SERVICE MANUAL

Workmaster™ 33
Workmaster™ 37
Tier 4B (final)
Compact Tractor

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MidWestTech | New Holland Workmaster 33, 37 Tier 4B Compact Tractor Service Manual | Publication 47881877

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Wiring harnesses - Electrical schematic sheet 08 – Engine 3 (Hydrostatic Transmission (HST) models)

Type	Component	Connector / Link	Description
Relay	**K-9004**	**X-9144**	GLOW RELAY
Relay	**K-9101**	**X-9181**	AIR PUMP RELAY [RELAY BOX #5]
Relay	**K-9102**	**X-9140**	FUEL PUMP RELAY [RELAY BOX #4]
Relay	**K-9107**	**X-9142**	BURNER GLOW RELAY [RELAY BOX #6]
Motor	**M-001**	**X-027**	FUEL PUMP
Resistor	**R-003**	**X-9086**	RESISTOR
Switch	**S-006**	**X-054**	PTO SWITCH
Connector	X-027	**X-027**	
Connector	X-054	**X-054**	
Connector	X-066	**X-066**	
Connector	X-066A	**X-066A**	
Connector	X-200	**X-200**	
Connector	X-205	**X-205**	
Connector	X-212	**X-212**	
Connector	X-9023	**X-9023**	
Connector	X-9027	**X-9027**	
Connector	X-9052	**X-9052**	
Connector	X-9086	**X-9086**	
Connector	X-9140	**X-9140**	FUEL PUMP RELAY
Connector	X-9142	**X-9142**	
Connector	X-9144	**X-9144**	
Connector	X-9181	**X-9181**	
Solenoid	**Y-001**	**X-066**	PTO VALVE
Solenoid	**Y-9001**	**X-9027**	AIR PUMP
Solenoid	**Y-9003**	**X-9023**	ENGINE GLOW PLUG
Solenoid	**Y-9010**	**X-9052**	BURNER GLOW PLUG

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91-4-Accelerator pedal position #1: voltage below normal

Control Module : ECU

NOTE: *This fault code resolution is for the low idle switch and hand throttle lever position sensor (hand throttle) on HST transmission equipped machines.*

Context:
The Engine Control Unit (ECU) provides sensor power and ground reference used by the low idle switch and hand throttle lever position sensor (B-9112) and monitors the potentiometer position. If the low idle switch and hand throttle lever position sensor (B-9112) position signal is less than **0.4 V**, this fault will occur.

Cause:
The low idle switch and hand throttle lever position sensor (B-9112) position signal to the ECU A-9000 is less than **0.4 V**.

Possible failure modes:

1. Faulty low idle switch and hand throttle lever position sensor (B-9112) position signal circuit wiring, shorted to a ground source.
2. Faulty low idle switch and hand throttle lever position sensor (B-9112).
3. Faulty ECU A-9000, software.

Solution:

1. Verify fault is present and active.

   Use the Electronic Service Tool (EST) to check the status of this fault.

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

   B. If the fault is no longer present or in an inactive state, the fault may be intermittent and not currently active. Continue with Step **5**.

2. Check the low idle switch and hand throttle lever position sensor (B-9112) position signal circuit wiring for a short to ground source condition.

   Disconnect the harness main (HM) harness from the low idle switch and hand throttle lever position sensor (B-9112) at connector X-9112.

   With the key switch in the ON position, use a multimeter to check for shorts to ground on the vehicle (VE) harness side from:

From	To	Value
X-9112 pin C	Chassis ground	There should be no continuity.
X-9112 pin B	Chassis ground	There should be no continuity.
X-9112 pin A	Chassis ground	There should be no continuity.
X-9112 pin A	X-9112 pin C	There should be no continuity.
X-9112 pin A	X-9112 pin B	There should be no continuity.
X-9112 pin B	X-9112 pin C	There should be no continuity.

   A. If the results of this test are as expected, continue with Step **3**.

   B. If the results of this test are not as expected, there is a short to a voltage source condition in the vehicle (VE) harness between connector X-9100 and connector X-9112. Locate and repair the damaged conductors.

3. Check the low idle switch and hand throttle lever position sensor (B-9112) position signal circuit wiring for continuity.

   Disconnect the harness main (HM) harness from the low idle switch and hand throttle lever position sensor (B-9112) at connector X-9112 and the vehicle harness (VE) from the engine control unit (A-9001) at connector X-9100.

   Use a multimeter to check for continuity on the following circuits:

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Check	Action
Condition of fuel	• Check the color. There should be no color, brownish, or milky substance. • Check for separation of materials. There should be no water, or foreign objects in the tank. • Check the viscosity. There should not be a waxy or sticky consistency.
Diesel particulate filter and Diesel Oxidation Catalyst	Check the condition of the DOC/DPF system. • Make sure there is no damage to the DOC. • Make sure there is no damage to the DPF. • The ash service for the DPF service interval is every **3000 h**.
Air pump • V-belt for air pump • Air line to burner • Reed valve	Check the air pump assembly. • See **Air pump - Inspect (10.501)**. Check the reed valve. • See **Air pump - Inspect — Reed valve (10.501)**.
Hoses/lines • Fuel line/hose • DPF line/hose	Check and/or replace any damaged hoses or lines.

A. If no issues are found, continue with Step **4**.

B. If there are any issues found, repair or replace as required.

4. Check the DOC inlet temperature sensor.

Use a multimeter to check resistance of the DOC inlet temperature sensor.

Temperature	Resistance
20 °C (68 °F)	**118 kΩ** +/- 7%
200 °C (392 °F)	**4.0 kΩ** +/- 15%
650 °C (1202 °F)	**164.8 Ω** +/-5%

A. If the DOC inlet temperature sensor resistance is within specification, Continue with Step **5**.

B. If the DOC inlet temperature sensor resistance is not within specification, replace the DOC inlet temperature sensor.

5. Check DOC inlet temperature sensor wiring.

Disconnect connectors X-9001 and X-9000.

Use a multimeter to check resistance of the DOC inlet temperature sensor wiring.

Perform the following checks:

From	To	Value
X-9001 pin 1	X-9000 pin 35	There should be continuity.
X-9001 pin 2	X-9000 pin 15	There should be continuity.
X-9001 pin 1	X-9001 pin 2	There should be no continuity.

A. If the DOC inlet temperature sensor wiring test passes, continue with Step **6**.

B. If the DOC inlet temperature sensor wiring test fails, locate and repair the broken conductor or rubbed wire(s).

6. Check the burner glow plug relay output voltage.

Use a multi-meter to check voltage between the burner glow plug connector and ground.

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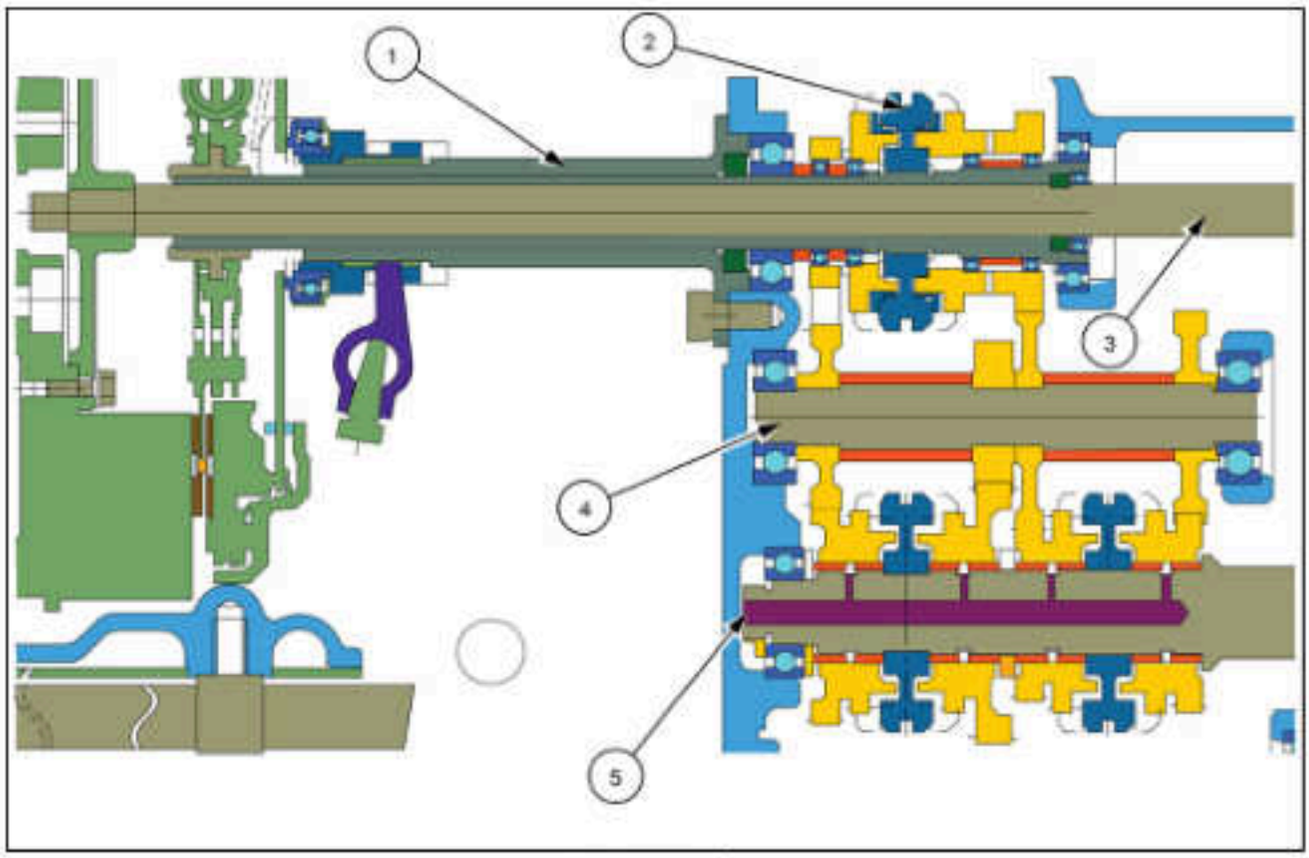
Mechanical transmission - Overhaul transmission gears assembly

Workmaster™ 33	NA
Workmaster™ 37	NA

⚠ WARNING

Heavy object!
ALWAYS use a hoist or get assistance to lift the component.
Failure to comply could result in death or serious injury.

M0001A



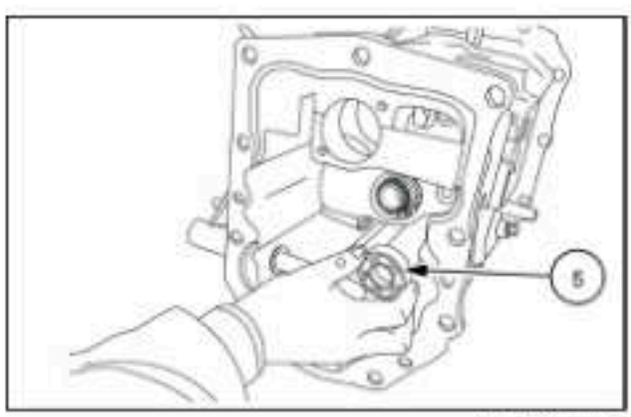
NHL13CT00077PA 1

Transmission schematic

(1) Forward - Reverse Shaft
(2) Shuttle Unit
(3) PTO Shaft
(4) Main Shaft
(5) Main Drive Shaft

Assembly

1. Install the bearing **(5)**.



NHL13CT00088AA 2

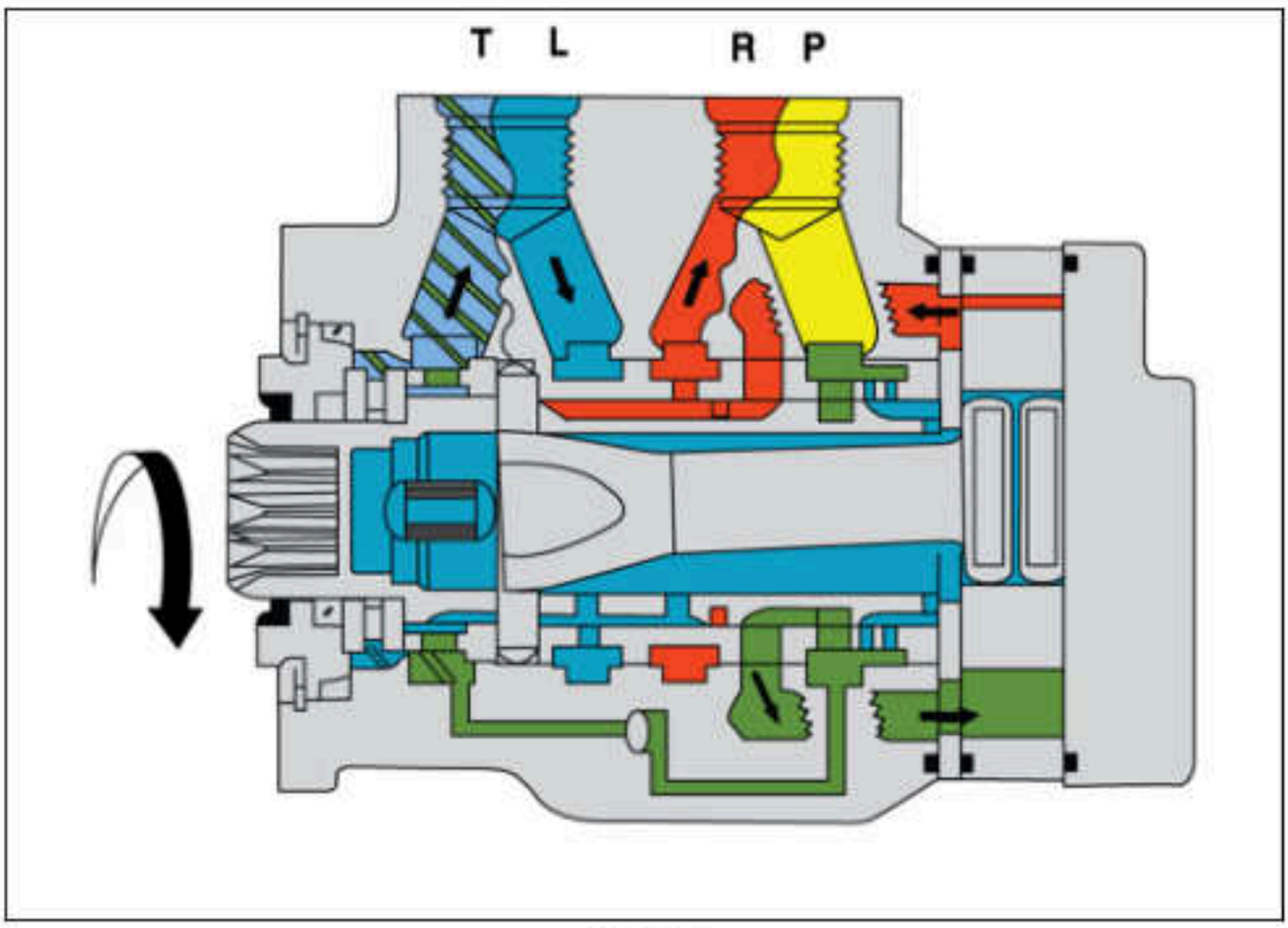
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Emergency operation

⚠ WARNING

Loss of control hazard!
Because of the slow responsiveness of the steering in this condition, you should not travel at high speeds or on downhill roads.
Failure to comply could result in death or serious injury.

W8468A



12

Emergency mode steering manually

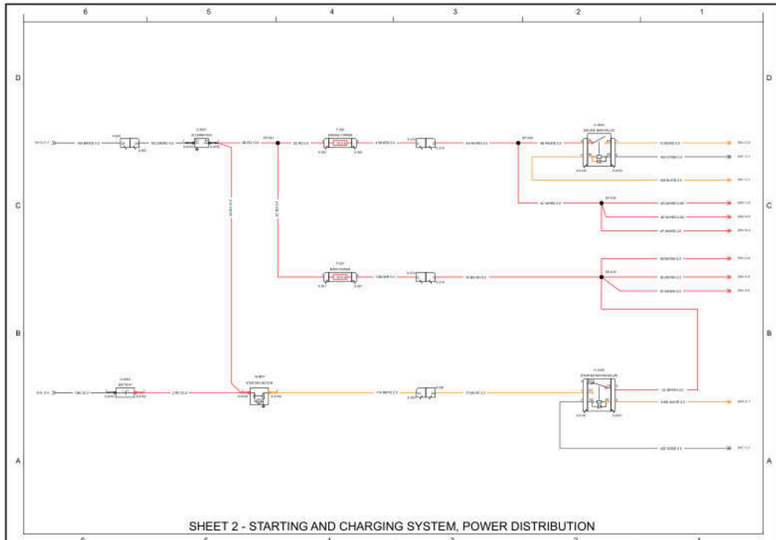
(T) - Tank
(L) - Left steer port
(R) - Right steer port
(P) - Pump discharge

- Pressurized oil from pump
- Oil from rotor
- Discharge
- Suction
- Suction or discharge
- Neutral

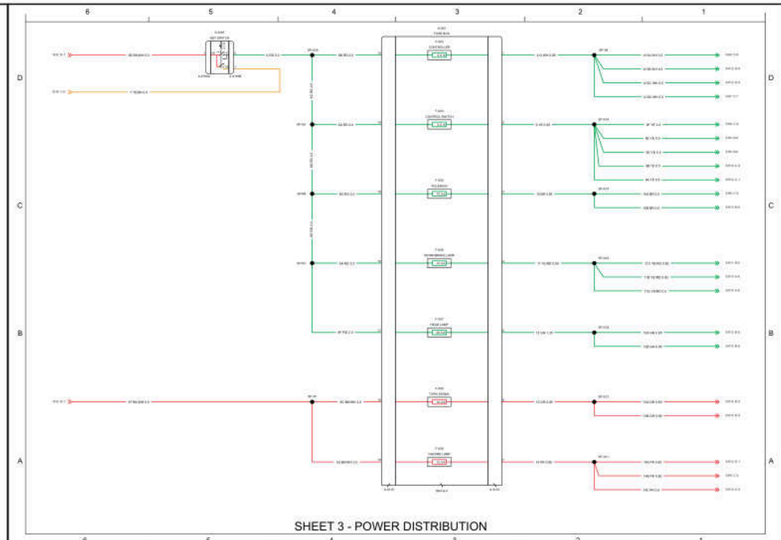
NOTICE: *In the EMERGENCY manual steering mode, if steering becomes difficult to do, STOP and transport the tractor by trailer.*

If hydraulic pressure is not generated by the hydraulic pump, the "Rocker" inside the valve serves as a hand pump, and allows the steering cylinder to operate.
The oil returning to the port **(T)** is sent to the rotor **(1)** through the check valve and the rotor sends oil to the cylinder. At this time, the oil in the opposite side returns to the port **(T)** again and repeats the procedure previously described.

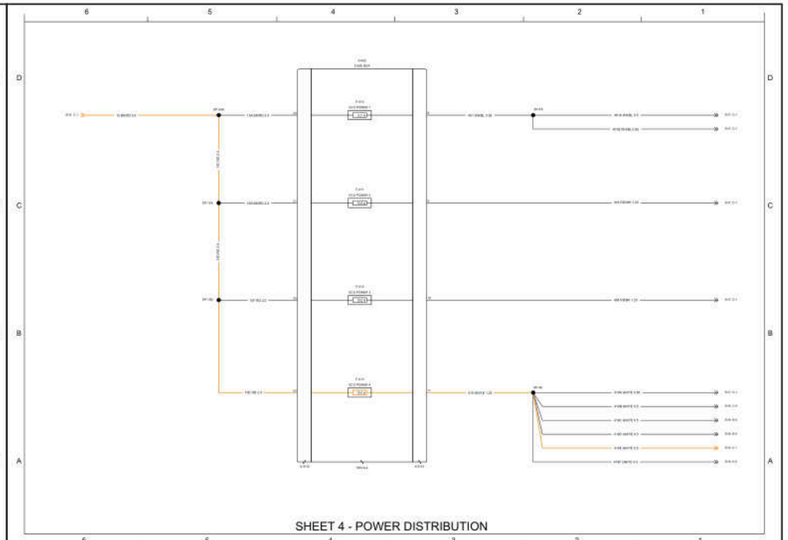
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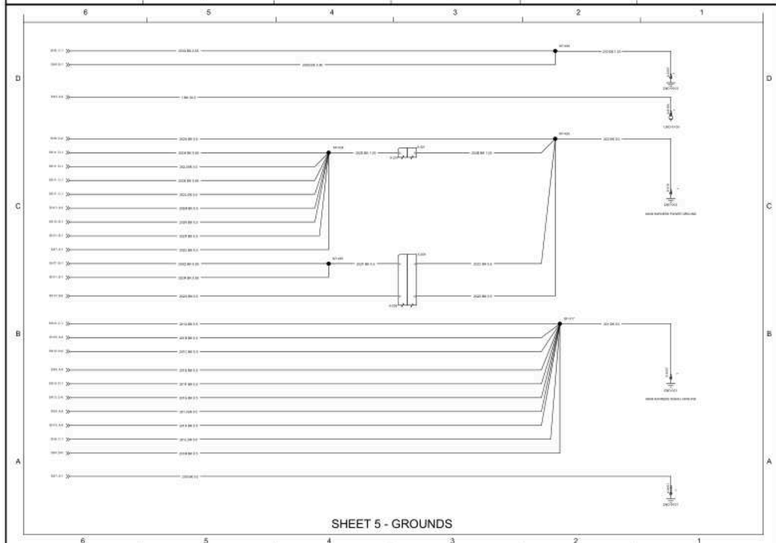
SHEET 2 - STARTING AND CHARGING SYSTEM, POWER DISTRIBUTION



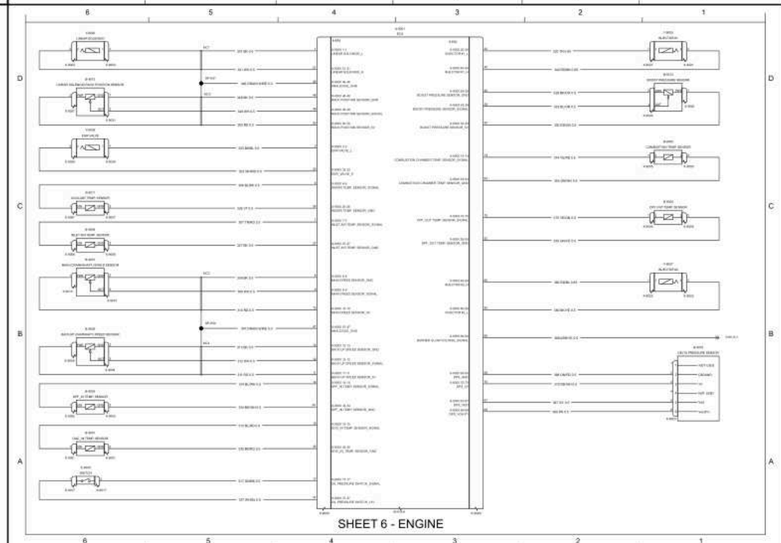
SHEET 3 - POWER DISTRIBUTION



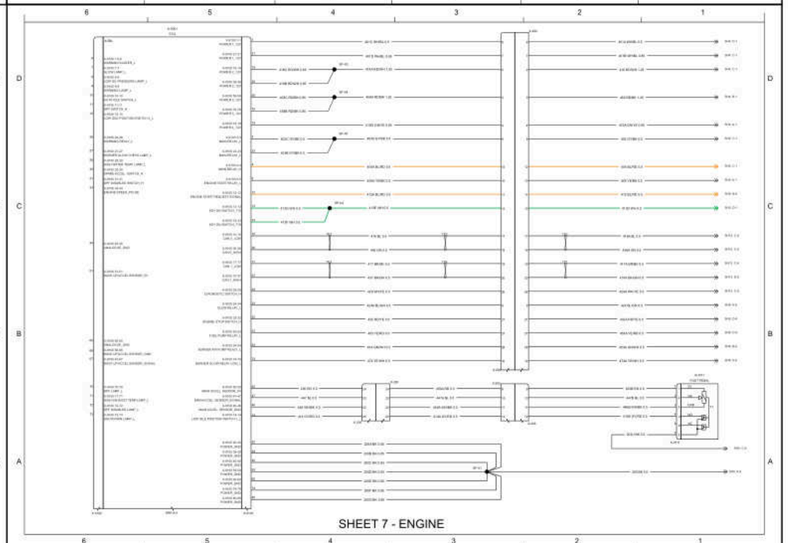
SHEET 4 - POWER DISTRIBUTION



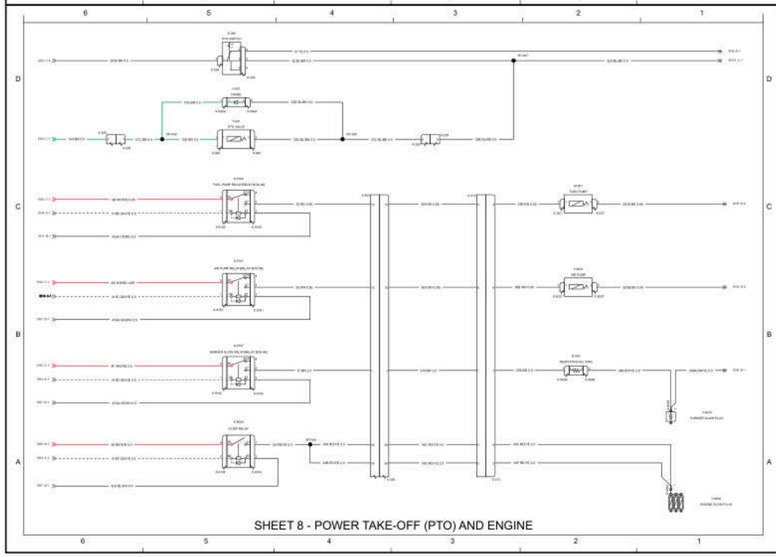
SHEET 5 - GROUNDS



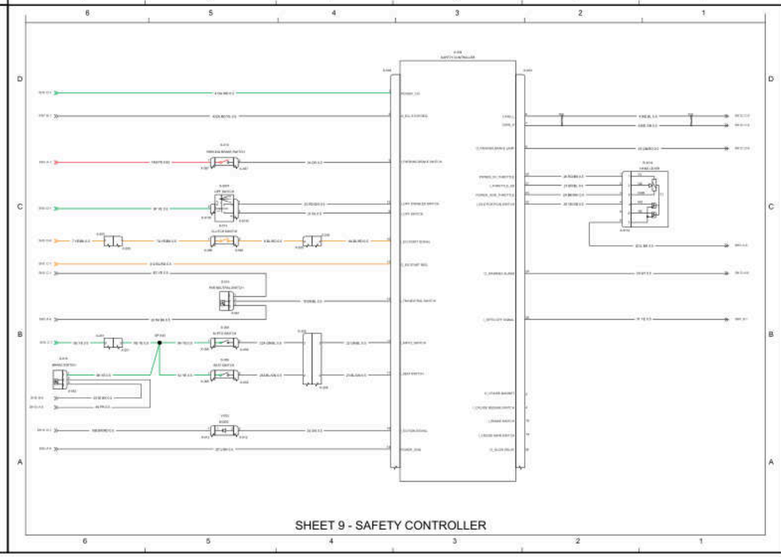
SHEET 6 - ENGINE



SHEET 7 - ENGINE



SHEET 8 - POWER TAKE-OFF (PTO) AND ENGINE



SHEET 9 - SAFETY CONTROLLER

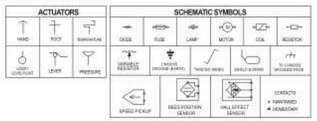
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COMPACT TRACTOR
47918030

ELECTRICAL SCHEMATIC
MECHANICAL TRANSMISSION
1ST EDITION

SCHEMATIC SHEET INDEX

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SYMBOL LEGEND



COMPONENT LEGEND

Label Prefix	Component Type	Label Prefix	Component Type
A	Electronics	K	Relays
B	Sensors	M	Motors
D	Diodes	Q	Circuit Breakers
E	Lights	R	Resistive
F	Fuses	S	Switches
G	Generators	W	Splice Blocks
H	Audio	Y	Solenoids
J	Outlets		

CIRCUIT COLOR INDEX

12V UNSWITCHED POWER
IGNITION KEY ON
IGNITION KEY ON - AFTER CAB POWER RELAY
CRANKING

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