SERVICE MANUAL

D180C
Tier 2
Crawler Dozer

PIN NHC108500 and above

Part number 48048573
1st edition English
April 2017

NEW HOLLAND CONSTRUCTION

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Harnesses and connectors - Electrical schematic sheet 30 - Horn / backup alarm

Item	Description
1	Horn relay
2	Horn
3	Backup alarm

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Schematic legend			
(1)	ECU engine sensor connector	(3)	Coolant temperature sensor Connector WTF
(2)	ECU	(4)	Fuel temperature sensor Connector KTF

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 sensor resistance.

Turn the ignition switch OFF.

Disconnect the coolant temperature sensor.

Use a multimeter to measure the resistance of the sensor. The proper resistance range is between **95 Ω** and **10.5k Ω**.

Coolant temperature	Resistance value
-20 °C (-4 °F)	**10.5k Ω**
0 °C (32 °F)	**7.5k Ω**
20 °C (68 °F)	**4.2k Ω**
40 °C (104 °F)	**980 Ω**
60 °C (140 °F)	**780 Ω**
80 °C (176 °F)	**500 Ω**
100 °C (212 °F)	**280 Ω**
120 °C (248 °F)	**97 Ω**

A. The resistance measurement is greater than **95 Ω** but less than **10.5k Ω**. The coolant temperature sensor appears to be operating properly. Go to step **4**.

B. The resistance measurement is less than **95 Ω** or greater than **10.5k Ω** or the resistance value does not equate to the temperature. There is a problem with the coolant temperature sensor. Temporarily replace the sensor and retest. Return to step **1** to confirm elimination of the fault.

4. Measure the resistance through the signal wires.

Turn the ignition switch OFF.

Disconnect the coolant temperature sensor.

Disconnect the ECU sensor connector.

Fabricate a jumper wire that will connect between ECU sensor connector pin 15 and ECU sensor connector pin 26.

Connect the jumper wire between ECU sensor connector pin 15 and ECU sensor connector pin 26.

Use a multimeter to perform the following test. Wiggle the harness during measurement to revel an intermittent condition.

	From	To	Result
Resistance measurement	Coolant temperature sensor pin 1	Coolant temperature sensor pin 2	The resistance should be less than **10 Ω**

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

B. The resistance measurement is greater than **10 Ω**. There is an open circuit in the wiring to the coolant temperature sensor. Repair as required. Return to step **1** to confirm elimination of the fault.

5. Measure the voltage on the signal wire.

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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 right reverse solenoid.

   Fabricate a jumper wire that will connect between X-114 pin 2 and X-114 pin 1.

   Connect the jumper wire between X-114 pin 2 and X-114 pin 1.

   Turn the ignition switch ON.

   Access the fault code screen on the EST.

   Fault code 4124 should no longer be active. Fault code 4122 is now active. Fault code 4101 will also be active, ignore this fault code.

   A. Fault code 4124 is no longer active. Fault code 4122 is now active. Temporarily replace the solenoid and retest. Return to Step **1** to confirm elimination of the fault.

   B. Fault code 4124 is still present and active. Fault code 4122 did not become active. Go to Step **4**.

4. Measure the resistance through the signal wires.

   Leave the jumper wire installed in connector X-114.

   Turn the ignition switch OFF.

   Disconnect UCM connectors X-016.

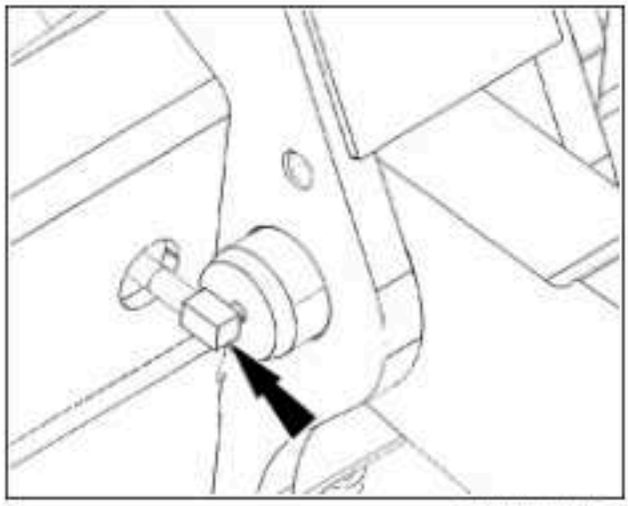
   Measure the resistance between X-016 pin 25 and X-016 pin 22. The resistance should be less than **10 Ω** Wiggle the harness during measurement to reveal an intermittent condition.

   A. The resistance is less than **10 Ω**. Temporarily replace the UCM and retest. Return to Step **1** to confirm elimination of the fault.

   B. The resistance is greater than **10 Ω**, there is an open circuit in the UCM wiring. Repair or replace the harness as required. Return to Step **1** to confirm elimination of fault.

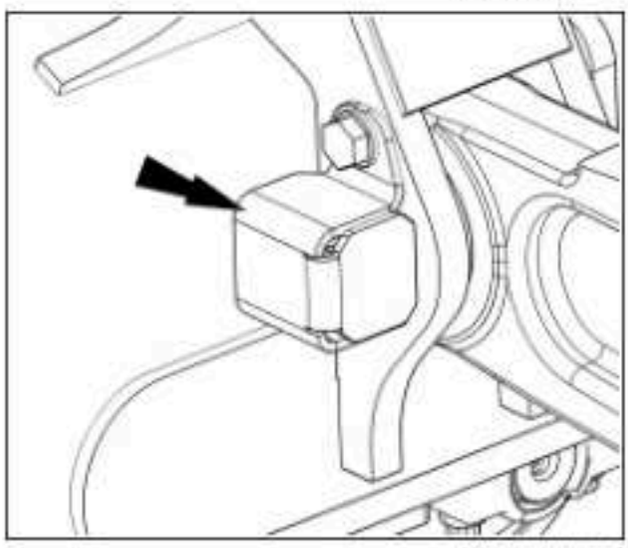
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7. Install the **90°** grease fittings onto the equalizer pin.
8. Orient the **90°** grease fitting(s) as shown.
9. Thread the male end of the equalizer beam pin grease line(s) into the **90°** fitting(s).



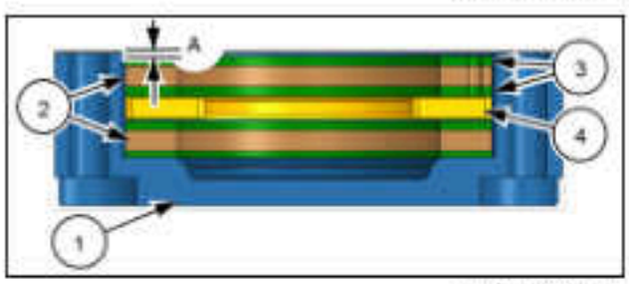
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10. Install the grease fitting cover(s) over the end of the equalizer beam pin(s) and the grease fitting using the bolt to secure.
11. Torque the bolt to **587.0 – 794.0 N·m (433.0 – 586.0 lb ft)**.



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12. Check the pivot shaft end cap shim dimensions.
    (1): End cap (blue)
    (2): Composite thrust washer (tan)
    (3): Shim (green)
    (4): Retainer (yellow)
13. Drop the entire shim pack **(3)** with the thrust washers **(2)** and the retainers **(4)** into the pivot shaft end cap **(1)**. Measure the distance **(A)** between the shim **(3)** and the surface of the end cap **(1)**. Callout **(A)** is to be **0.5 – 1.5 mm** below the surface of the end cap **(1)**.

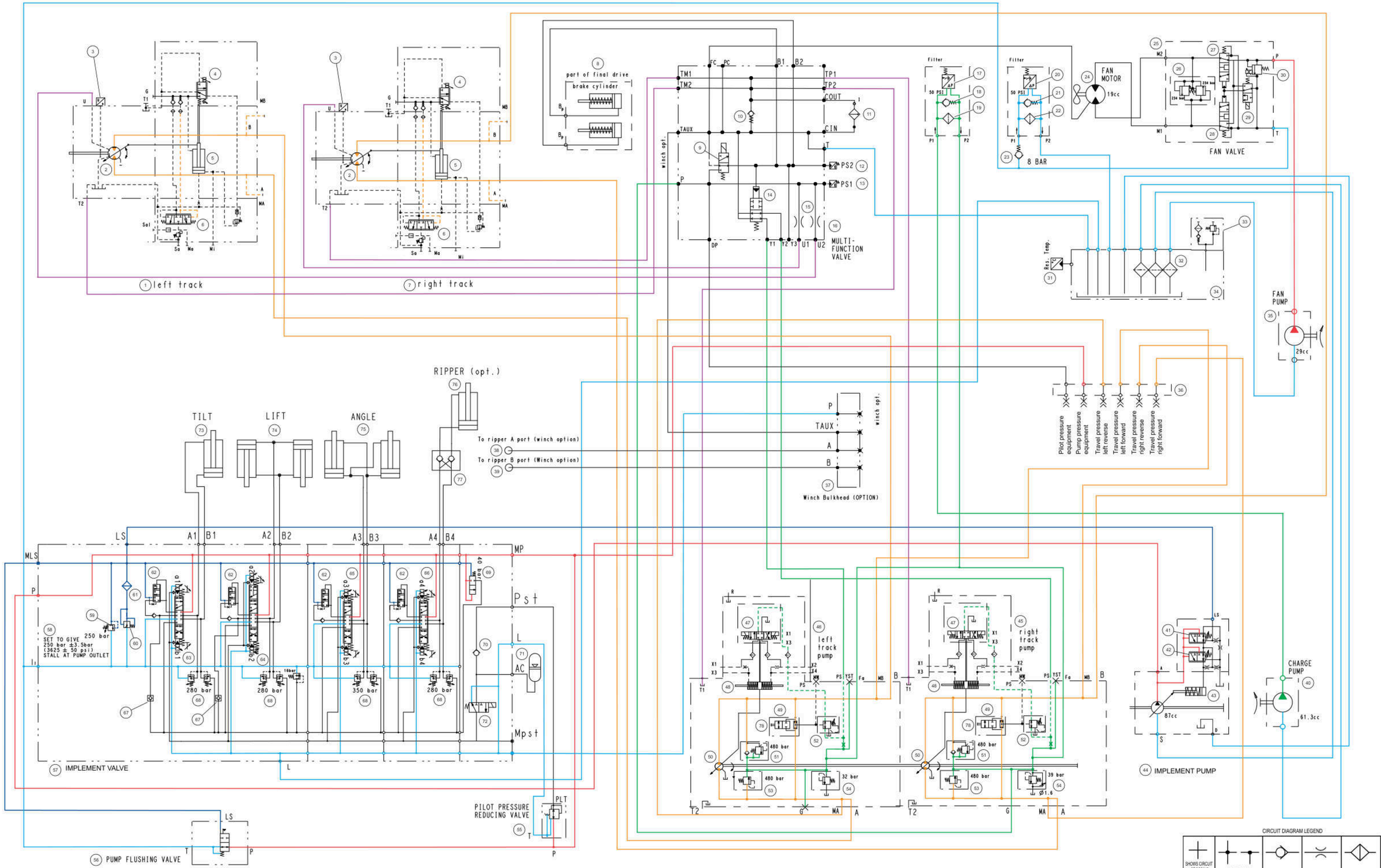


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NOTE: *Keep one shim between the retainers and the thrust washer to prevent the thrust washer liner from tearing.*

NOTE: *The same number of shims and thrust washers will always be used.*

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1	Left Track Drive Motor Assembly	12	Brake Release Pressure Switch	23	Backpressure Check Valve	34	Hydraulic Reservoir	45	Right Track Pump Assembly	56	Pump Flushing Valve	67	Regeneration Check Valve
2	Track Drive Motor	13	Charge Pressure Switch	24	Fan Drive Motor	35	Fan Drive Pump	46	Left Track Pump Assembly	57	Implement valve	68	Circuit Relief w/ Anticavitation
3	Track Drive Motor Speed Sensor	14	Neutral Override Valve	25	Fan Reverse Valve	36	Hydraulic Test Points	47	Pump Control Solenoid Valve	58	Set to give 250 bar +/-3.5, stall at pump outlet	69	Pressure Spike Clipper
4	Motor Control Solenoid Valve	15	Motor Cooling Orifice	26	Fan Reversing Pressure Relief	37	Winch Bulkhead (option)	48	Pump Control Piston	59	Load Sense Relief Valve	70	Pilot Pressure Check Valve
5	Motor Speed Control Piston	16	Brake Release (Multi-function) Valve	27	Reverse Pilot Control Valve	38	To Ripper A Port (option)	49	Tow Valve	60	Signal Bleed Down Orifice	71	Pilot Accumulator
6	Motor Flushing Valve	17	Charge Filter Pressure Switch	28	Forward Pilot Control Valve	39	To Ripper B Port (option)	50	Track Drive Pumps	61	Screen	72	Pilot On/Off Solenoid Valve
7	Right Track Drive Motor Assembly	18	Charge Filter Bypass Valve	29	Fan Reverse Solenoid	40	Charge Pump	51	High Pressure Relief/Check Valve	62	Flow Compensator Spool	73	Tilt Cylinder
8	Park Brake Release Piston	19	Charge Filter	30	Fan Speed Control Solenoid	41	Flow Control Spool	52	High Pressure Cut-off (Inactive)	63	Tilt Spool	74	Lift Cylinders
9	Park Brake Release Solenoid	20	Hydraulic Filter Pressure Switch	31	Reservoir Temperature Sensor	42	High Pressure Cut-Off Spool	53	High Pressure Relief	64	Lift Spool	75	Angle Cylinders
10	Oil Cooler Bypass	21	Filter Bypass Valve	32	Reservoir Suction Screen	43	Destroke Pistons	54	Charge Pressure Relief	65	Angle Spool	76	Ripper Cylinder
11	Oil Cooler	22	Hydraulic Filter	33	Reservoir Pressure Cap	44	Implement Pump	55	Pilot Pressure Reducing Valve	66	Ripper Spool	77	Ripper Lock Check Valve
												78	Note: Pressure override set to maximum- not active in system

CIRCUIT DIAGRAM LEGEND

SHOWS CIRCUIT CROSSING NOT CONNECTED | SHOWS CIRCUIT CONNECTED | CHECK VALVE | RESTRICTOR | FILTER OR SCREEN | OIL COOLER

LINE TYPES

- HYDRAULIC PRESSURE
- CHARGE PUMP PRESSURE
- RETURN TO TANK/ PUMP INLET
- TRACK DRIVE
- TRACK DRIVE CASE DRAIN
- LOAD SENSE

HYDRAULIC SCHEMATIC
D180C DOZER - Tier 2
PIN BREAK: NHC108500 and above

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