SERVICE MANUAL

L234
Tier 4B (final)
200 Series Skid Steer Loader

PIN NGM418237 and above

C238
Tier 4B (final)
200 Series Compact Track Loader

PIN NGM418237 and above

Part number 47916233
1st edition English
October 2016

NEW HOLLAND CONSTRUCTION

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Hydraulic Oil Temperature Sensor Open Circuit Resistance Measurements	
105 °C (221 °F)	151 Ω
100 °C (212 °F)	175 Ω
95 °C (203 °F)	202 Ω
92 °C (198 °F)	223 Ω
88 °C (190 °F)	258 Ω
85 °C (185 °F)	280 Ω
81 °C (178 °F)	323 Ω
78 °C (172 °F)	358 Ω
74 °C (165 °F)	412 Ω
68 °C (154 °F)	511 Ω
16 °C (61 °F)	4250 Ω

A. The resistance measurements are within the values from the table. The measured resistance is greater than **30 Ω**. Temporarily replace the instrument cluster and retest. Return to step **1**.

B. The resistance measurements are not within range. The measured resistance is less than **30 Ω**. Temporarily replace the temperature sensor and retest. Return to step **1** to confirm elimination of fault.

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9152-Bus-Warn at CAN-Bus No.1

Context:
CAN bus communications between the modules on the data link have been lost. This fault code may be displayed with other CAN bus fault code messages.

Cause:
CAN bus communications between the modules on the data link have been lost.

Possible failure modes:

1. An open circuit in the CAN data link wiring.
2. A short circuit in the CAN data link wiring.
3. A faulty device on the CAN data link.
4. A faulty instrument cluster.
5. A faulty ECU.

Solution:

1. Verify that the fault code is active.

   Connect the Electronic Service Tool to the service tool connector.

   To check for fault codes: Start and operate the machine.

   A. Fault code **9152 - Bus-Warn at CAN-Bus No.1** is not recorded again. Go to step **2**.

   B. Fault code **9152 - Bus-Warn at CAN-Bus No.1** is recorded again. There are one or two other CAN bus fault codes associated with **9152 - Bus-Warn at CAN-Bus No.1**. Go to step **2**.

   C. Fault code **9152 - Bus-Warn at CAN-Bus No.1** is recorded along with multiple CAN data link faults such as **1051 - Timeout of CAN message EEC1** - **1059 - Timeout of CAN Message DM1**, and/or **3096 - CAN A Bus off failure**, **3179 - CAN communication failure between vehicle controller and ECU - BC2ECU2 message** and **3180 - CAN communication error between vehicle controller to ECU**. Go to **1051-No CAN Communication With Engine Controller (55.408)** step 3.

2. Verify that the CAN bus circuit is functioning properly.

   Connect the Electronic Service Tool to the service tool connector.

   Turn the ignition switch ON.

   Verify the connections to the ECU, the instrument cluster, the diagnostic connector, the UCM (if installed), and the optional Telematics unit are tight and secure. Check for CAN bus fault codes while wiggling the harness.

   Turn the ignition switch OFF.

   Disconnect the instrument cluster connector **X-C23 (Male)** . Measure the resistance between pin 5 and X-C23 pin 6 on the instrument cluster. The resistance should be between **108 Ω** and **132 Ω**.

   Disconnect the ECU connector **X-012 (Female)** . Measure the resistance between pin 24 and pin 25 on the ECU. The resistance should be between **108 Ω** and **132 Ω**.

   A. All connections are secure. Both resistance measurements are within the specified range. OK to return the machine to service.

   B. The harness is damaged or the connectors are loose or damaged. Repair or replace the harness or the connectors as required. Return to step **1** to confirm elimination of the fault.

   C. One or both resistance measurements are less than **108 Ω** or greater than **132 Ω**. Replace the control module that has the bad resistance value. Return to step **1** to confirm elimination of fault.

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A. If there is continuity, there is a short circuit in the DEF/AdBlue® back-flow pump circuit. Locate and repair the shorted conductor. Repair or replace the harness as required.

B. If there is no continuity, check the ECU for the appropriate software and re-flash, if necessary.

5. 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 you monitor the display.

A. If you find damage or the display indicates other than normal display readings, then 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 you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

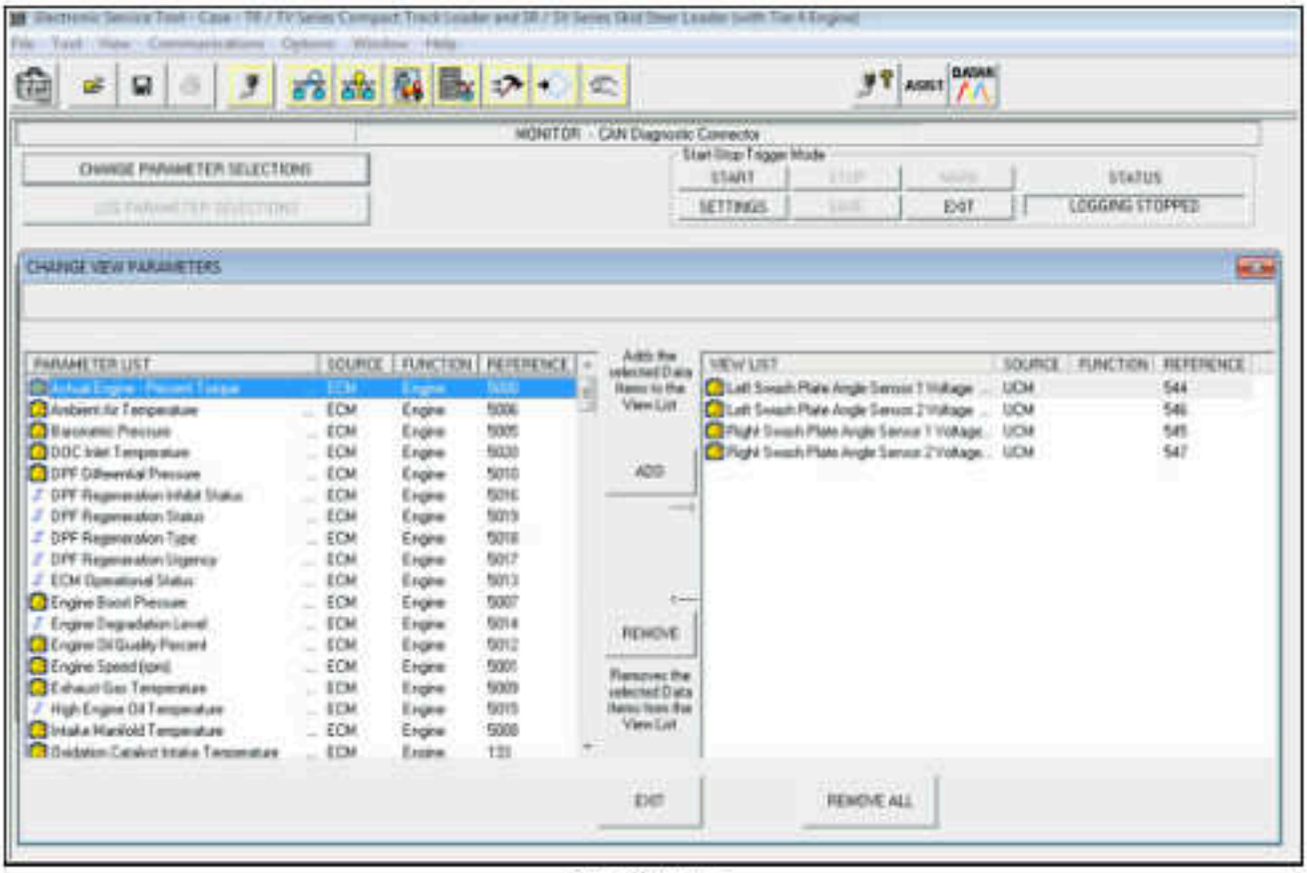
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Hydrostatic drive control sensors - Test - Swash plate angle sensor test and centering procedure

Prior operation:
Confirm that the joysticks are returning to the neutral position and there are no electrical issues with the joystick harness before checking the swash plate angle sensors.
Prior operation:
Place the machine on blocks or ensure that the machine is in an open area with adequate clearance to other objects.

NOTE: *This procedure is done using the Electronic Service Tool (EST) 'monitor' function.*



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EST View Parameters List

1. Connect the EST diagnostic connector to the test port of the machine to monitor the four Electro-Hydraulic (EH) parameters shown in the right-hand column of Figure 1.

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Track frame and driving wheels - Overview

C238	NA



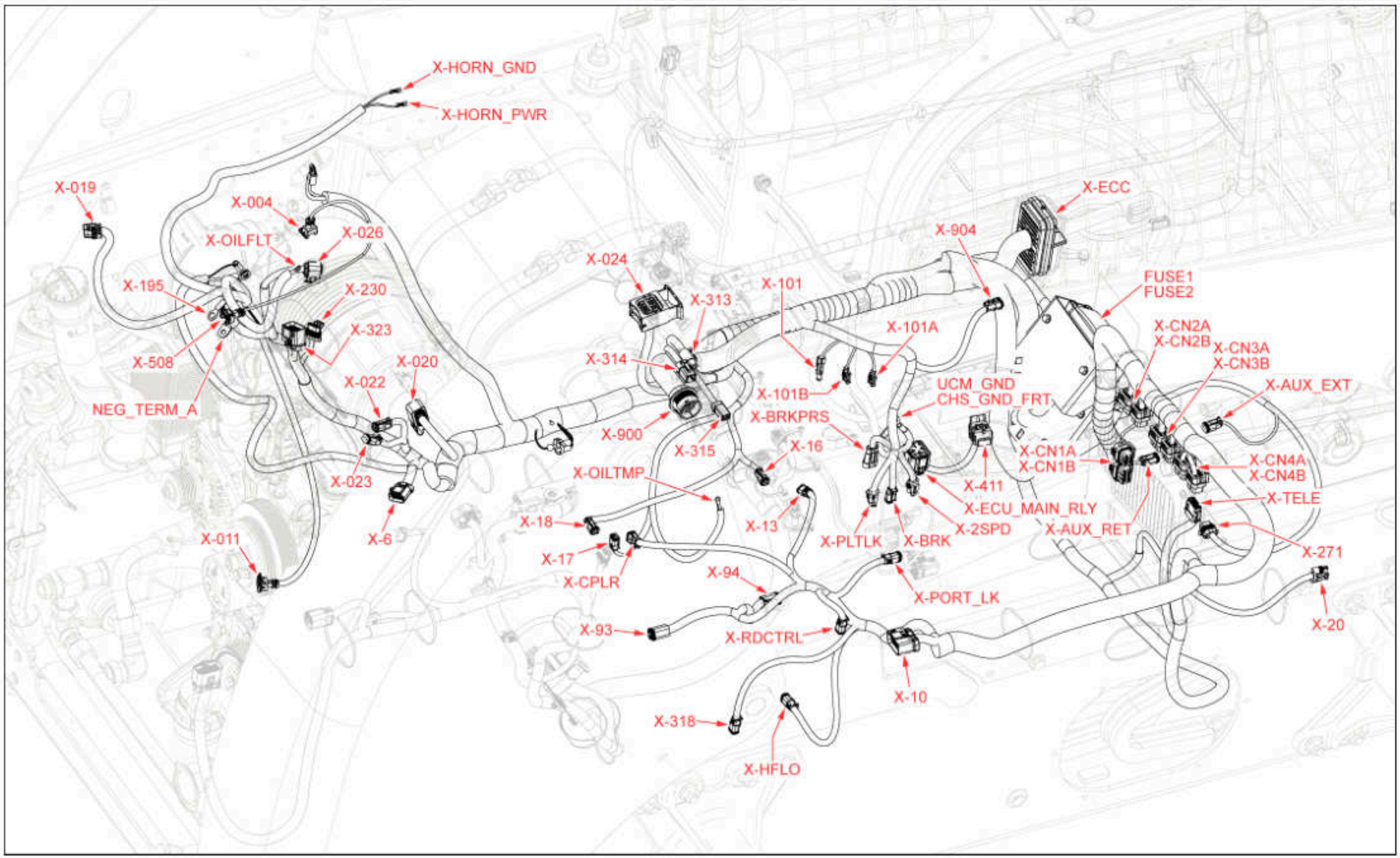
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Low Profile Undercarriage

The Compact Track Loaders (CTL) now feature a redesigned undercarriage beginning February 2016. The new low-profile design promotes the same quality and long lasting Berco undercarriage components. The primary change from the older style undercarriage is in the frame design of the undercarriage.

The newer design changes immediately increase the ease of cleanout by eliminating the large angled carrier design used in the older style undercarriage. The updated carrier design features an improved yoke-to-frame engagement which increases track alignment, maximizes the track life, and produces less operating noise. The new design does not affect or increase performance specifications that were met with the older style undercarriage design. The new design allows for an ease of serviceability to the undercarriage which lowers the cost of operation and in time provides undercarriage longevity.

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