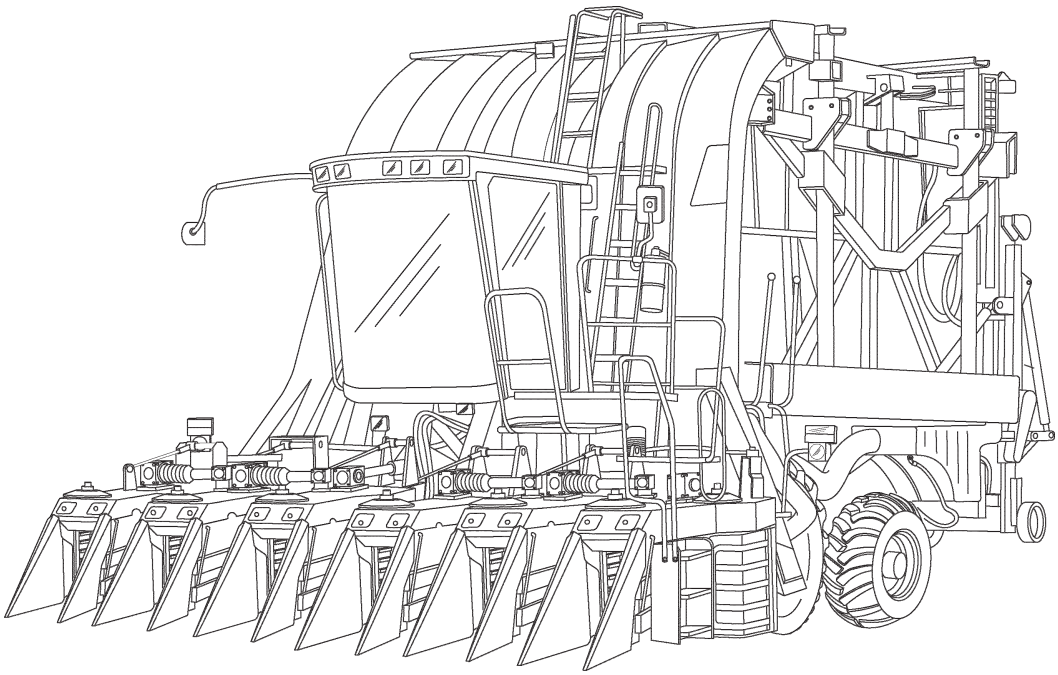
BOOK 1 - 87681734

BOOK 2 - 87399158

BOOK 3 - 87399159

BOOK 4 - 87681735

SCHEMATICS



Module Express™ 625 Cotton Picker

Repair Manual

Book 1

General
Engine
Electrical
Steering

87681734
Issued June, 2007
(Replaces 87399157)

CASE

Repair Manual Number 87642590

Book 1 - Publication 87681734
General
Engine
Electrical
Steering

Book 2 - Publication 87399158
Power Train

Book 3 - Publication 87399159
Hydraulics

Book 4 - Publication 87681735
Chassis

Electrical Schematic, Prior to P.I.N. Y7P01801 - 87516879
Electrical Schematic, P.I.N. Y7P01801 and After - 87676928

Hydraulic Schematic - 87516880

You can order Repair Manual Books separately
(see publication numbers above)
or you can order a complete Repair Manual 87642590.

BOOK 1 - 87681734

Section 1001

STANDARD TORQUE SPECIFICATIONS

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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

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-Foot	Newton metres
3/4 inch 19.0 mm	1-1/16-12	77 to 82	104 to 111
7/8 inch 22.2 mm	1-3/16-12	90 to 100	122 to 136
1.0 inch 25.4 mm	1-5/16-12	110 to 120	149 to 163
1-1/4 inch 31.8 mm	1-5/8-12	140 to 150	190 to 204
1-1/2 inch 38.1 mm	1-7/8-12	225 to 240	305 to 325

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-Foot	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 O-RING 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-Foot	Newton metres
-10	5/8 inch 15.9 mm	1-14	552 to 672	62 to 76	7/8-14	35 to 40	47 to 54
Nom. SAE Dash Size	Tube OD	Thread Size	Pound-Foot	Newton metres	1-1/16-12	60 to 70	81 to 95
					1-3/16-12	70 to 80	95 to 109
-12	3/4 inch 19.0 mm	1-3/16-12	65 to 70	90 to 95	1-5/16-12	80 to 90	108 to 122
-14	7/8 inch 22.2 mm	1-3/16-12	65 to 70	90 to 95	1-5/8-12	95 to 115	129 to 156
-16	1.0 inch 25.4 mm	1-7/16-12	92 to 100	125 to 135	1-7/8-12	120 to 140	163 to 190
-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 165	200 to 225			

Section 1010

FLUIDS AND LUBRICANTS

TABLE OF CONTENTS

ENGINE

Oil Type ..... CASE No. 1 Engine Oil
Oil Capacity - Without Filter Change ..... 20 U.S. Quarts (19 Litres)
Oil Capacity - With Filter Change ..... 22 U.S. Quarts (21 Litres)

NOTE: *DO NOT put Performance Additives or other oil additive products in the engine crankcase.*

COOLING SYSTEM

Coolant Type ..... 50 Percent Mixture of Water and Ethylene Glycol Solution
Coolant Capacity ..... 68.2 U.S. Quarts (65 Litres)

IMPORTANT: *Use only heavy duty low silicate coolant. Automotive antifreeze purchased at local supply store outlets most likely is not low silicate and must not be used in Case engines.*

FUEL SYSTEM

Fuel Type ..... ASTM D975 Grade 2-D Number 2 Diesel Fuel
Fuel Capacity ..... 200 U.S. Gallons (756 Litres)

TRANSMISSION

Oil Type ..... CASE HY-TRAN® ULTRA
Oil Capacity ..... 15 U.S. Quarts (14 Litres)

NOTE: *If brakes are removed from the transmission for service, an additional 1 U.S. Quart (0.95 Liter) per brake assembly must be added to the transmission.*

FINAL DRIVE

Oil Type ..... CASE HY-TRAN® ULTRA
Oil Capacity ..... 13 U.S. Quarts (12.3 Litres)

HYDRAULIC SYSTEM

Oil Type ..... CASE HY-TRAN® ULTRA
Reservoir Capacity ..... 20 U.S. Gallons (76 Litres)
System Capacity ..... 32 U.S. Gallons (121 Litres)

CHASSIS GEAR BOX - RIGHT AND LEFT

Oil Type ..... CASE 135H EP 85W 140 Gear Lubricant
Oil Capacity (Each Gear Box) ..... 1 1/2 U.S. Quarts (1.4 Litres)

DRUM TOP GEAR BOX

No Snout
Oil Type ..... CASE 135H EP 85W 140 Gear Lubricant
Oil Capacity (Each Gear Box) ..... 1.06 U.S. Quart (1.0 Litres)

Short Snout
Oil Type ..... CASE 135H EP 85W 140 Gear Lubricant
Oil Capacity (Each Gear Box) ..... 1.25 U.S. Quart (1.2 Litres)

Long Snout
Oil Type ..... CASE 135H EP 85W 140 Gear Lubricant
Oil Capacity (Each Gear Box) ..... 1.5 U.S. Quart (1.4 Litres)

AIR CONDITIONING REFRIGERANT CAPACITY

Air Conditioning System Refrigerant Capacity ..... 4.87 lbs (2.21 kg)
Refrigerant Type HFC-134A

PICKER BAR AUTOMATIC LUBRICATION SYSTEM

Oil Type ..... Picker Bar and Spindle Lubricant - PN 407515R1
Reservoir Capacity ..... 80 U.S. Gallons (303 Litres)

IMPORTANT: *DO NOT substitute any other lubricant for this application. Improper lubrication will cause damage to the parts.*

MODULE CHAMBER UNLOADER CONVEYOR CHAIN

Oil Type ..... CASE No. 1 Engine Oil

UNLOADER CONVEYOR DRIVE CHAIN

Oil Type ..... CASE No. 1 Engine Oil

GREASE FITTINGS

Lubricant Type ..... CASE Lithium Grease HEP251 or equivalent

WATER TANK

Reservoir Capacity ..... 365 U.S. Gallons (1380 litres)
Clean water with Spindle Cleaner additives or wetting agent

CHASSIS AUTOMATIC LUBRICATION

Reservoir Capacity ..... 2.1 U.S. Gallons (8 litres)
Lubricant Type ..... CASE Lithium Grease HEP251 or equivalent

Section 2015

ENGINE REMOVAL AND INSTALLATION

June, 2007

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GENERAL INFORMATION

The machine should be on a firm, level surface while doing these procedures. The Left and Right side are the same as your Left and Right hand while sitting in the operator's seat facing the normal field operation direction of travel. All service or repairs should be performed by a qualified technician. Repair procedure instructions should be read and understood before starting the procedure.

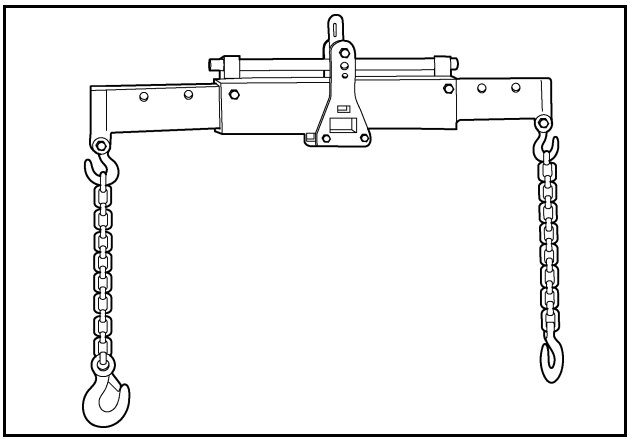
All damaged or worn parts should be replaced. Make sure all parts are clean and free of debris before assembly.

Proper tools should be used when during disassemble and assemble procedures.

RECOMMENDED TOOLS

IMPORTANT: *Lift equipment, boom, equalizer, chains and slings used to remove and install the engine must be rated to handle the engine weight - 770 kg (1700 pounds), or personal injury or equipment damage may occur.*

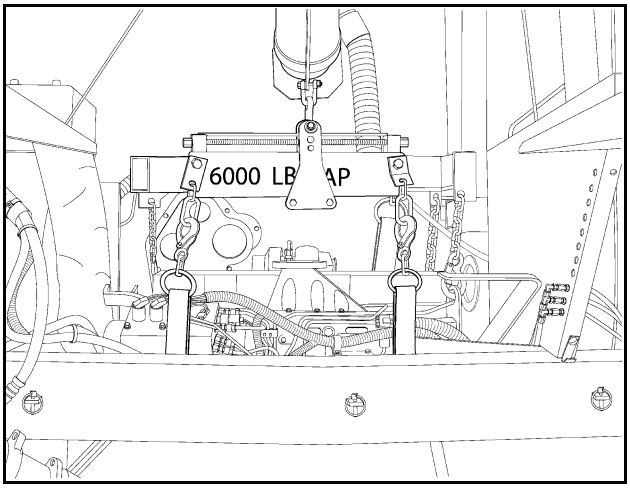
An equalizer with an adjustable tilt feature can speed engine removal and installation on the machine.



RD01E144

OEM-4130 OR EQUIVALENT

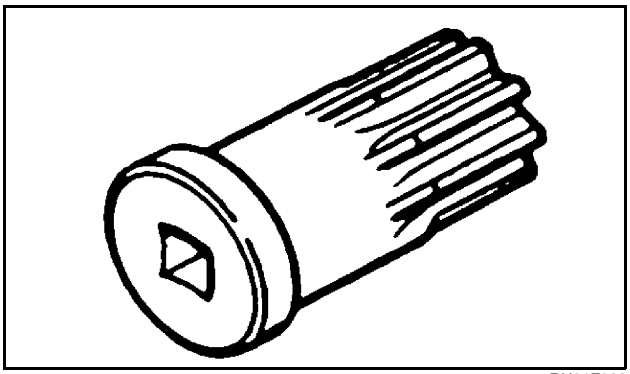
A boom arm mounted to a lift truck or a mobile lifting crane is recommended for engine removal and installation.



RD01E137R

LIFT TRUCK BOOM

Engine Barring Tool - CAS1690

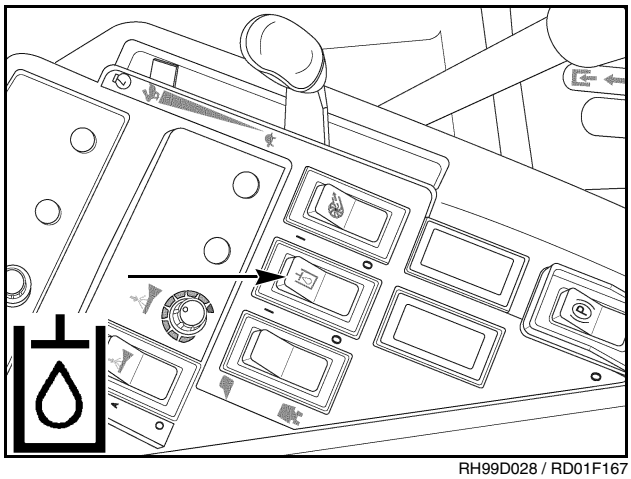


RH01F038

CAS1690

ENGINE REMOVAL

ATTENTION: *ALWAYS place the hydraulic lockout switch in the LOCK position and block the tilted module chamber before working under the tilted module. NEVER work under a tilted module without placing the lockout switch in the LOCK position and blocking the module chamber. Failure to comply will result in death or serious injury.*



RH99D028 / RD01F167

Raising the Module with a Non-Operating Engine

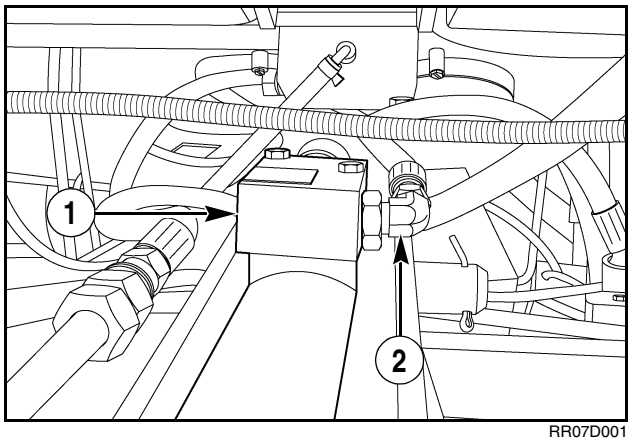
1. If the module can be raised with the engine, go to Step 3.

If the module cannot be raised with the engine, do the following:

   A. Locate the hydraulic lockout valve (1) on the tilt cylinder and plumb an alternate hydraulic source into the existing fitting (2).

   B. Plug the hose that was connected at the fitting (2) to prevent hydraulic fluid loss and to prevent contamination of the hydraulic system.

2. Use a Tractor remote valve or other source to raise the module chamber. Engage the hydraulic lockout switch and block module chamber.



RR07D001

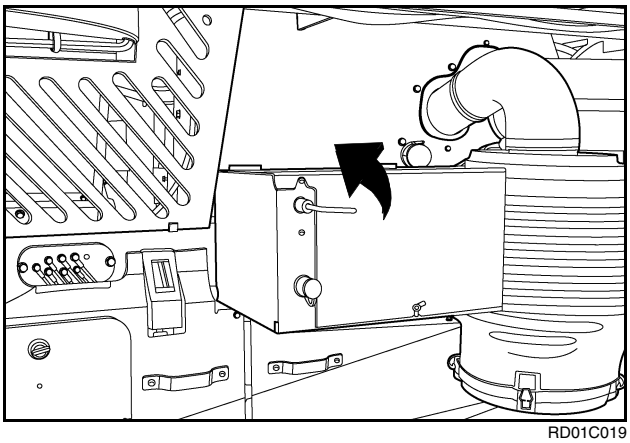
1. LOCKOUT VALVE
2. VALVE FITTING

NOTE: *Leave the hose used to raise the module chamber connected to the valve by disconnecting it from the hydraulic power source. After reinstalling the engine, use the auxiliary hydraulic power source to recapture the excess oil that was introduced into the Cotton Picker's tilt cylinder.*

NOTE: *If hydraulic fluids with different performance characteristics were mixed to raise the module, both reservoirs - Cotton Picker and hydraulic source - may have to drained and refilled with new hydraulic fluid.*

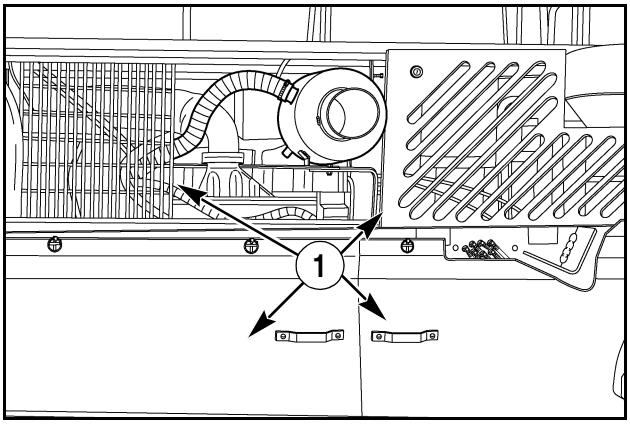
Raising the Module with an Operating Engine

3. Disconnect the batteries by rotating the lever to the VERTICAL position.



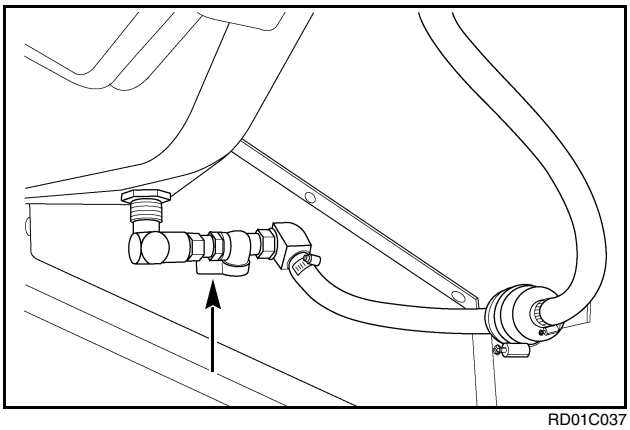
RD01C019

4. Remove the side panels (1) on both sides of the machine.



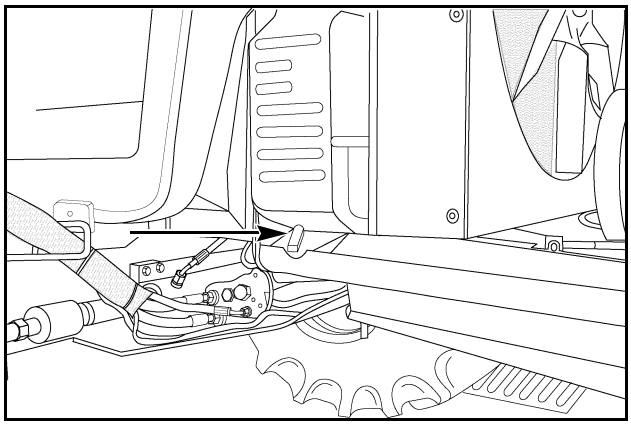
RD01E182

5. Turn off the fuel at the shutoff valve.



RD01C037

6. Drain engine coolant into an appropriate container.

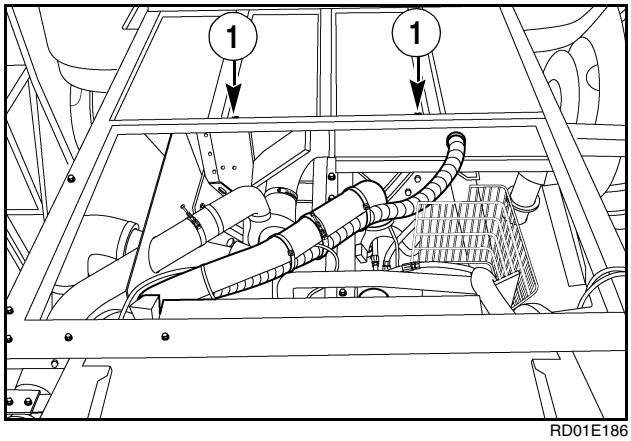


RD01C032

NOTE: *Refer to Reference Illustrations in this section for component locations.*

7. Open the engine compartment door. Remove the four nuts at the hinges (1) from the underside of the door, and remove the door.

8. Open the fan compartment door. Remove the four nuts from the underside of the door at the hinges, and remove the door.



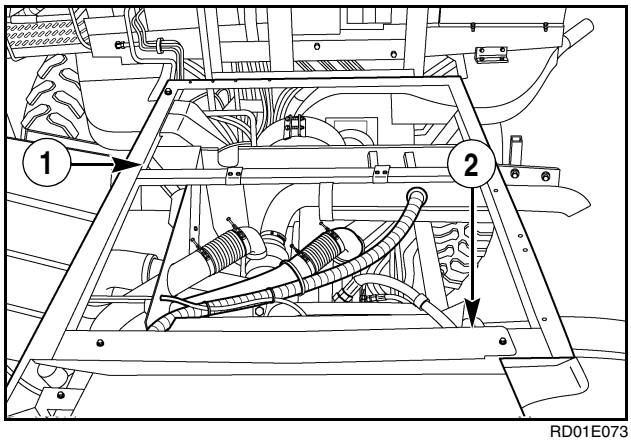
RD01E186

1. HINGE

9. Remove the door support channel (1) by removing the two nuts and bolts on both ends of the channel. Remove the channel brace(s) at the same time.

10. Remove the engine door support (2) by removing the nut and bolt at both ends.

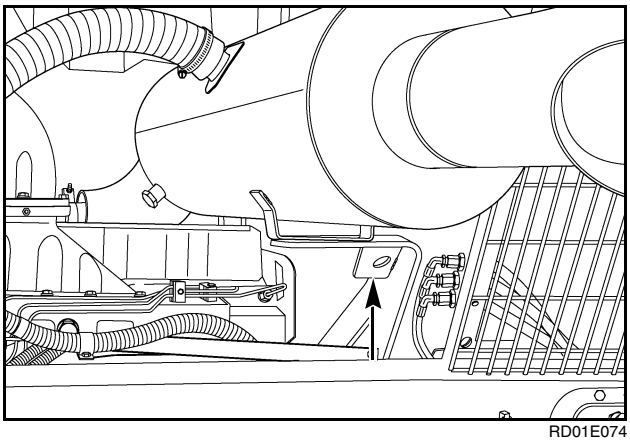
11. Retain all hardware removed during this procedure for reinstallation.



RD01E073

1. DOOR CHANNEL
2. ENGINE DOOR SUPPORT

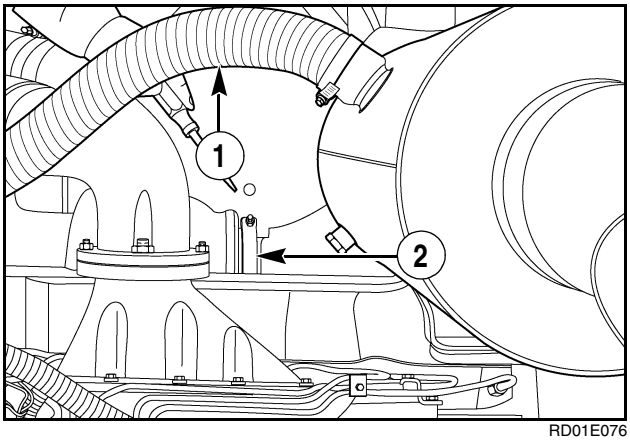
12. Remove the Right mounting bolt and nut for the muffler.



RD01E074

13. Loosen the clamp and remove the aspirator hose from the muffler. Cut any tie straps securing the hose in the engine compartment, and move the hose out of the way.

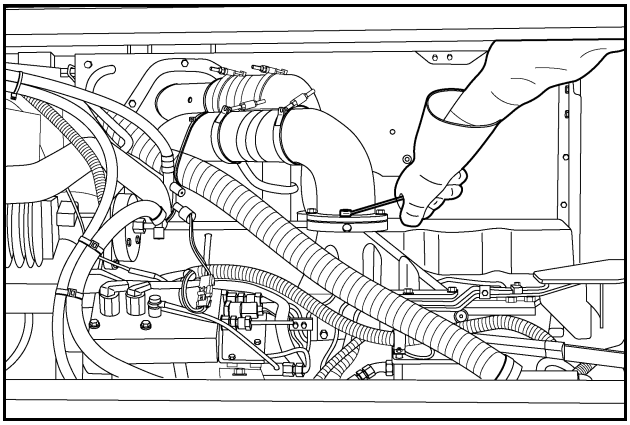
14. Loosen the turbocharger clamp and remove the muffler from the compartment.



RD01E076

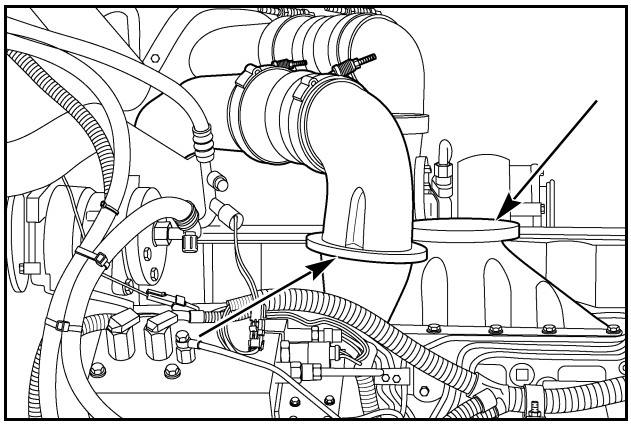
1. ASPIRATOR HOSE
2. TURBOCHARGER CLAMP

15. Remove the charge air line to the manifold by removing the four bolts and nuts and the gasket.



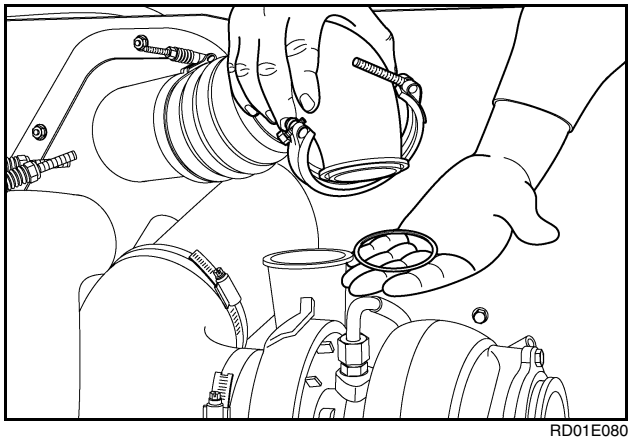
RD01E078

16. Seal the manifold and charge air line with duct tape.



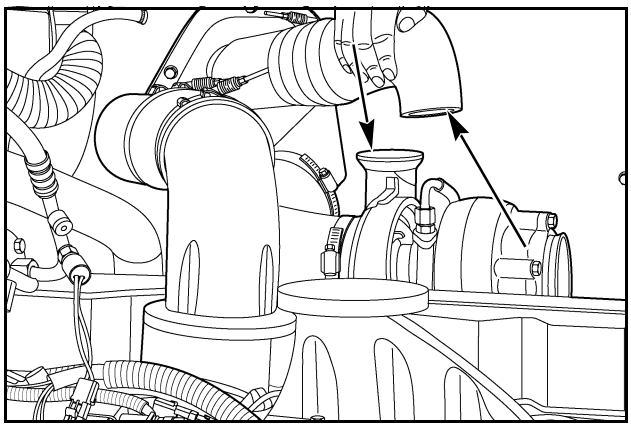
RD01E079

17. Loosen the clamp and remove the turbo air line to the turbocharger. Retain the O-ring.



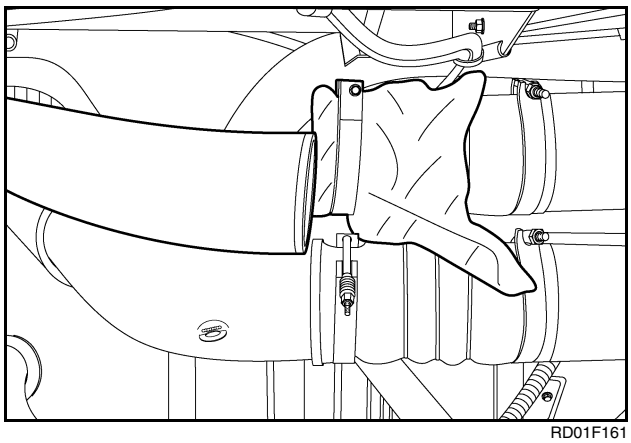
RD01E080

18. Seal with duct tape.



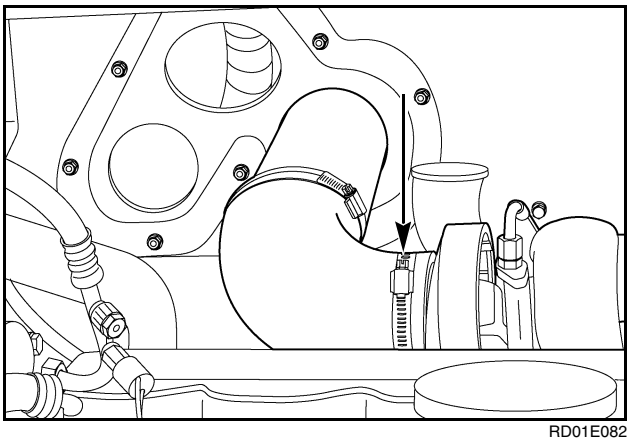
RD01E081

19. At the opposite end of the charge air and turbocharger air tubes, loosen the clamps and remove the tubes from the Left engine sheet. Use a clean shop cloth or tape to seal the tubes and openings.



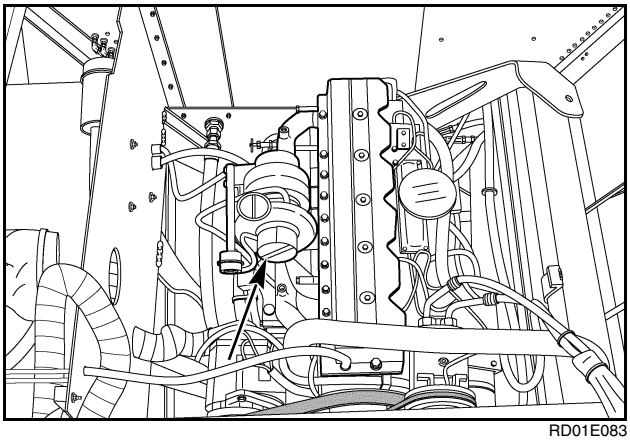
RD01F161

20. Loosen the clamp and remove the air cleaner line to the turbocharger. Loosen the clamp on the other end beyond the Left engine sheet, and remove line from the compartment.



RD01E082

21. Use a clean shop cloth and clamp to seal off the cleaner line. Seal the turbocharger inlet with tape.

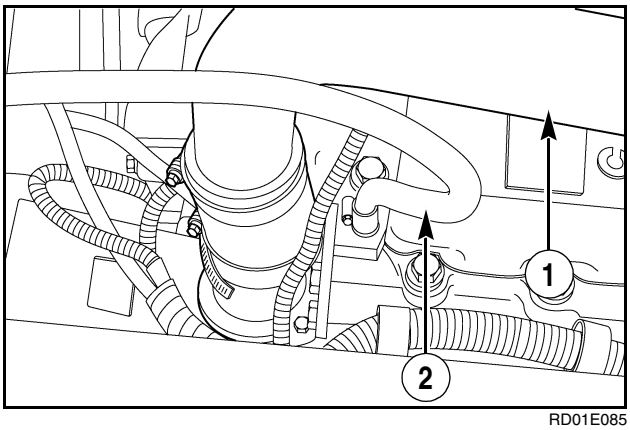


RD01E083

22. Loosen the clamp and remove the upper radiator tube.

NOTE: *Be prepared to collect some coolant when the tube is removed.*

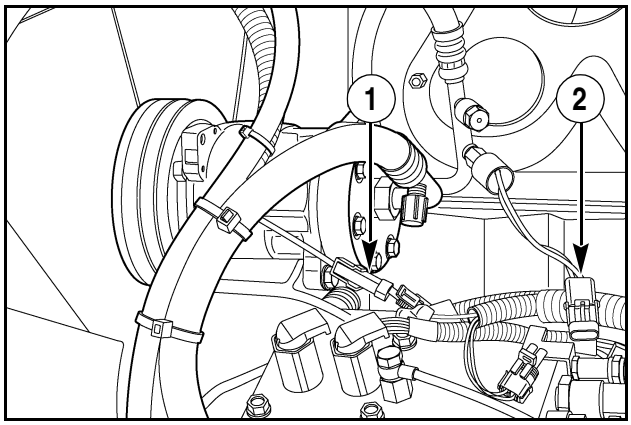
23. Loosen the clamp and remove the engine head vent line.



RD01E085

1. UPPER RADIATOR TUBE
2. ENGINE HEAD VENT LINE

24. At the air conditioning compressor, disconnect the harness to the compressor clutch and the high pressure switch.



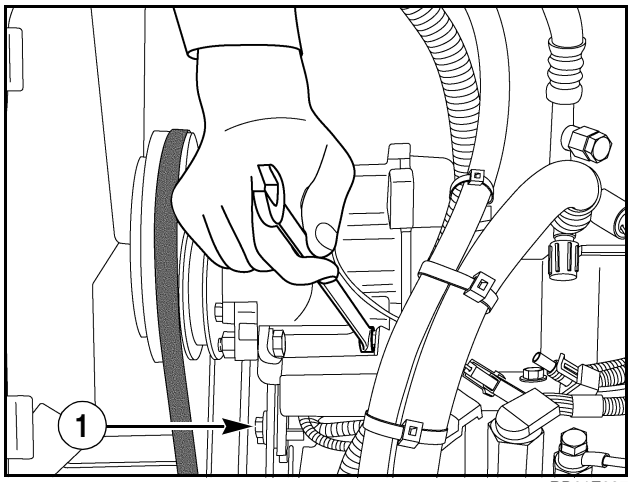
RD01E086

1. CLUTCH HARNESS
2. HIGH PRESSURE SWITCH HARNESS

25. Remove the two mounting bolts and nuts for the compressor and the bolt from the adjusting strap, and remove the compressor with hoses.

NOTE: *Hang the compressor clutch belt from the drive pulley for now.*

26. Move the compressor with hoses outside the engine compartment and support the assembly.



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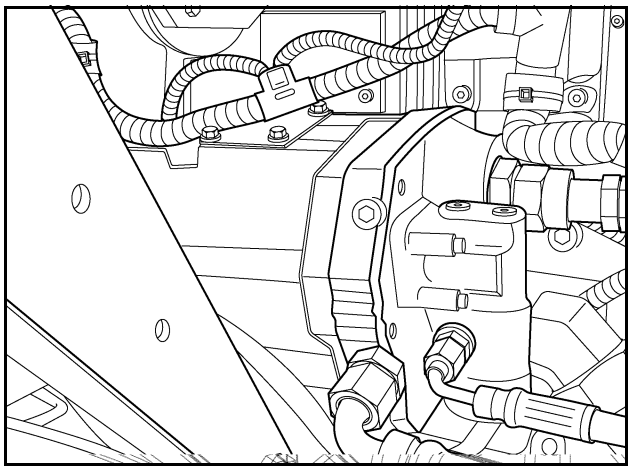
1. ADJUSTING STRAP BOLT

27. Remove the two bolts and gasket to remove the auxiliary pump with hoses from the engine.



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