SERVICE MANUAL

Boomer™ 41
Boomer™ 47
Tier 4B (final)
Compact Tractor

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MidWestTech | New Holland Boomer 41, 47 Tier 4B Compact Tractor Service Manual | Publication 47941902

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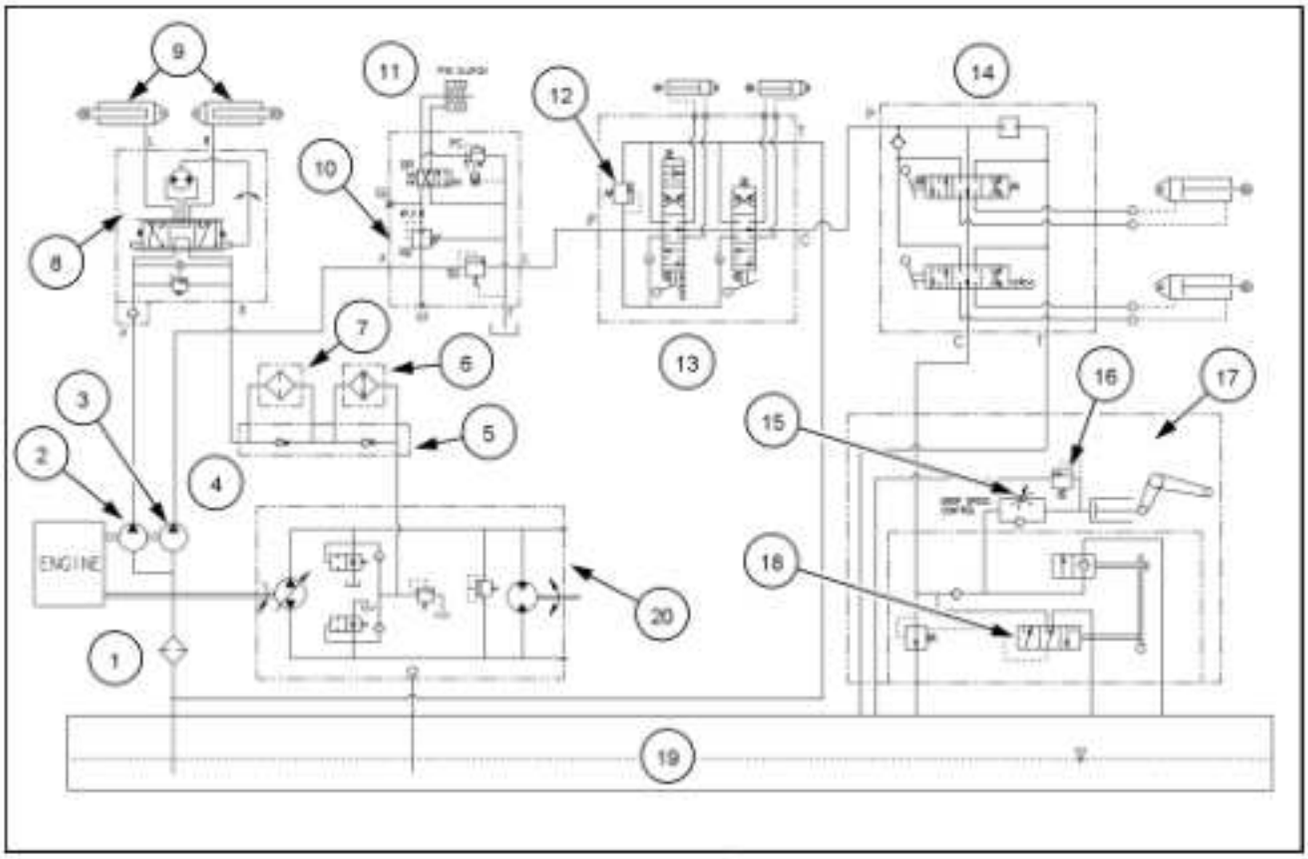
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Hydraulic systems - Hydraulic schematic frame 02 - Hydrostatic transmission



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Hydraulic system components			
(1) Suction filter (45 micron)	**(6)** Oil cooler	**(11)** PTO clutch	**(16)** Safety relief valve **19608 kPa** (**2844 psi**)
(2) Steering pump **15.9 L/min** (**4.2 US gpm**)	**(7)** HST filter (10 micron)	**(12)** System relief valve **16671 kPa** (**2418 psi**)	**(17)** Hydraulic lift housing
(3) Hydraulic pump **30.9 L/min** (**8.2 US gpm**)	**(8)** Steering control valve	**(13)** Mid mount two spool valve	**(18)** Hydraulic lift control valve
(4) HST filter bypass valve Pressure differential (Start) **207 kPa** (**30 psi**) (Full open) **276 kPa** (**40 psi**)	**(9)** Steering cylinders	**(14)** Rear remote valve (optional)	**(19)** Reservoir
(5) Oil cooler bypass valve Pressure differential (Start) **414 kPa** (**60 psi**) (Full open) **538 kPa** (**78 psi**)	**(10)** PTO valve block	**(15)** Drop rate valve	**(20)** HST transmission assembly

PTO valve block (10) components identification	
DR	Solenoid valve
PC	PTO modulation engagement valve
SQ	Sequence valve
)(1.3	Restrictor orifice 1.3 mm

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A. If the resistance is correct, continue with Step **5**.

B. If the resistance reading is incorrect, the internal resistor has failed. Replace the ECU.

5. Check the wiring harness for an open circuit.

   Place the key switch OFF.

   Use a multimeter to perform the following checks on the wiring harness.

From	To	Value
Connector X-9180 pin A	Chassis ground	There should be continuity.
Connector X-9180 pin B	Connector X-9100 pins 33 and 13	There should be continuity.
Connector X-9180 pin C	Connector X-9100 pin 36	There should be continuity.
Connector X-9180 pin D	Connector X-9100 pin 16	There should be continuity.

   A. If the wiring harness test passes, check the instrument cluster CAN wiring and terminator.

   B. If the wiring harness test fails, locate and repair the broken conductor.

6. 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.

Wiring harnesses - Electrical schematic sheet 02 – Controller Area Network (CAN) and glow plugs (engine schematics) (55.100.DP-C.20.E.02)

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Place the key switch ON.

Monitor the diagnostic screen for fault code 4201-4.

A. If the fault code 4201-4 is not present, continue with Step **5**.

B. If the fault code 4201-4 is present, the sensor has failed. Replace the sensor.

5. Check the wiring harness.

Place the key switch OFF.

Disconnect the wiring harness from ECU.

Use a multimeter to perform the following checks on the wiring harness.

From	To	Value
Connector X-9009 pin 1	Connector X-9000 pin 10	There should be continuity.
Connector X-9009 pin 2	Connector X-9000 pin 8	There should be continuity.
Connector X-9009 pin 3	Connector X-9000 pin 9	There should be continuity.
Connector X-9009 pin 1	Chassis ground	There should be no continuity.
Connector X-9009 pin 2	Chassis ground	There should be no continuity.
Connector X-9009 pin 2	Connector X-9009 pin 1	There should be no continuity.
Connector X-9009 pin 2	Connector X-9009 pin 3	There should be no continuity.

A. If the wiring harness test passes, see **Electronic module - Electrical test Engine Control Unit (ECU) verification (55.640)** to verify the ECU is working properly.

B. If the wiring harness test fails, locate and repair the broken conductor.

6. 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.

Wiring harnesses - Electrical schematic sheet 05 – Engine Control Unit (ECU) (engine schematics) (55.100.DP-C.20.E.05)

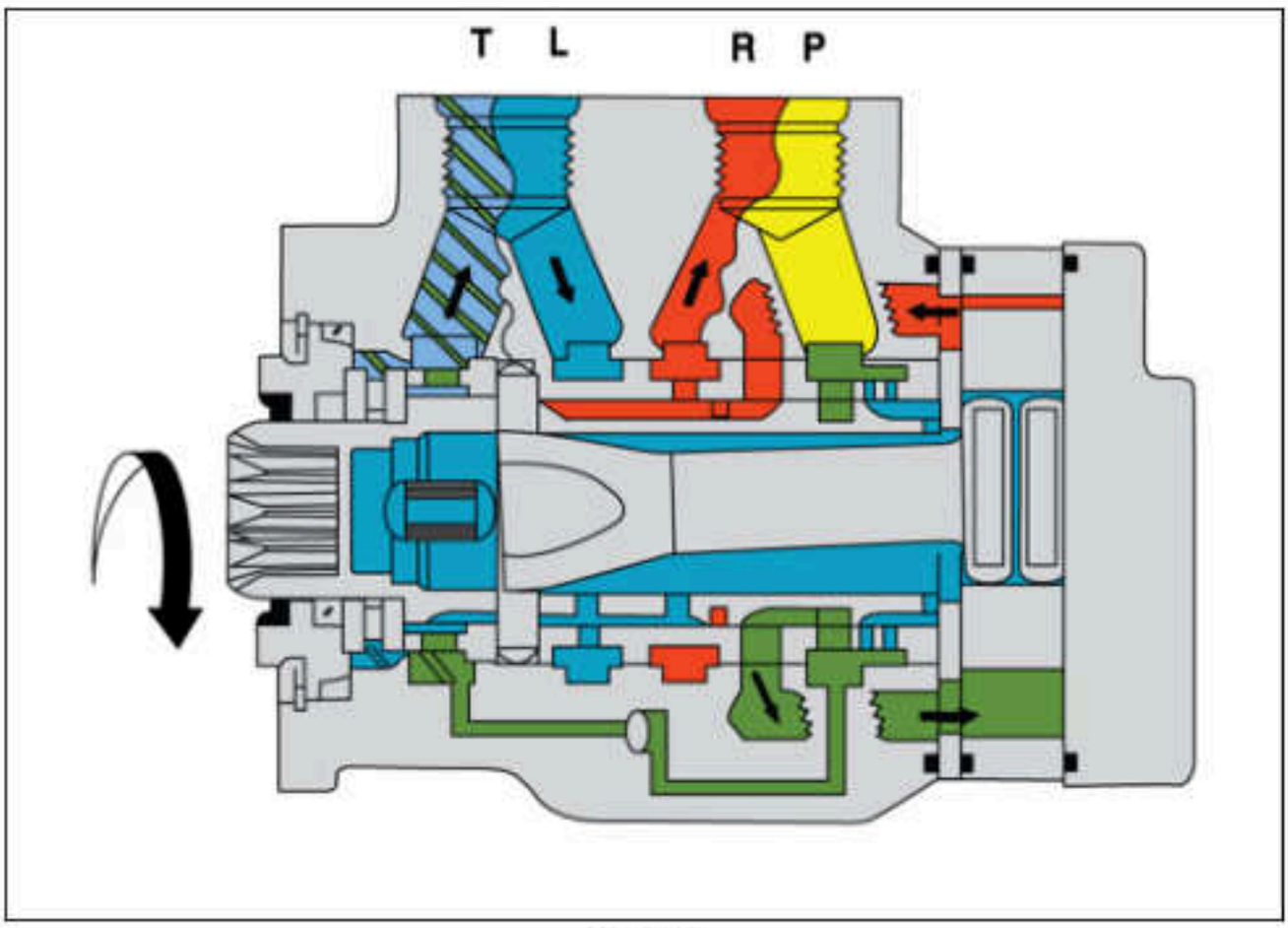
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Emergency operation

⚠ 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.

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Emergency mode steering manually

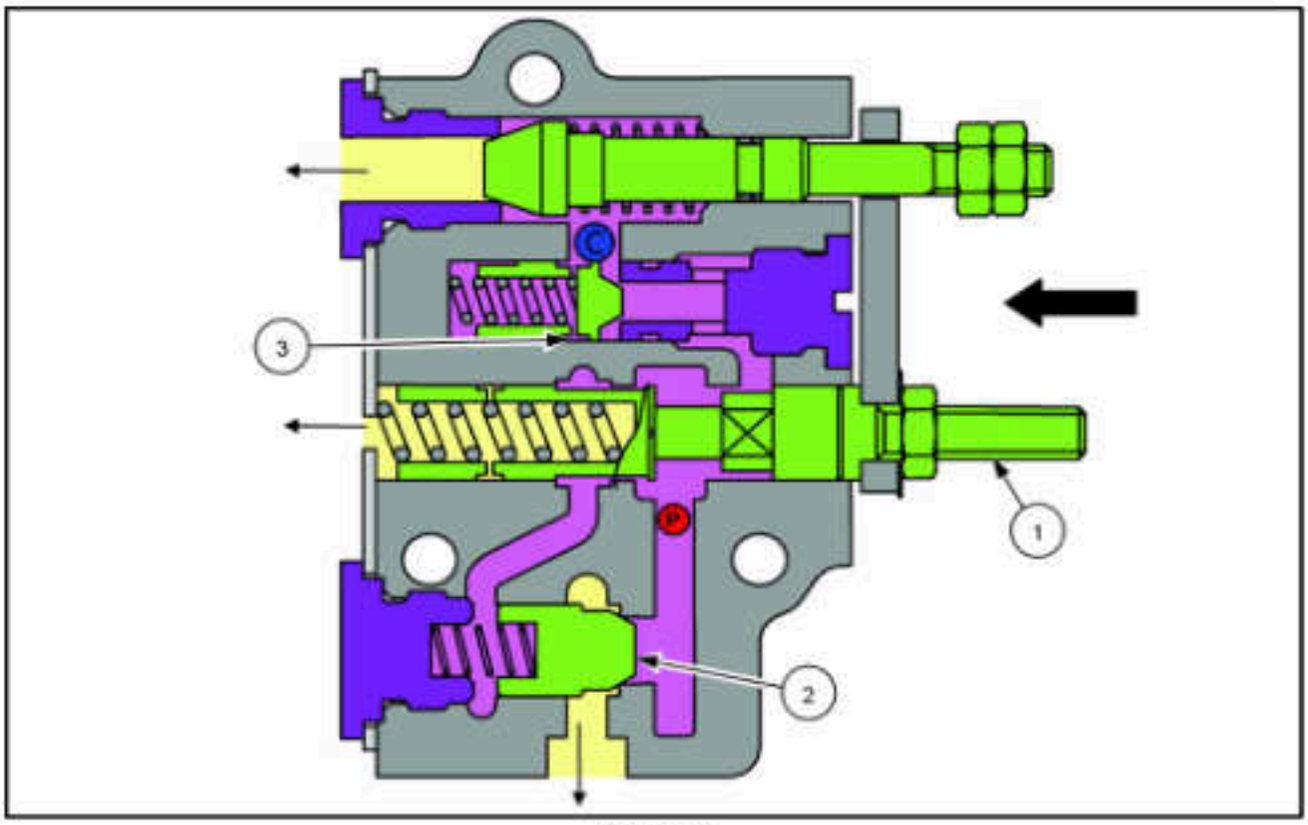
(T) - Tank
(L) - Left steer port
(R) - Right steer port
(P) - Pump discharge

- 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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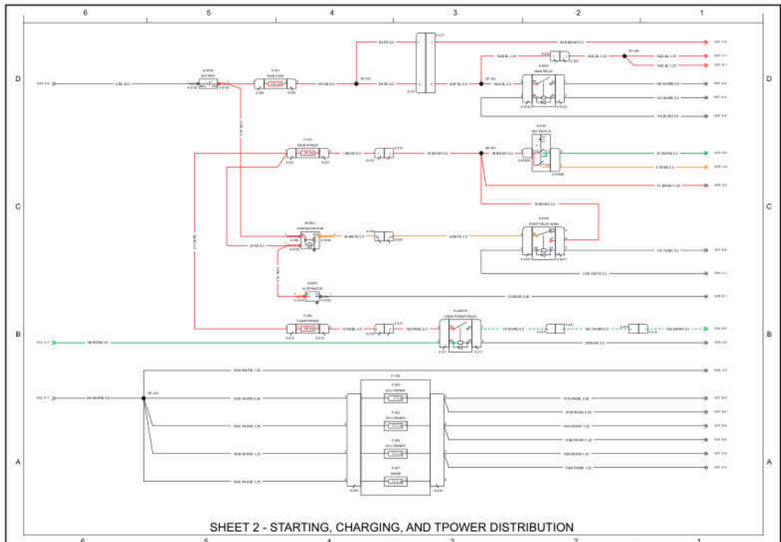
Raise position

When the valve spool **(1)** moves inward in the "RAISE" position, oil flow being supplied by the pump is route around the valve spool to the backside of the unload valve **(2)** allowing the unload valve to remain seated. When the unload valve remains seated, pressure increases in the valve passage until the pressure on the front side of the check valve **(3)** is greater than the pressure on the backside of the valve, allowing the check valve to open. When the check valve opens, the oil supplied by the pump is routed to the HPL lift cylinder and the 3pt hitch raises.

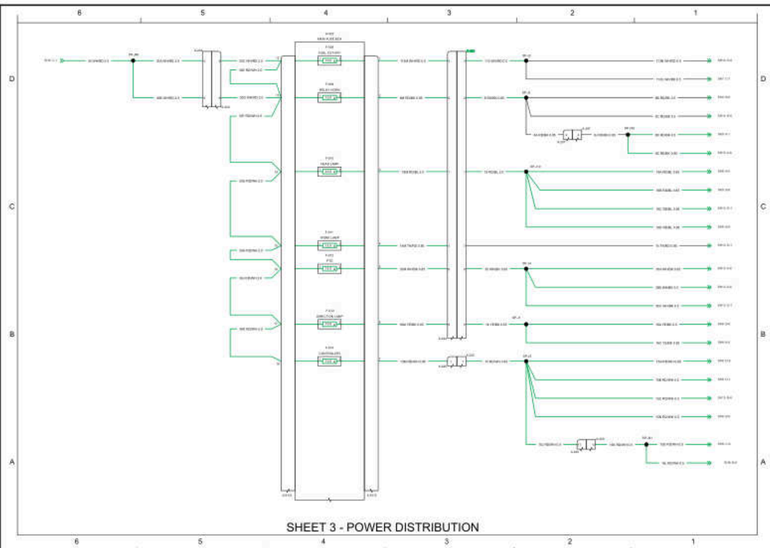
- Cylinder pressure
- High pressure
- Return oil

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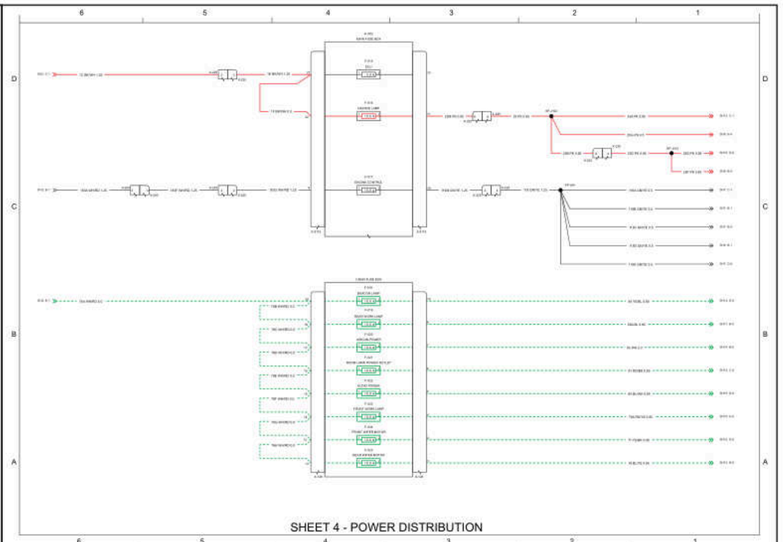
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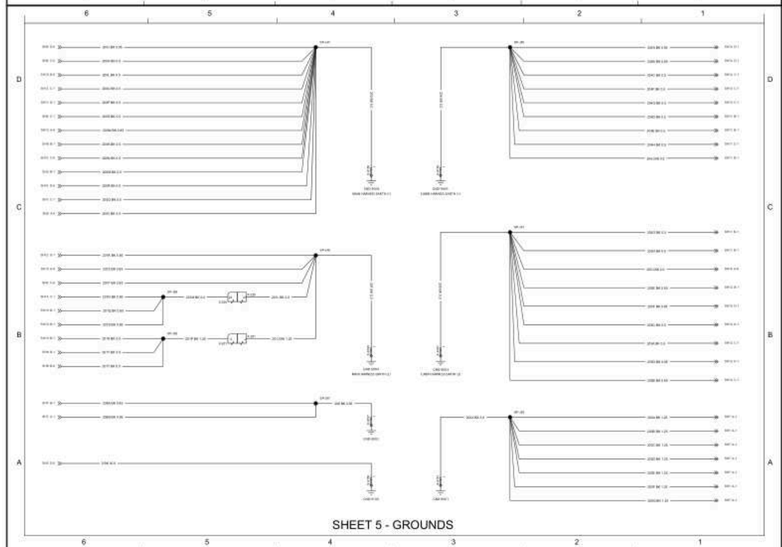
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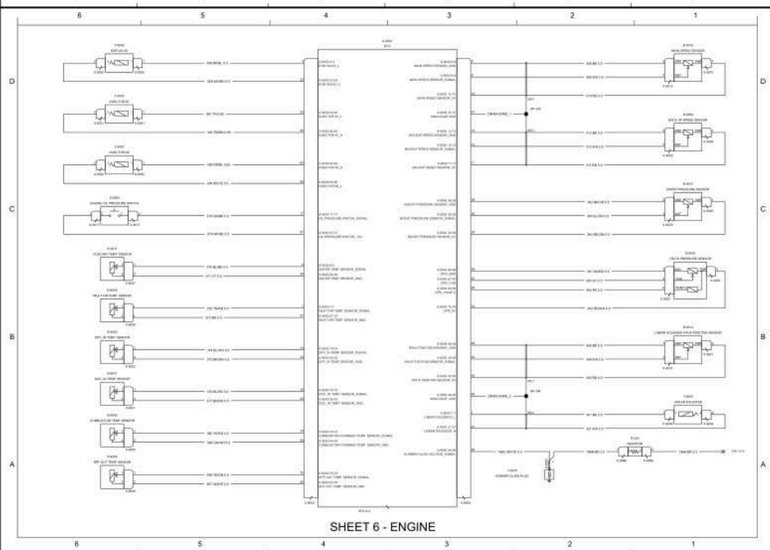
SHEET 3 - POWER DISTRIBUTION



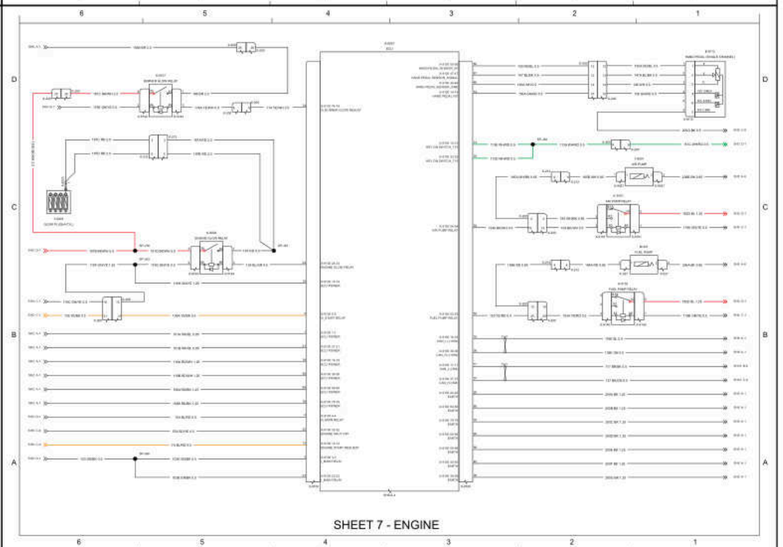
SHEET 4 - POWER DISTRIBUTION



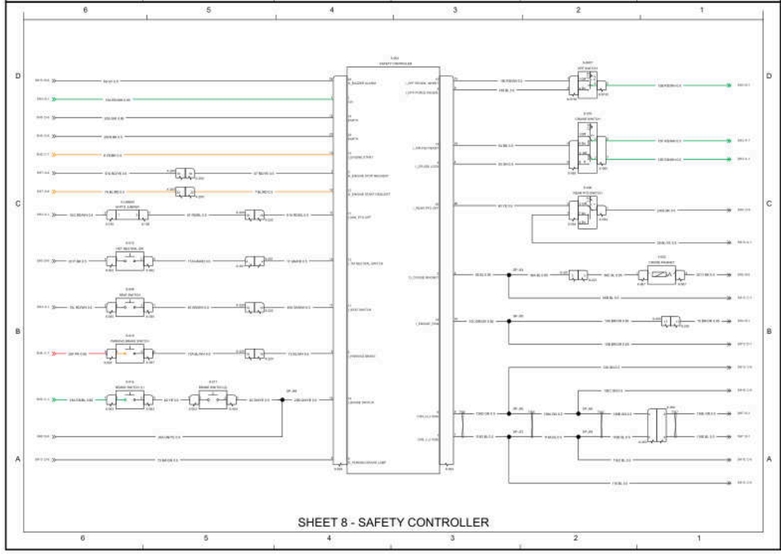
SHEET 5 - GROUNDS



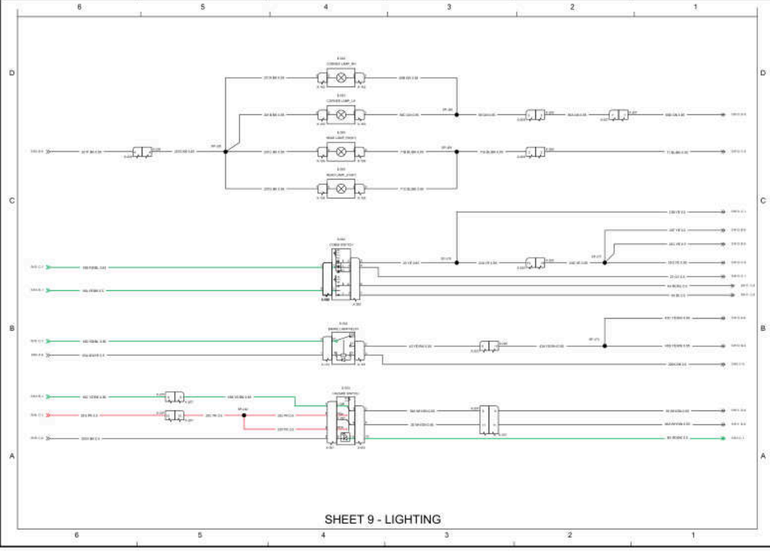
SHEET 6 - ENGINE



SHEET 7 - ENGINE



SHEET 8 - SAFETY CONTROLLER



SHEET 9 - LIGHTING

BOOMER 37 / BOOMER 41 / BOOMER 47 COMPACT TRACTOR

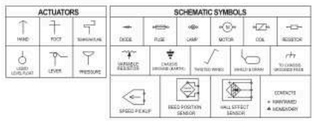
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ELECTRICAL SCHEMATIC
CAB - HYDROSTATIC TRANSMISSION
1ST EDITION

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SYMBOL LEGEND



CIRCUIT COLOR INDEX

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- IGNITION KEY ON
- IGNITION KEY ON - AFTER CAB POWER RELAY
- CRANKING

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		

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