2050M
Tier 4A (interim)
Crawler Dozer

PIN NCDC25000 and above; PIN NDDC25000 and above
PIN NEDC20000 and above; PIN NFDC20000 and above

SERVICE MANUAL

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CASE CONSTRUCTION

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Harnesses and connectors - Electrical schematic sheet 14 - Instrument cluster

2050M	NA

Item	Description
1	Battery
2	Up/down switch
3	Menu down
4	Menu up
5	Enter/escape switch
6	Menu enter
7	Menu escape
8	Instrument cluster
9	Unswitched power
10	Fan reverse
11	Fan auto
12	Ignition power
13	Crank
14	Alternator D+
15	Transmission oil filter restriction
16	Hydraulic oil filter restriction
17	Air filter
18	Charge pressure switch
19	Charge pressure
20	Air filter restriction
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23	Telematics
24	To the ignition switch

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1829-Overall UCM Current Draw Above Normal

2050M	NA

Context:
The combined UCM current is greater than a predefined limit.

Cause:
The combined UCM current is greater than normal. This fault code may be active with 1809 and other fault codes such as high engine temperatures or low battery voltages.

Possible failure modes:

1. A problem in the voltage supply to the UCM.
2. 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 codes: Start and operate the machine.

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

   B. Fault code 1829 is recorded again along with other codes such as fault code 3007 high coolant temperature or fault code 1408 low battery voltage troubleshoot these codes first.

   C. Fault code 1829 is recorded again. No other codes are present. Go to step **2**.
2. Verify that the wiring and connectors are free of damage.

   Turn the ignition switch OFF.

   Verify the minus battery connections from the battery to the frame are tight and secure.

   Verify the connections from battery to the UCM are tight and secure.

   Verify the harness is free of damage, abrasion, corrosion, and incorrect attachment from the battery to the UCM.

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3587-Plausibility check of catalyst system - temperature before catalyst not plausible

2050M	NA

Context:
The temperature sensors downstream and upstream of the SCR catalyst, together with the ambient temperature signal are checked for static plausibility against each other. This is done once for each driving cycle and only during cold start when all temperatures should still be the same. Depending on the availability/defectiveness of the temperature sensors, the plausibility check can vary.

Cause:
Downstream temperatures are not plausible. There is a difference of **20 °C** (**68.0 °F**), between the sensors.

Possible failure modes:

1. Faulty downstream temperature sensor.
2. Faulty electrical wiring or connectors.

Solution:

1. Verify this error code is still present and in an active state.

   A. If the error is still present and active, continue with step **2**.

   B. If the error is no longer present or is in an inactive state, continue with step **5**.

2. Ensure the engine has been allowed to cool down for over **600 min**. Disconnect the wiring harness from the ambient temperature sensor. Use a multi-meter to measure the resistance from ambient temperature sensor connector pin 3 to pin 4. There should be approximately

Temperature	Resistance (Approximately)
-40 °C (-40.0 °F)	42172 Ω
-30 °C (-22.0 °F)	24760 Ω
-20 °C (-4.0 °F)	14995 Ω
-10 °C (14.0 °F)	9348 Ω
0 °C (32.0 °F)	5988 Ω
10 °C (50.0 °F)	3933 Ω
20 °C (68.0 °F)	2644 Ω
30 °C (86.0 °F)	1817 Ω
40 °C (104.0 °F)	1274 Ω
50 °C (122.0 °F)	910 Ω
60 °C (140.0 °F)	662 Ω
70 °C (158.0 °F)	489 Ω
80 °C (176.0 °F)	367 Ω
90 °C (194.0 °F)	279 Ω

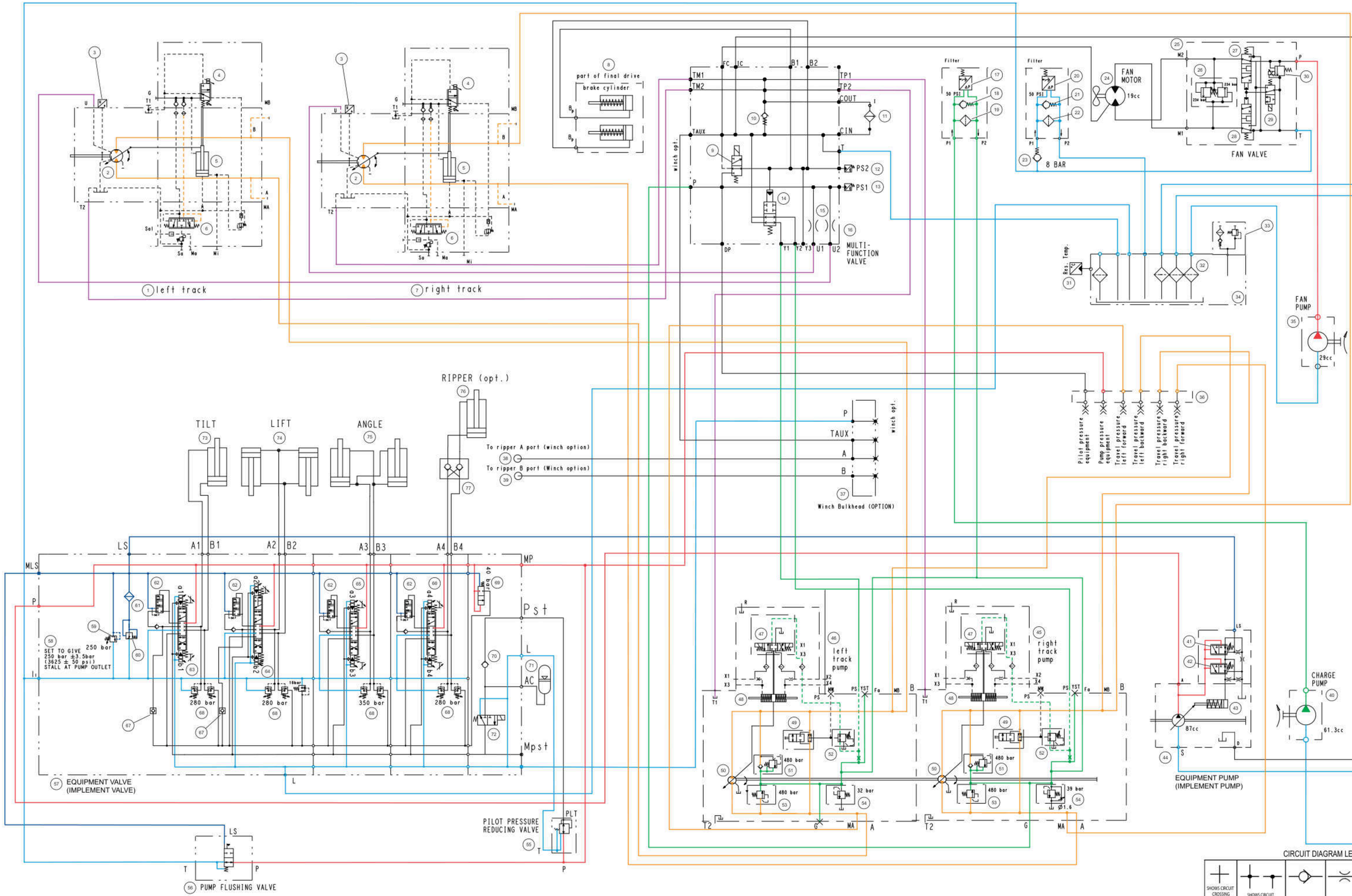
   A. If ambient temperature sensor test is good, continue with step **3**.

   B. If the ambient temperature sensor test fails, replace the sensor.

3. Check upstream and downstream temperature sensors. Disconnect the wiring harness from the upstream temperature sensor. Use a multi-meter to measure the resistance on the upstream temperature sensor connector from pin 1 to pin 2. Use the chart below for specifications. Then disconnect the wiring harness from the downstream temperature sensor. Use a multi-meter to measure the resistance on the upstream temperature sensor connector from pin 1 to pin 2. Use the chart below for specifications.

Temperature	Resistance (Approximately)
-65 °C (-85.0 °F)	150 Ω
0 °C (32.0 °F)	200 Ω

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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	Equipment valve (Implement)	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	Equipment Hydraulic Pump	55	Pilot Pressure Reducing Valve	66	Ripper Spool	77	Ripper Lock Check Valve

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
2050M DOZER
Tier 4A (interim)\Stage IIIB\Tier 2 - ROW

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