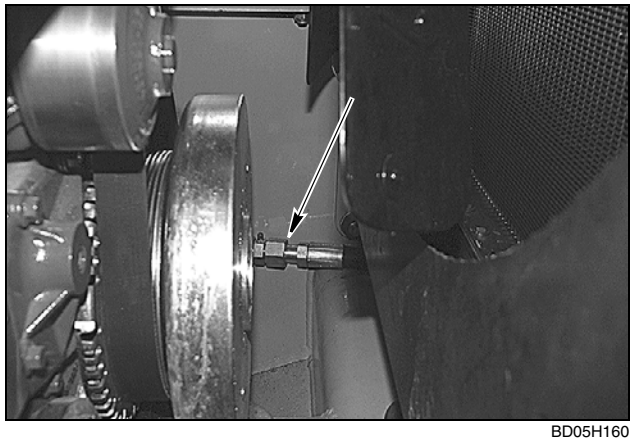
BD05H159

Loosen the clamp (1) and disconnect the lower hose (2).

STEP 14

Connect a vacuum pump to the hydraulic reservoir, turn on the vacuum pump.

STEP 15



BD05H160

Place a container beneath the machine to catch hydraulic oil that will drain when the oil cooler line is disconnected from the oil cooler. Disconnect the lines and install plugs and caps.

STEP 16

BD05H157

Connect suitable lifting equipment to the radiator. Remove the bolts and washers from the radiator.

STEP 17

Carefully move the radiator forward until the fan shroud is clear of the fan. Pull the radiator forward until clear of the radiator cover.

STEP 18

Remove the radiator from the machine.

STEP 19

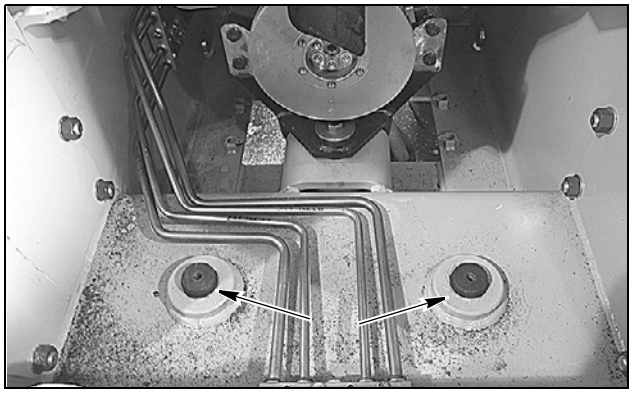
Remove radiator mounts only if replacement is necessary. If radiator is being replaced, remove lock nut, bolt, two washers, and mounting straps from the top of the radiator.

Installation

STEP 20

If mounting straps were removed from the radiator, install using bolt, two washers, and lock nut. Repeat to install mounting straps on opposite side of radiator.

STEP 21



BD05H155

If radiator mounts were removed for replacement, apply a light coat of water from bottom of shank to 3 mm (1/8 inch) up from bottom. Insert mount in welded bracket by rotating and pushing mount until partially positioned. Install bolt making sure that bolt head does not overhang the outside diameter of the mount metal insert; if it does, use a smaller bolt. Push the mount into the bracket with enough force to ensure there is no gap between bottom surface of mount head and surface of bracket.

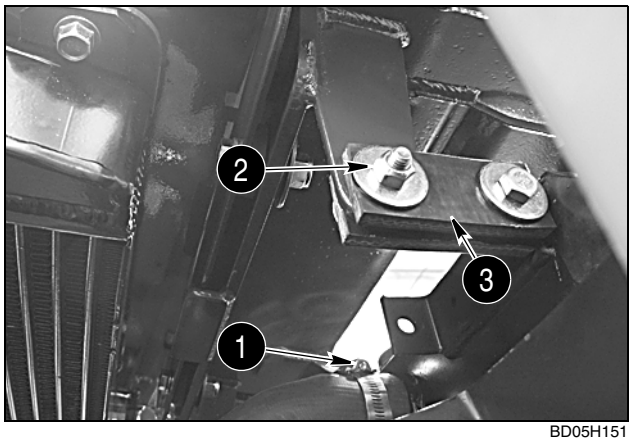
STEP 22

Push the radiator into position on the mounts. Be careful not to damage the engine fan by hitting it with the fan shroud.

STEP 23

Raise one end of the radiator slightly and install two washers on top of the mount. Do the same on the other mount. Put two washers on a bolt and install the bolt from bottom. Install washers and bolt on other side of radiator. Tighten bolts to a torque of 68 to 82 Nm (50 to 60 pound-feet).

STEP 24



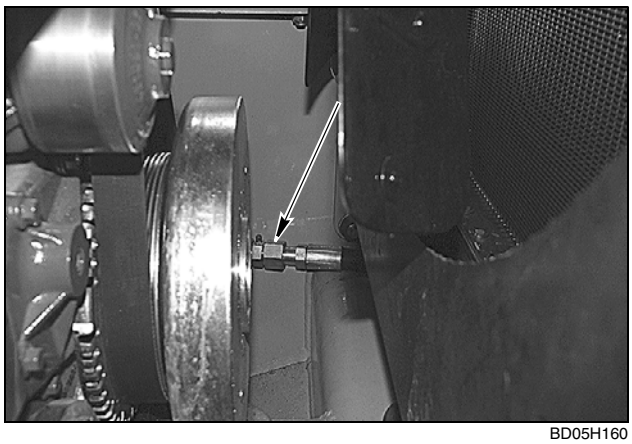
BD05H151

Install two washers and a bolt (2) to secure the mounting straps (3). Repeat procedure for the other side of the radiator. Install radiator hose and tighten hose clamps (1) to a torque of 11 to 12 Nm (97 to 106 lb-inch). Route the horn wires on the hose and secure using new tie strap (1).

STEP 25

Install the coolant recover hose and the upper oil cooler line.

STEP 26



BD05H160

Connect the oil cooler lines to the oil cooler.

STEP 27

Stop and disconnect the vacuum pump from the reservoir.

STEP 28

BD05H159

Install the lower hose. Position clamps and tighten to a torque of 11 to 12 Nm (97 to 106 lb-inch).

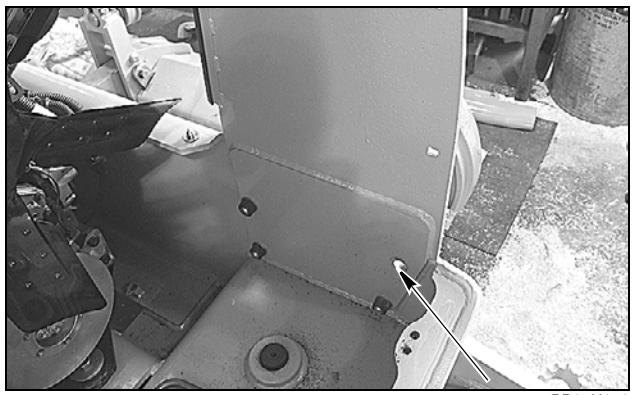
STEP 29

Close the drain valve.

STEP 30

Carefully pull the horn and wires over the radiator. Mount the horn.

STEP 31

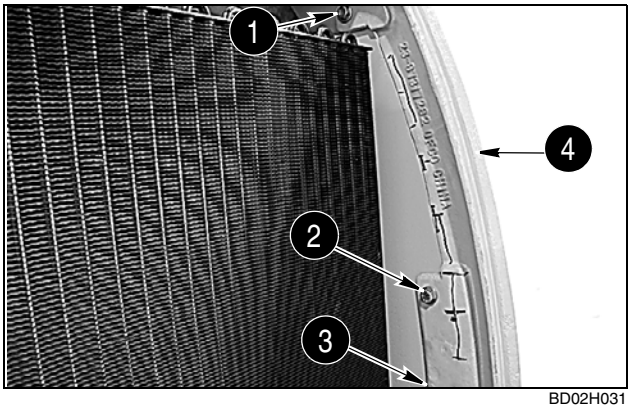


BD05H156

Install the two lower radiator wrap mount bolts into place. Install the washer and self locking nuts. Tighten the nuts.

NOTE: *Radiator is shown removed for clarity only.*

STEP 32



BD02H031

NOTE: *Have another person assist you, the plates are heavy and hove no lifting point.*

Hold the plate (4) in place and install the lower bolt, nut and washer (3 not shown), do not tighten at this time. Install the upper bolt (1) through the plate, radiator wrap and into the top of the step up handle on the side you are working, install the middle bolt. Repeat the procedure for the other side. Tighten the bolts.

STEP 33

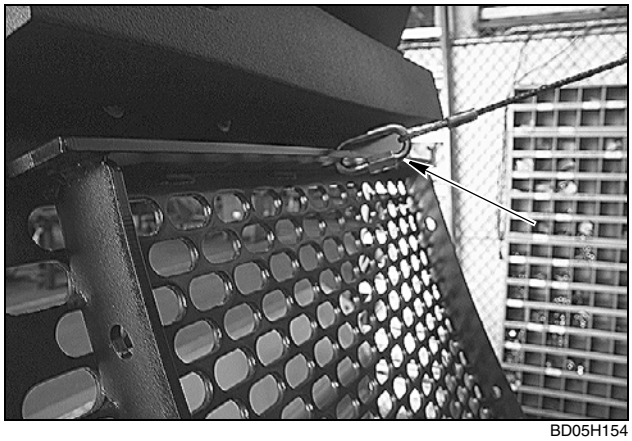
Attach lifting equipment to the grille, move the grille into position in front of the machine. Raise the grille and install the three bolts finger tight.

STEP 34

BD05H153

Lower the grille to gain access to the three bolts. Tighten the three bolts.

STEP 35



BD05H154

Raise the grille enough to connect the cable hook to the grille. Disconnect the lifting equipment from the grille.

STEP 36

Fill the radiator with a mixture of 50% ethylene glycol and 50% water. Install the radiator cap. Fill the coolant reservoir up to the FULL mark on the reservoir.

STEP 37

Put the master disconnect switch in the ON position.

STEP 38

Start the engine and run the engine at low idle. Check for leaks. When the coolant is at operating temperature, stop the engine. When engine has cooled, check the coolant level at the reservoir.

STEP 39

Install the engine side panels, close and secure the grille.

ENGINE

Removal

STEP 1

Remove the radiator.

NOTE: *If machine is equipped with a brush guard do Step 2 otherwise go to Step 3.*

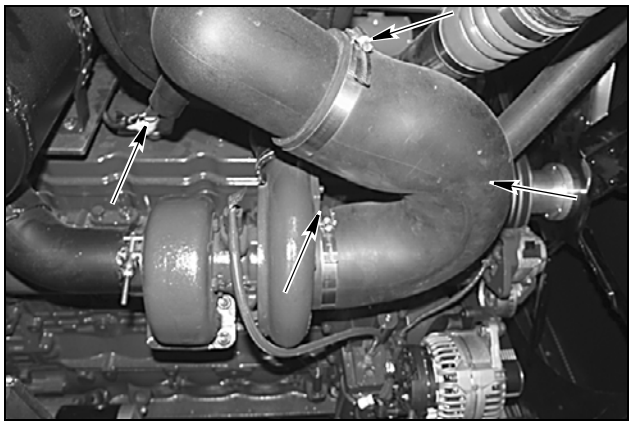
STEP 2

Connect suitable lifting equipment to brush guard. Remove two lower bolts and lock nuts, remove the two upper bolts and washers securing the brush guard. Remove brush guard.

STEP 3

Remove the engine compartment side doors.

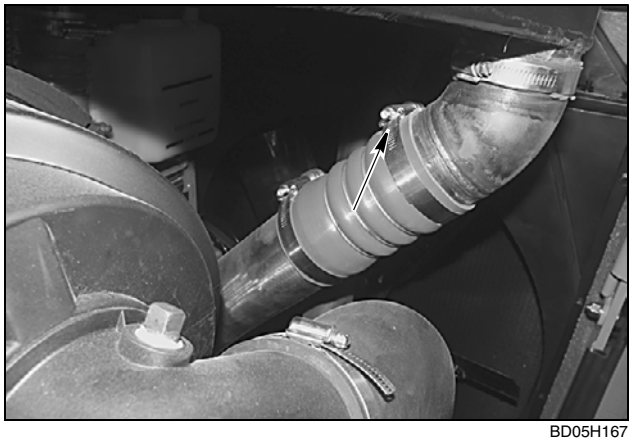
STEP 4



BD05H169

Loosen the clamps on the air cleaner hose, remove the hose. Disconnect the electrical connectors from the air cleaner restriction indicator switch.

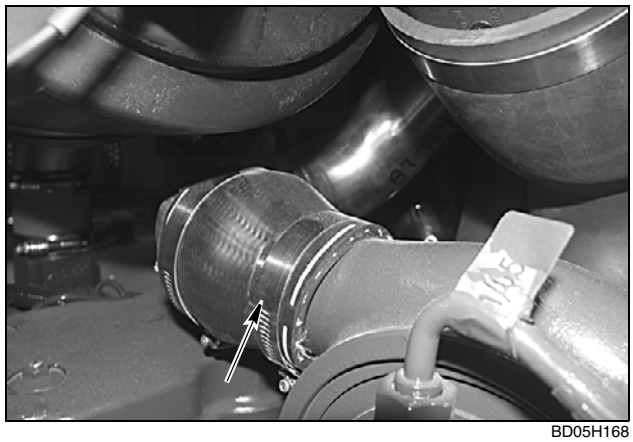
STEP 5



BD05H167

Loosen the hose clamp on the after cooler inlet.

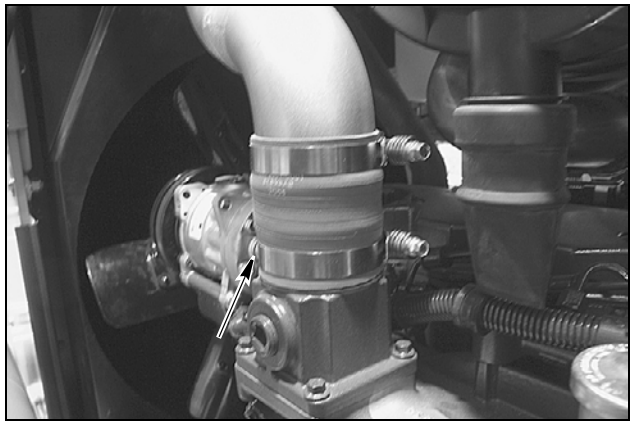
STEP 6



BD05H168

Loosen the hose clamp for the after cooler at the turbocharger outlet, remove the after cooler tube.

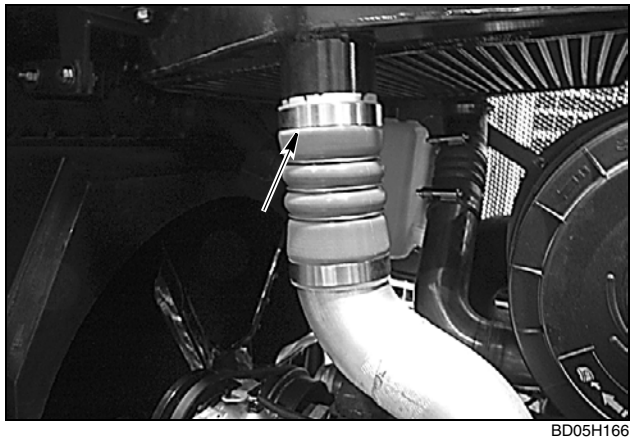
STEP 7



BD05H165

Loosen the hose clamp at the engine intake.

STEP 8



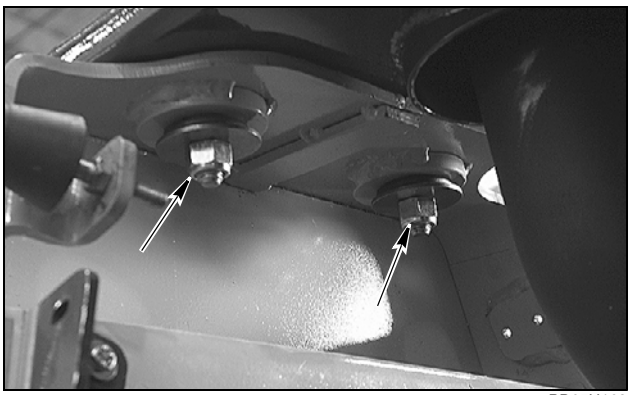
BD05H166

Loosen the hose clamp at the after cooler outlet, remove the after cooler tube.

STEP 9

Attach lifting equipment to the hood.

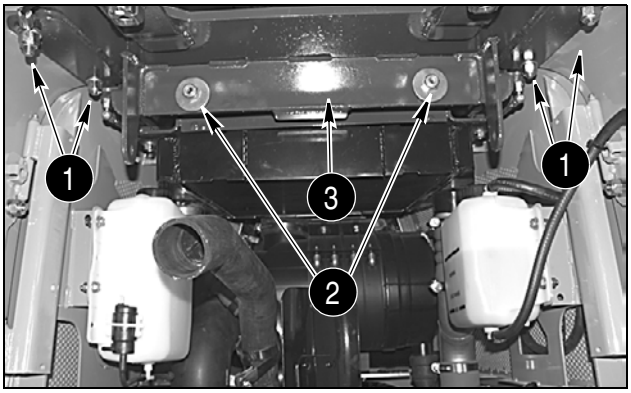
STEP 10



BD05H163

Remove the two nuts and washers (2) from the rear of the engine hood.

STEP 11



BD05H164

Remove the four bolts (1), hood mounting bolts (2), and the radiator wrap brace (3).

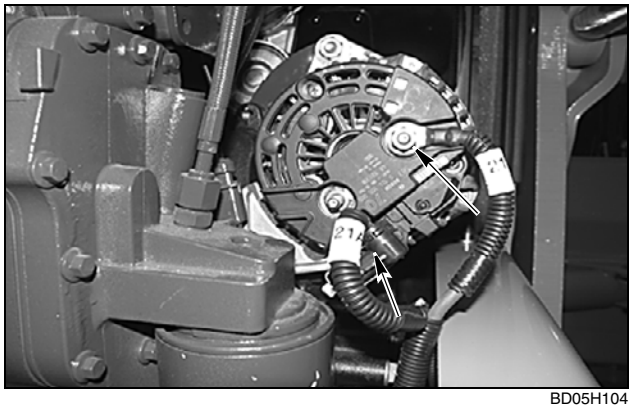
STEP 12

Remove the hood, air filter, and after cooler from the machine.

STEP 13

If machine is equipped with a heater, loosen the clamp and disconnect heater hoses, plug the hose to prevent loss of coolant.

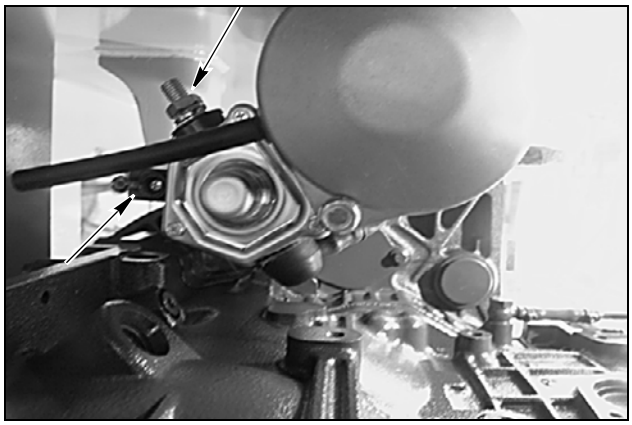
STEP 14



BD05H104

Disconnect the wires from the alternator.

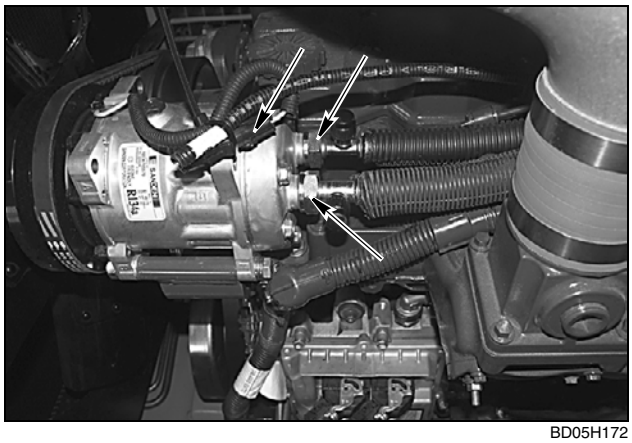
STEP 15



BD05H103

Disconnect the battery cable and the wiring harness wires from the starter.

STEP 16



BD05H172

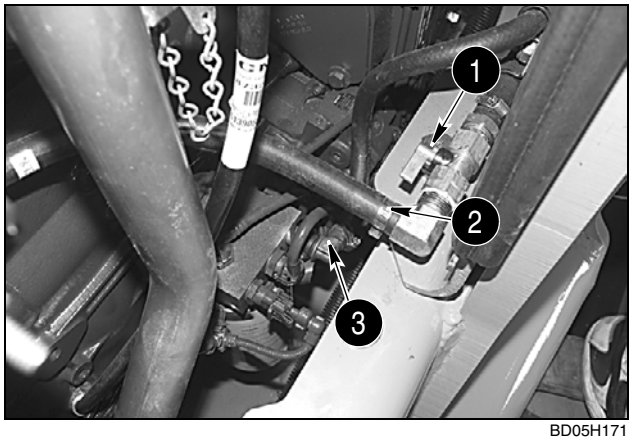
Discharge the air conditioning system, see section 9004. Disconnect the electrical connector for the clutch and the compressor hoses. Plug the hoses and cap the fittings.

STEP 17

BD05H170

Disconnect the electrical connector from the engine controller.

STEP 18



BD05H171

Shut off the fuel valve (1). Disconnect the fuel line from the valve (2) and the engine (3).

STEP 19

NOTE: *Tilt the ROPS cab or canopy, see section 9008.*

Disconnect grounding cable from the bell housing.

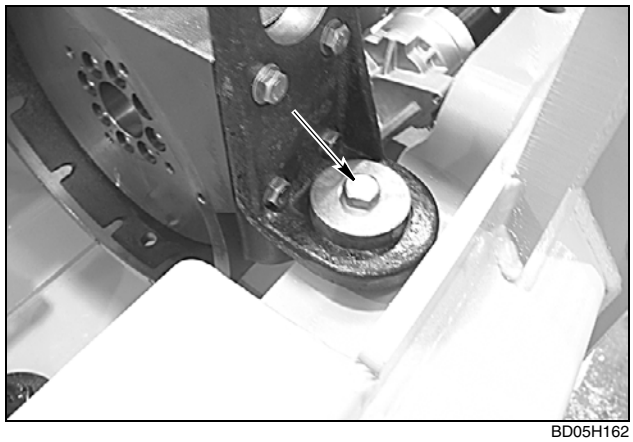
STEP 20

The wiring harnesses and the heater hoses (if equipped) can be pulled into the hydrostat compartment and moved out of the way.

STEP 21

Attach lifting equipment to the engine.

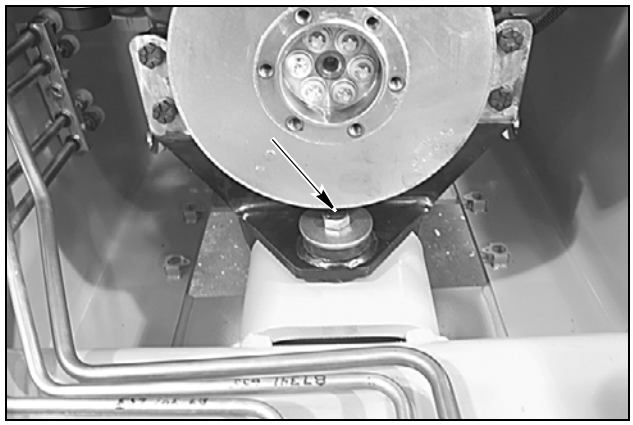
STEP 22



BD05H162

Remove the rear engine mounting bolts.

STEP 23



BD05H161

Remove the front engine mounting bolt.

STEP 24

Raise the engine slightly. Move engine forward, slip the drive shaft off of the hydrostat pumps and until engine clears the fire wall.

STEP 25

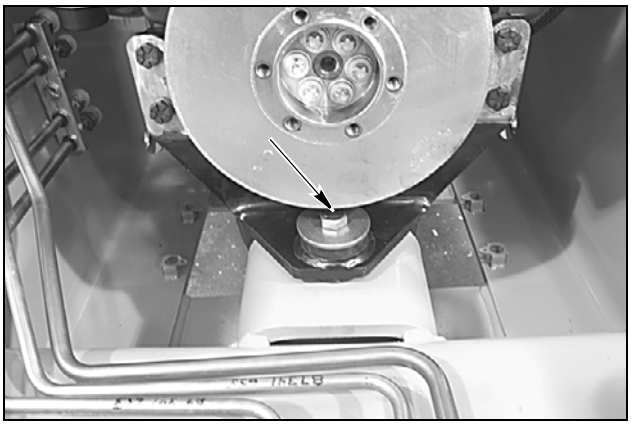
Remove the engine from the machine.

Installation

STEP 26

Connect suitable lifting equipment to lifting eyes on the engine. Raise the engine and move into position on machine. Move engine rearward, slip the drive shaft onto the hydrostat pumps. Carefully lower the engine into machine.

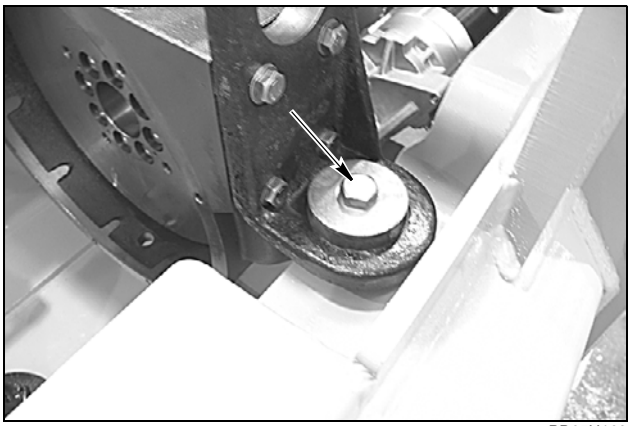
STEP 27



BD05H161

Install the front engine mount bolt and nut, torque to 205 to 230 Nm (151 to 170 pound-feet).

STEP 28



BD05H162

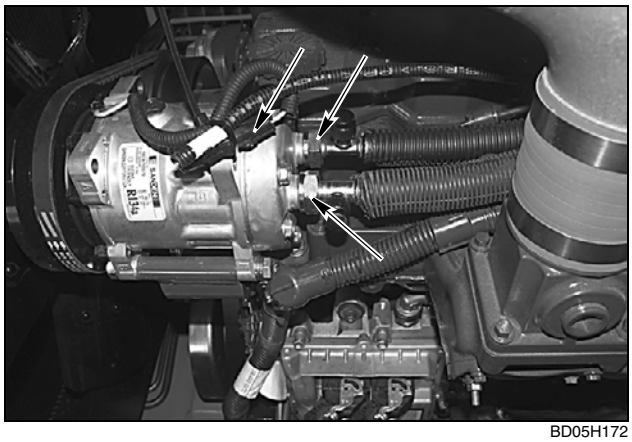
Install the rear motor mounting bolts and nuts, torque to 205 to 230 Nm (151 to 170 pound-feet). Disconnect lifting equipment from engine lifting eyes.

STEP 29

Install the grounding cable to the bell housing.

NOTE: *Lower the ROPS cab or canopy, see section 9008.*

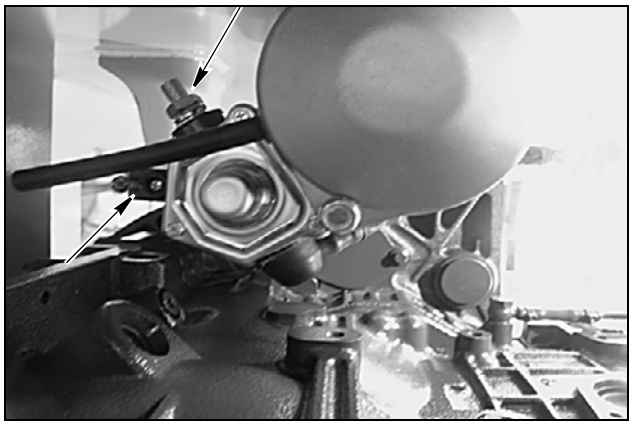
STEP 30



BD05H172

Connect the compressor hoses and clutch electrical connector.

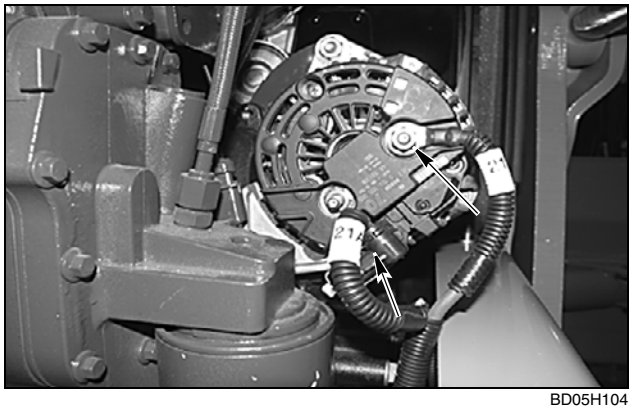
STEP 31



BD05H103

Connect the battery cable to the starter solenoid and torque to 22.5 to 29.4 Nm (16.5 to 21.6 pound-feet). Push the rubber boot onto the terminal. Connect the ignition switch wire to the bottom of the starter solenoid and torque to 2.6 to 4.6 Nm (23 to 41 lb-in).

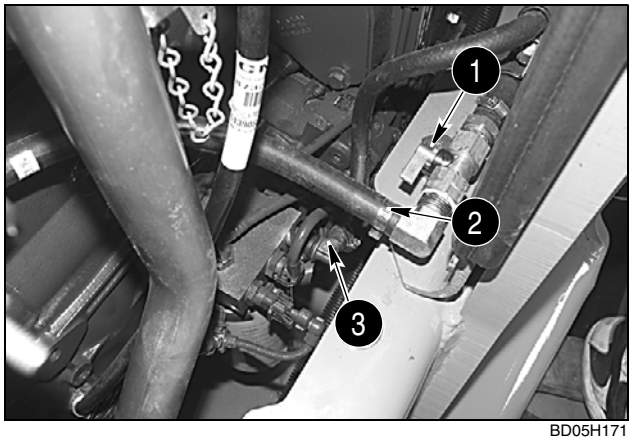
STEP 32



BD05H104

Connect the wires to the alternator.

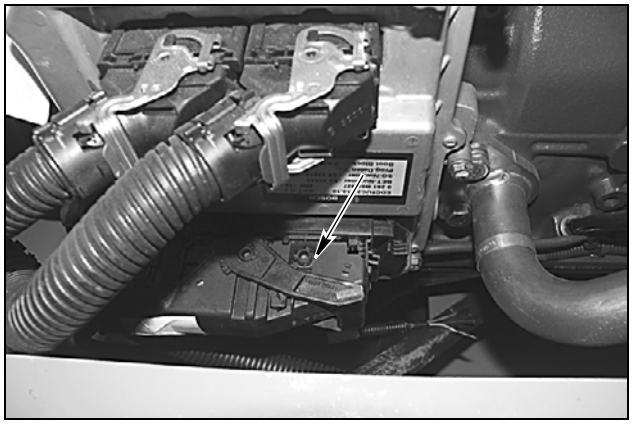
STEP 33



BD05H171

Connect the fuel line to the valve (2) and the engine (3). Turn the fuel valve (1) on.

STEP 34



BD05H170

Connect the electrical connector from the engine controller.

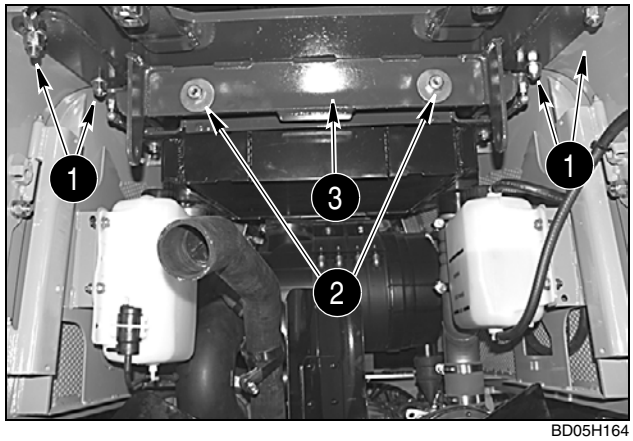
STEP 35

Remove the plug from the heater hoses (if equipped) and connect the heater hoses and tighten the clamps.

STEP 36

Install the hood, air filter, and after cooler on the machine. Align the rear mounting bolts into the bushings.

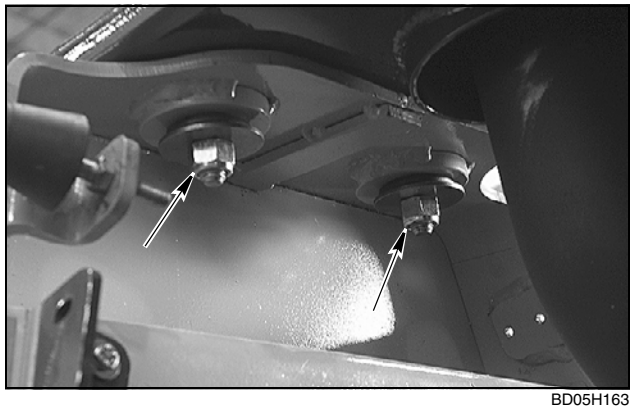
STEP 37



BD05H164

Install the radiator wrap brace (3), four mounting bolts (1), hood mounting bolts (2), tighten the bolts.

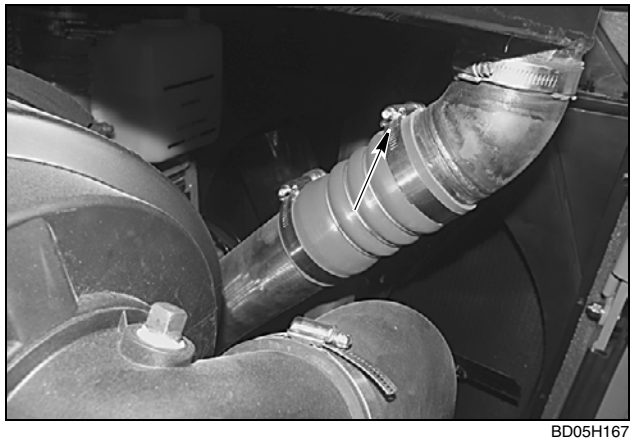
STEP 38



BD05H163

Install the two nuts and washers for the rear of the engine hood, tighten the nuts.

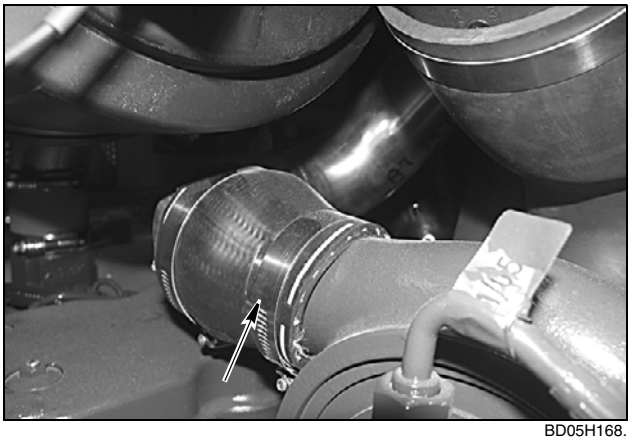
STEP 39



BD05H167

Install the after cooler tube, tighten the hose clamp on the after cooler inlet.

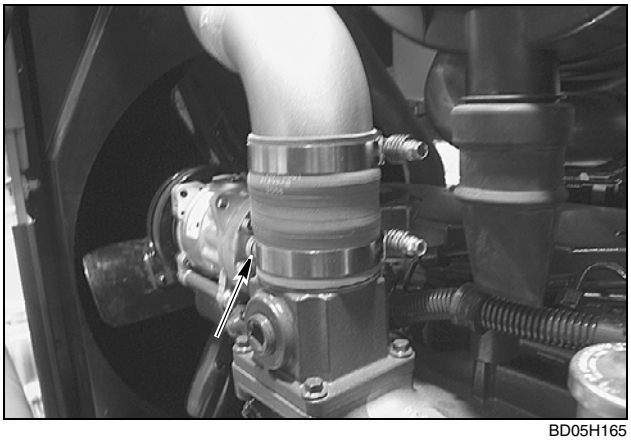
STEP 40



BD05H168.

Tighten the hose clamp for the after cooler at the turbocharger outlet.

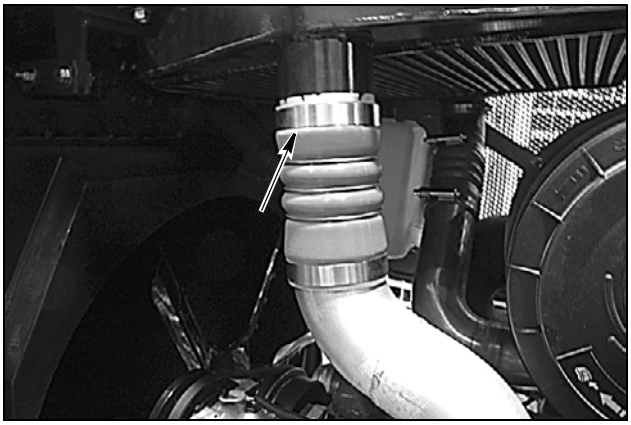
STEP 41



BD05H165

Install the after cooler tube, tighten the hose clamp at the engine intake.

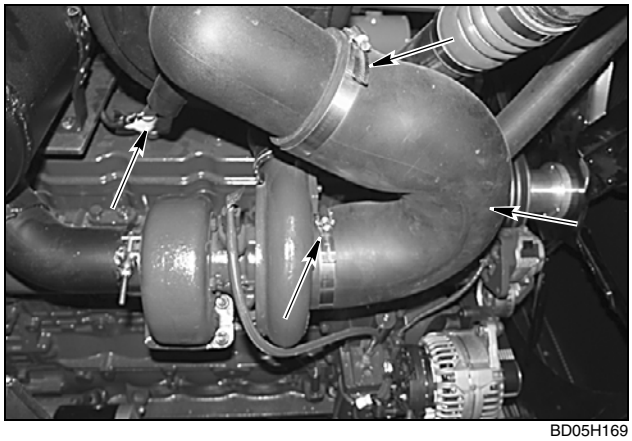
STEP 42



BD05H166

Tighten the hose clamp at the after cooler outlet.

STEP 43



BD05H169

Install and the air cleaner hose, tighten the hose clamps. Connect the electrical connectors to the air cleaner restriction indicator switch.

STEP 44

Install the engine compartment side doors.

STEP 45

Install the radiator, see procedures this section.

STEP 46

If equipped with a brush guard, connect suitable lifting equipment to brush guard and move into position. Install the two lower bolts, lock nuts, and washers. Install the two upper bolts and washers. Torque the upper bolts to 570 to 730 Nm (420 to 540 pound-feet).

STEP 47

Check and ensure that the engine has been filled with the correct engine oil, see section 1002.

STEP 48

Start engine and run at low idle. Check for leaks. Check that gauges show the correct indications.

STEP 49

If equipped, see section 9004 and charge the air conditioning system.

Section
2003

2003

AFTER COOLER

CNH America LLC.
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Racine, WI 53404 U.S.A.

Bur 5-4160

Issued February, 2007

TABLE OF CONTENTS

TROUBLESHOOTING AFTER COOLER

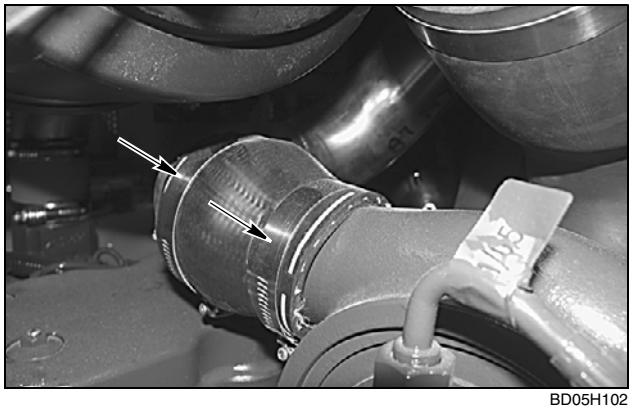
STEP 1

Park machine on level ground, lower the blade. Put transmission in neutral, apply the parking brake. Turn off engine.

STEP 2

Open the engine side panels, inspect cooler components for damaged or missing parts.

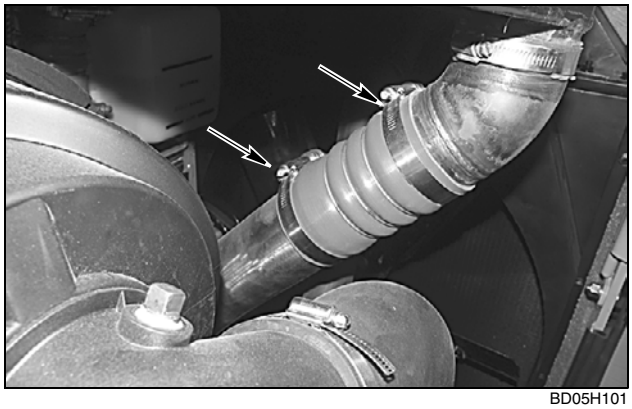
STEP 3



BD05H102

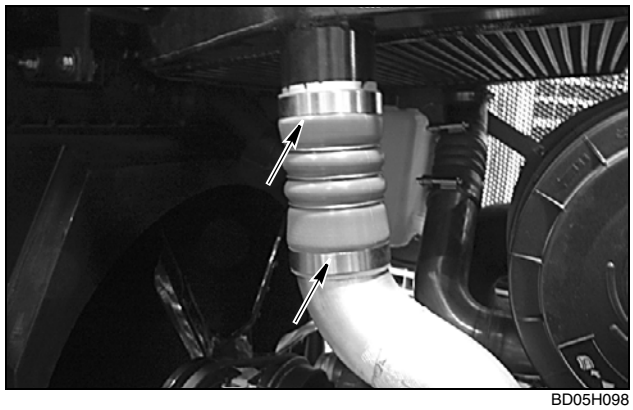
Inspect the turbocharger flex hose for leaks or holes and insure that the clamps are tight.

STEP 4



BD05H101

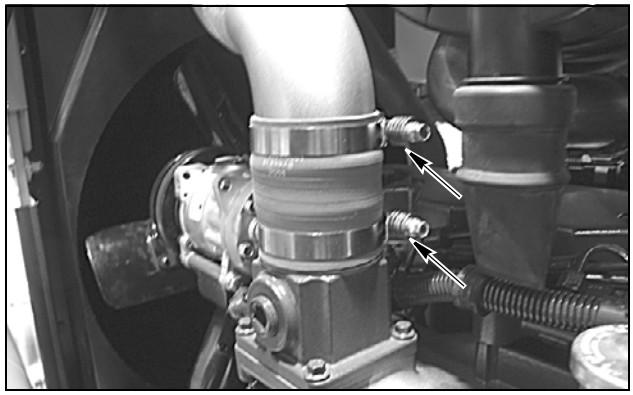
Inspect the after cooler inlet flex hose for leaks or holes and insure that the clamps are tight.



BD05H098

Inspect the after cooler outlet flex hose for leaks or holes and insure that the clamps are tight.

STEP 5



BD05H097

Inspect the intake manifold flex hose for leaks or holes and insure that the clamps are tight.

STEP 6

Visually inspect top of after cooler for damage or leaks

NOTE: *If the leak source has not been located, remove and test the after cooler.*