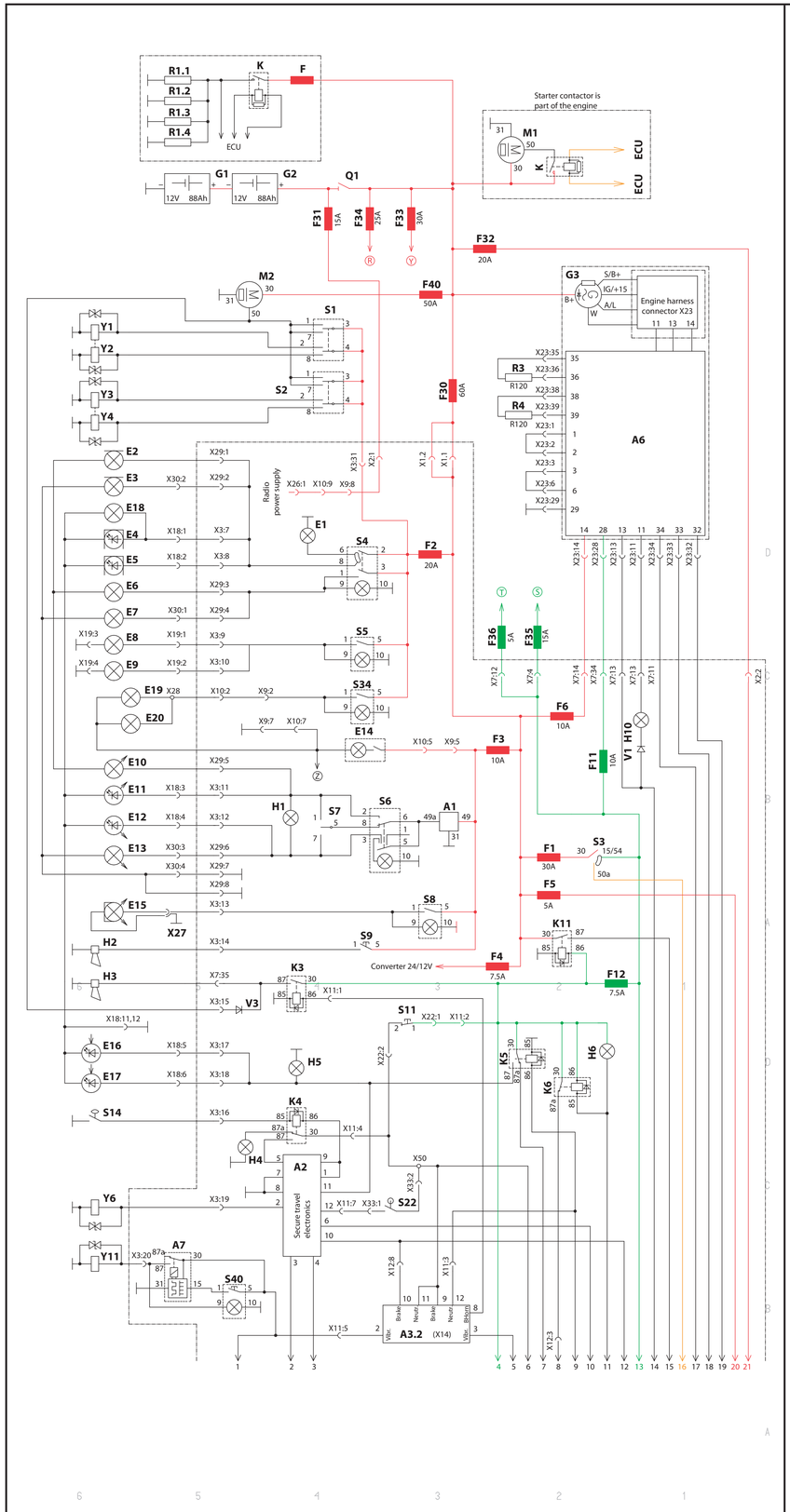
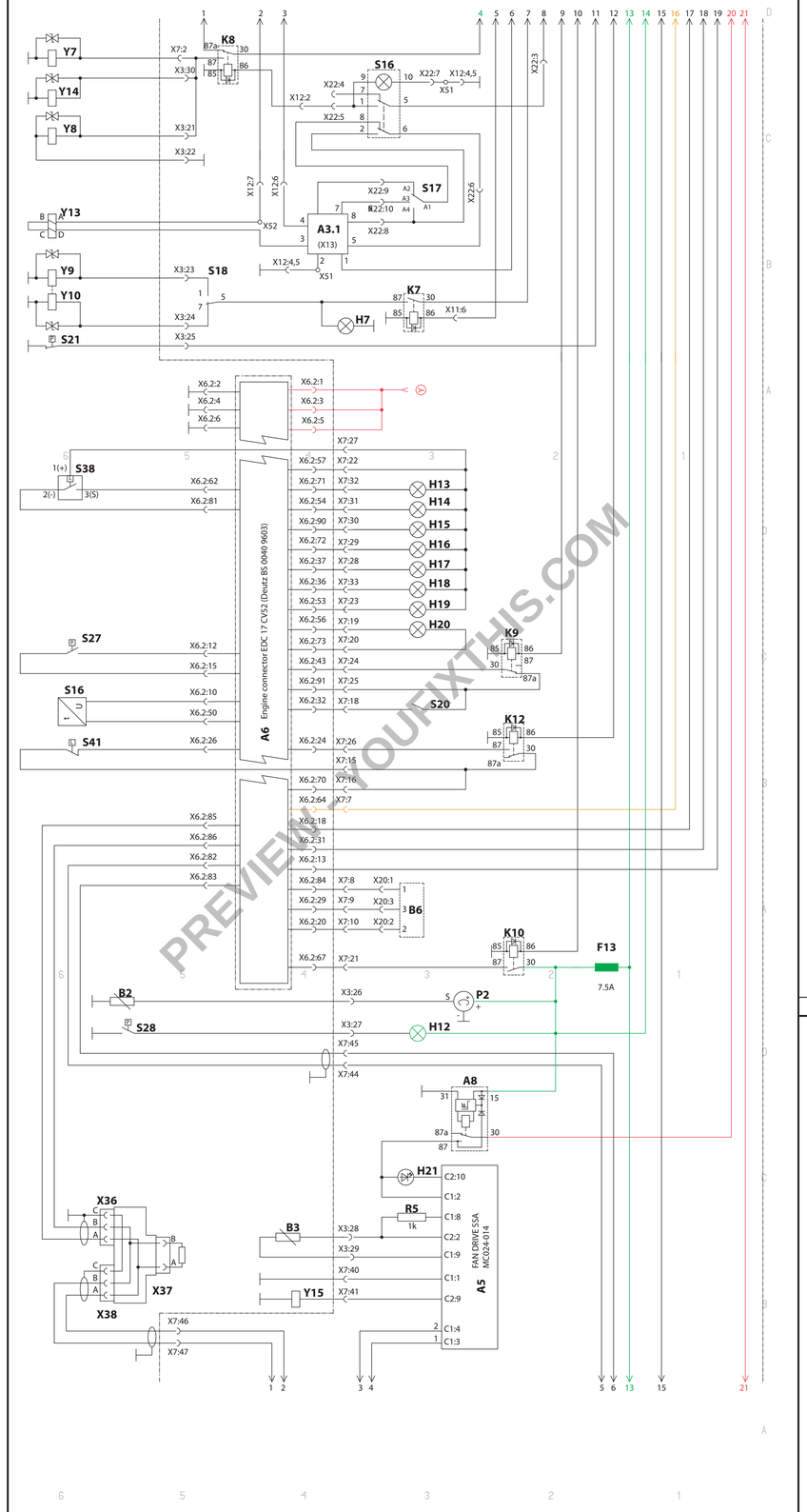
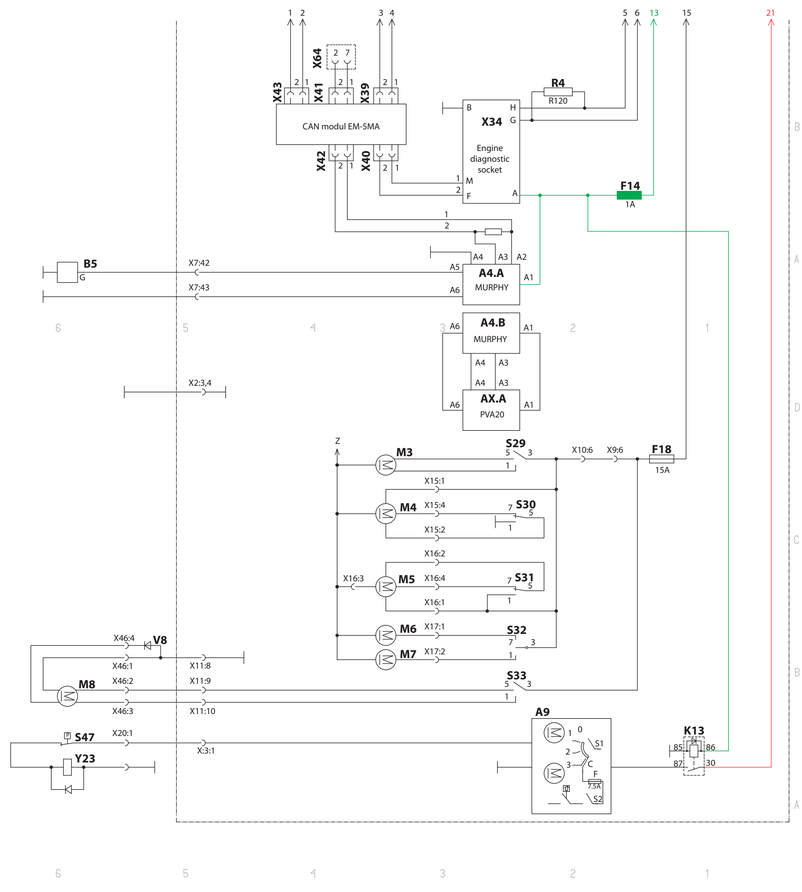


SHEET 1



SHEET 2



SHEET 3

SV212D/SV216D T4B (Final)

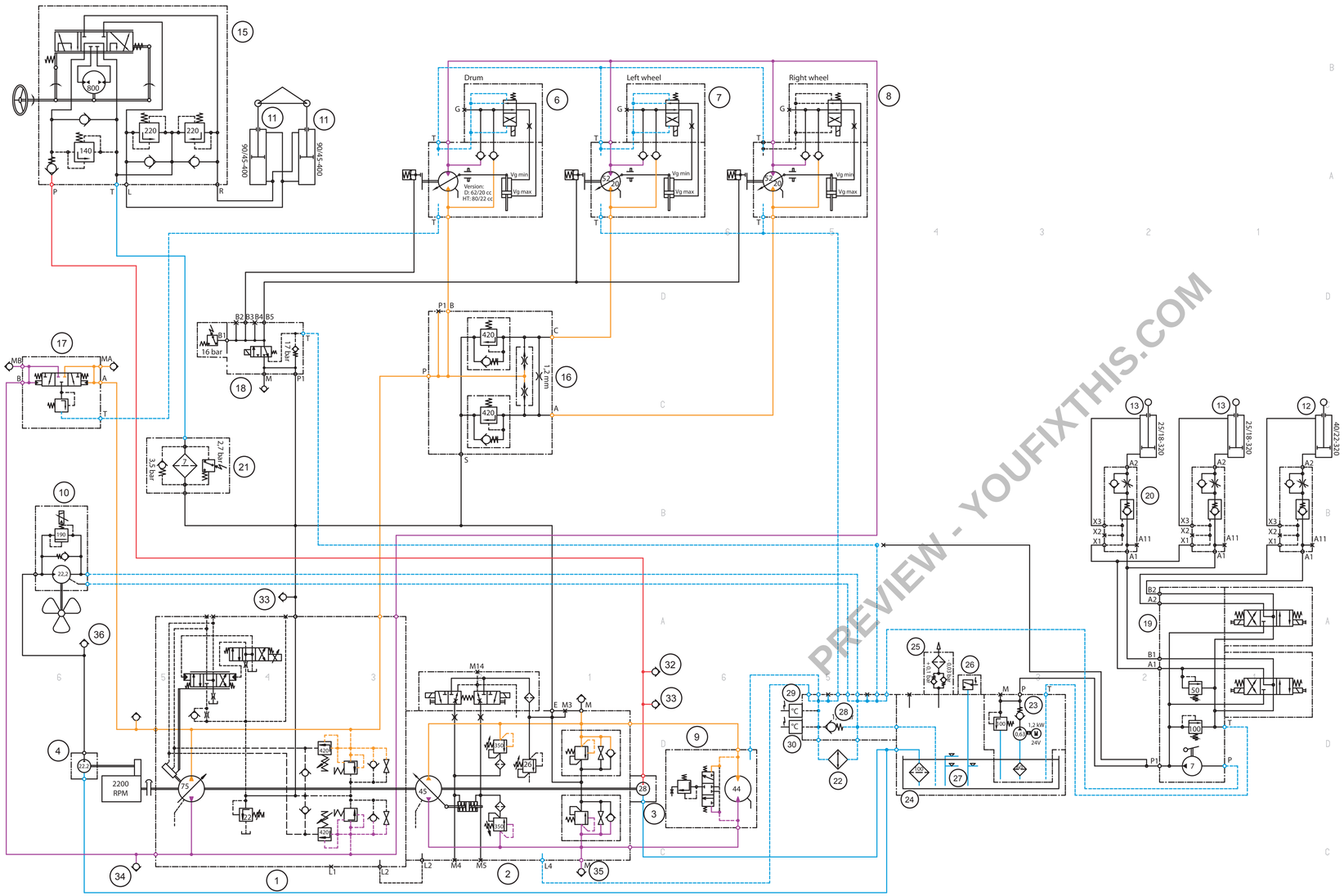
ELECTRICAL SCHEMATIC
RAC 51443110

BATTERY POWER

STARTING SEQUENCE

SWITCHED POWER

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LEGEND

1	TRAVEL PUMP	19	CAB AND BONNET LIFTING BLOCK
2	VIBRATION PUMP	20	HYDRAULIC LOCK
3	STEERING PUMP	21	HYDRAULIC FILTER
4	COOLING PUMP	22	COOLER
5		23	POWER GENERATION UNIT
6	DRUM TRAVEL HYDRAULIC MOTOR	24	SUCTION STRAINER
7	WHEEL TRAVEL HYDRAULIC MOTOR	25	VENT FILTER
8	WHEEL TRAVEL HYDRAULICMOTOR	26	LEVEL INDICATOR
9	VIBRATION HYDRAULIC MOTOR	27	OIL LEVEL GAUGE
10	COOLING HYDRAULIC MOTOR	28	ONE-WAY VALVE (CHECK VALVE)
11	STEERING HYDRAULIC MOTOR	29	HYDRAULIC OIL TEMP SENSOR
12	CAB LIFTING HYDRAULIC MOTOR	30	HYDRAULIC OIL TEMP SENSOR
13	BONNET LIFTING HYD. MOTOR	31	
14		32	FILLING QUICK COUPLER
15	POWER STEERING	33	MEASURING QUICK COUPLER
16	FLOW DIVIDER BLOCK	34	MEASURING QUICK COUPLER
17	FLUSHING BLOCK	35	MEASURING QUICK COUPLER
18	BRAKE BLOCK	36	MEASURING QUICK COUPLER

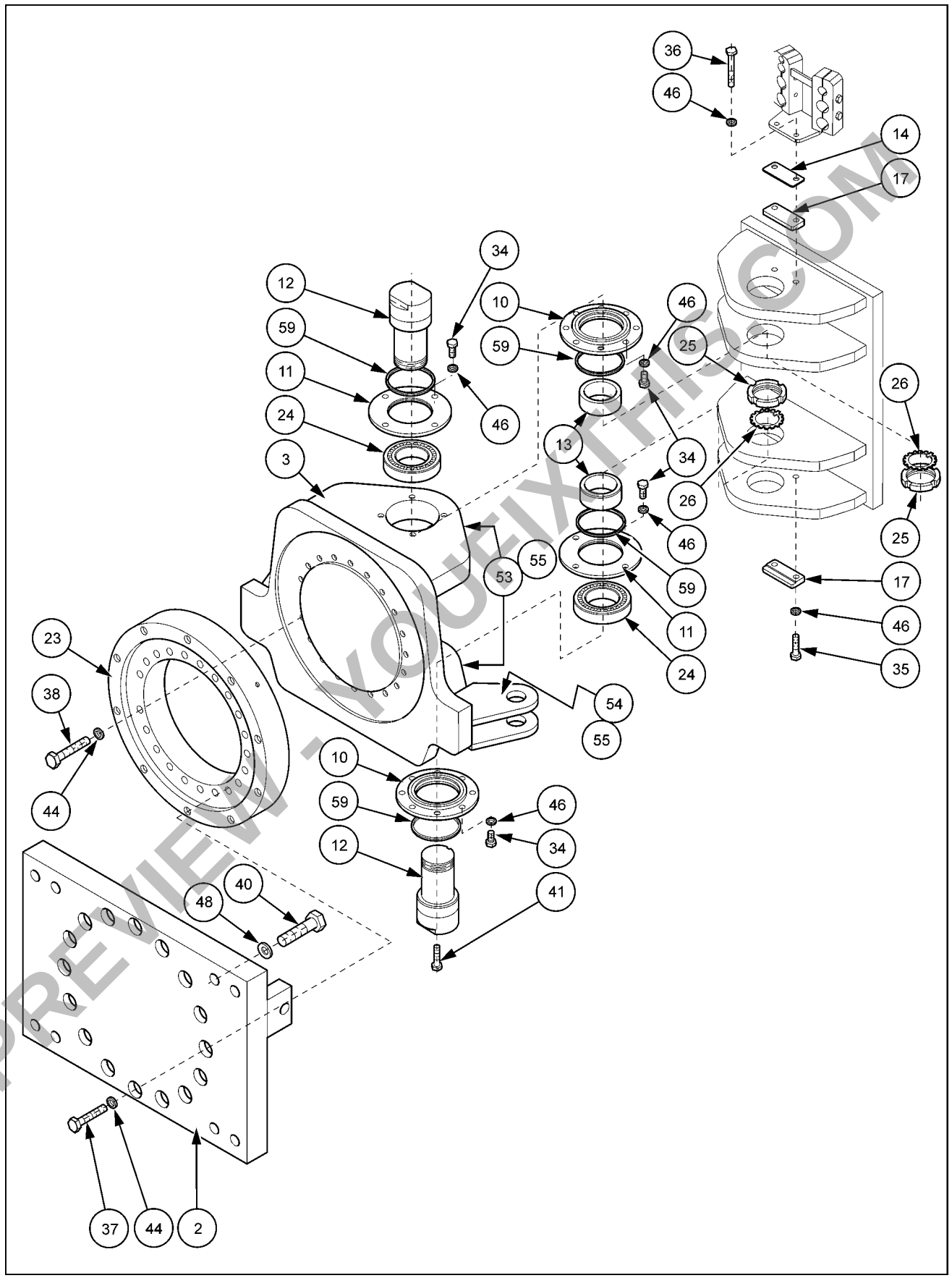
SV212D/SV216D T4B (Final)
WHEEL LOCK

HYDRAULIC SCHEMATIC
RAC 51443109

- SUPPLY
- TRAVEL/VIBRATION (B)
- TRAVEL/VIBRATION (A)
- RETURN TO TANK

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Articulation frame pivot - Component identification



SS13A729 1

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Torque - Minimum tightening torques for normal assembly

METRIC NON-FLANGED HARDWARE

NOM. SIZE	CLASS 8.8 BOLT and CLASS 8 NUT		CLASS 10.9 BOLT and CLASS 10 NUT		LOCKNUT CL.8 W/CL8.8 BOLT	LOCKNUT CL.10 W/CL10.9 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr		
M4	2.2 N·m (19 lb in)	2.9 N·m (26 lb in)	3.2 N·m (28 lb in)	4.2 N·m (37 lb in)	2 N·m (18 lb in)	2.9 N·m (26 lb in)
M5	4.5 N·m (40 lb in)	5.9 N·m (52 lb in)	6.4 N·m (57 lb in)	8.5 N·m (75 lb in)	4 N·m (36 lb in)	5.8 N·m (51 lb in)
M6	7.5 N·m (66 lb in)	10 N·m (89 lb in)	11 N·m (96 lb in)	15 N·m (128 lb in)	6.8 N·m (60 lb in)	10 N·m (89 lb in)
M8	18 N·m (163 lb in)	25 N·m (217 lb in)	26 N·m (234 lb in)	35 N·m (311 lb in)	17 N·m (151 lb in)	24 N·m (212 lb in)
M10	37 N·m (27 lb ft)	49 N·m (36 lb ft)	52 N·m (38 lb ft)	70 N·m (51 lb ft)	33 N·m (25 lb ft)	48 N·m (35 lb ft)
M12	64 N·m (47 lb ft)	85 N·m (63 lb ft)	91 N·m (67 lb ft)	121 N·m (90 lb ft)	58 N·m (43 lb ft)	83 N·m (61 lb ft)
M16	158 N·m (116 lb ft)	210 N·m (155 lb ft)	225 N·m (166 lb ft)	301 N·m (222 lb ft)	143 N·m (106 lb ft)	205 N·m (151 lb ft)
M20	319 N·m (235 lb ft)	425 N·m (313 lb ft)	440 N·m (325 lb ft)	587 N·m (433 lb ft)	290 N·m (214 lb ft)	400 N·m (295 lb ft)
M24	551 N·m (410 lb ft)	735 N·m (500 lb ft)	762 N·m (560 lb ft)	1016 N·m (750 lb ft)	501 N·m (370 lb ft)	693 N·m (510 lb ft)

NOTE: *M4 through M8 hardware torque specifications are shown in pound-inches. M10 through M24 hardware torque specifications are shown in pound-feet.*

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Instrument cluster - Fault code index

All fault codes should be diagnosed by an authorized engine dealer. Please contact your local engine dealer for assistance. Below is the list of fault codes for this machine. Do not attempt to diagnose these fault codes without the proper training and tools.

Fault code list

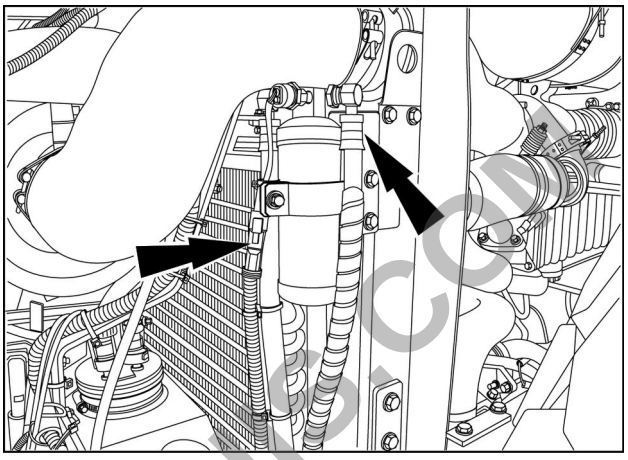
Fault code	Lamp color	Definition	Description
115	Red	System diagnostic code # 2	Engine speed/position sensor circuit lost both of two signals from the magnetic pickup sensor - data erratic, intermittent, or incorrect
122	Amber	Boost pressure	Intake manifold pressure sensor circuit - voltage above normal, or shorted to high source
123	Amber	Boost pressure	Intake manifold pressure sensor circuit - voltage below normal, or shorted to low source
125	Amber	Engine intake manifold #1 pressure	Intake manifold 1 pressure - data valid but below normal operating range - moderately severe level
131	Red	Accelerator pedal position	Accelerator pedal or lever position sensor circuit - voltage above normal, or shorted to high source
132	Red	Accelerator pedal position	Accelerator pedal or lever position sensor circuit - voltage below normal, or shorted to low source
133	Red	Remote accelerator	Remote accelerator pedal or lever position sensor circuit - voltage above normal, or shorted to high source
134	Red	Remote accelerator	Remote accelerator pedal or lever position sensor circuit - voltage below normal, or shorted to low source
135	Amber	Engine oil pressure	Oil pressure sensor circuit - voltage above normal, or shorted to high source
141	Amber	Engine oil pressure	Oil pressure sensor circuit - voltage below normal, or shorted to low source
143	Amber	Engine oil pressure	Oil pressure low - data valid but below normal operational range - moderately severe level
144	Amber	Engine coolant temperature	Coolant temperature sensor circuit - voltage above normal, or shorted to high source
145	Amber	Engine coolant temperature	Coolant temperature sensor circuit - voltage below normal, or shorted to low source
146	Amber	Engine coolant temperature	Coolant temperature high - data valid but above normal operational range - moderately severe level
147	Red	Accelerator pedal position	Accelerator pedal or lever position sensor circuit - abnormal frequency, pulse width, or period
148	Red	Accelerator pedal position	accelerator pedal or lever position sensor circuit - abnormal frequency, pulse width, or period
151	Red	Engine coolant temperature	Coolant temperature low - data valid but above normal operational range - most severe level
153	Amber	Intake manifold #1 temperature	Intake manifold air temperature sensor circuit - Voltage Above Normal, or Shorted to High Source
154	Amber	Intake manifold #1 temperature	Intake manifold air temperature sensor circuit - voltage below normal, or shorted to low source
155	Red	Intake manifold #1 temperature	Intake manifold air temperature high – data valid but above normal operational range - most severe
187	Amber	5 volts DC supply	Sensor supply voltage #2 circuit - voltage below normal, or shorted to low source
193	Amber	Cruise control	Cruise control (resistive) signal circuit - voltage above normal, or shorted to high source
194	Amber	Cruise control	Cruise control (resistive) signal circuit - voltage below normal, or shorted to low source
195	Amber	Coolant level	Coolant level sensor circuit - voltage above normal, or shorted to high source

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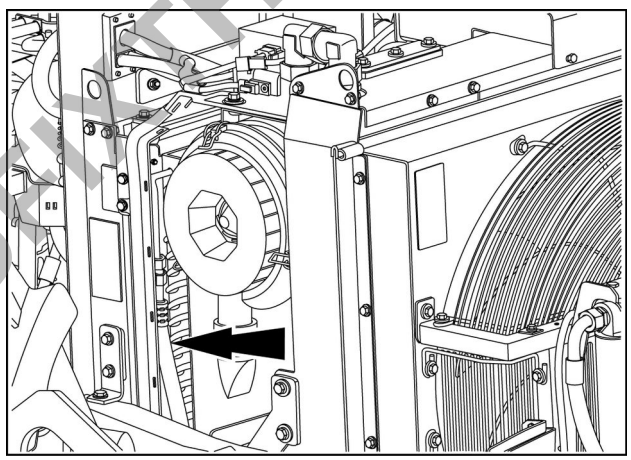
Engine - Remove

1. Using the proper equipment, evacuate the air conditioning system.
2. Disconnect the connector and remove the hose from the filter dehydrator.



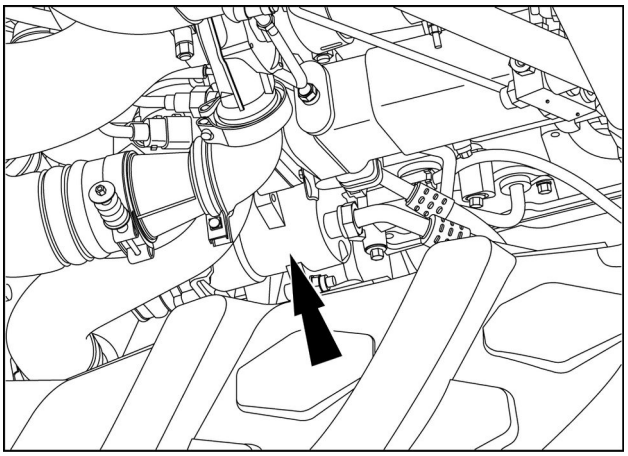
RAIL18COM0143AA 1

3. Remove the hose from the condenser.



RAIL18COM0144AA 2

4. Disconnect the connector and remove the hose from the compressor.



RAIL18COM0145AA 3

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		SV212D Tier 4B (final)			
		D	HX	PD	HXPD
Fluid capacities					
Fuel	l (gal US)	350 (92,5)	350 (92,5)	350 (92,5)	350 (92,5)
Engine (oil filling)	l (gal US)	13,5 (3,6)	13,5 (3,6)	13,5 (3,6)	13,5 (3,6)
Cooling system	l (gal US)	34 (9)	34 (9)	34 (9)	34 (9)
Hydraulic system	l (gal US)	92 (24,3)	92 (24,3)	92 (24,3)	92 (24,3)
Drum vibrator	l (gal US)	8 (2,1)	8 (2,1)	8 (2,1)	8 (2,1)
Wheel gearbox	l (gal US)	2x1,8 (2x0,48)	2x1,7 (2x0,45)	2x1,8 (2x0,48)	2x1,7 (2x0,45)
Drum gearbox	l (gal US)	1,5 (0,4)	2,6 (0,7)	1,5 (0,4)	2,6 (0,7)
Washer tank	l (gal US)	2,75 (0,7)	2,75 (0,7)	2,75 (0,7)	2,75 (0,7)
Gear + vibrator box (joint filling) of ACE	l (gal US)	25,5 (6,7)	25,5 (6,7)	25,5 (6,7)	25,5 (6,7)
ACE drum cooling liquid	l (gal US)	100 (26,4)	100 (26,4)	100 (26,4)	100 (26,4)
DEF (AdBlue) Tank	l (gal US)	22 (5,8)	22 (5,8)	22 (5,8)	22 (5,8)
Wiring					
Voltage	V	24	24	24	24
Battery capacity	Ah	2x90	2x90	2x90	2x90
Noise and vibration emissions					
Measured sound power level A, LpA at the operator's position (cab) *	dB	75	75	75	75
Uncertainty KpA *	dB	2	2	2	2
Guaranteed sound power level A, LWA **	dB	107	107	107	107
Declared highest weighted effective value of vibration acceleration transmitted to the whole body (cab) ***	m/s² (ft/s²)	<0,5 (<1,6)	<0,5 (<1,6)	<0,5 (<1,6)	<0,5 (<1,6)
Declared total value of vibration acceleration transmitted to hands (cab) ***	m/s² (ft/s²)	<2,5 (<8,2)	<2,5 (<8,2)	<2,5 (<8,2)	<2,5 (<8,2)

* measured according the EN 500-4
** measured according the DIRECTIVE 2000/14/EC
*** measured according the EN 1032+A1 on the gravel base under the vibration travel)

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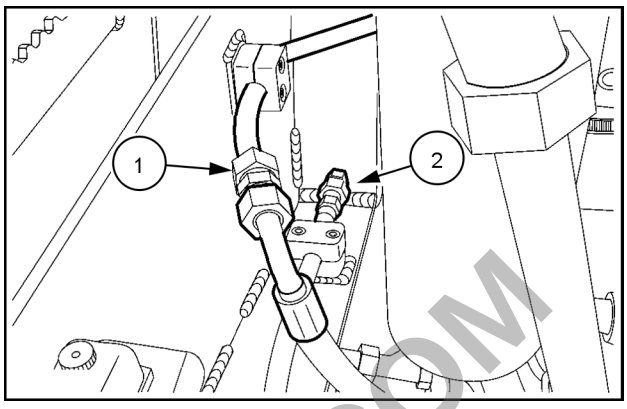
Maintenance chart

Maintenance action	Check	Replace	Change fluid	Lubricate	Bleed	Adjust	Cleaning	Page no.
Every 20 hours of operation (daily)								
Check the engine oil level	x							
Check the engine coolant level	x							
Check the hydraulic oil level	x							
Check the crankcase breather pipe	x							
Check the cooling fans	x							
Check air filter dust valve	x							
Check the alarm and control instruments	x							
Check the engine and exhaust pipe intake manifold	x							
Check the Diesel Exhaust Fluid (DEF) level	x							
Initial 50 hours								
Replace ACE filters		x						
Initial 100 hours								
Wheel bolt torque - Check	x							
Change the travel transmission fluid			x					
Every 100 hours of operation (weekly)								
Check the tire pressure	x							
Every 250 hours of operation (3 months)								
Check radiator and coolers	x							
Check the air filter sensor	x							
Machine lubrication				x				
Check the vibrator oil level	x							
Check the travel transmission fluid level	x							
Check the pad foot segments	x							
Check ACE oil level	x							
Initial 500 hours								
Change the vibrator oil			x					
Every 500 hours of operation (6 months)								
Change the engine oil			x					
Replace fuel filters		x						
Replace ACE filters		x						
Replace the air filter elements		x						
Replace cab ventilation and heating filters		x						
Check the engine coolant level	x							
Electrical wiring check	x							
Check the batteries	x							
Replace the air filter elements for the air conditioning		x						
Wheel bolt torque - Check	x							
Selective Catalytic Reduction (SCR) system - Replace supply module filter		x						
Every 1000 hours of operation (1 year)								
Check the engine belt	x							
Change the travel transmission fluid			x					
Check the air conditioning compressor mounting	x							
Check the damping system	x							
Every 2000 hours of operation (2 years)								
Change the vibrator oil			x					
Clean the air conditioning system					x			
Change the hydraulic oil and replace the filter			x					

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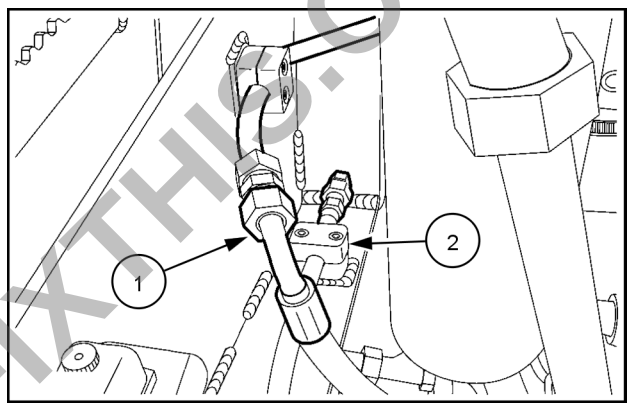
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Connect the hose **(2)** to the tube **(1)**.



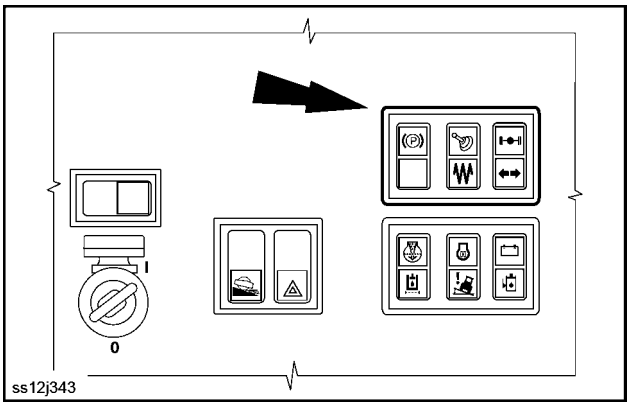
RAIL14COM0162AA 15

Cap the hose **(1)**. Secure the capped hose **(1)** with the clamp **(2)**.



RAIL14COM0162AA 16

Insert the key into the ignition and turn to position I. The parking lamp should turn on.



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Harnesses and connectors - Overview - Best practice

Electrical failure modes

Short Circuit

A short circuit is a connection of comparatively low resistance between two points in an electrical circuit. Typically, when a higher source (positive supply) short circuits to a ground circuit or a frame ground, it causes the circuit protection device, e.g. a fuse, to open and protect the wiring from damage. However, a short circuit can cause damage to the wiring and machine. This damage can occur if a circuit is not properly protected with a circuit protection device. The amount of current allowed to flow through a wire due to a short circuit can cause the wire to overheat. This heat melts the insulation around the wire, adjacent wires, and may lead to a fire. Proper fusing reduces or eliminates damage to the machine resulting from a short circuit. A short circuit may result when a cut, pinched or chafed wire makes contact with a grounded component of the vehicle.

Open Circuit

An open circuit is a loss of connection between two points in a circuit. This condition creates infinite resistance between two circuits and usually results in the malfunction of an electrical component.
An open circuit may result from:

- Pinched/cut wire(s)
- Terminal(s) improperly seated in a connector
- Poor/improper crimping
- Corroded terminal(s)
- Improperly connected Faston connector/ring terminal

Intermittent Circuit

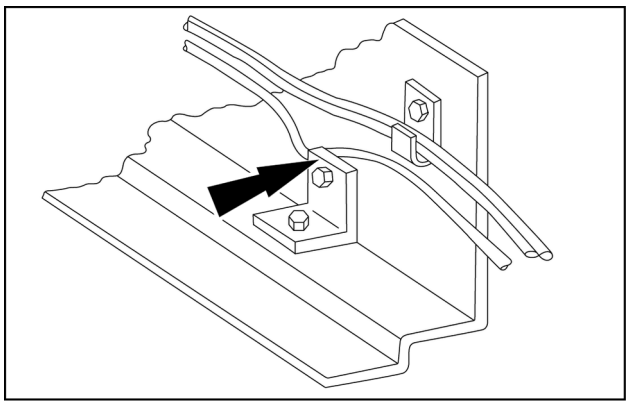
An Intermittent circuit is a condition in the circuit that caused random or repeated failures, and is usually caused by repeatedly opens or shorts in the circuit. In other words, the circuit makes and breaks contact intermittently.
An intermittent circuit may be caused by:

- Pinched wire
- Loose ring terminal
- Improper seating of terminal(s) in a connector
- Incomplete mating of connectors
- Corroded terminals

Examples of common electrical problems

Short circuit

- The wires are pinched between two objects, e.g. a frame and bracket.



RAIL14SSL0590AA 1

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SV212D
SV216D
Tier 4B (final)
Vibratory Roller

SV212D - DDDS212DNHWTB3010 and above
SV216D - DDDS216DNHWTC3001 and above

SERVICE MANUAL

Part number 51429076
1st edition English
April 2018

CASE CONSTRUCTION

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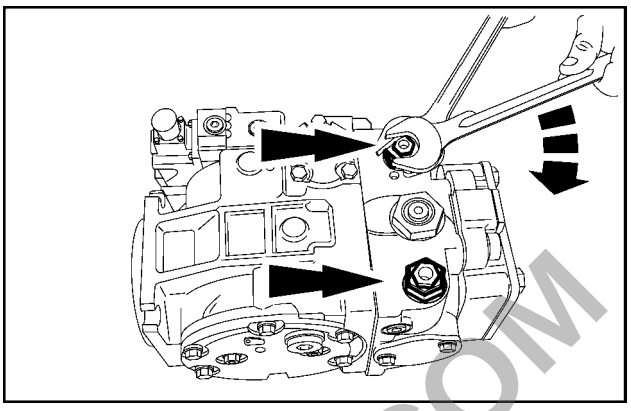
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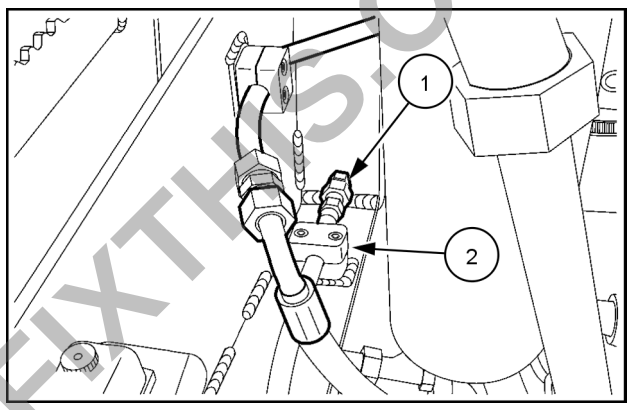
Restoring to the original state

Hold the outer portion of the multipurpose valve on the drive pump. Turn the inner portion of the valve three full turns clockwise. Repeat the procedure on the other multipurpose valve.



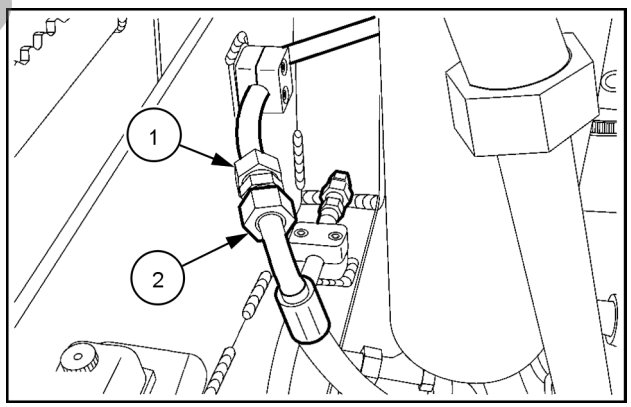
RAIL14COM0163AA 11

Remove the hose **(1)** from the clamp **(2)**.



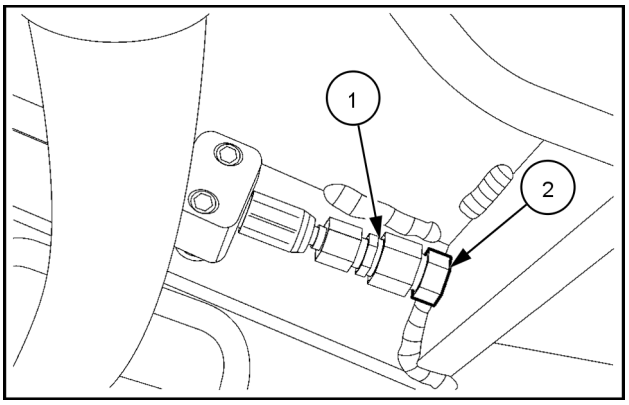
RAIL14COM0162AA 12

Disconnect the hose **(1)** from the tube **(2)**.



RAIL14COM0162AA 13

Remove the cap **(2)** from the hose **(1)**.

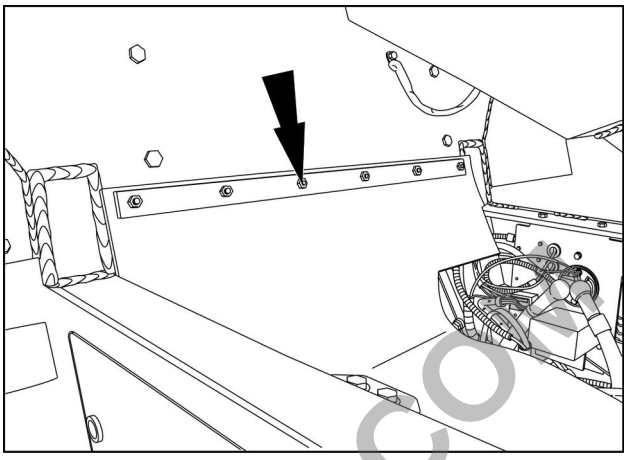


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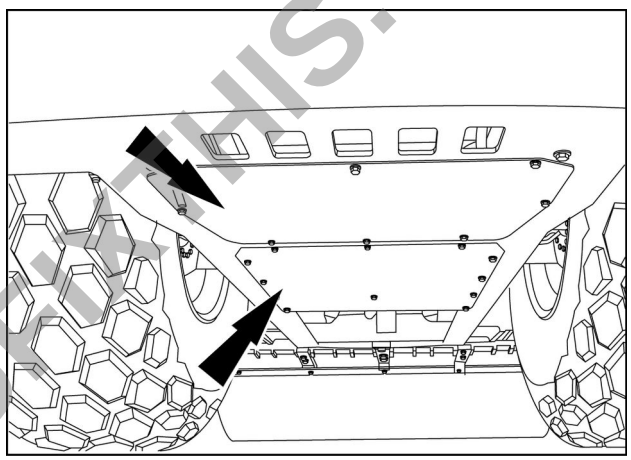
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8. Remove the rubber gasket.



RAIL18COM0248AA 7

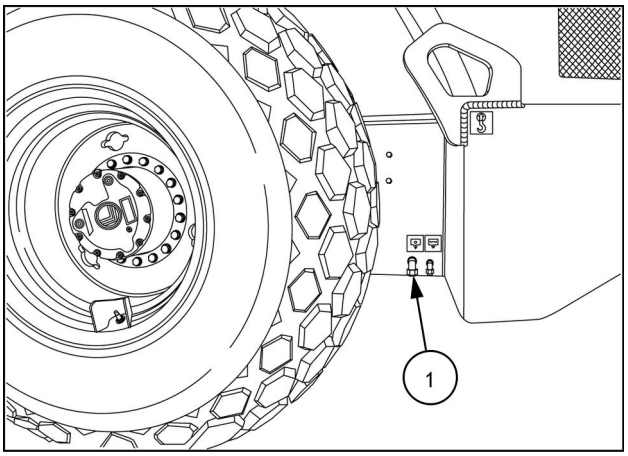
9. Remove the covers from the under carriage.



RAIL18COM0172AA 8

10. Drain the engine oil through the drain plug **(1)**.

NOTE: *The drained oil volume is* ***15 L*** *(****4 US gal****).*

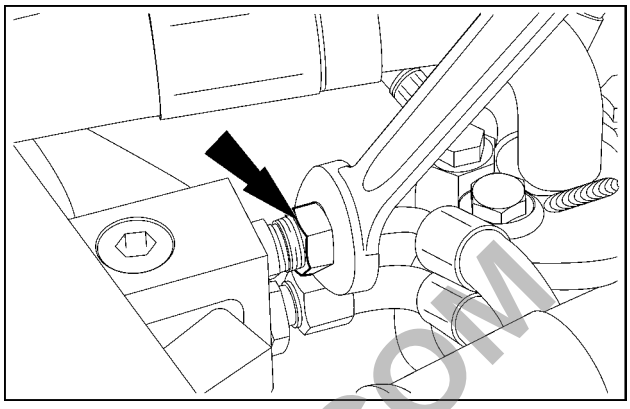


RAIL18COM0264AA 9

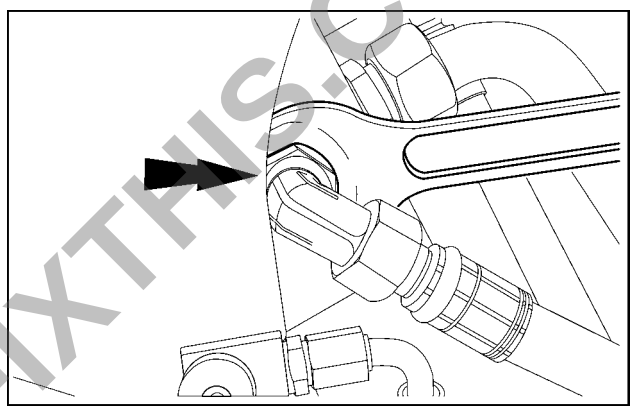
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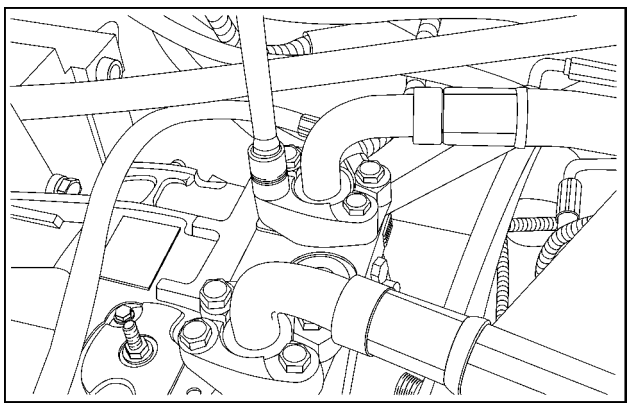
6. Install the hoses on the pump.



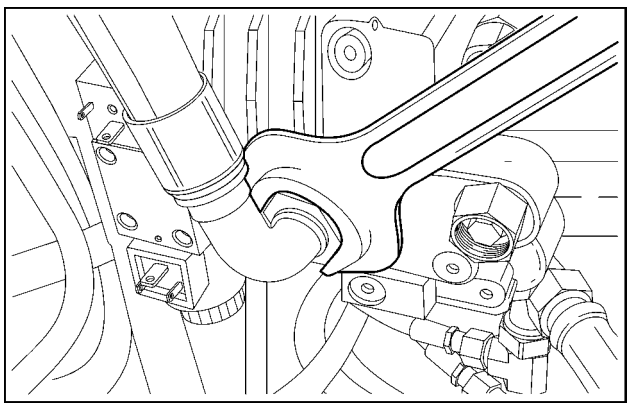
SS13F045 5



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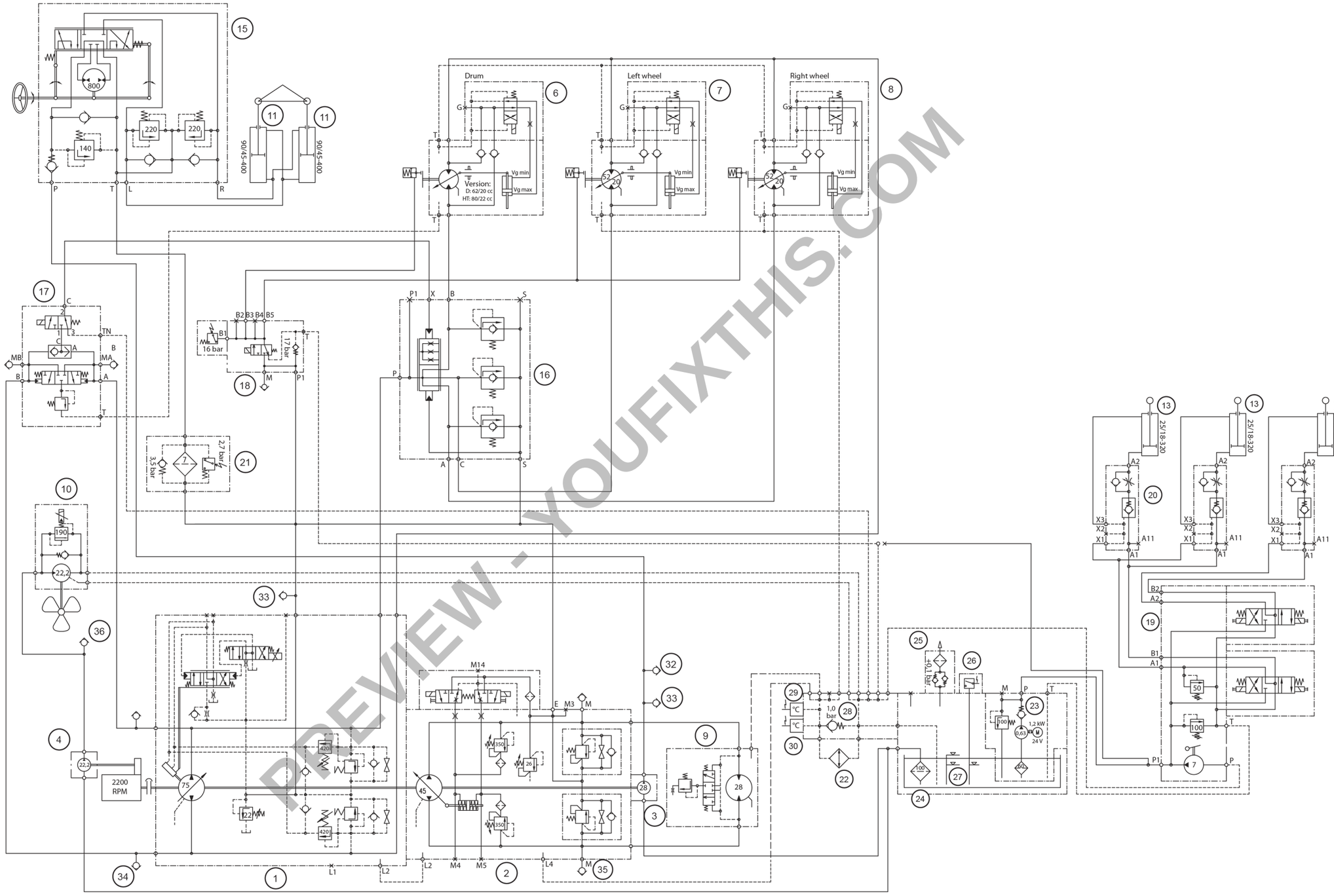
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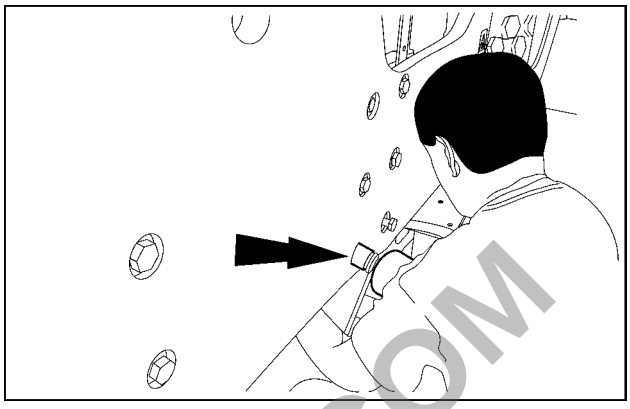
SERVICE

Pump
Replace 3
Steering hand pump
Replace 4

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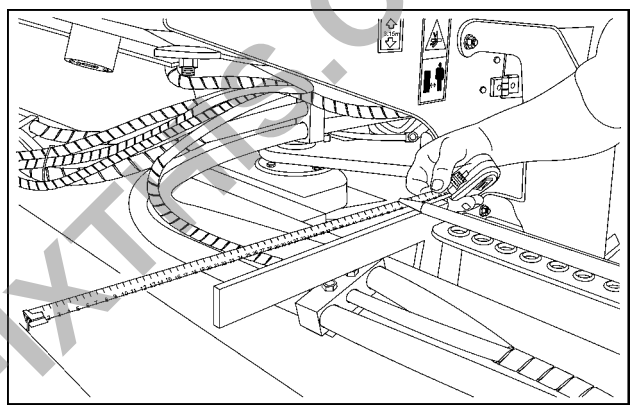
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5. Mount the weight to the frame and then retighten it by means of bolts.



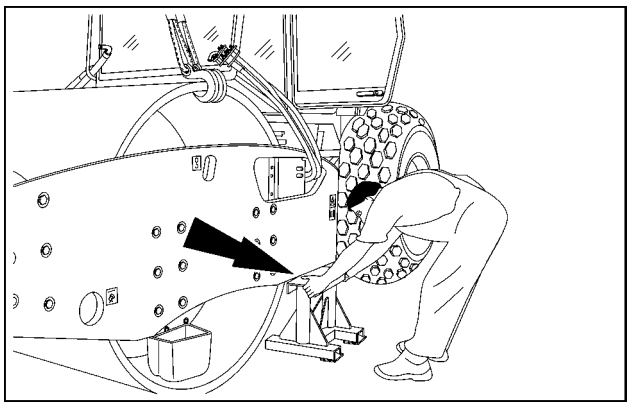
SS13F210 5

6. Using a square, measure the distance between the drum and frame near the joint at various places (refer to figure **6**). The drum must be axially centred.



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7. Lift up the drum and remove the supports.



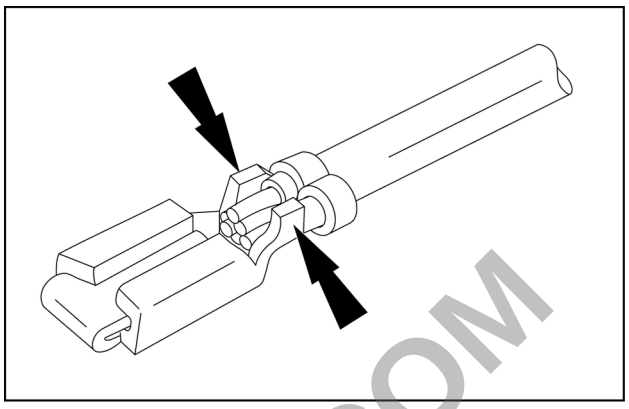
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Intermittent circuit

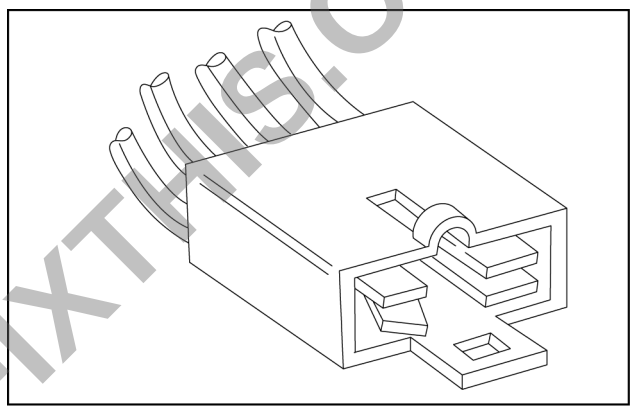
- The terminal is not crimped on the wire(s).



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Intermittent circuit

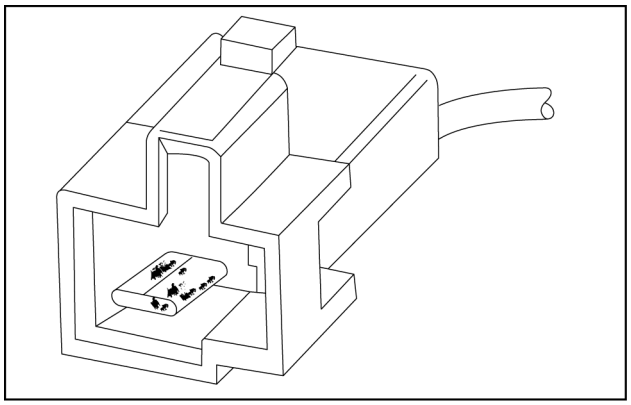
- Bent pins may cause a short circuit if the two terminals do not contact.
- The male and female connectors may not make contact because of the bent pin.



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Intermittent circuit

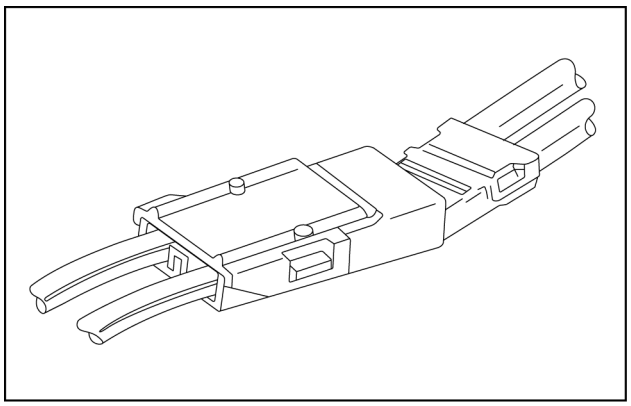
- Corrosion on the pin(s) is Indicated by a layer of greenish-white powder appearing on the pins.
- Corroded pins may overheat because of increased resistance due to corrosion.



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Intermittent circuit

- Partially disconnected connectors make contact with only some terminals.



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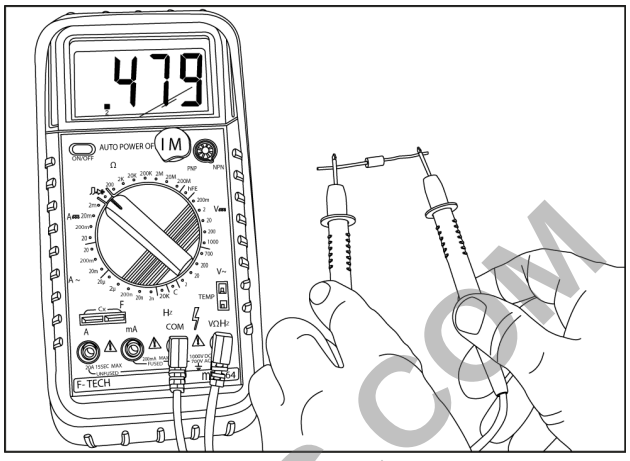
Wiring harnesses - Electrical schema - Cable harness number 1 - Aftertreatment part 1

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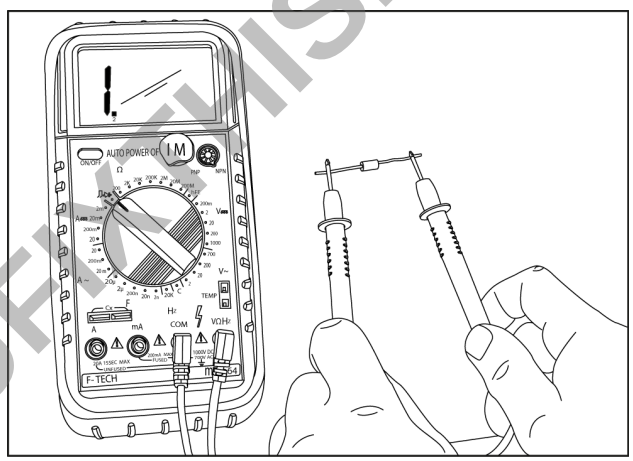
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Diode

9. Remove the diode from the machine. Measure resistance in both directions - when the diode is working properly, resistance may be measured only in one direction.



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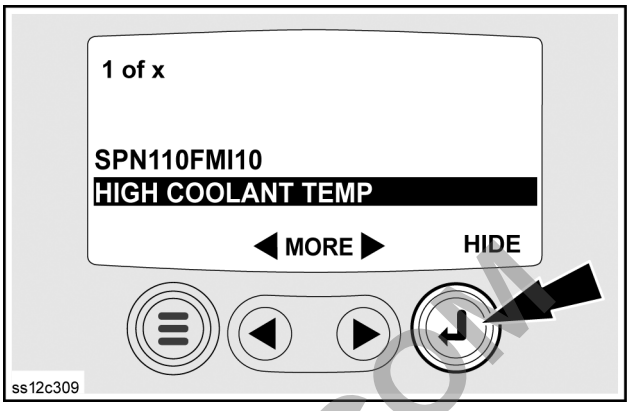


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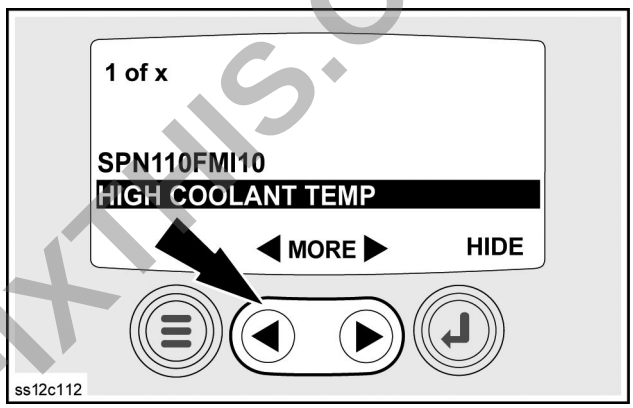
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2. The screen displays the fault code and description. Press the Enter button to display the fault code.



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3. When there are more than one fault code is registered, the word “More” appears below the current fault code, use the cursor to display the other faults codes.
Press the Menu button to return to the main menu.



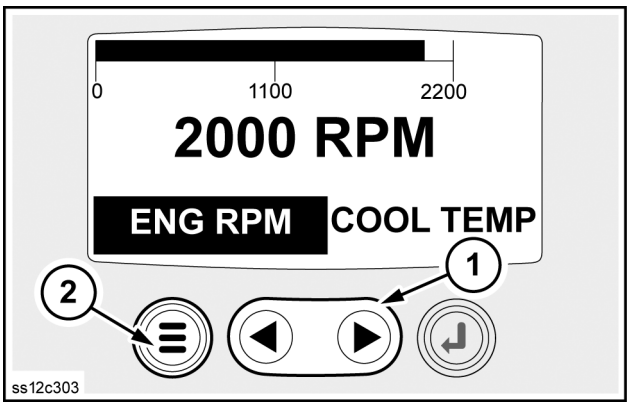
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Engine parameters

1. Use the navigation buttons to navigate to the “Engine Conf” menu. When this menu is selected the preset engine parameters are displayed in the screen.

NOTICE: *Though the list of preset parameters can be modified by using the “Custom setup” option, the roller manufacturer does not recommend the modification to the list of parameters. The set parameters are the best possible parameters for checking engine functionality.*

2. Use the “Setup 1 up display” option to show various parameter display options.
Use the “Custom setup” option (not recommended) to select the number of parameters displayed and to set the sequence in which parameters will be displayed. The following parameters have been set by the machine manufacturer by default.
   - Engine speed (RPM)
   - Coolant temperature
   - Engine oil pressure
   - Engine load in percentage at actual engine speed
   - Electrical system voltage
   - Engine operating hours
   - Fuel level
   - Current fuel consumption rate
   - Accelerator pedal position



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SERVICE MANUAL

Platform, cab, bodywork, and decals

SV212D
SV216D

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