

TC30 SAFE OPERATION CIRCUIT (NO OPERATOR PRESENT)

NOTE: The Safe Operation circuit is shown with:

- **No Operator Present**
 - **Parking Brake “On”**
 - **Transmission Range in Neutral Position**
 - **Mid PTO “Off” (Optional)**
1. Current starts at the battery, and flows through the positive (+) battery cable to the engine starter motor.
 2. From the starter motor, current flows through the fusible link wire to terminal 30 of the key switch.
 3. When the key switch is in the “Run” position, current crosses from terminal 30 to the “AC”, terminal.
 4. Current flows from the “AC” terminal of the key switch and reaches the fuse panel.
 5. Current passes through the 5-amp fuse within the fuse panel to reach a wire splice. The wire splice splits the current into two paths.
 - The one path sends the current to terminal 12 of the instrument panel.
Current enters terminal 12 and provides power to the charge, low oil pressure, and air restriction warning lights. These warning lights require a completed ground path to illuminate. The ground path to each of the lights is controlled by a switch.

When the switch closes, the ground path to the warning light is completed and the light illuminates.

- The other path sends the current to a wire splice. The wire splice sends current to the control circuit and the functioning circuit of the kill relay.

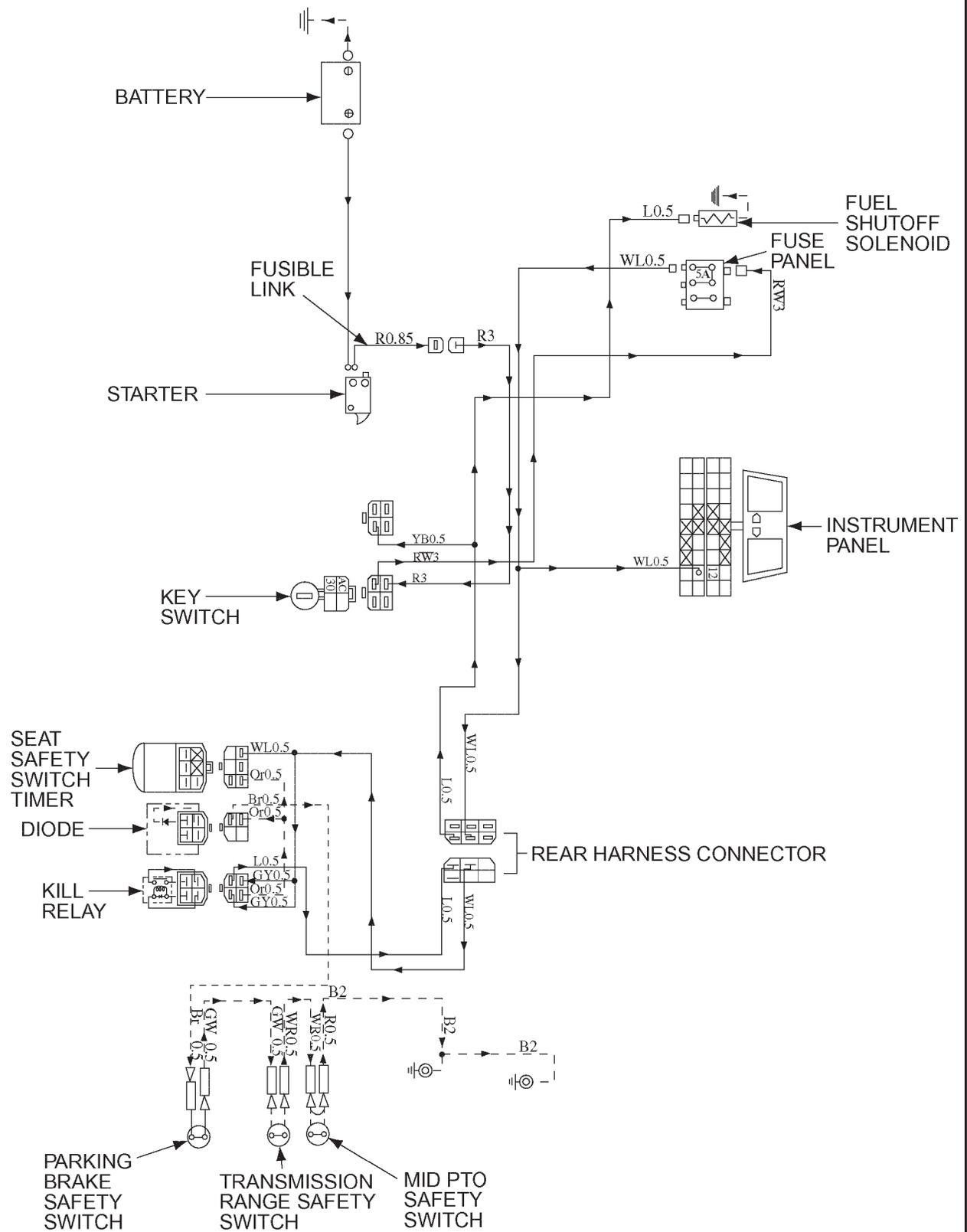
Control Circuit of the Kill Relay

6. Current enters the coil within the kill relay. The ground path to the kill relay travels through the diode to the parking brake switch. When the parking brake is applied, the switch closes to allow the ground path to reach the transmission range safety switch.
7. The transmission range safety switch closes when the transmission range is in the neutral position, allowing the ground path to reach the mid PTO safety switch.
8. The Mid PTO switch closes when the Mid PTO is disengaged, completing the ground path. The kill relay energizes and latches.

Functioning Circuit of the Kill Relay

The other path sends current to the functioning circuit of the kill relay. When the kill relay latches, current flows to the fuel shutoff solenoid. The fuel shutoff solenoid is grounded directly to the engine, allowing it to become energized. When the fuel shutoff solenoid is energized, the needle within the fuel shutoff solenoid retracts to permit fuel flow.

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TROUBLESHOOTING

| SAFE OPERATION CIRCUIT (No Operator Present) | | |
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| PROBLEM | POSSIBLE CAUSE | CORRECTION |
| Engine does not continue to run while operator is not seated with the parking brake applied, range in neutral and mid PTO is "OFF" | Defective parking brake switch | Test parking brake safety switch and replace as necessary |
| | Defective key switch | Test key switch and replace as necessary |
| | Defective range neutral or mid PTO safety switches | Test switches and replace as necessary |
| | Malfunctioning fuel shutoff solenoid | Test fuel shutoff solenoid and replace as necessary |
| | Blown 5-amp fuse | Inspect fuse and replace as necessary |
| | Open wiring in safe operation circuit | Check for loose connectors, grounds, and wiring damage |