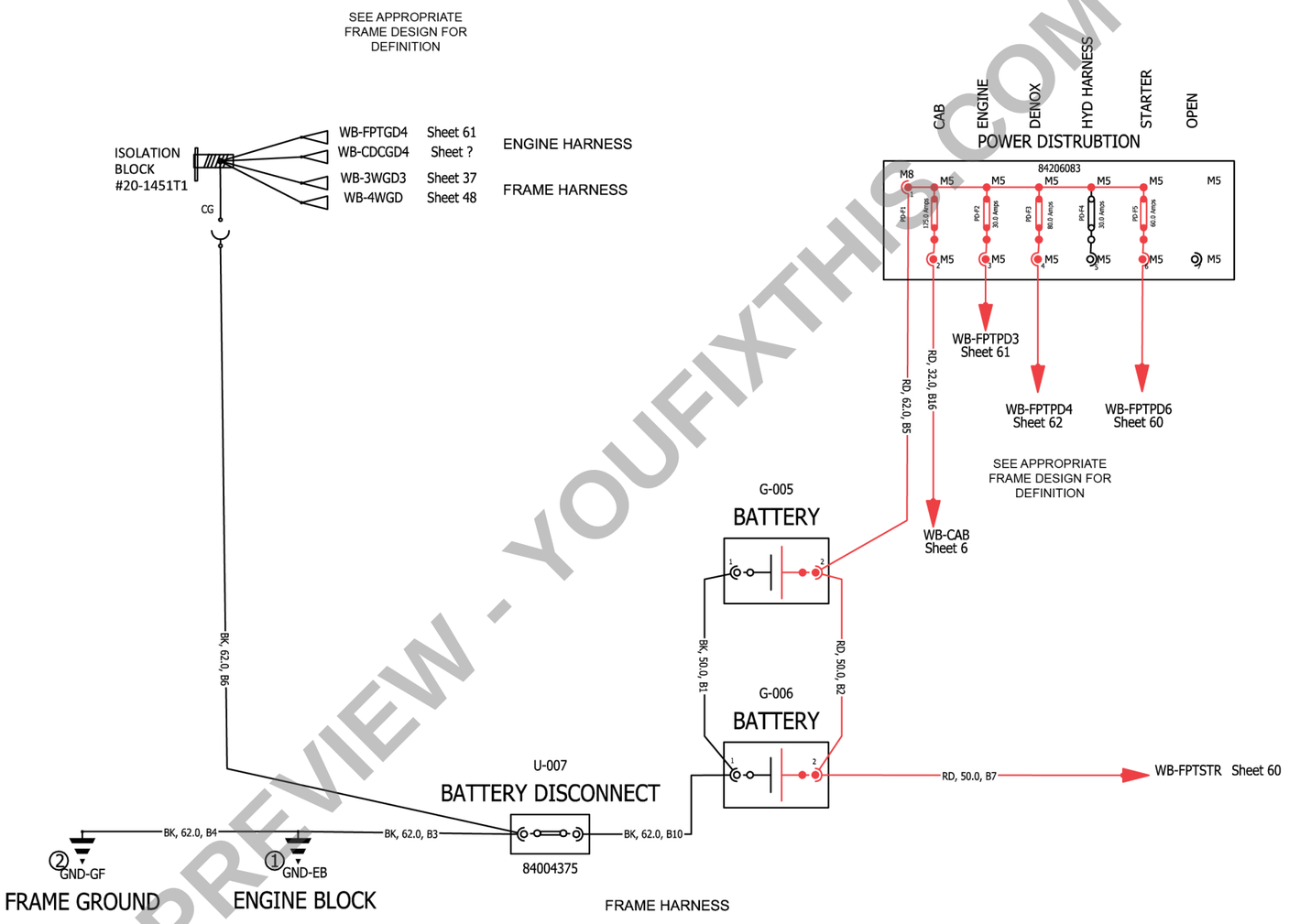
BATTERIES/DISTRUBITION

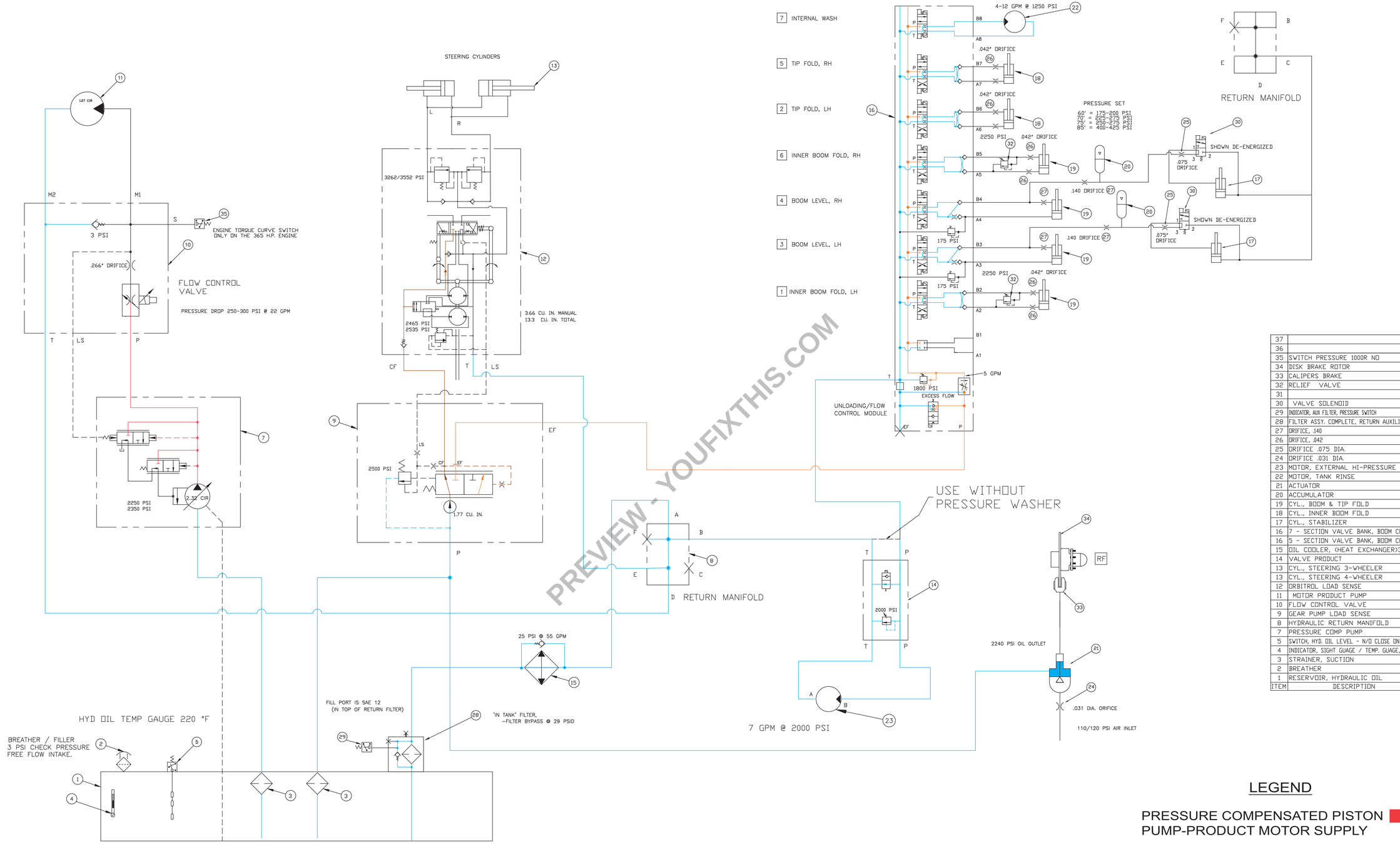


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SHEET 5

RAIL11SP00067JA 1

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ITEM	DESCRIPTION
37	
36	
35	SWITCH PRESSURE 1000R NO
34	DISK BRAKE ROTOR
33	CALIPERS BRAKE
32	RELIEF VALVE
31	
30	VALVE SOLENOID
29	INDICATOR, AUX FILTER, PRESSURE SWITCH
28	FILTER ASSY. COMPLETE, RETURN AUXILIARY FLOW
27	ORIFICE, .140
26	ORIFICE, .042
25	ORIFICE .075 DIA.
24	ORIFICE .031 DIA.
23	MOTOR, EXTERNAL HI-PRESSURE WASH
22	MOTOR, TANK RINSE
21	ACTUATOR
20	ACCUMULATOR
19	CYL., BOOM & TIP FOLD
18	CYL., INNER BOOM FOLD
17	CYL., STABILIZER
16	7 - SECTION VALVE BANK, BOOM CONTROL
16	5 - SECTION VALVE BANK, BOOM CONTROL
15	OIL COOLER, <HEAT EXCHANGER>3-WHEEL
14	VALVE PRODUCT
13	CYL., STEERING 3-WHEELER
13	CYL., STEERING 4-WHEELER
12	ORBITROL LOAD SENSE
11	MOTOR PRODUCT PUMP
10	FLOW CONTROL VALVE
9	GEAR PUMP LOAD SENSE
8	HYDRAULIC RETURN MANIFOLD
7	PRESSURE COMP PUMP
5	SWITCH, HYD. OIL LEVEL - N/O CLOSE ON OIL RISE
4	INDICATOR, SIGHT GUAGE / TEMP. GUAGE, HYD. OIL
3	STRAINER, SUCTION
2	BREATHER
1	RESERVOIR, HYDRAULIC OIL

LEGEND

PRESSURE COMPENSATED PISTON PUMP-PRODUCT MOTOR SUPPLY

GEAR PUMP CONSTANT FLOW (CF) STEERING SUPPLY

GEAR PUMP EXCESS FLOW (EF) SYSTEM SUPPLY

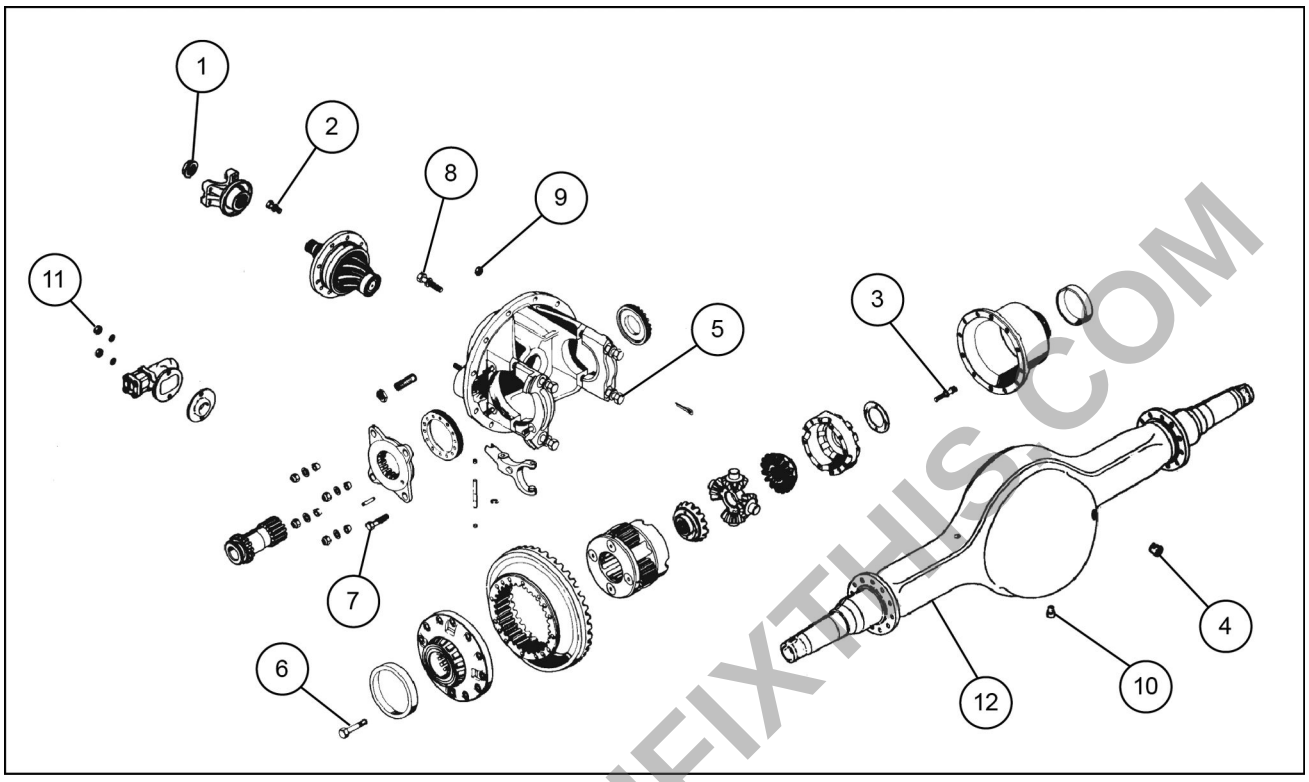
RETURN TO TANK/SUMP

TITAN 3030, 3530, 4030 AND 4530
WITH LIQUID SYSTEM 610
RAC 84567054

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Differential - Torque



RAIL11SP00021EA 1

Item	Description		Torque value	Adhesive
1	Drive pinion nut		**1000 - 1250 N·m** (**740 - 922 lb ft**)	not required
2	Capscrews (pinion bearing case fasteners)		**90 - 125 N·m** (**66 - 92 lb ft**)	**LOCTITE® 271**
3	Capscrews (differential case fasteners)		**130 - 160 N·m** (**96 - 118 lb ft**)	**LOCTITE® 273**
4	Plug (oil fill and level)		**47 N·m** (**35 lb ft**)	not required
5	Capscrews (bearing caps fasteners)		**295 - 360 N·m** (**218 - 265 lb ft**)	**LOCTITE® 273**
6	Capscrews (ring gear and differential case)		**205 - 250 N·m** (**151 - 184 lb ft**)	**LOCTITE® 273**
7	Capscrews (lock plate fasteners)		**575 - 640 N·m** (**424 - 472 lb ft**)	**LOCTITE® 290**
8	Capscrews (carrier fasteners)		**270 - 330 N·m** (**200 - 243 lb ft**)	**LOCTITE® 290**
9	Nuts (carrier fasteners)		**250 - 305 N·m** (**184 - 225 lb ft**)	**LOCTITE® 290**
10	Drain plug		**47 N·m** (**35 lb ft**) minimum	not required
11	Nuts (fasteners for speed change control)		**46 - 62 N·m** (**34 - 46 lb ft**)	**LOCTITE® 290**
12	Vent plug	**0.125 in** 27 NPTF	**14 N·m** (**10 lb ft**) minimum	not required
		0.375 in 18 NPT	**27 N·m** (**20 lb ft**) minimum	not required

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General specification - 3 wheel models

Titan 3030, Titan 3530

Item	Titan 3030 Specification	
Engine	**8.7 l** (**530 in³**) **330 Hp** Case IH Cursor Emission level (tier) 4A	
Transmission	Allison 3000 RDS 6 speed automatic	
Rear Axle	Axle Tech PRC 674 2 speed with wheel end planetary	
Front Axle	**115 mm** (**4.53 in**) solid shaft, **70 mm** (**2.76 in**) axle bearings	
Frame	12 x 4 x 0.3125 inches HSLA cold formed steel main frame with high strength reinforcement plates.	
Dimensions	Wheelbase	**6.8 m** (**268 in**)
	Cab to Axle	**2.89 m** (**114 in**)
	Cab to end of frame	**3.78 m** (**149 in**)
	Overall length	**8.59 m** (**338 in**)
	Overall width	**3.5 m** (**138 in**)
	Overall height	**3.62 m** (**142.5 in**) with 66/66 tires
	Weight	**9911 kg** (**21850 lb**) (estimate)
Chassis vehicle rated capacity	Front axle (static)	**6350 kg** (**14000 lb**)
	Rear Axle (static)	**15422 kg** (**34000 lb**)
	Total (static)	**21772 kg** (**48000 lb**)
Brakes	Front	Air (36 cubic inch chamber) over hydraulic applied **711 mm** (**28 in**) disc brake w/ dual piston floating caliper
	Rear	Air applied 16.5 x 5 inch with 36 cubic inch chambers
	Park	Spring applied, air release
Tires	Front	Firestone: 66 x 43-25 bias, 16 ply 1050/50R25 radial Goodyear: 1000/50R25 radial Michelin: 1000/50R25 radial
	Rear	Firestone: 66 x 43-25 bias, 16 ply 1050/50R25 radial Goodyear: 1000/50R25 radial Michelin: 1000/50R25 radial
Steering	Hydraulic with flow control pump and load sensing dual displacement steering valve.	
Paint	Roof, bottom and side panels, hood and frame: Two part urethane. Cab metal parts: Thermal set acrylic.	

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19415-Empty urea tank - urea tank empty - P203F reagent - fluid level in tank - too low

Cause:
The denox module/supply module has detected the DEF/AdBlue® level is constantly less than **0.1 %** for more than **25 s**.

Possible failure modes:

1. Tank is empty
2. Faulty level sensor

Solution:

1. Verify this error code is still present, and in an active state.
   A. If the error is still present and active, continue with step **2**.
   B. If the error is no longer present or is in an inactive state, return unit to field operation.**6**.
2. Check to see if other DEF/AdBlue® level sensor fault codes are present.
   A. If no other errors are present, continue with step **3**.
   B. If errors are present, correct these errors first. Verify original error has been corrected.
3. Check DEF/AdBlue® tank. Verify that the tank level is filled to the proper capacity.
   A. If the tank level is full, continue with step **4**.
   B. If the level is empty or below capacity, fill the tank to the proper level.
4. Check DEF/AdBlue® tank float. Verify the DEF/AdBlue® float is not stuck or is obstructed by any foreign object.
   A. If float moves freely, continue with step **5**.
   B. If float is stuck, clean any foreign object from around float.
5. Check level sensor resistance . Disconnect connector C803 at top of DEF/AdBlue® tank. Use a multimeter to measure the resistance of the level sensor from pin 1 to pin 2. The resistance should be approximately **16000 Ω** when the tank is filled. The resistance should be approximately **100 Ω** when the tank is empty.
   A. If resistance is correct continue with step **6**.
   B. If the resistance is not correct, replace the level sensor.
6. Fill the DEF/AdBlue® tank.
   A. If the fault code does not reoccur return unit to field operation.
   B. If same fault code error is present, contact ASIST before replacing denox module/supply module.

Wiring harness - Electrical schematic frame 63 (A.30.A.88-C.20.E.63)

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Capacities - 3 wheel models

Titan 3030, Titan 3530

Engine	
Oil type	**CASE IH AKCELA NO. 1™ ENGINE OIL**
Oil exchange capacity with filter (approximate.)	**25 l** (**6.6 US gal**)
Cooling system	
Coolant type	**CASE IH AKCELA PREMIUM ANTI-FREEZE** 50-50 water and ethylene glycol mix
Radiator capacity	**52 l** (**13.75 US gal**)
Hydraulic system	
Oil type	**CASE IH AKCELA HY-TRAN® ULTRA™ HYDRAULIC TRANSMISSION OIL**
Tank capacity (chassis only)	**114 l** (**30 US gal**)
Axle (rear)	
Oil type	**CASE IH AKCELA GEAR 135 H EP 85W-140**
Differential	**17 l** (**4.5 US gal**)
Planetary wheel ends (each	**3.8 l** (**1 US gal**)
Transmission	
Oil type	Transynd®
Capacity	**21 l** (**5.5 US gal**)
Auxiliary transmission	
Oil type	**CASE IH AKCELA HY-TRAN® ULTRA™ HYDRAULIC TRANSMISSION OIL**
Capacity	**4.28 l** (**1.13 US gal**)
Two speed shifter	
Oil type	Air tool oil
Capacity	**30 ml** (**1 US fl oz**)
Air conditioning system	
Refrigerant type	**R134A**
Refrigerant capacity	**1.86 kg** (**4.1 lb**)
Diesel Exhaust Fluid (DEF)/AdBlue® tank capacity	
Capacity	**108 l** (**28.5 US gal**)
Diesel fuel tank	
Capacity	**568 l** (**150 US gal**)

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INTRODUCTION

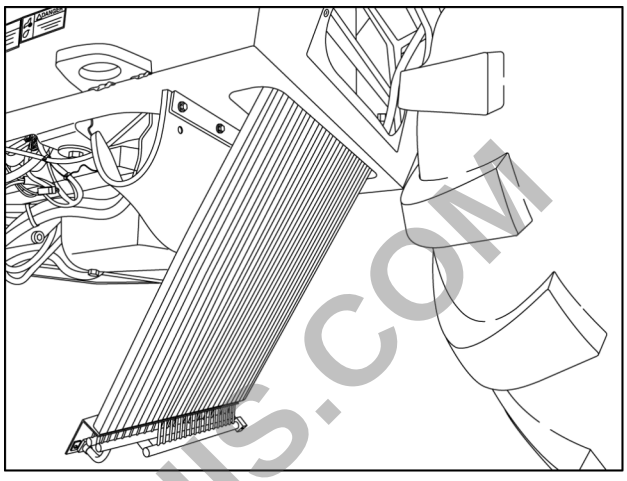
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Oil cooler - Install - 3 wheel models

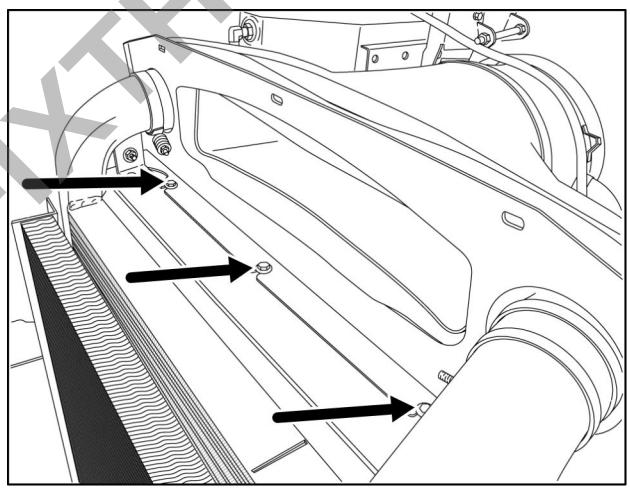
Titan 3030, Titan 3530

1. Carefully install the oil cooler to the lower access hole and lift up, into place and support in place.



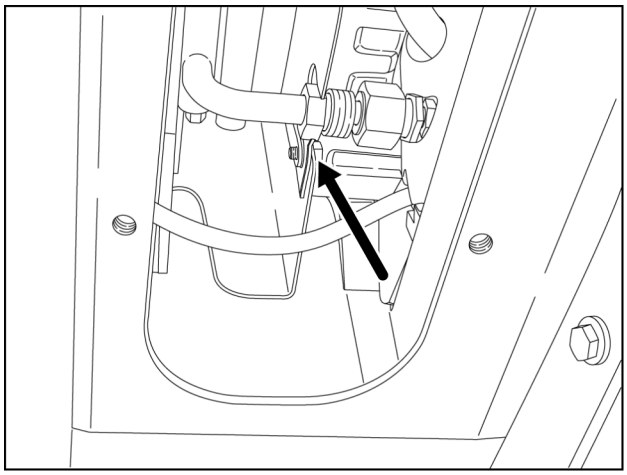
RCPH11FLR636BAC 1

2. Loose assemble the top three bolts removed during disassembly.



RCPH11FLR635BAC 2

3. Loose assemble the two lower mounting bolts. Right hand side shown. Do both sides.



RCPH11FLR634BAC 3

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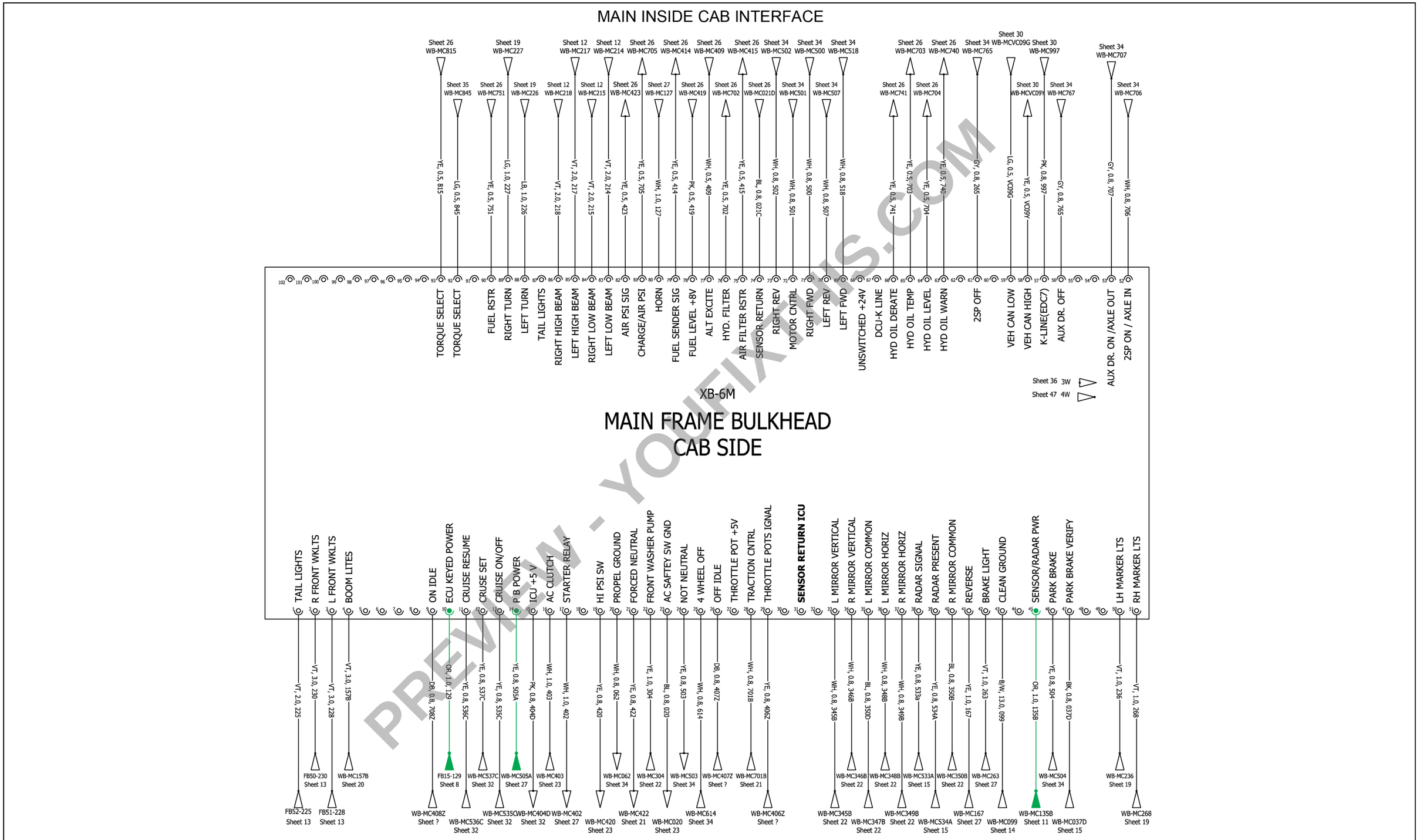
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Wiring harness - Electrical schematic frame 04 - Harness codes

AG	=	Auto guidance cab
AF	=	Auto guidance frame
BC	=	Battery cables
CML	=	Liquid system compartment
CMV	=	Viper Flexair compartment
CMS	=	SCS5000 Flexair compartment
CNL	=	Liquid system right hand console
CNV	=	Viper Flexair right hand console
CNS	=	SCS5000 Flexair right hand console
DX	=	FPT denox harness
EN	=	FPT engine harness
HFL	=	Liquid system hydraulic frame
HFV	=	Viper Flexair hydraulic frame
HFS	=	SCS5000 Flexair hydraulic frame
HL	=	Headlight extension
MC	=	Main cab
MD	=	Main dash
MFT	=	Main frame 3 wheel
MFF	=	Main frame 4 wheel
PFL	=	Liquid system product frame
PFV	=	Viper Flexair product frame
PFS	=	SCS5000 Flexair product frame
SR	=	Stabilizer release
ST	=	Stabilizer lights
RM	=	Remote
TL	=	Tail light extension
WET	=	Flexair wet kit
GB	=	Auto guidance roof
GR	=	Auto guidance roof 2
RO	=	Roof cap harness
AP1	=	Viper A post
AP2	=	SCS5000 A post
AP3	=	AFS600 A post

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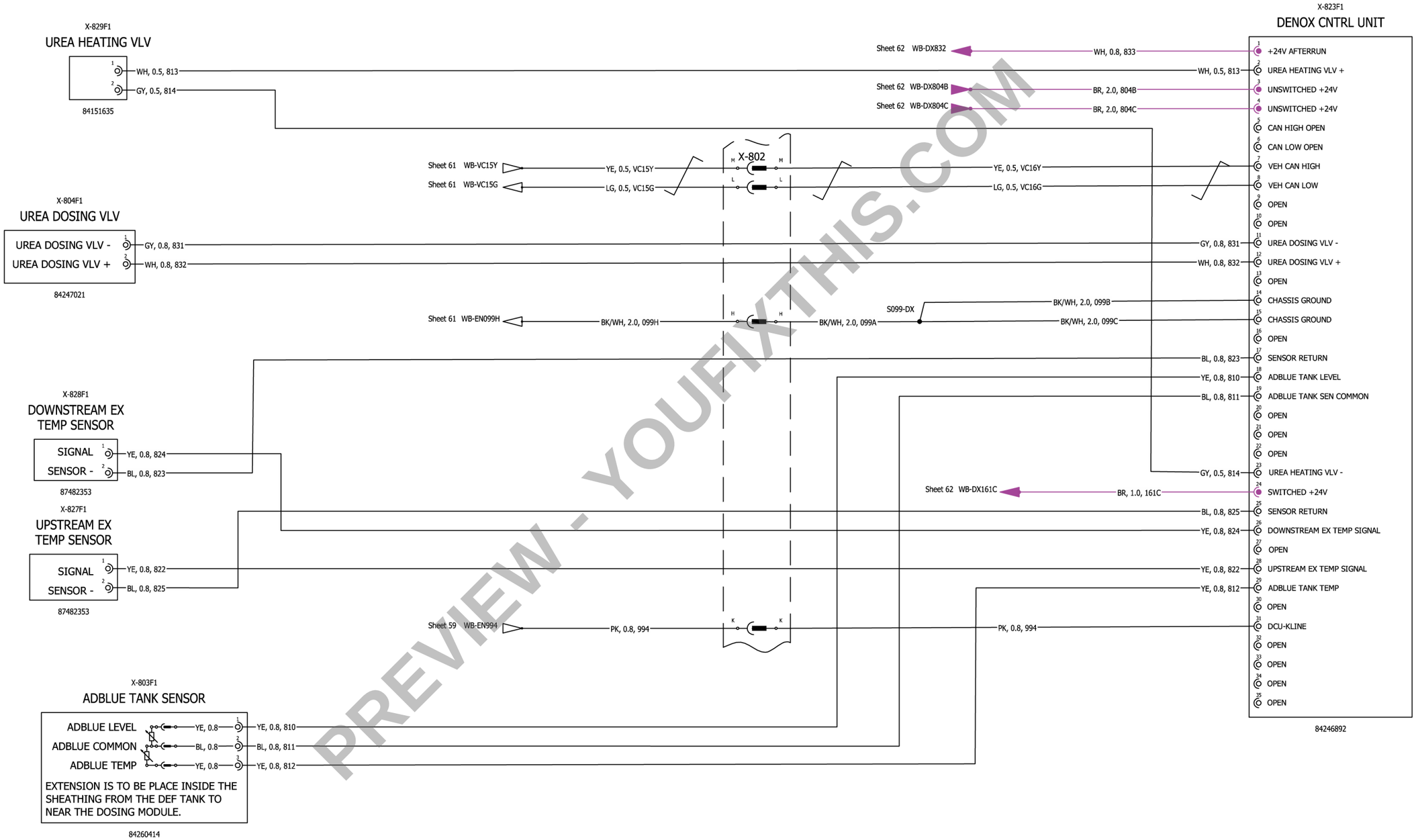
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FPT DCU CIRCUITS



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SHEET 63

RAIL11SP00124JA 1

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19082-Voltage supply 3 - coolant control valve and reverting valve (UB3) electrical - short to bat at UB3 with key 15 off - P20A3 vent valve (reductant purge control valve) - short circuit high

Context:
The denox module/supply module has sensed a fault with the voltage supply for the coolant control valve and the reverting valve, located in the denox module/supply module. Ensure all connectors are secured properly on the denox module/supply module and all lines are in operable condition. If the fault does not reset or reoccurs, replace the denox module/supply module.

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19739-Main relay opens too early / too late - main relay shut off too late - P0687 ECM/PCM power relay control circuit high

Context:
The denox module/supply module has detected the main relay is not switched off within **2 s**.

Cause:
The main relay is shutting off too late.

Possible failure modes:

1. Faulty relay
2. Faulty electrical wiring or connection
3. Denox module/supply module error

Solution:

1. Verify this error code is still present, and in an active state.
   A. If the error is still present and active, continue with step **2**.
   B. If the error is no longer present or is in an inactive state, continue with normal operation of machine.
2. Check the external relays K1, K2 and K3. Replace each relay one at a time with a known good relay.
   A. If replacing the relays does not eliminate fault, continue with **3**.
   B. Replacing a relay has eliminated fault. Return unit to field operation.
3. Check the denox module/supply module. Use the electronic service tool (EST) to flash the denox module/supply module.
   A. If flashing the denox module/supply module does not correct the error, replace the denox module/supply module.
   B. If flashing corrects error, verify error is not still active or present. Continue with normal operation of machine.

Wiring harness - Electrical schematic frame 62 (A.30.A.88-C.20.E.62)
Wiring harness - Electrical schematic frame 63 (A.30.A.88-C.20.E.63)

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Using the EST service tool, re-initialize the ECU and load the appropriate data-set for this engine type. A call will have to be made to CNH TSS to get an authorization code for the ECU initialization download. Check to see if the fault code has cleared.

A. If the fault code did not clear, Replace the ECU.

B. If fault code cleared, continue with operation of machine.

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3108-Fuel Metering Unit - Short To Ground

Context:
The engine control unit (ECU) has determined that a short to low source circuit condition exists in the fuel high pressure pump low side circuit. The metering unit of the fuel high pressure pump regulates the pressure in the common rail. The metering unit is closed-loop controlled by both main relay 1 (high side) and a low side power stage (Main Relay 1 is an electronic control circuit within the ECU, providing source voltage to devices external to the ECU. The low side power stage works in conjunction with the Main Relay 1 source, providing sensing and current limiting for the circuit). The monitoring at low side is stopped if a short circuit to ground at the high side (main relay 1) is detected or it is switched off for some reason. Failure detection of is only possible if the low side power stage is switched off. With the current settings, the monitoring is shut off during after-run. This error is the result of the power stage hardware report of 'short circuit to ground' (on the low side of the metering unit) longer than 0.28 seconds and the power stage has most likely switched off.

Cause:
Fuel high pressure pump circuit is shorted to a low source.

Possible failure modes:

1. Faulty fuel high pressure pump control circuit, shorted to a low source.
2. Faulty ECU, hardware or software.

Solution:

1. Verify this error code is still present and in an active state.
   A. If the error is still present and active, continue with step **2**.
   B. If the error is no longer present or is in an inactive state, continue with step **4**.
2. Disconnect the Engine Injector harness from the ECU at connector. Use a multi-meter to test for continuity from the Engine Injector harness side of connector pin 10 to ground. There should be no continuity.
   A. If there is continuity, continue with step **3**
   B. If there is no continuity, try reloading the ECU software and if the error reoccurs, replace the ECU.
3. Disconnect the Engine Injector harness from the Fuel high pressure pump at connector and use a multi-meter to check for continuity on the fuel high pressure pump side of connector pins 1 and 2 to chassis ground. There should be no continuity on either pin to ground.
   A. If there is continuity on either pin, the fuel high pressure pump solenoid coil has failed, replace the solenoid.
   B. If there is no continuity on either pin, there is a short to low source in the Engine Injector harness, locate and repair the short to ground.
4. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. Operate the machine while monitoring the Display.
   A. If damage is found or other than normal display readings are indicated, repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.
   B. If no damage or other than normal display readings are indicated, erase the fault code and continue operation.

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3301-Rail Pressure Negative Deviation Too High On Minimum Metering

Context:
The engine control unit (ECU) has determined that the Fuel Rail/System Pressure is too high with a closed Metering Unit (High Pressure Pump Regulator - solenoid valve). The rail pressure is monitored by various fault paths during active pressure control by the metering unit. The fault path at hand detects an excessive negative rail pressure governor deviation (too high rail pressure) at zero delivery of fuel volume flow through the metering unit. The monitoring is only active if the high pressure governor is operating in closed loop control, the engine is not in overrun, the fuel system temperature is above **29.96 °C** (**85.93 °F**), the current injection quantity is above **0.0 g** (**0.00 oz**) per cycle and the monitoring has not been inhibited by other faults. If the negative rail pressure governor deviation is below the engine speed dependent limit from a curve established by the ECU and the rail pressure governor set-point value of the fuel volume flow is below threshold (parameter established by the ECU) over 8 seconds, this error will occur.

Cause:

Possible failure modes:

1. Faulty high pressure pump regulator solenoid/valve, stuck open.
2. Pressure too high, low pressure side.

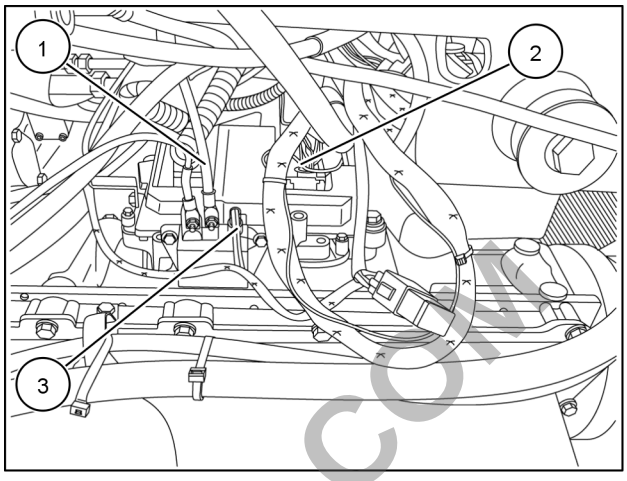
Solution:

1. Check for high pressure pump regulator (solenoid/valve) errors.
   A. If high pressure pump regulator (solenoid/valve) errors exist, follow troubleshooting procedure for existing high pressure pump regulator (solenoid/valve) error.
   B. If no high pressure pump regulator (solenoid/valve) errors exist, locate and repair high pressure condition in low pressure side of fuel system.

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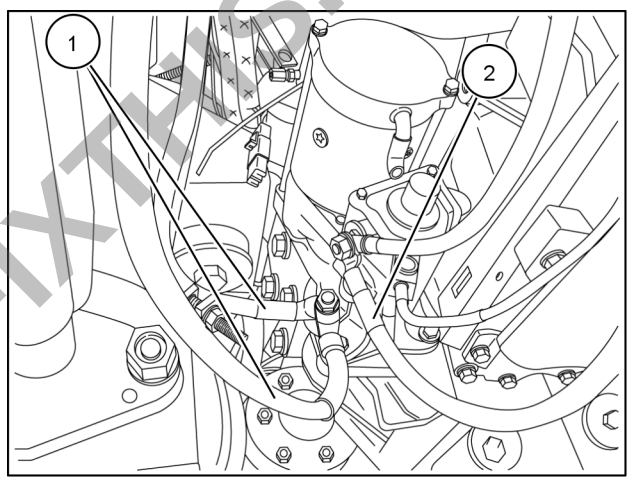
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16. Disconnect wire **(1)**, disconnect main harness **(2)** from the engine controller and unplug connector **(3)**.



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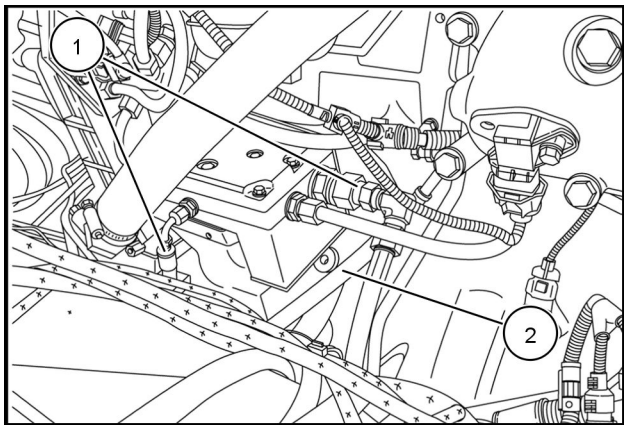
17. Disconnect ground cables **(1)** and battery cable **(2)** from the starter.



RCPH11FLR694BAC 17

18. Disconnect air lines **(1)** and fuel line **(2)**.

NOTE: *Plug and cap disconnected lines and fittings.*

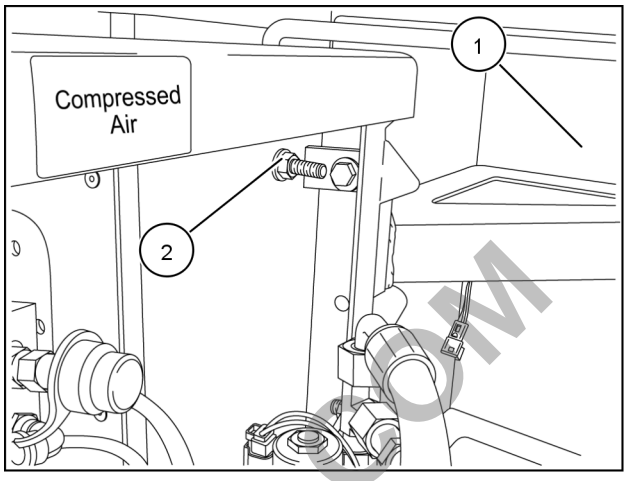


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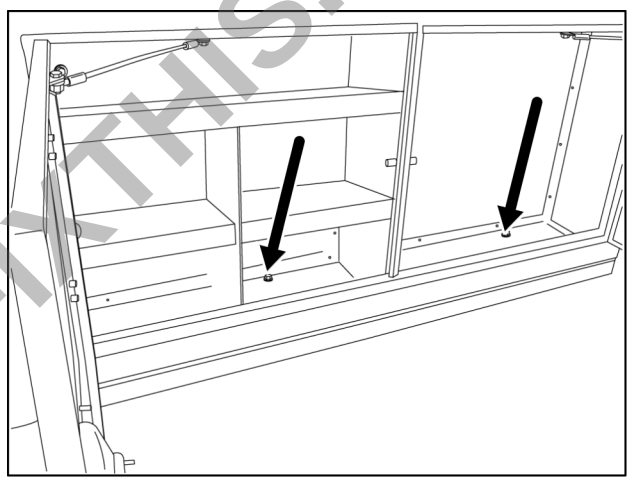
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4. Support the step assembly **(1)** and remove the adjustment stud **(2)**.



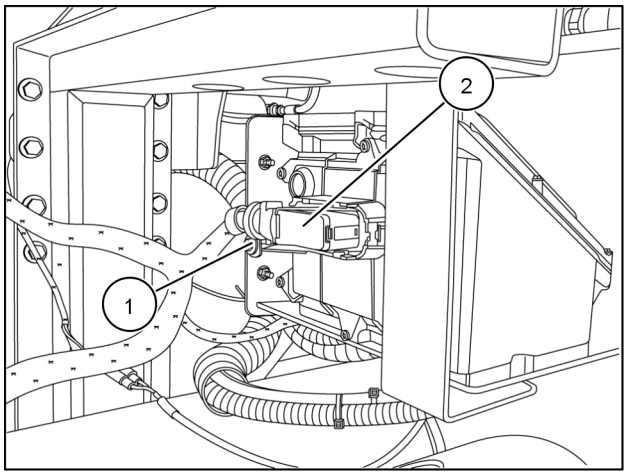
RCPH11FLR584BAC 4

5. Remove the four bolts securing the storage box to the support frame. (Two bolts shown). Remove the storage box.



RCPH11FLR585BAC 5

6. Remove the bolt **(1)** securing clamp to module and disconnect harness **(2)** from the module.

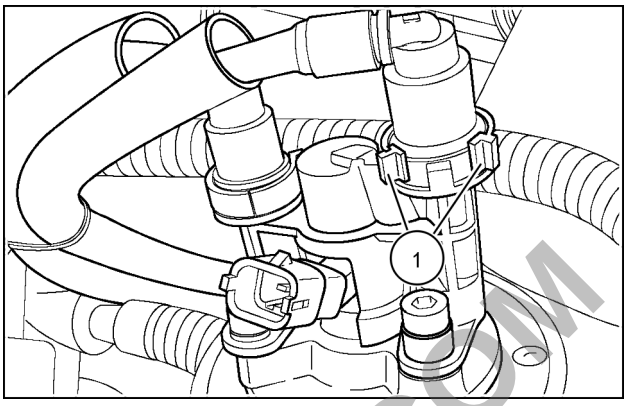


RCPH11FLR586BAC 6

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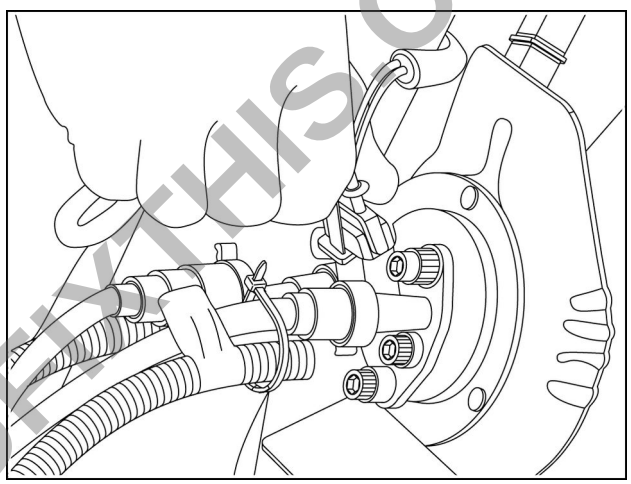
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5. Install the DEF supply and return lines by squeezing the tabs **(1)** together and pushing straight into the sensor.



RCPH10CCH359AAB 5

6. Plug connector into sensor. Reinstall any tie straps that originally secured the DEF lines.

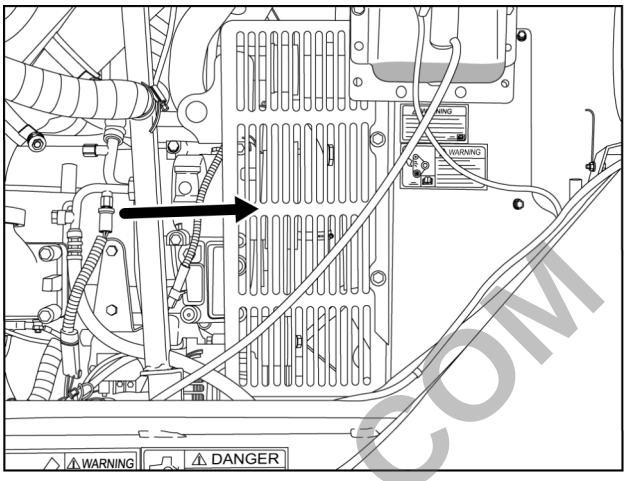


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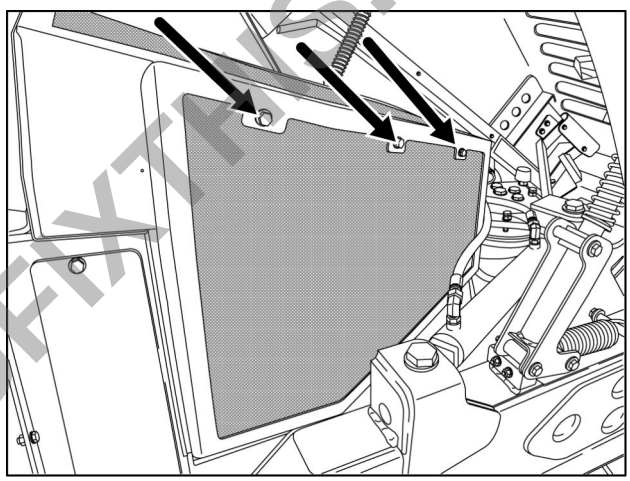
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15. Install the right hand safety shield.



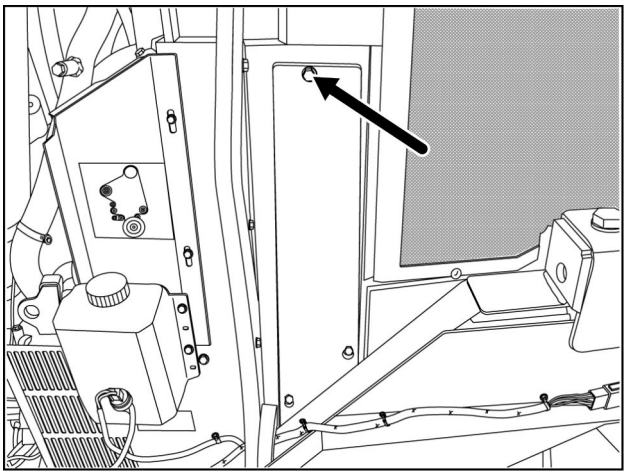
RCPH11FLR638BAC 16

16. Set the side screen in place and secure with the original bolts. Do both sides.



RCPH11FLR613BAC 17

17. Install the access panels and secure with original bolts.



RCPH11FLR637BAC 18

18. Fill the cooling system through the deaeration tank filler neck with the proper coolant. Run the engine, check for function and leaks.

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ADDITIONAL REDUCERS Mechanical Hi-Lo unit - Assemble

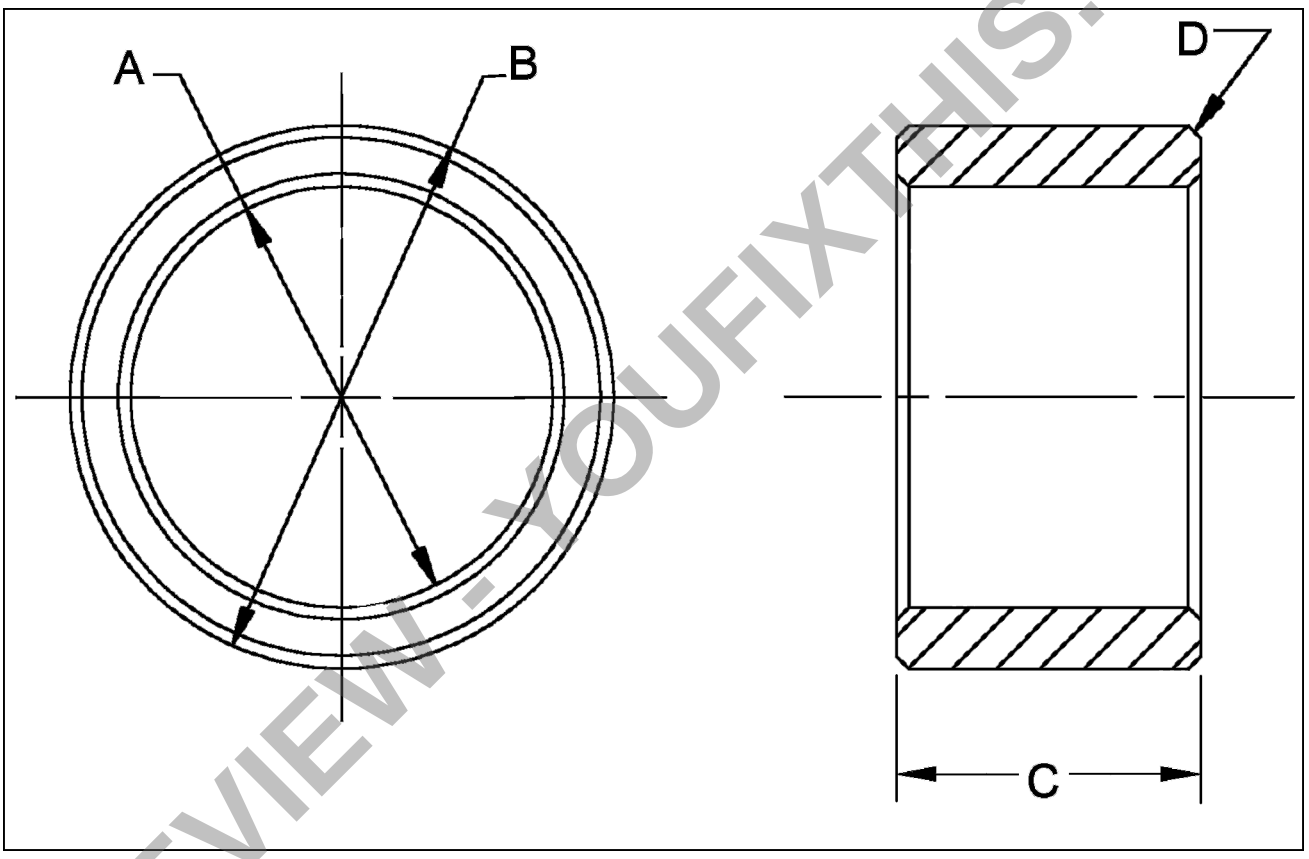
Make sure all parts are clean, dry and lint free. Any traces of storage wax or paper should be removed. Leave bearings and cups in their wrappers, until ready to use. All threaded holes should be cleaned with solvent to ensure that locking compound adheres properly.

Unless indicated otherwise, part-mating surfaces should be given a light coating of lubricant. Lubriplate is an acceptable grease. A substitute may be utilized consisting of a mixture of chassis grease and 30W engine oil. The mix should be thin enough to apply with a small brush.

NOTICE: *When a part is assembled with a press fit, it is recommended that the part be heated prior to installation in a suitable oven at a temperature no greater than* ***149 °C (300 °F)****.*

Required tools

Have the following tools made locally using the following diagram.



RCPH10FLT767EBC 1

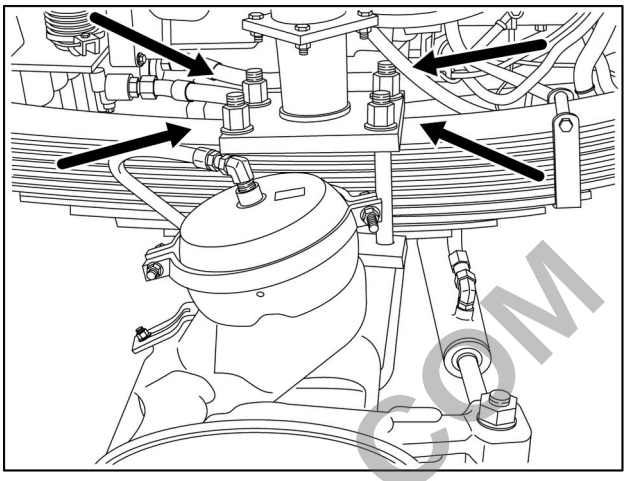
End float set up tool.

A- inner diameter	B- outer diameter	C- height	D- chamfer
51.56 mm (**2.03 in**)	**66.55 mm** (**2.62 in**)	**37.34 mm** (**1.47 in**)	**1.52 mm** (**0.06 in**) X 45 degrees

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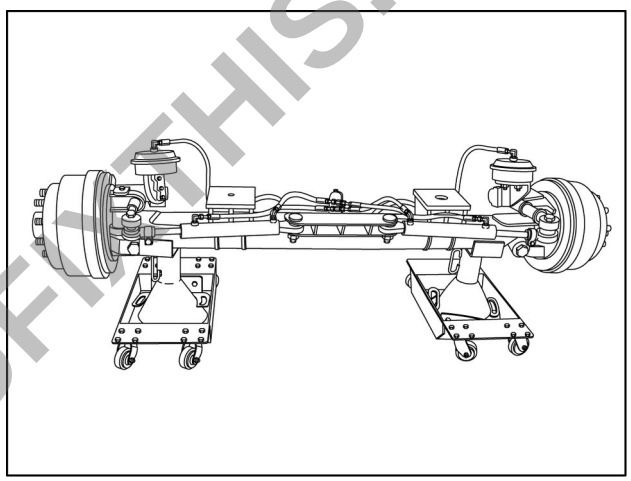
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4. Properly support the axle with jacks and remove the four nuts on the spring u-bolts from both sides.



RAIL12SP00013AA 4

5. Lower the axle onto rolling jack stands and remove axle from under chassis.

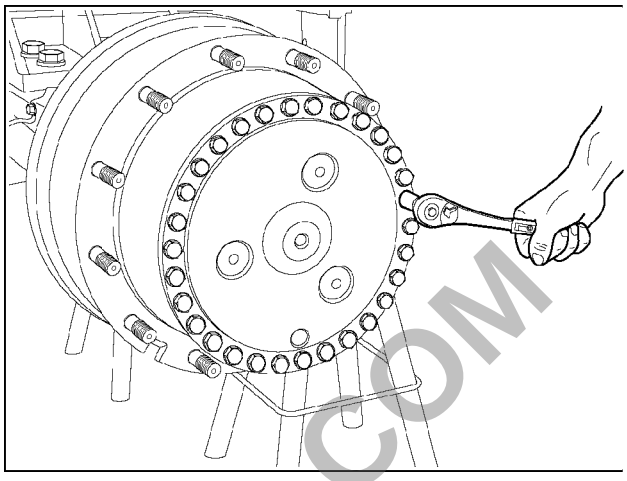


RAIL12SP00018AA 5

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13. Torque the bolts to **115 - 156 N·m** (**85 - 115 lb ft**). Install the planetary assembly drain plug. Fill the final drive.

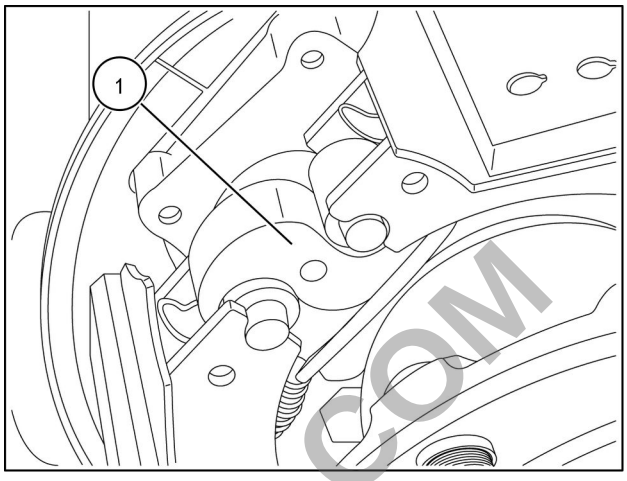


RCPH10FLT065BAO 13

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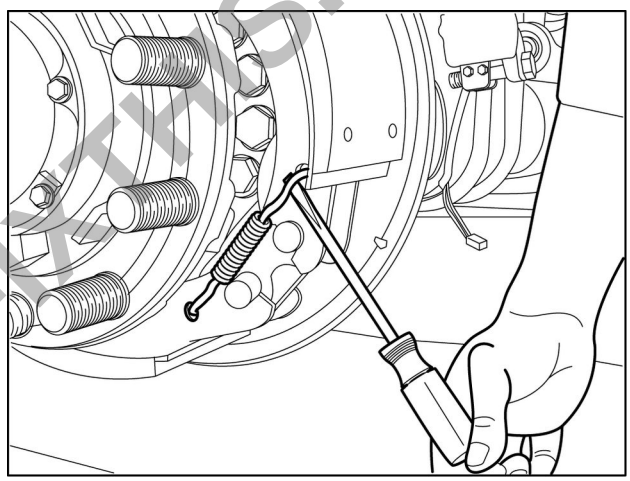
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4. Check the slack adjuster cam **(1)** to make sure the brake shoes are fully retracted. If not, loosen the slack adjuster bolt until all tension is off the cam.



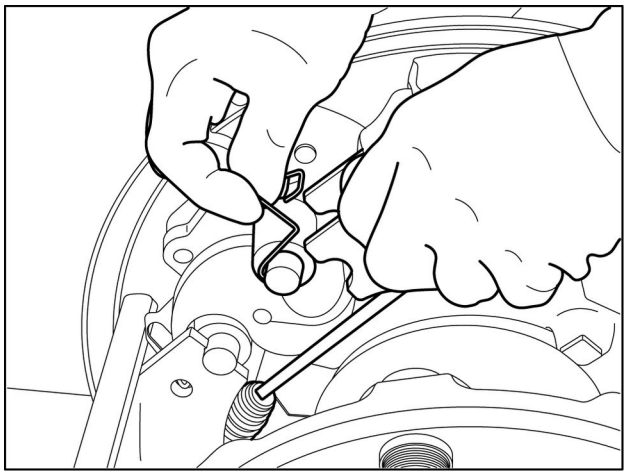
RAIL12SP00010AA 4

5. Remove the brake shoe retainer springs from the front and rear side of the brake shoes.



RAIL12SP00005AA 5

6. Lift up on the upper brake shoe and remove the brake shoe roller and retainer clip at the adjuster cam. Take note of orientation for reassembly.

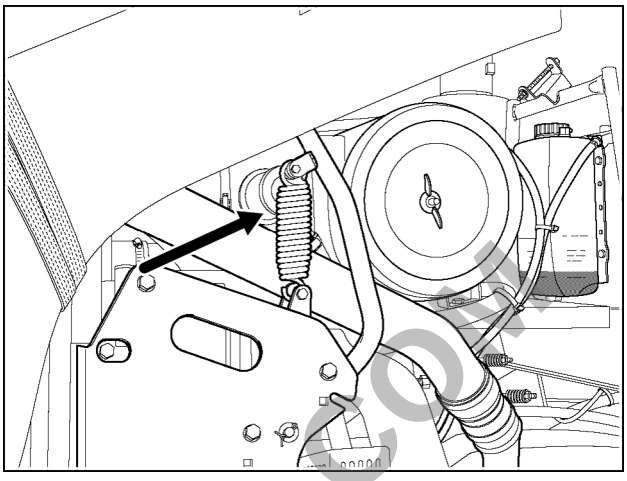


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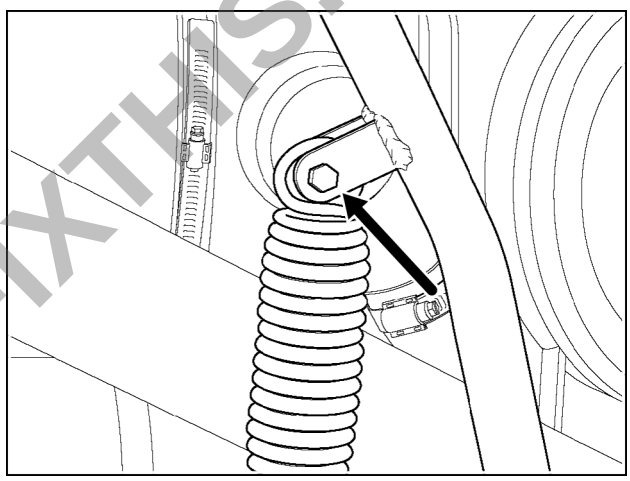
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9. Raise the hood to a position where the lift assist spring can be installed on the lift bar without any tension.



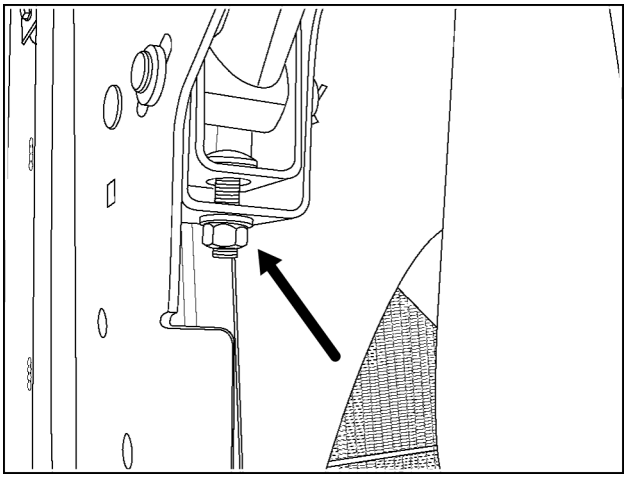
RCPH10FLT022AAM 9

10. Install the bushing, spring retainer pin and cotter pin in the lifting bar.



RCPH10FLT021AAM 10

11. Tighten the nut on the lift spring tension bolt on both sides of the hood.



RCPH10FLT004AAM 11

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