SERVICE MANUAL

L230 Tier 4A

200 Series Skid Steer Loader

PIN NEM472686 and above

C238 Tier 4A

200 Series Compact Track Loader

PIN NEM470478 and above

Part number 47674596
1st editon English
May 2014

NEW HOLLAND CONSTRUCTION

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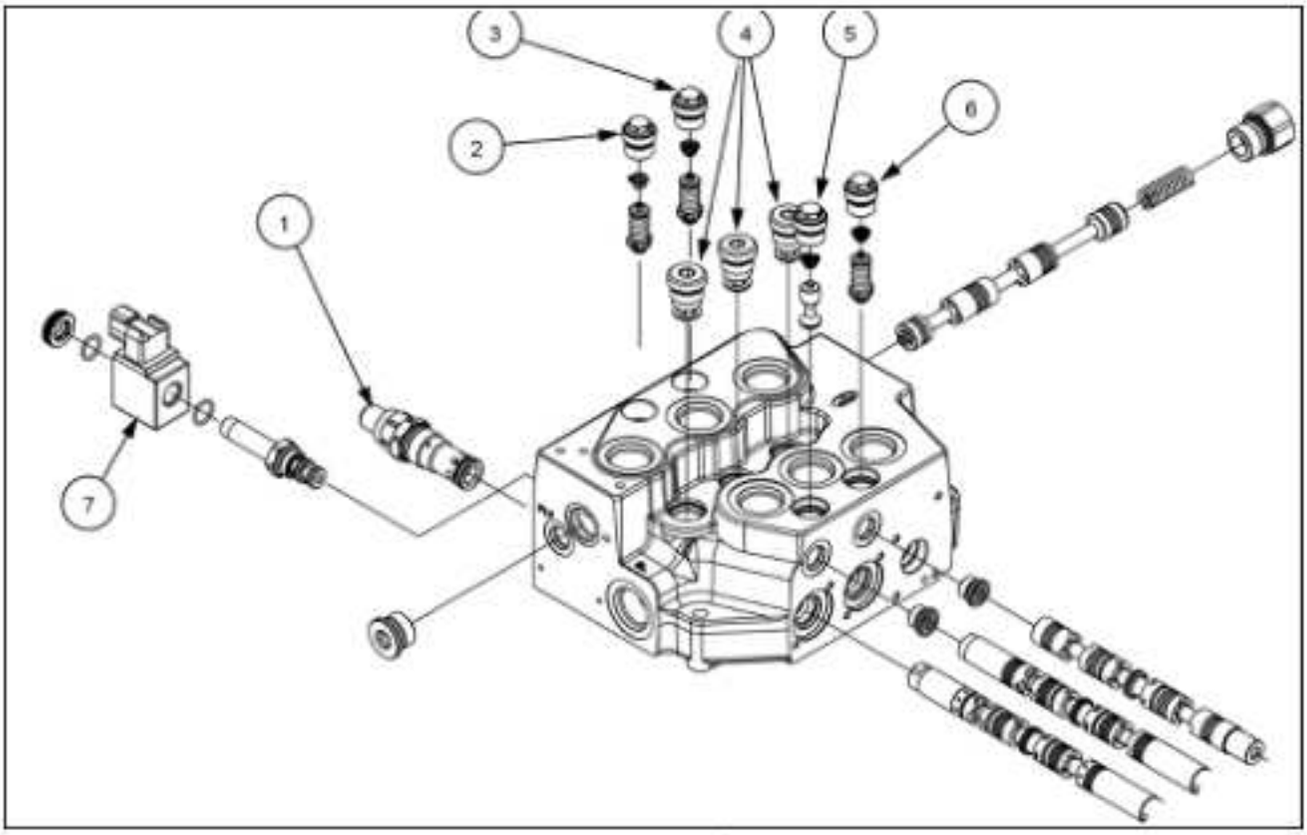
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Main relief valve - General specification

C238	WE
L230	WE



RAIL12554333GA T

Main control valve

Main relief setting	**207 - 217 bar (3000 - 3145 psi)**
Circuit relief setting	**A1 = 220 - 235 bar (3190 - 3408 psi)**
	A2 = 255 - 270 bar (3698 - 3916 psi)
	B2 = 225 - 240 bar (3263 - 3481 psi)
Valve identification	**(1)** Main relief
	(2) A1, pressure relief
	(3) A2, pressure relief
	(4) Load check
	(5) B1, hydraulic, anti-cavitation
	(6) B2, pressure relief
Port identification	**P** – Supply inlet
	T – Tank return
	A1 – Lift cylinder base end
	B1 – Lift cylinder rod end
	A2 – Tilt cylinder rod end
	B2 – Tilt cylinder base end
	A3 – Auxiliary male coupler
	B3 – Auxiliary female coupler
	PLV – Work port lockout pilot supply
	PLV Drain – Work port lockout tank return
	P2 – High flow inlet
	V – EH PRV supply
	L – EH PRV tank return
Solenoid identification	**(7)** Port lock

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3180-Timeout of CAN Message VCM2EDC

NOTE: *It is normal to log Controller Area Network (CAN) fault codes while the control module is being programmed. In this case, clear the fault codes from the modules and retest the system.*

NOTE: *Check for multiple CAN fault codes. If there are CAN Bus fault codes, check the entire CAN bus circuit.*

Context:
The Engine Control Unit (ECU) did not receive a Controller Area Network (CAN) message from the main communication system within the allotted time limit. The Controller Area Network (CAN) is made up of a twisted pair of wires, identified as CAN HI (yellow) and CAN LO (green). These two wires are used to form a "linear bus" network, in that the wires run in parallel from one end of the vehicle to the other, and each module is connected to both wires as a "node". These two wires are connected together at each end of the network using a **120 ohms** resistor, which is known as a "termination" resistor. Because there is a **120 ohms** resistor at each end of the network, the resistance should always be **60 ohms** between the CAN HI and CAN LO wires.

Cause:
The primary CAN bus circuit is not communicating between the ECU and vehicle control modules.

Possible failure modes:

1. A failed terminating resistor.
2. A problem in the primary CAN bus wiring.

Solution:

1. Verify the fault is still present and in an active state.

   A. If fault is still present and active, continue with Step **2**.

   B. If the fault is no longer present or inactive, continue with Step **7**.
2. Inspect the wiring and connectors.

   Verify all the connectors to the ECU and vehicle control modules are not damaged and are properly connected.

   Verify the connector locks are not broken and securely hold the connectors in a connected and locked position. Replace the connectors if the locks are broken.

   A. If damaged wiring is found, repair the damaged wiring. Retest the circuit(s).

   B. If there is no damage and the connectors are properly connected, continue to Step **3**.
3. Use the Electronic Service Tool (EST) to check the CAN network.

   Monitor which CAN networks are "Off line".

   A. If multiple CAN networks are "Off line", you will need to troubleshoot the entire CAN network. Use schematics to determine common wiring and terminating resistors to locate starting point.

   B. If only CAN networks between the ECU and vehicle control modules are "Off line", continue with Step **4**.
4. Measure the resistance of the CAN bus circuit.

   Place the key switch OFF.

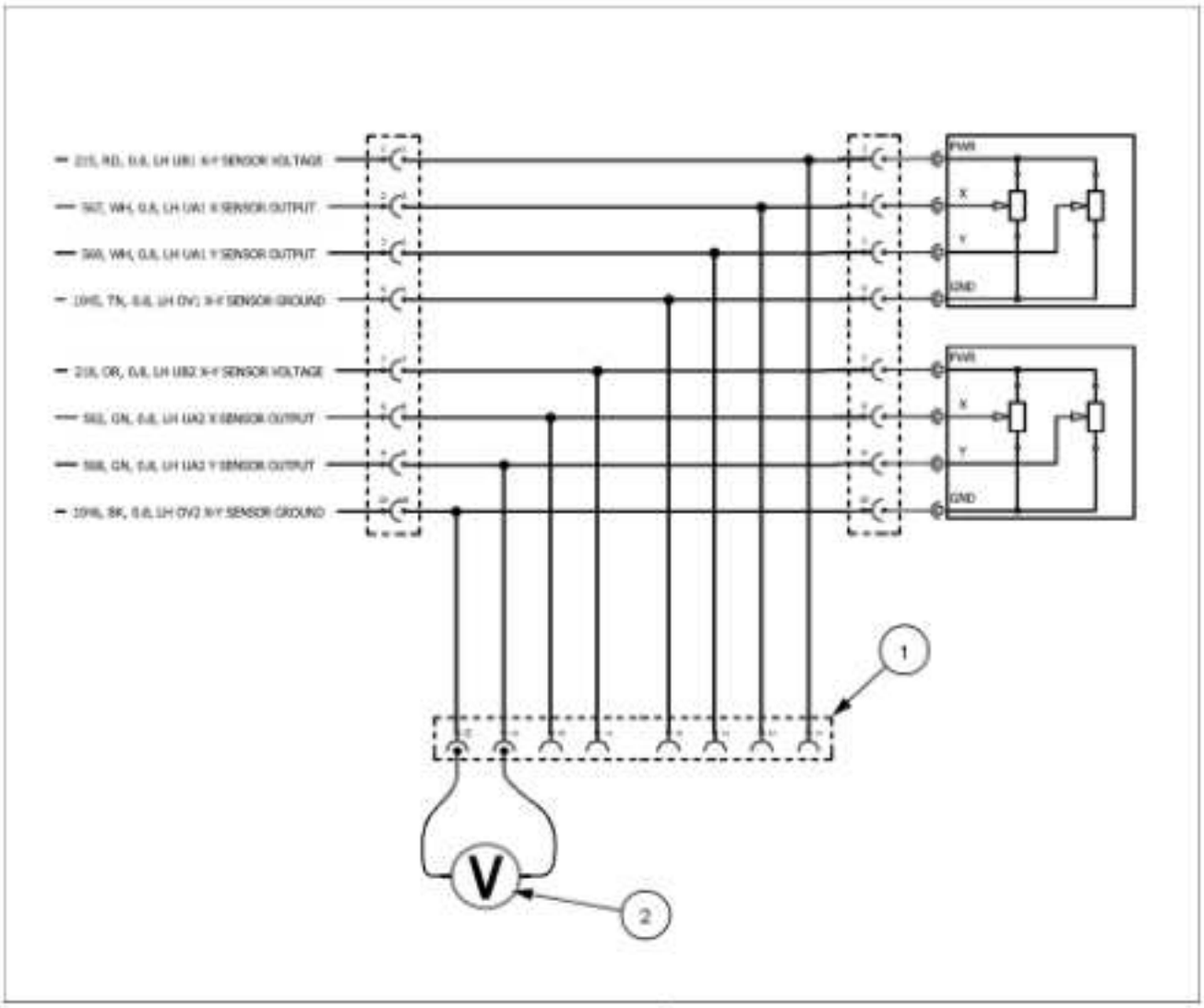
   Use a multimeter to measure the resistance of the CAN bus circuit from the diagnostic connector X-DIAG between pin C to pin D.

   There should be approximately **54 - 66 Ω**.

   A. If the CAN bus reading is incorrect, continue with Step **5**.

   B. If the CAN bus reading is correct, continue with Step **7**.

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RAPH12GSLE047GA 2

Schematic legend			
(1)	Dealer supplied breakout harness	(2)	DVM set to measure voltage.

Turn the ignition switch ON. Connect the breakout harness between the two mating connectors on X-UJML.

Measure the voltage between pins 9 and 10 on the break out harness. The voltage should be approximately **2.5 V** while the joystick in the neutral position.

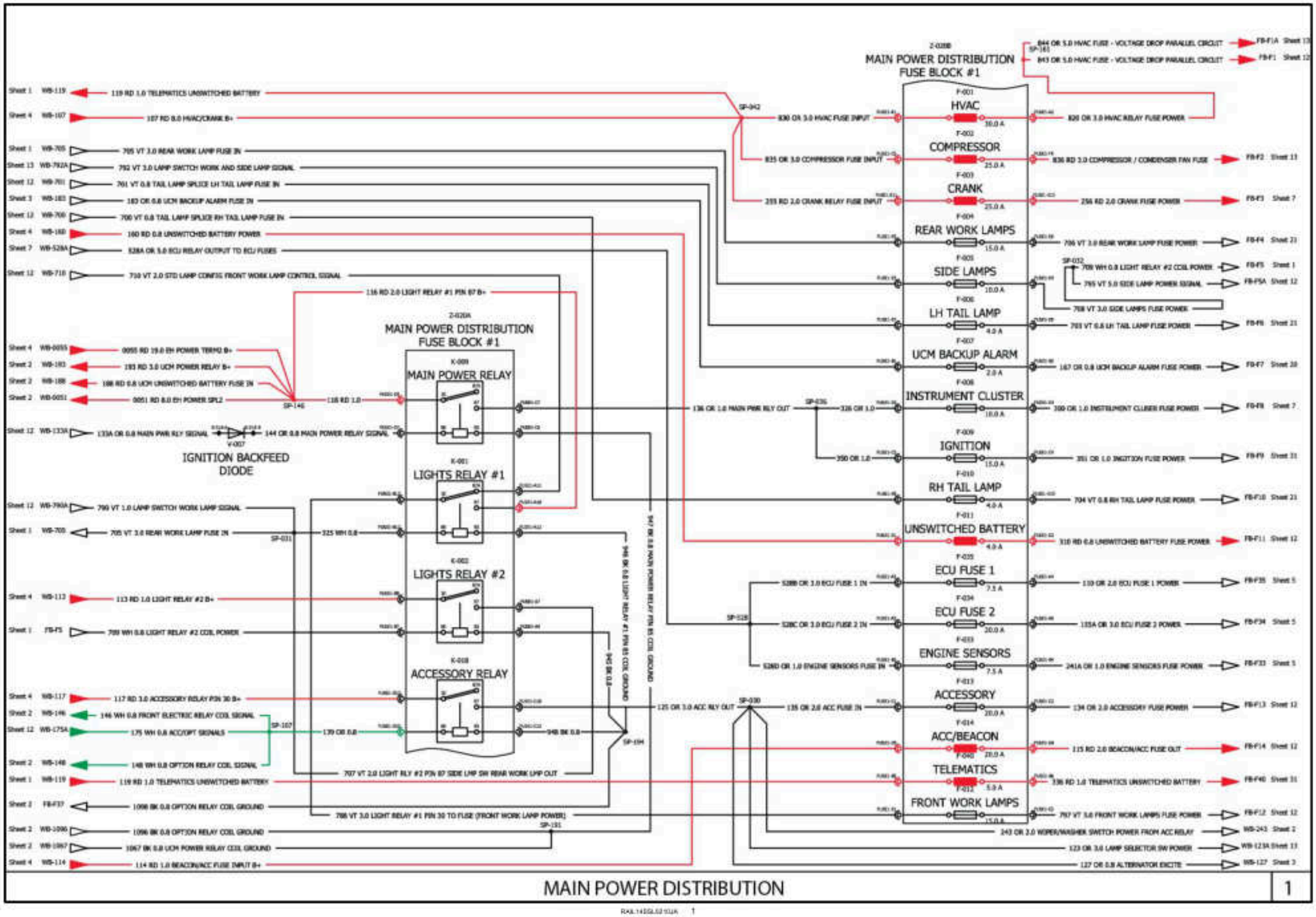
Continue measuring the voltage while slowly moving the throttle in the F-B position. The voltage should change between **0.5 V** and **4.5 V**. The voltage change should be smooth and steady as the joystick is moved between the stop points.

A. The voltage is approximately **2.5 V** in the neutral position and the voltage changes in a smooth fashion between **0.5 V** and **4.5 V**. Temporarily replace the UCM and retest. Return to step **1** to confirm elimination of the fault.

B. The voltage was not **2.5 V** in the neutral position or the voltage change was erratic. Temporarily replace the Joystick and retest. Return to step **1** to confirm elimination of fault.

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