SERVICE MANUAL

D180C

Crawler Dozers

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NEW HOLLAND CONSTRUCTION

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3022-Boost Pressure Sensor - Signal Not Plausible

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Context:
The Engine Control Unit (ECU) generated an error from a fault associated with the boost pressure sensor. The boost pressure sensor is an integrated sensing device used to sense both temperature and pressure. This fault is related to the pressure sensing function of the device. This error could result from a signal out of range or a signal that is either erratic or intermittent. When the ECU determines that the boost pressure sensor value is not valid, it will substitute a default value of **270 kPa** (**39 psi**).

Cause:
The boost pressure sensor signal to the ECU and the atmospheric pressure sensor internal to the ECU do not agree on engine startup.

Possible failure modes:

1. Faulty electrical wiring or connection.
2. Faulty sensor.
3. 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: Turn the ignition switch ON, engine OFF.

   A. Fault code 3022 is not recorded again. Go to step **9**.

   B. Fault code 3022 is recorded again. Go to step **2**.
2. Verify atmospheric pressure and boost pressure on the Electronic Service Tool.

   Turn the ignition switch ON, engine OFF.

   Access the Electronic Service Tool and monitor atmospheric pressure and boost pressure. The atmospheric pressure and boost pressure should be approximately **101.4 kPa** (**14.7 psi**). Wiggle the boost pressure sensor harness to reveal an intermittent condition.

   A. The atmospheric pressure and the boost pressure is approximately **101.4 kPa** (**14.7 psi**). Go to step **3**.

   B. The atmospheric pressure is less than **89 kPa** (**13 psi**) or greater than **110 kPa** (**16 psi**). Temporarily replace the ECU and retest. Return to step **1** to confirm elimination of the fault.

   C. The boost pressure is less than **89 kPa** (**13 psi**) or greater than **110 kPa** (**16 psi**). Temporarily replace the boost pressure sensor and retest. Return to step **1** to confirm elimination of the fault.
3. Verify atmospheric pressure and boost pressure on the Electronic Service Tool while the engine is under load.

   Turn the ignition switch ON.

   Start the engine and apply load.

   Access the Electronic Service Tool and monitor atmospheric pressure and boost pressure. The atmospheric pressure should be approximately **101.4 kPa** (**14.7 psi**).

   Monitor the boost pressure while applying load. The boost pressure should increase as the load on the engine increases.

   A. The atmospheric pressure remained at **101.4 kPa** (**14.7 psi**). The boost pressure increased as the engine load increased. Go to step **9**.

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Schematic legend			
(1)	UCM connector X-016 Pin 5 L Pump FWD (Front A) Fault Codes 4111, 4112, 4113, 4114, and 4302	(6)	UCM connector X-016 Pin 22 REV Pump RTN (Both B) Fault Codes 4311, 4313 and 4312
(2)	UCM connector X-016 Pin 6 L Pump REV (Front B) Fault Codes 4131, 4132, 4133, 4134, and 4312	(7)	UCM connector X-016 Pin 19 R Pump FWD (Rear A) Fault Codes 4101, 4102, 4103, 4104, and 4302
(3)	UCM connector X-014 Pin 21 FWD Pump RTN (Both A) Fault Codes 4301, 4303, and 4302	(8)	UCM connector X-016 Pin 25 R Pump REV (Rear B) Fault Codes 4121, 4122, 4123, 4124, and 4312
(4)	Left Pump Connector X-115	(9)	Right Pump Connector X-114
(5)	Connector X-001/ X-090		

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. Test the circuit.

Turn the ignition switch OFF.

Disconnect the left forward solenoid.

Turn the ignition switch ON.

Access the fault code screen on the EST.

Fault code 4112 should no longer be active. Fault code 4111 is now active. Fault code 4131 will also be active, ignore this fault code.

A. Fault code 4112 is no longer active. Fault code 4111 is now active. Temporarily replace the solenoid and retest. Return to step **1** to confirm elimination of the fault.

B. Fault code 4112 is still present and active. Fault code 4111 did not become active. Go to step **4**.

4. Measure the resistance through the signal wire.

Turn the ignition switch OFF.

Disconnect UCM connector X-016.

Measure the resistance between X-016 pin 5 and chassis ground. The chassis ground connection must be clean and free of paint, oil, and dirt. The resistance should be greater than **20,000 Ω**. Wiggle the harness during measurement to reveal an intermittent condition.

A. The resistance is greater than **20,000 Ω**. Temporarily replace the UCM and retest. Return to step **1** to confirm elimination of the fault.

B. The resistance is less than **20,000 Ω**, there is a short circuit to chassis ground in the wiring from the UCM to the solenoid. Repair or replace the harness as required. Return to step **1** to confirm elimination of fault.

Harnesses and connectors - Electrical schematic sheet 09 UCM (55.100-C.20.E.09)
Harnesses and connectors - Electrical schematic sheet 23 Drive Train/Pumps (55.100-C.20.E.23)

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Schematic legend			
(1)	UCM connector X-019 Pin 18	(3)	Implement interlock solenoid Connector X-101
(2)	Connector X-001/X-090Pin A2B	(4)	Engine ground X-GND6

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 on the signal wire.

Turn the ignition switch OFF.

Disconnect UCM connector X-019.

Disconnect the implement interlock solenoid.

Turn the ignition switch ON.

Measure the voltage between X-019 pin 18 and chassis ground. The chassis ground connection must be clean and free of paint, oil, and dirt. The voltage should be less than **0.5 V**.

A. The voltage is less than **0.5 V**. Go to step **4**.

B. The voltage is greater than **0.5 V**. There is a short circuit to another voltage source. Repair or replace the harness as required. Return to step **1** to confirm elimination of fault.

4. Test the circuit.

Turn the ignition switch OFF.

Disconnect the implement interlock solenoid.

Fabricate a jumper wire that will connect between X-101 pin 1 and X-101 pin 2.

Connect the jumper wire between X-101 pin 1 and X-101 pin 2.

Turn the ignition switch ON.

Access the fault code screen on the EST.

Fault code 5193 should no longer be active. Fault code 5192 is now active.

A. Fault code 5193 is no longer active. Fault code 5192 is now active. Temporarily replace the solenoid and retest. Return to step **1** to confirm elimination of the fault.

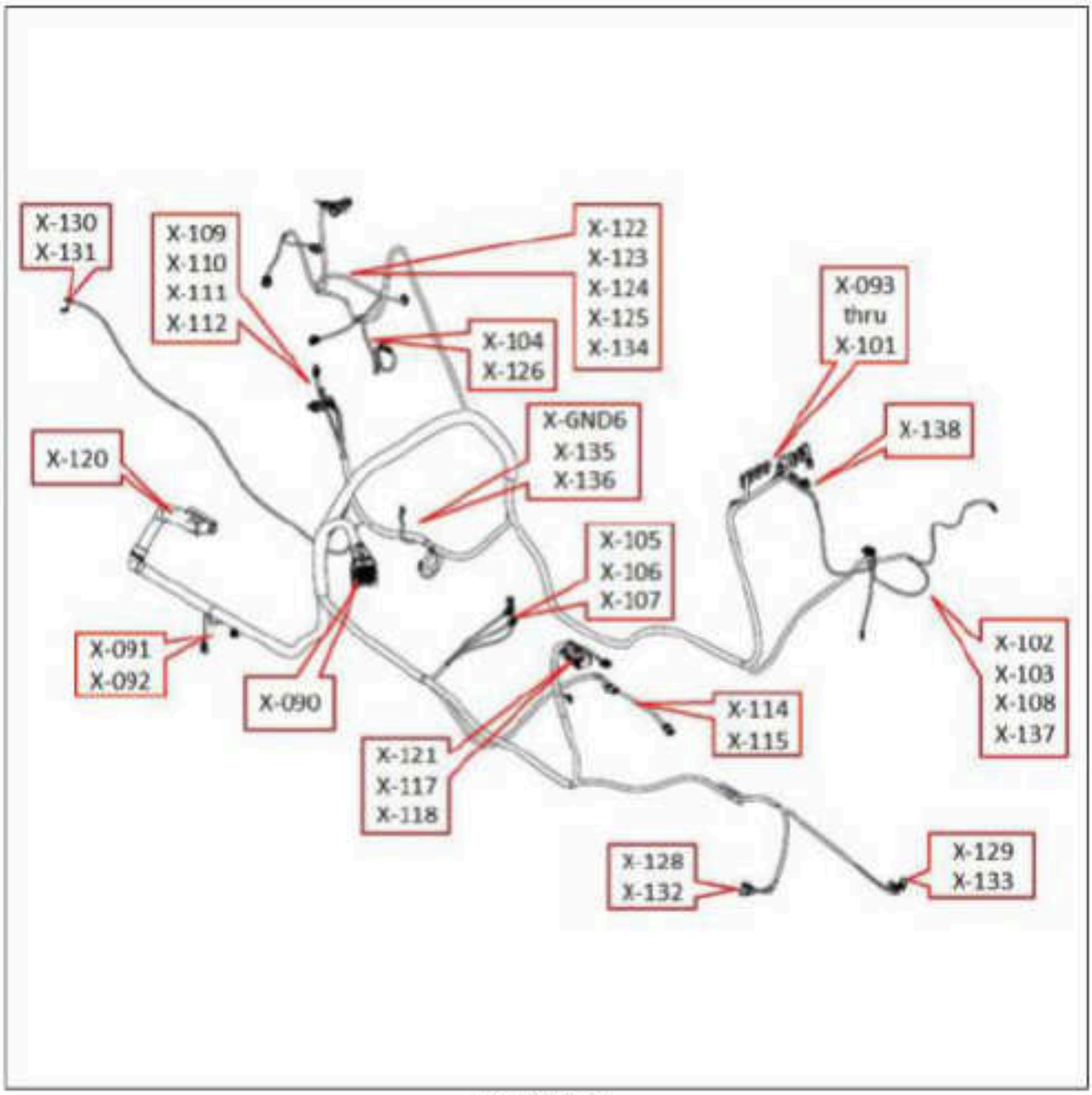
B. Fault code 5193 is still present and active. Fault code 5192 did not become active. Temporarily replace the UCM and retest. Return to step **1** to confirm elimination of the fault.

Harnesses and connectors - Electrical schematic sheet 19 Implement Enable (55.100-C.20.E.19)
Harnesses and connectors - Electrical schematic sheet 09 UCM (55.100-C.20.E.09)

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Harnesses and connectors - Wiring schema – Wiring harnesses with connector locations

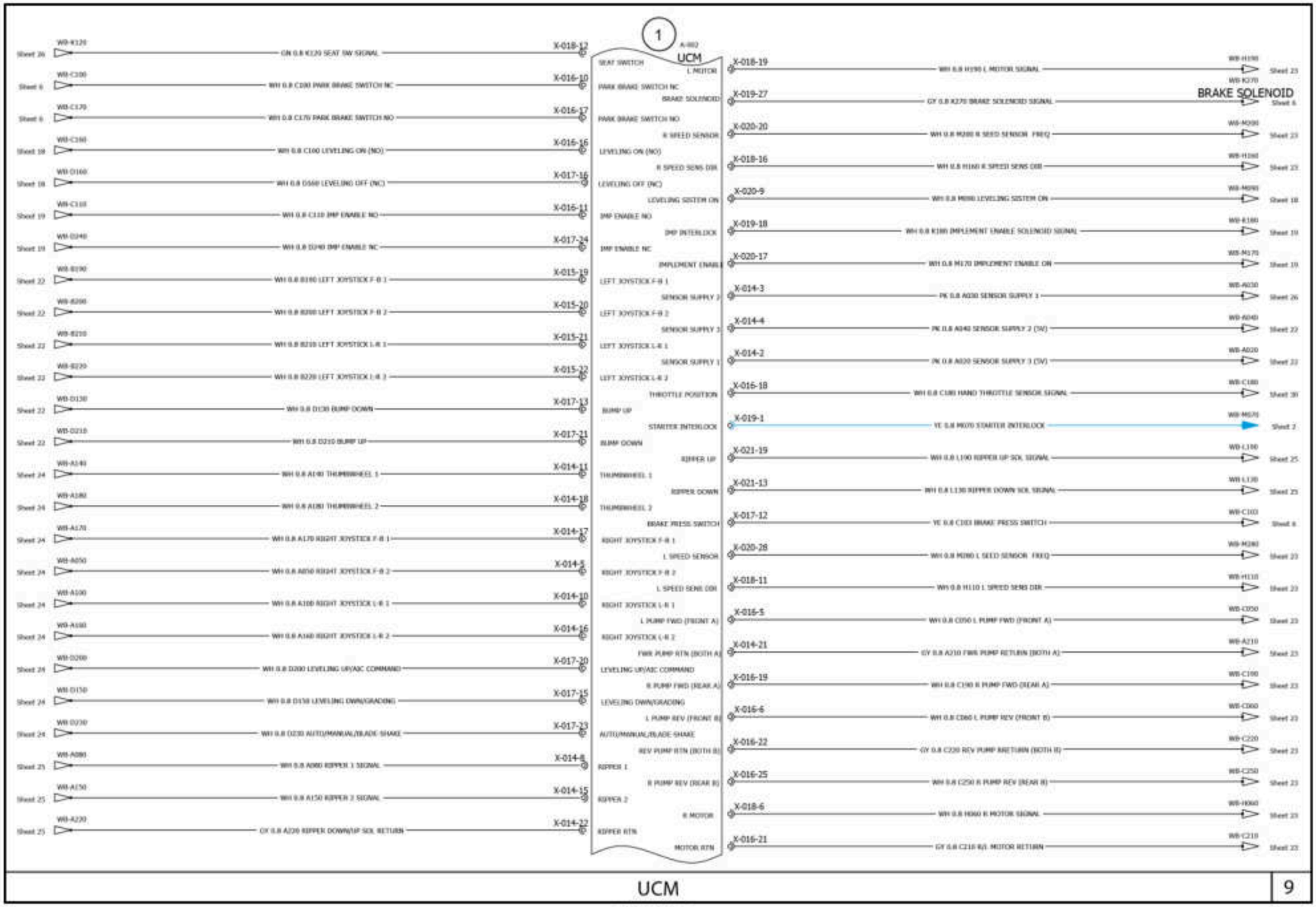
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Chassis harness

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