# SERVICE MANUAL

## Boomer™ 33
## Boomer™ 37
## Tier 4B (final)
## Compact Tractor

**Part number 47941899**
2nd edition English
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# Hydraulic control components - General specification - Pump

| | |
|---|---|
| Boomer™ 33 | NA |
| Boomer™ 37 | NA |

### Hydraulic pump

| | Boomer 33 | Boomer 37 |
|---|---|---|
| Rated flow | **15.9 L** (**4.2 US gal**) (Gear), **19.9 L** (**5.3 US gal**) (HST) | **15.9 L** (**4.2 US gal**) (Gear), **19.9 L** (**5.3 US gal**) (HST) |
| Maximum pressure | **11769 kPa** (**1707 psi**) | |
| Cooler by pass pressure | Gear (NA), HST **412 kPa** (**60 psi**) | Gear (NA), HST **412 kPa** (**60 psi**) |

### Cylinder

| | |
|---|---|
| Size | **18 - 40 cm** (**0.71 - 1.57 in**) |
| Stroke | **15.3 cm** (**6.0 in**) |

### Steering unit

| | |
|---|---|
| Relief valve pressure | **11769 kPa** (**1707 psi**) |

### Steering angle

| | |
|---|---|
| Left | **0 ° +/- 48** |
| Right | **0 ° +/- 48** |



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# 0-0-Shutdown mode: allow to run 30 seconds before engine shutdown: data valid but above normal operational range

| | |
|---|---|
| Boomer™ 33 | NA |
| Boomer™ 37 | NA |

## Control Module : ECU

**Context:**
The Diesel Particulate Filter (DPF) regeneration is controlled by the Engine Control Unit (ECU). The ECU monitors the soot load ratio and typical parameters to decide the regeneration mode.

**Cause:**
The ECU has sensed the estimated soot amount is over **140 %**.

**Possible failure modes:**

1. The regeneration has not been completed for a long period of time.
2. The burner has failed.
3. The burner glow plug has failed.
4. The burner glow relay has failed.
5. The wiring harness has failed.
6. Clogged fuel line.
7. Clogged air hose from air filter to air pump/air pump burner.
8. The air pump has failed.
9. The reed valve has failed.
10. The air pump relay has failed.
11. The air pump belt is loose.
12. The quality of fuel is poor.
13. The differential sensor pipe is clogged.
14. The Diesel Oxidation Catalyst (DOC) has failed.

**Solution:**

1. Use the DPF regeneration switch.

   Press and hold the regeneration switch for **10 s**.

   A. If the fault code is still present, continue with Step **2**.

   B. If the fault is not present, the regeneration cycle has cleared the fault. Use the Service Tool I to reset the soot level.
2. Check for other fault codes present related to the DPF/DOC system.

   A. If no other fault codes are present, continue with Step **3**.

   B. If other fault codes are present, follow those troubleshooting procedures first. Then determine if this fault has been corrected.
3. Visually inspect components, electrical connections, wiring, hoses, and belts associated with the DPF/DOC system.



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# 4077-6-Burner injector 1 error: high current

| | |
|---|---|
| Boomer™ 33 | NA |
| Boomer™ 37 | NA |

## Control Module : ECU

**Context:**
The Engine Control Unit (ECU) controls the injector 1 (burner) by supplying **12.0 V** from the ECU connector X-9000 pin 40, and a ground reference at ECU connector X-9000 pin 20. Injector 1 (burner) injects fuel during the stage 1 of the aftertreatment process.

**Cause:**
The ECU is sensing the injector 1 circuit is greater than **10.0 A**.

**Possible failure modes:**

1. The burner injector 1 has failed.
2. The wiring harness has failed.
3. The ECU has failed internally.

**Solution:**

1. Use the Service Tool I to verify the fault is active.

   Select the "Active Diagnostic Codes" icon.

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

   B. If the fault is not present, the fault may be intermittent and not currently active. Continue with Step **6**.
2. Verify that the wiring harness and connectors are free of damage.

   Inspect the wiring harness from the ECU to the burner injector 1 connector.

   Verify that the wiring harness is free of damage, corrosion, abrasion and incorrect attachment.

   A. The connectors are secure and the wiring harness is free of damage. Continue with Step **3**.

   B. The connectors or the wiring harness has damage. Repair or replace the wiring harness or connectors as required.
3. Check the solenoid.

   Disconnect the wiring harness from the injector 1 solenoid.

   Measure the resistance of the solenoid.

   Use a multimeter to touch one test probe to the glow plug electrode. Touch the other test probe to the glow plug body.

   There should be approximately **0.8 Ω**.

   A. If there is resistance, continue with Step **4**.

   B. If there is infinite resistance or **0 Ω**, the coil has failed. Replace the solenoid.
4. Check the control circuit wiring for a short to ground condition.

   Place the key switch OFF.

   Use a multimeter to check for continuity from the harness connector X-9021 pin 2 to chassis ground.

   There should be no continuity.



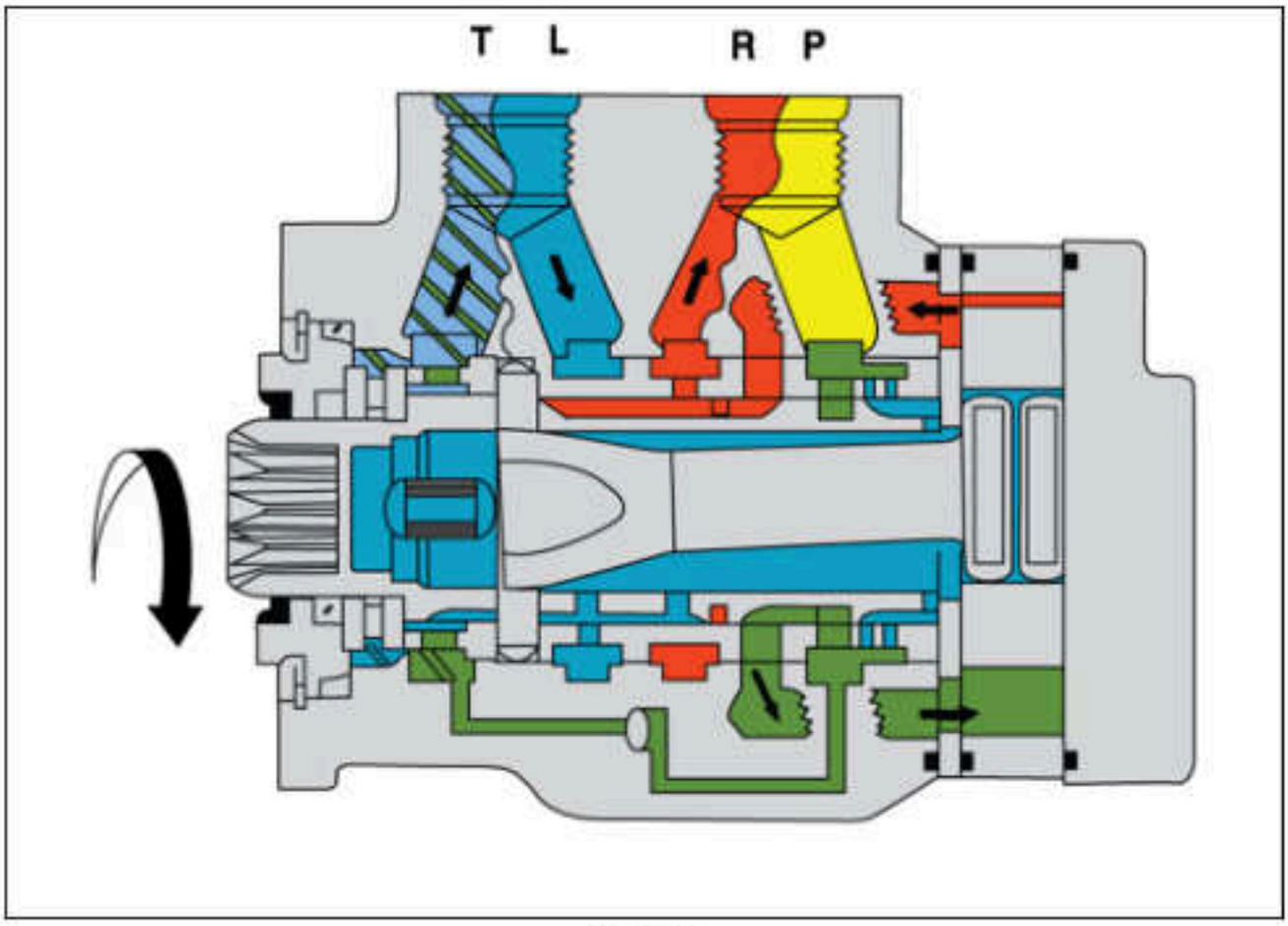
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## Emergency operation

**⚠ 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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14

**Emergency mode steering manually**

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

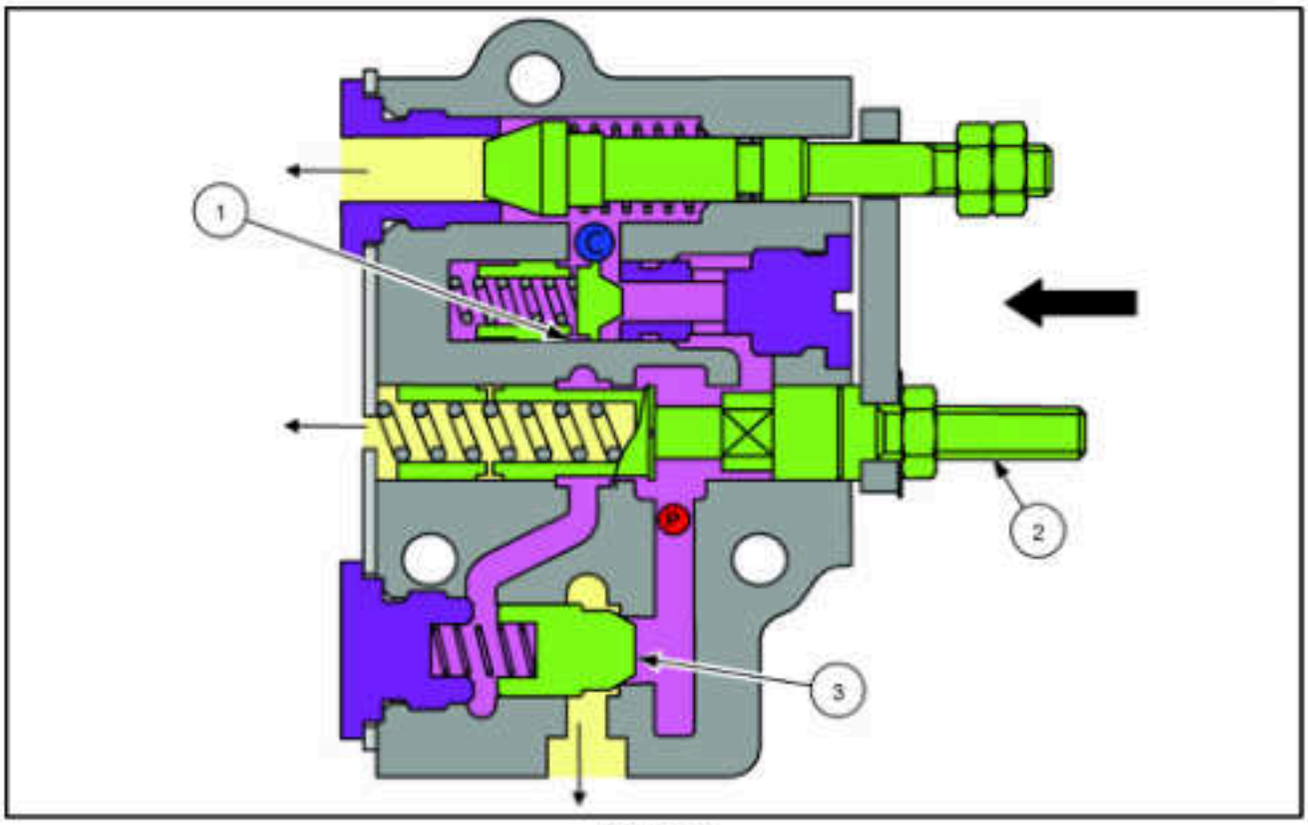
- Pressurized oil from pump
- Oil from rotor
- Discharge
- Suction
- Suction or discharge
- Neutral

***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.



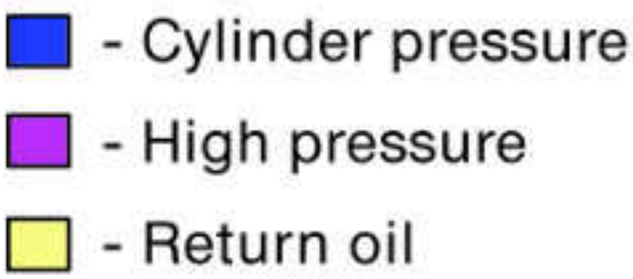
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## Raise position

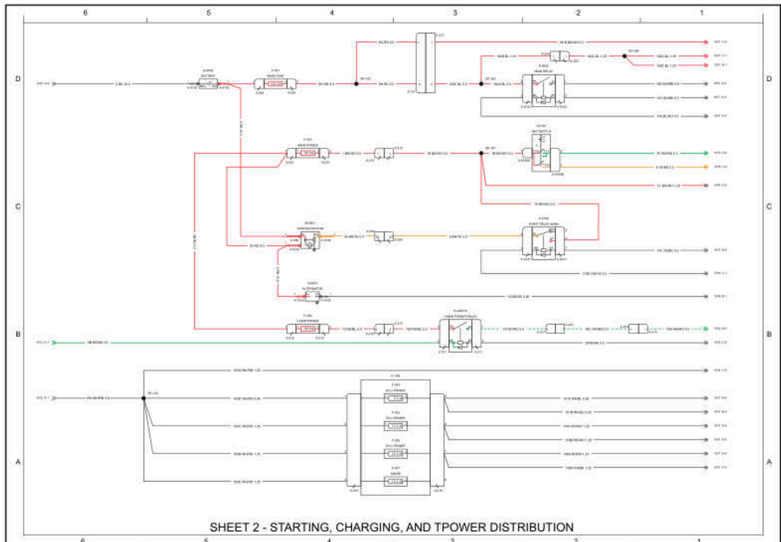
When the valve spool **(2)** moves inward in the "RAISE" position, oil flow being supplied by the pump is route around the valve spool to the backside of the unload valve **(3)** allowing the unload valve to remain seated. When the unload valve remains seated, pressure increases in the valve passage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



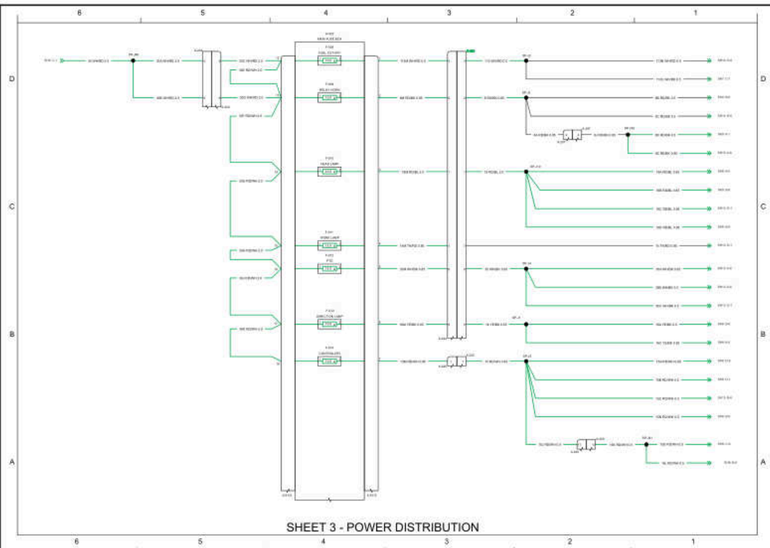

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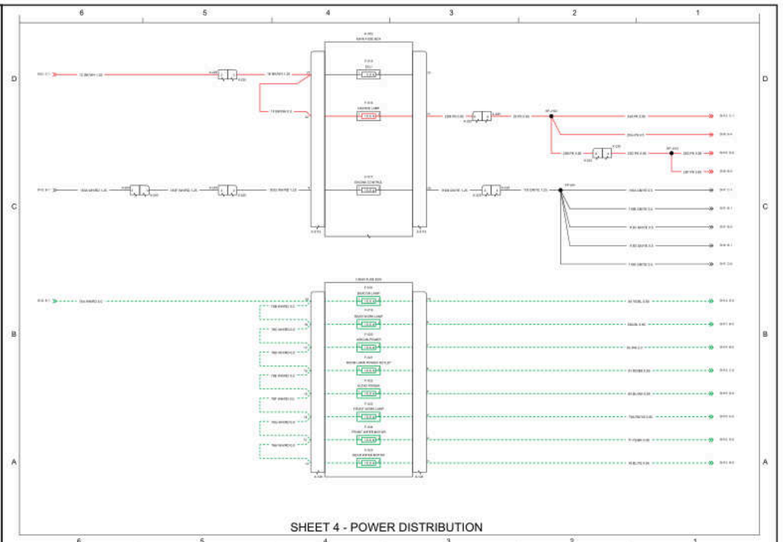
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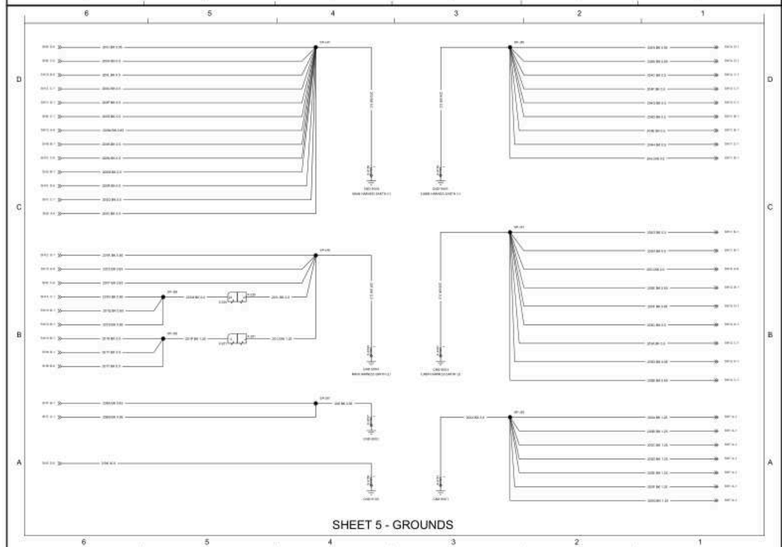
SHEET 2 - STARTING, CHARGING, AND TPOWER DISTRIBUTION



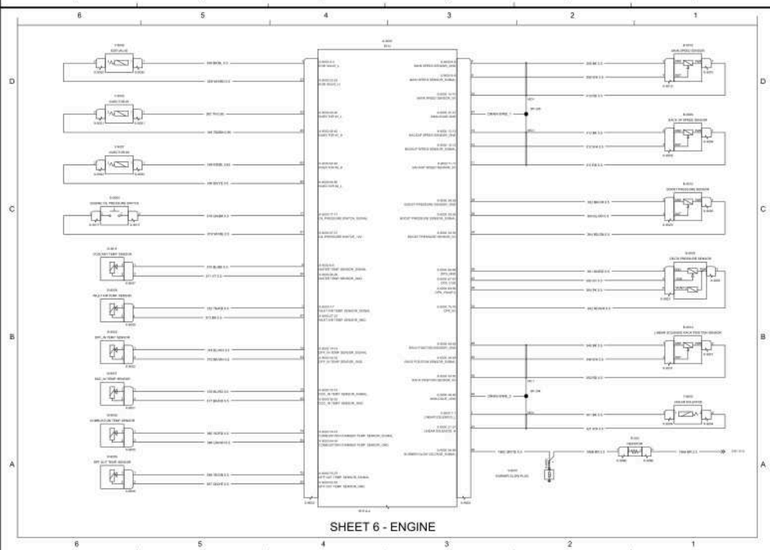
SHEET 3 - POWER DISTRIBUTION



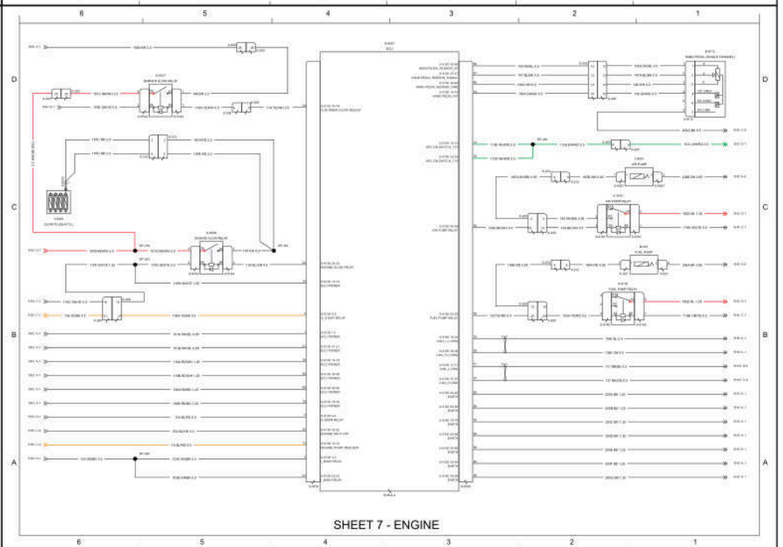
SHEET 4 - POWER DISTRIBUTION



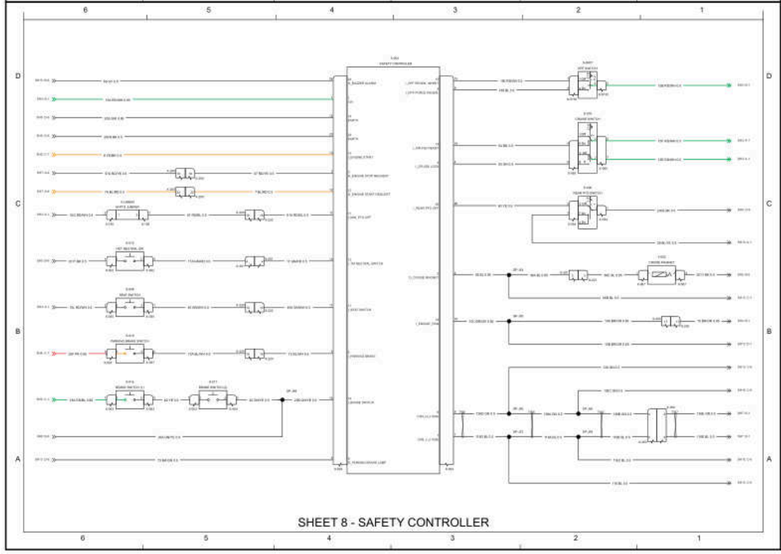
SHEET 5 - GROUNDS



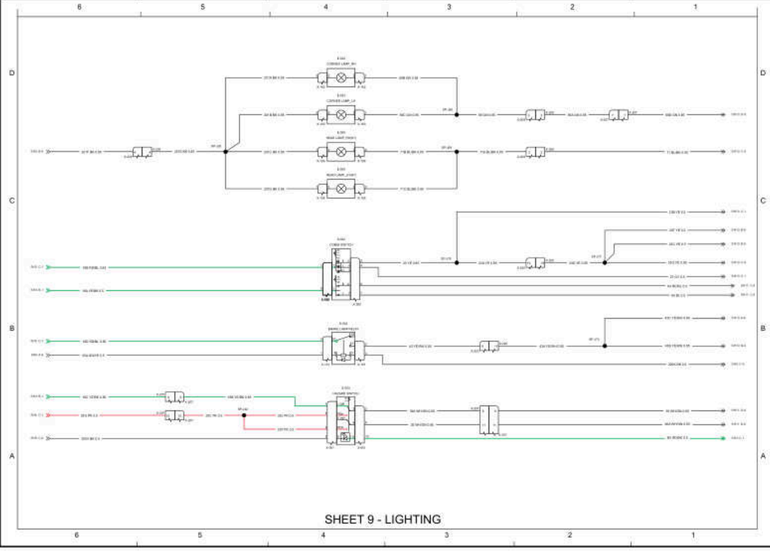
SHEET 6 - ENGINE



SHEET 7 - ENGINE



SHEET 8 - SAFETY CONTROLLER



SHEET 9 - LIGHTING

# BOOMER 37 / BOOMER 41 / BOOMER 47 COMPACT TRACTOR

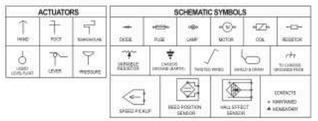
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ELECTRICAL SCHEMATIC
CAB - HYDROSTATIC TRANSMISSION
1ST EDITION

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### SYMBOL LEGEND




### CIRCUIT COLOR INDEX

- 12V UNSWITCHED POWER
- 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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