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L218	
L220	

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The manufacturer reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication but are subject to change without notice.

In case of questions, refer to your NEW HOLLAND CONSTRUCTION Sales and Service Networks.

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SYMBOLS

PRESSURE SWITCH · LAMP · MOTOR · DIODE

PRESSURE · TEMPERATURE · SPEAKER · LIGHT EMITTING DIODE (LED)

VARIABLE RESISTOR · RESISTOR · COIL

S.P. S.T. · S.P. D.T. · D.P. S.T. · D.P. D.T.

FUSE · RELAY · GROUND · BATTERY

COLOR	ABBREVIATION
BLACK	BK
BLUE	BL
LIGHT BLUE	LB
BLACK/WHITE	BK/WH
GREEN	GN
LIGHT GREEN	LG
ORANGE	OR
PINK	PK
VIOLET	VT
RED	RD
GREY	GY
TAN	TN
WHITE	WH
YELLOW	YE

WIRE SIZE CHART

Sq. mm	AWG
0.5	20
0.8	18
1.0	16
2.0	14
3.0	12
5.0	10
8.0	8

CIRCUIT DIAGRAM LEGENDS

WIRE BREAKOUT · WIRE ID · SP-107 · 14 Y 0.8 · WL-544 · COLOR · WIRE SIZE · SPLICE

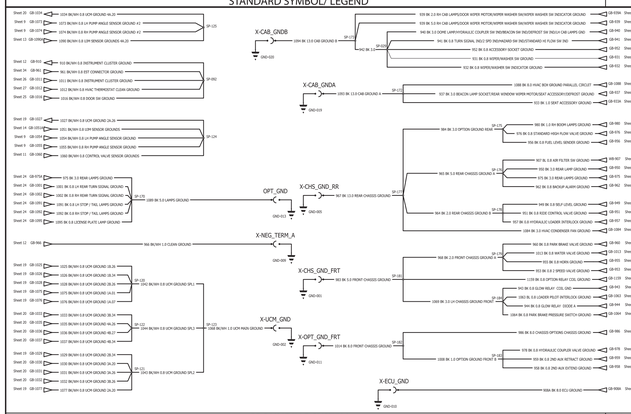
WB - WIRE BREAKOUT
FB - FUSE BREAKOUT
GB - GROUND BREAKOUT

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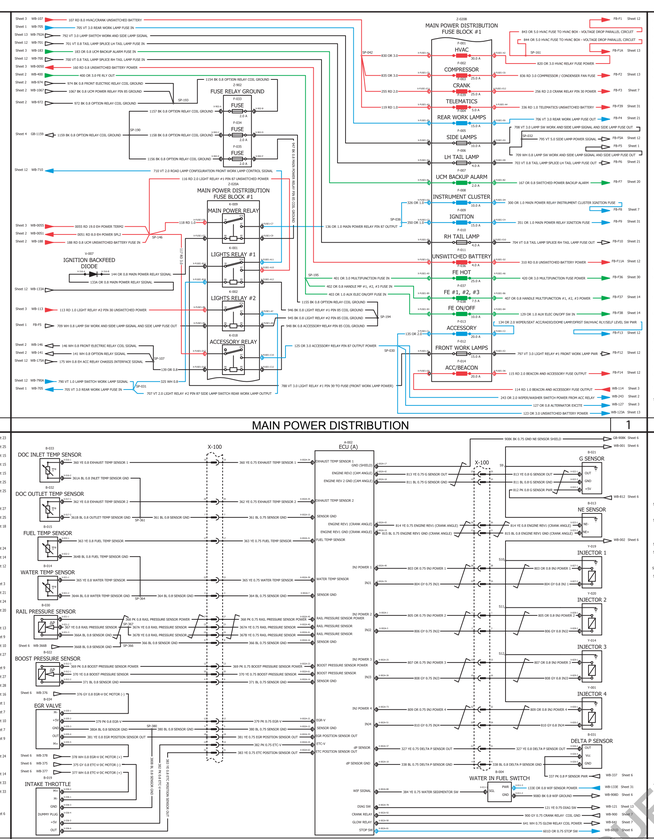
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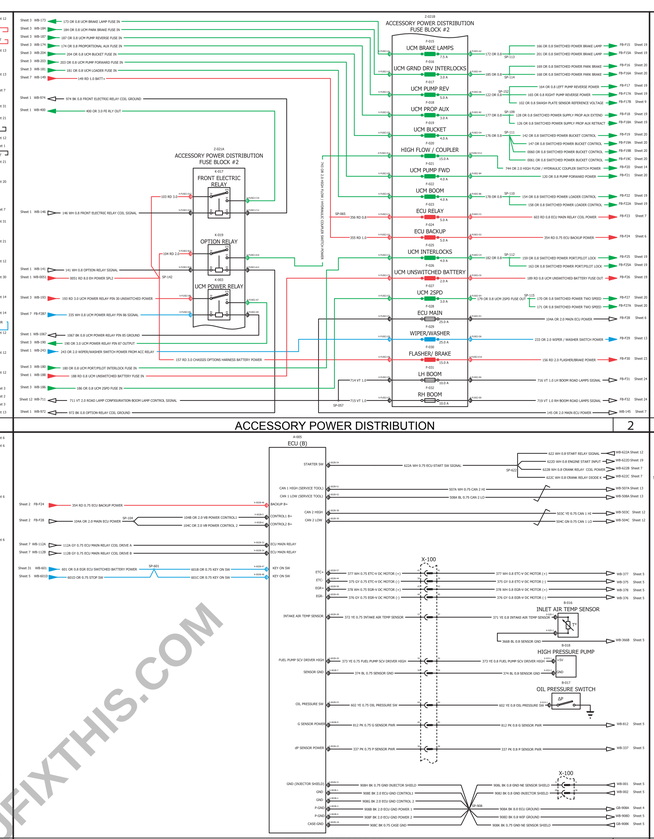
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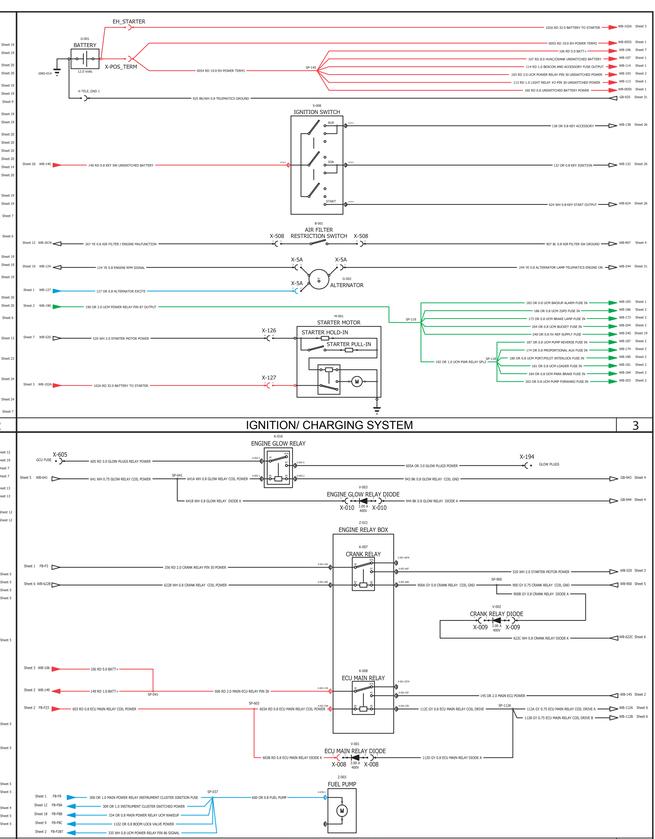
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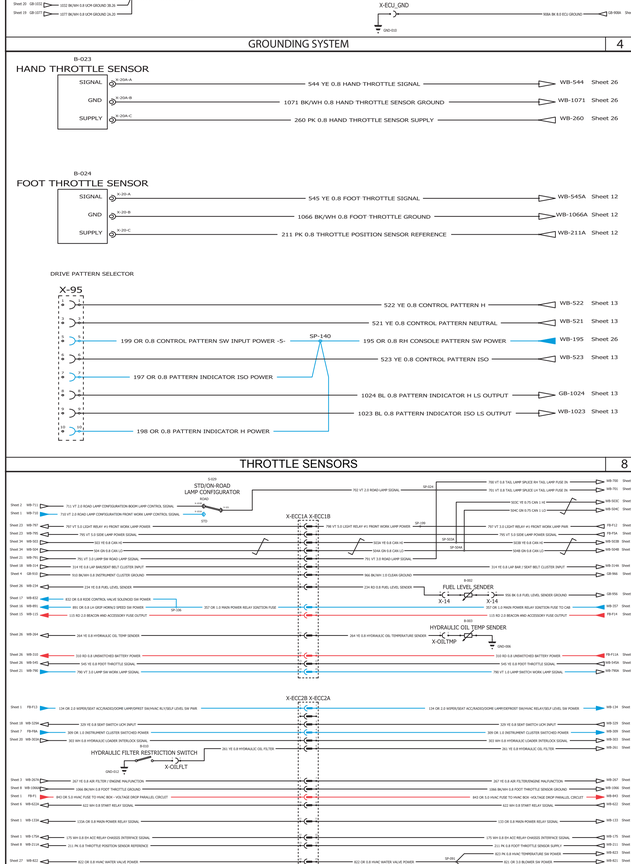
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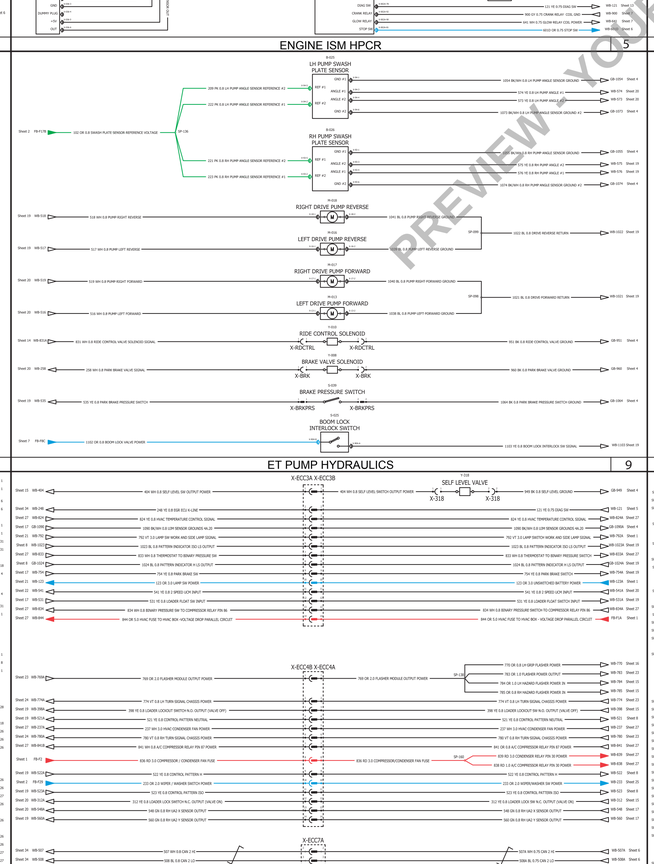
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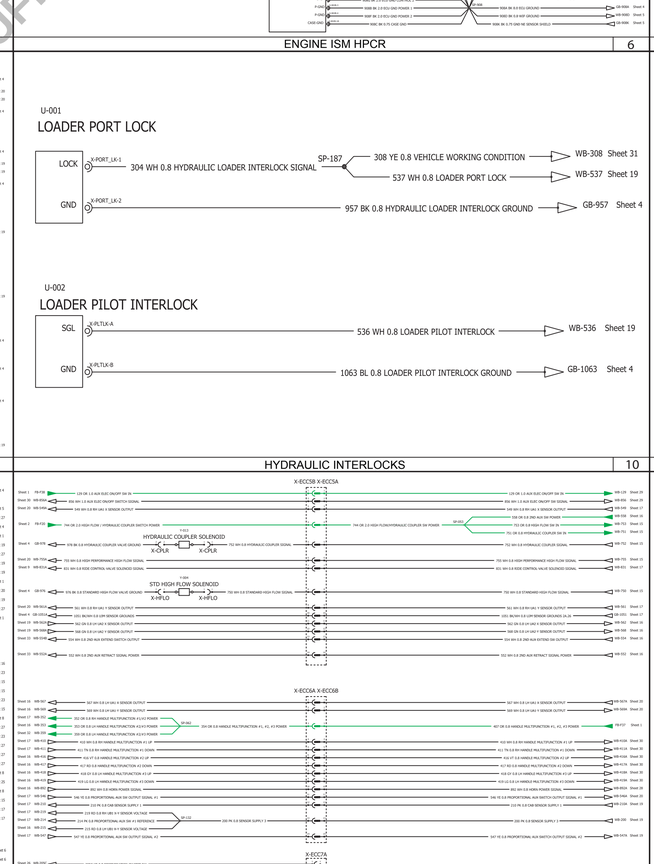
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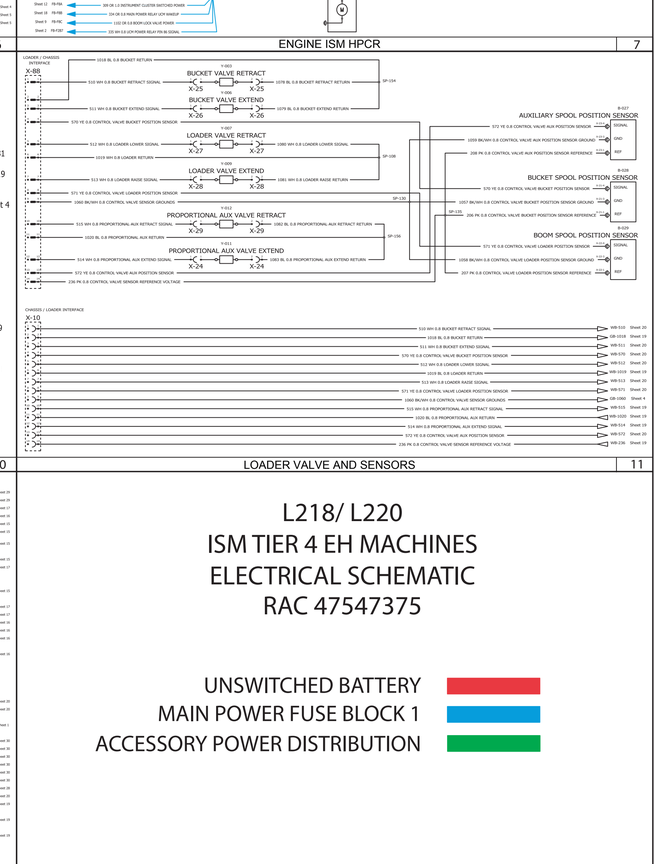
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L218/ L220
ISM TIER 4 EH MACHINES
ELECTRICAL SCHEMATIC
RAC 47547375

UNSWITCHED BATTERY
MAIN POWER FUSE BLOCK 1
ACCESSORY POWER DISTRIBUTION

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SYMBOLS

PRESSURE SWITCH · LAMP · MOTOR · DIODE

PRESSURE · TEMPERATURE · SPEAKER · LIGHT EMITTING DIODE (LED)

VARIABLE RESISTOR · RESISTOR · COIL

S.P. S.T. · S.P. D.T. · D.P. S.T. · D.P. D.T.

FUSE · RELAY · GROUND · BATTERY

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LIGHT GREEN	LG
ORANGE	OR
PINK	PK
VIOLET	VT
RED	RD
GREY	GY
TAN	TN
WHITE	WH
YELLOW	YE

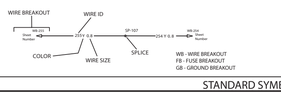
WIRE SIZE CHART

Sq. mm	AWG
0.5	20
0.8	18
1.0	16
2.0	14
3.0	12
5.0	10
8.0	8

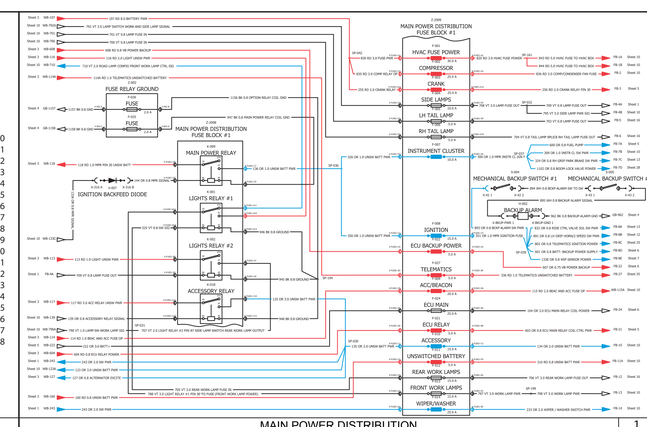
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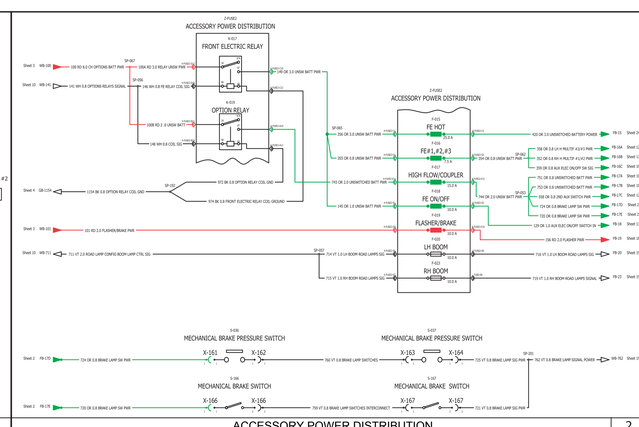
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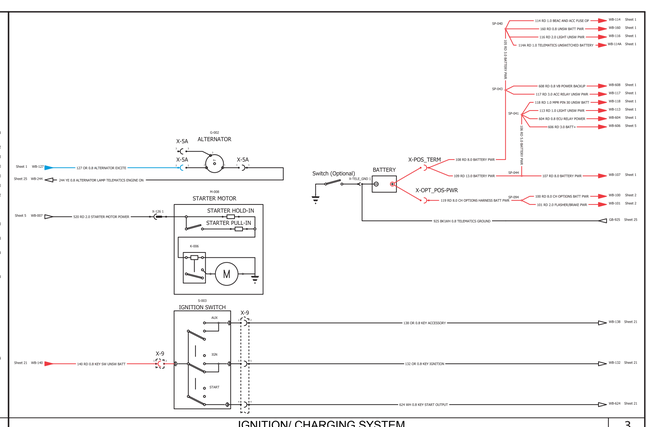
STANDARD SYMBOL/ LEGEND



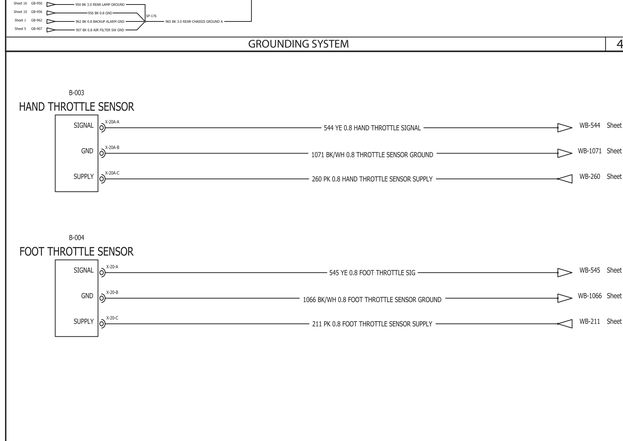
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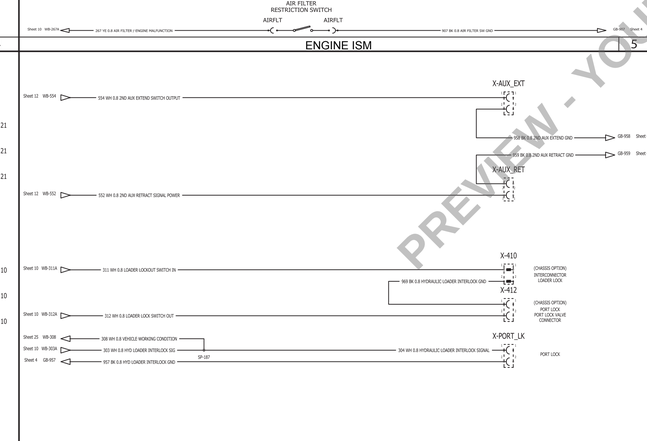
ACCESSORY POWER DISTRIBUTION | 2



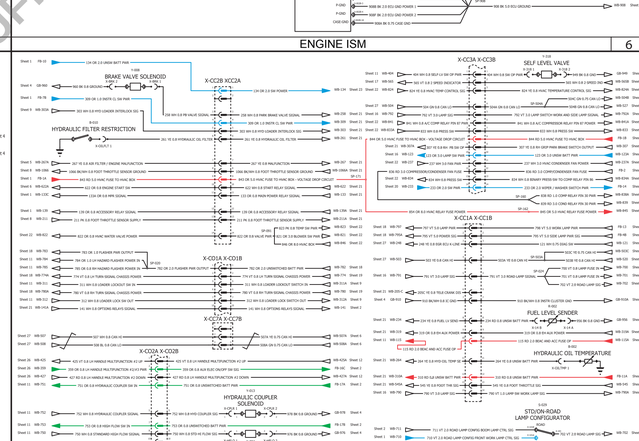
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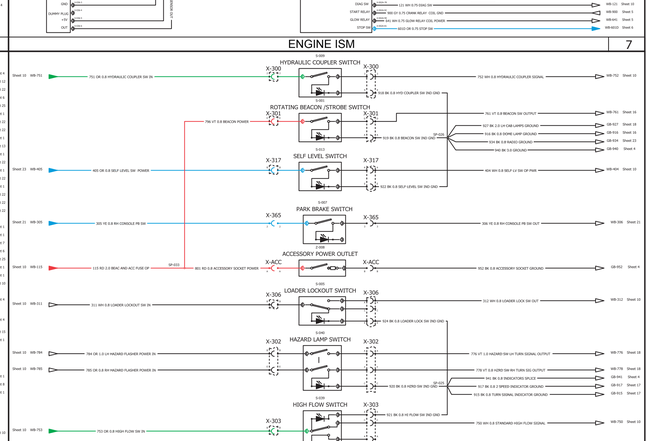
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L218/ L220
ISM TIER 4 MECHANICAL MACHINES ELECTRICAL SCHEMATIC
RAC 47547376

UNSWITCHED BATTERY
MAIN POWER FUSE BLOCK 1
ACCESSORY POWER DISTRIBUTION

RAC 47547376 S1S1

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L221 / L223 / L225 / L228 / L230
C227 / C232 / C238
SINGLE SPEED AND TWO SPEED
MECHANICAL VALVE ASSEMBLY
RAC 47886242

NOTES:

1. FLUSHING VALVE
   -10 BAR SPRINGS
   -2 mm FLUSHING ORIFICE
   -290 PSI (20BAR) CUTOFF RELIEF
2. LOAD CHECK REMOVED IF HIGH FLOW INSTALLED.
3. IN-LINE ORIFICE AT MANIFOLD BLOCK FOR VERTICAL MACHINES ONLY.
4. LIFT CYLINDERS ARE CUSHIONED FOR VERTICAL FRAME MACHINES ONLY.

Main Control Valve Pressure Relief

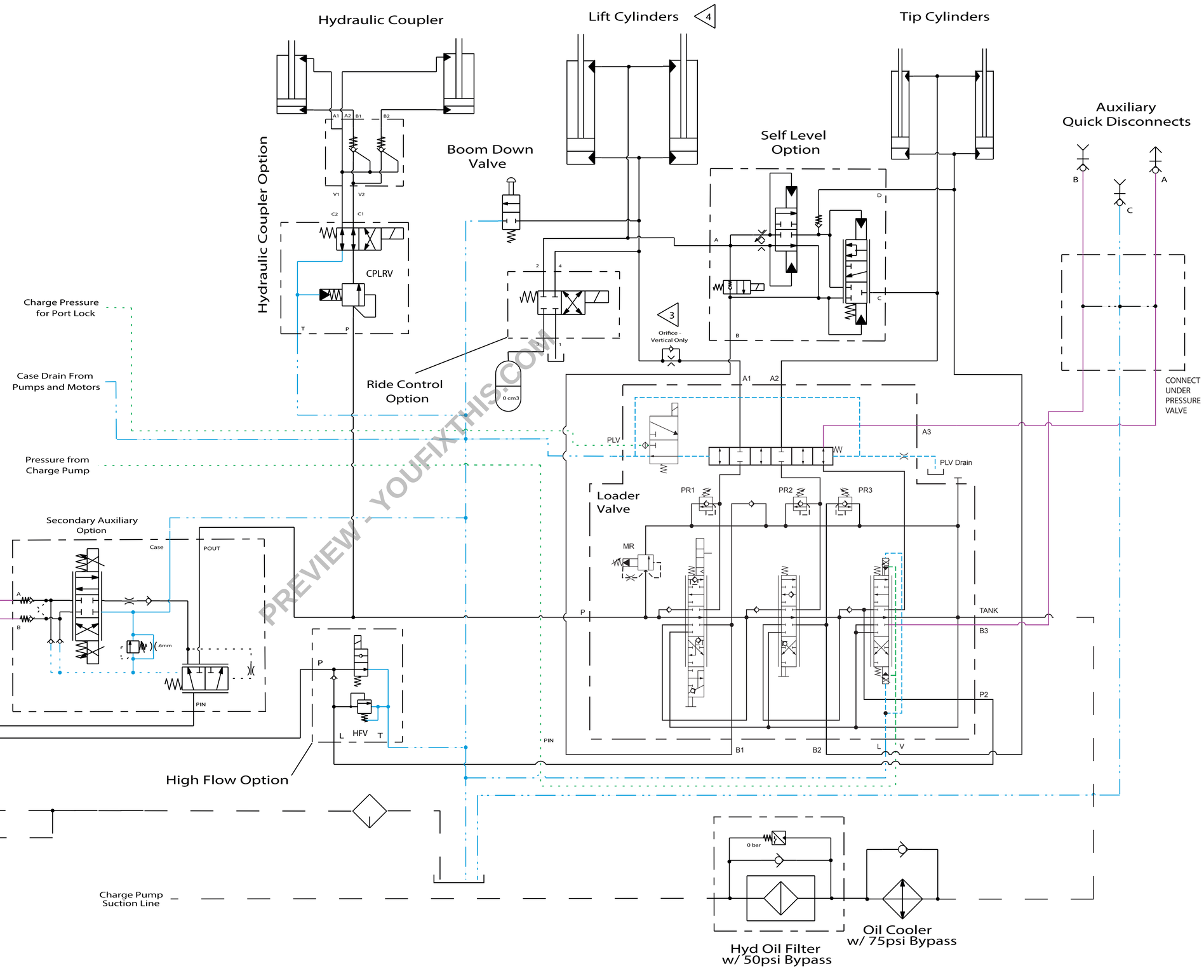
MR- 3046 PSI +/-72.5 (210 BAR)
A1 (PR1) - 3263 PSI +145/-73 (225 BAR)
A2 (PR2) - 3771 PSI +145/-73 (260 BAR)
B2 (PR3) - 3336 PSI +145/-73 (230 BAR)
B2 (PR3- OPTIONAL) 1160 PSI +174/0 (80 BAR)
HFV - 3250 PSI (224 BAR)
CPLRV - 2500 PSI (172 BAR)

Auxiliary Pump

Tier 4		Tier 3	
36.6cc	-F5C	34.1cc	-F5C
27.8cc	-ISM Med Frm	24.9cc	-ISM Med Frm
23.7cc	-ISM Sml Frm	20.4cc	-ISM Sml Frm

High Flow Pump (optional) (not available on Sml Frm)

Tier 4		Tier 3	
20.4cc	-F5C 61-67kW	18.3cc	-F5C 61-67kW
13.7cc	-F5C 55kW	12.5cc	-F5C 55kW
13.7cc	-ISM Med Frm	12.5cc	-ISM Med Frm



HYDROSTATIC PUMP
CHARGE PRESSURE
RETURN TO TANK/SUMP
QUICK DISCONNECTS

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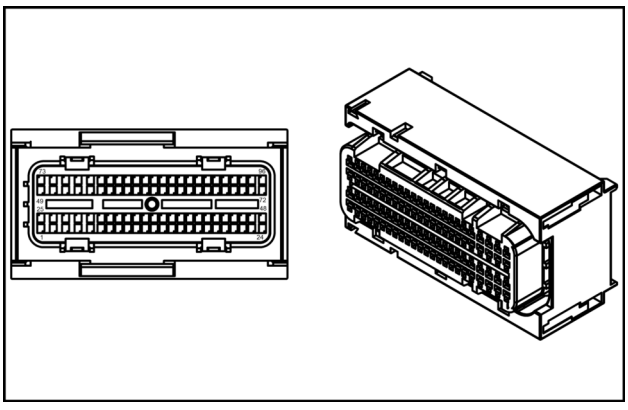
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(*) See content for specific models

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CONNECTOR X-002A - ECU-A		
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**
65	-	-
66	-	-
67	-	-
68	-	-
69	-	-
70	-	-
71	-	-
72	-	-
73	809 (OR)	INJECTOR POWER 1 X-100 PIN 32
74	804 (GY)	INJECTOR 1 X-100 PIN 33
75	-	-
76	-	-
77	-	-
78	121 (WH)	DIAGNOSTIC SWITCH EGR ECU K-LINE X-DIAG PIN E
79	-	-
80	384 (YE)	WATER IN FUEL SWITCH SIGNAL X-011 PIN 1
81	601D (OR)	STOP SWITCH
82	-	-
83	-	-
84	-	-
85	-	-
86	-	-
87	-	-
88	-	-
89	-	-
90	641 (WH)	GLOW RELAY COIL POWER
92	900 (GY)	CRANK RELAY COIL GROUND
93	-	-
94	-	-
95	-	-
96	-	-



84549330 2

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1905-UCM - 5VREF1 Sensor Supply Voltage Out of Range

L218 TIER 4B Final [NDM449275 -]	NA Electro hydraulic controls
L220 TIER 4B Final [NDM456673 -]	NA Electro hydraulic controls

Context:
UCM has sensed that the sensor supply voltage X-CN1A pin 8 is out of range. Diagnostic Trouble Code 1905 has an error priority of Red.
All hydraulics are disabled while Diagnostic Trouble Code 1905 is active.

Cause:
UCM has sensed that the sensor supply voltage X-CN1A pin 8 is out of range. The fault is active while the ignition switch is ON and the voltage at pin 8 is less than **4.8 V** or greater than **5.2 V**.

Possible failure modes:

1. Faulty wiring.
2. Faulty sensor.
3. Faulty UCM.

Solution:

1. Verify that the fault code is active.

   Connect the Electronic Service Tool to the service tool connector.

   To check for fault code: Start and operate machine.

   A. The fault code is not recorded again. OK to return the machine to service.

   B. Fault code 1905 is active and recorded again. Go to step **2**.
2. Verify that the wiring and connectors are free of damage.

   Inspect the UCM, EHF pressure transducer, right hand control handle, throttle position sensor, chassis loader interface and Universal Joystick Module. All connections should be secure, tight, free of corrosion, abrasion and damage.

   Inspect the harness from the UCM to the EHF pressure transducer, right hand control handle, throttle position sensor, chassis loader interface and Universal Joystick Module. Verify that the harness is free of damage, corrosion, abrasion and incorrect attachment.

   A. The connectors are secure and the harness is free of damage. Go to step **3**.

   B. The connectors or the harness has damage. Repair or replace the harness or connectors as required. Return to step **1** to confirm elimination of fault.
3. Measure the voltage at the UCM

   Turn the ignition switch ON and measure the voltage between UCM connector X-CN1A pin 8 and chassis ground.

   A. The voltage is less than **4.8 V**. Go to step **4**.

   B. The voltage is greater than **5.2 V**. Go to step **6**.

   C. The voltage is greater than **4.8 V** but less than **5.2 V**. There does not seem to be a problem at this time. Reprogram the UCM with the latest software. If the fault code persists, temporarily replace the UCM and retest. Return to step **1** to confirm elimination of the fault.
4. Check for a short to chassis ground.

   Turn the ignition switch OFF.

   Disconnect the UCM connector, X-CN1A.

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Use a jumper wire with alligator clips on both ends to short connector X-CN3A pin 11 to chassis ground. The chassis ground connection must be clean and free of rust, dirt, oil and paint.

Measure the resistance of connector X-UJMR pin 8 to chassis ground. The resistance should be less than **10 Ω**. Wiggle the harness during measurement to reveal an intermittent condition.

A. The resistance is less than **10 Ω**. Go to step **5**.

B. The resistance is greater than **10 Ω**. There is an open circuit in the signal wire. Repair or replace the harness as required. Return to step **1** to confirm elimination of fault.

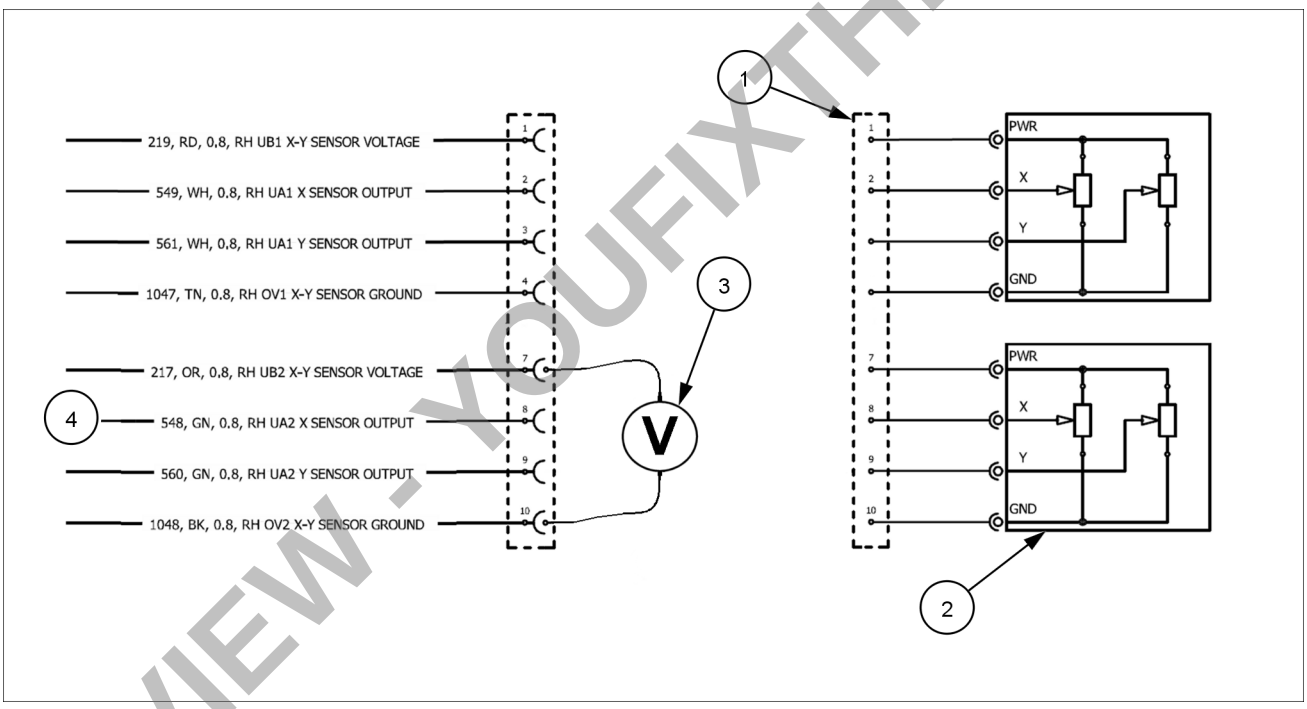
5. Measure the voltage to the sensor.

Turn the ignition switch OFF. Reconnect the UCM connector(s).

Disconnect the Right Joystick connector X-UJMR.

Turn the ignition switch ON.

Measure the voltage between X-UJMR pin 7 and X-UJMR pin 10. The voltage should be approximately **5 V**. Wiggle the harness during measurement to reveal an intermittent condition.



RAPH12SSL0353FA 1

Schematic legend			
(1)	Connector X-UJMR	**(3)**	DVM set to measure voltage.
(2)	Joystick X-Y Position Sensor	**(4)**	Right Joystick R-L X-CN3A pin 11 Fault code 5134, 5135 or 5137

A. The voltage is approximately **5 V**. Go to step **6**.

B. The voltage is not within range. There is a problem with the voltage supply to the sensor. Verify the voltage from the UCM. If the voltage from the UCM is correct, there is an open circuit in the voltage supply to the sensor. Repair as required. Return to step **1** to confirm elimination of fault.

6. Measure the voltage output of the sensor.

Turn the ignition switch OFF.

Disconnect the Right Joystick connector X-UJMR.

Fabricate a breakout tee to measure the voltage output of the sensor.

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