Service Manual

Models
644B, 6K,
844C, 8K,
1044C, 10K

10709790

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Table 3-2: John Deere Engine Oil Specifications

ENGINE OIL, DEERE		
Oil Grade	**Temperature Range ° F**	**Temperature Range ° C**
SAE 5W-30	-22 to +86 °F	-30 to +30 °C
SAE 10W-30	-4 to +86 °F	-20 to +30 °C
SAE 15W-40	+5 to +122 °F	-15 to +50 °C
SAE 30W	+32 to +86 °F	0 to +30 °C
SAE 40W	-50 to +104 °F	+10 to +40 °C
Arctic oil (e.g. MIL-L-46167B)	Below -22 °F	Below -30 °F
Approved Engine Oil Specifications		
API CD/CE CCMC Specifications D4, D5 SAE 5W-30 SAE 10W-30 SAE 15W-40 SAE 30W SAE 40W		

Cummins Engines

Use the table below to select the oil viscosity based on expected air temperature range during the period between oil changes. Consult the Cummins Operator's Manual for additional information.

Table 3-3: Cummins Engine Oil Specifications

ENGINE OIL, CUMMINS		
Oil Grade	**Temperature Range ° F**	**Temperature Range ° C**
SAE 15W-40	+12 to +112 °F	-12 to +45 °C
SAE 10W-30	-10 to +68 °F	-25 to +20 °C
SAE 5W-30	-40 to +68 °F	-40 to +20 °C
Approved Engine Oil Specifications		
API CE/SG SAE 5W-30 SAE 10W-30 SAE 15W-40		

Transmission Oil Specifications

The following table shows approved lubricants and associated temperature ranges for use with ZF 3WG and 4WG series transmissions.

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Boom Positioned Below 40°

R1 = Proximity Switch Relay
R2 = Service Brake Relay
R3 = Oscillation Lock Warning Light Relay
S1 = Proximity Switch
S2 = Service Brake Pressure Switch
S3 = Frame Tilt Override Pressure Switch
V1 = Stabilizer Block Solenoid Valve
V2 = Frame Tilt Lockout Solenoid Valve

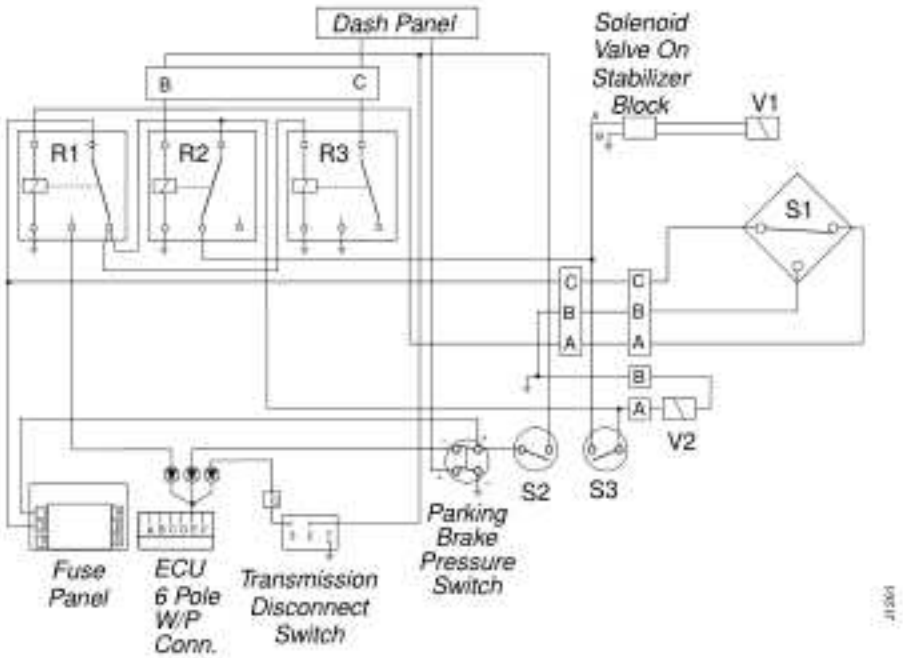


Fig. 7-14: Circuit Operation Below 40°

(Ref. Fig. 7-14) The following describes the rear axle stabilizer circuit logic when the boom is positioned below 40° elevation.

1. When the boom is below 40°, the proximity switch (**S1**) is sensing the outer boom. Therefore, the proximity switch closes. See "Boom Elevation Proximity Switch" on page 7-43 for more information.
2. A closed proximity switch energizes the proximity switch relay (**R1**). Power is routed through relay (**R2**) and onto the solenoid valve (**V1**) on the stabilizer block. Power is no longer routed to the transmission (**ECU**).
3. With solenoid valve (**V1**) energized, hydraulic fluid is allowed to flow freely to/from the rear oscillation lock cylinder. This allows the frame to pivot on the rear axle. See "Oscillation Control Block" on page 7-31 for more detailed information about the functions of control block components.
4. Power is routed from relay (**R1**) to frame tilt lockout solenoid valve (**V2**). The solenoid valve energizes and allows hydraulic pilot pressure to the routed to the frame tilt control valve spool. The frame may then be tilted.

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Rear Oscillation Lock Proximity Switch and Relay

General

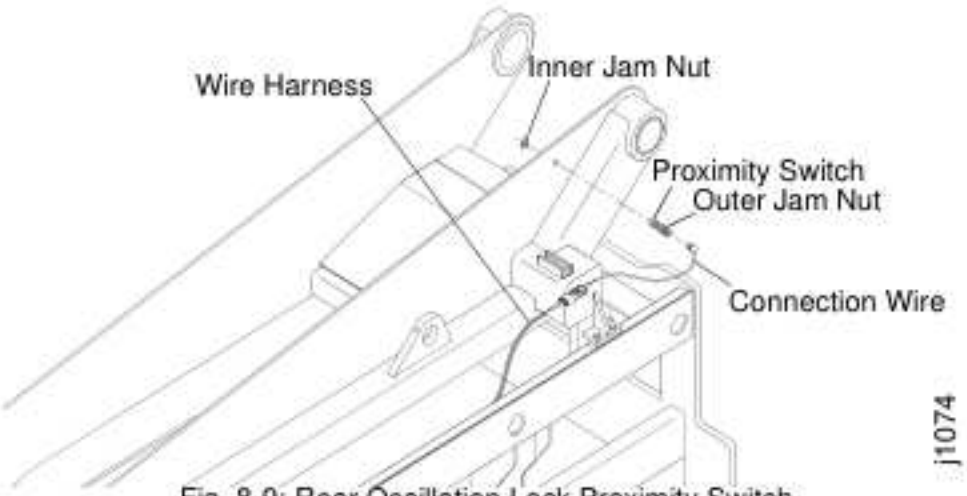


Fig. 8-9: Rear Oscillation Lock Proximity Switch

(Ref. Fig. 8-9) The rear oscillation lock proximity switch is located at the rear left side of the transfer carriage. This switch senses if the boom elevation is above or below 40°.

When the boom elevation is below 40°, the proximity switch is closed and energizes the proximity switch relay (R1). As long as the proximity switch relay (R1) remains energized (with the park brake off, the declutch switch in the "OFF" position, and the service brake not applied), the transmission will engage when the direction/speed range selector is shifted to forward or reverse.

When the boom elevation exceeds 40°, the proximity switch opens.

Machines w/ DW-2 Shifter

For machines equipped with a DW-2 shifter, the open proximity switch stops the signal energizing the proximity switch relay (R1). The proximity switch relay relaxes and routes a signal from the fuse panel to the EST-19 microprocessor. This signal enables the EST-19 microprocessor to stop signals to the transmission solenoids that engage forward/reverse and this declutches the transmission.

Machines w/ DW-3 Shifter

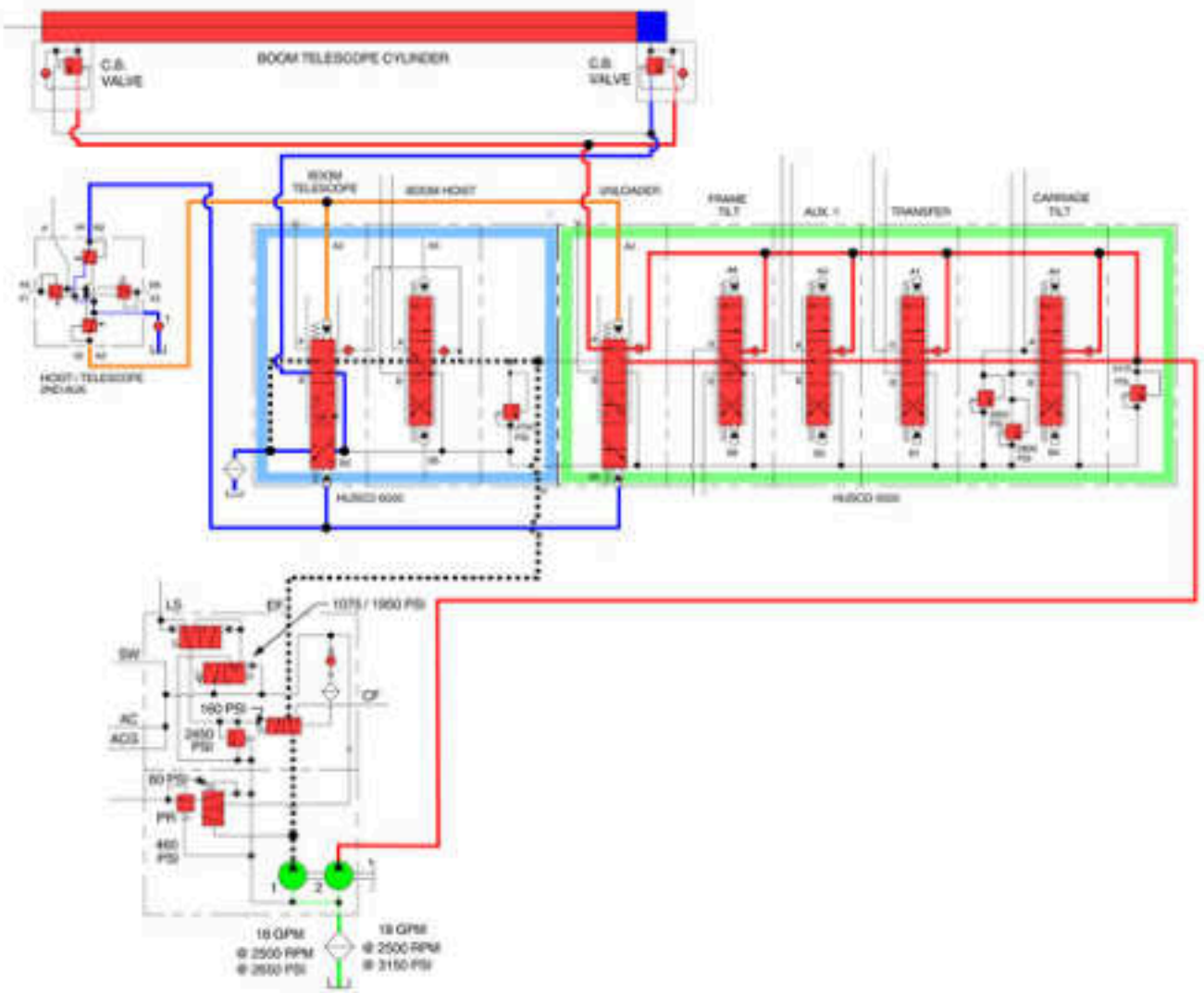
For machines equipped with a DW-3 shifter, the open proximity switch stops the signal energizing the proximity switch relay (R1). The proximity switch relay relaxes and routes a signal from the fuse panel to the transmission declutch relay, energizing it. This stops power to the DW-3 shifter, preventing the shifter from sending the signals to the transmission solenoids that engage forward/reverse and this declutches the transmission.

A symptom of a failed proximity switch is a transmission that will not go into forward or reverse (loss of forward and reverse clutch packs). If this happens, check the proximity switch integrity (see below).

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Pump Unloader Valve Operation, Mid - Inlet Hydraulic System _Diagram 3

PUMP UNLOADER VALVE OPERATION

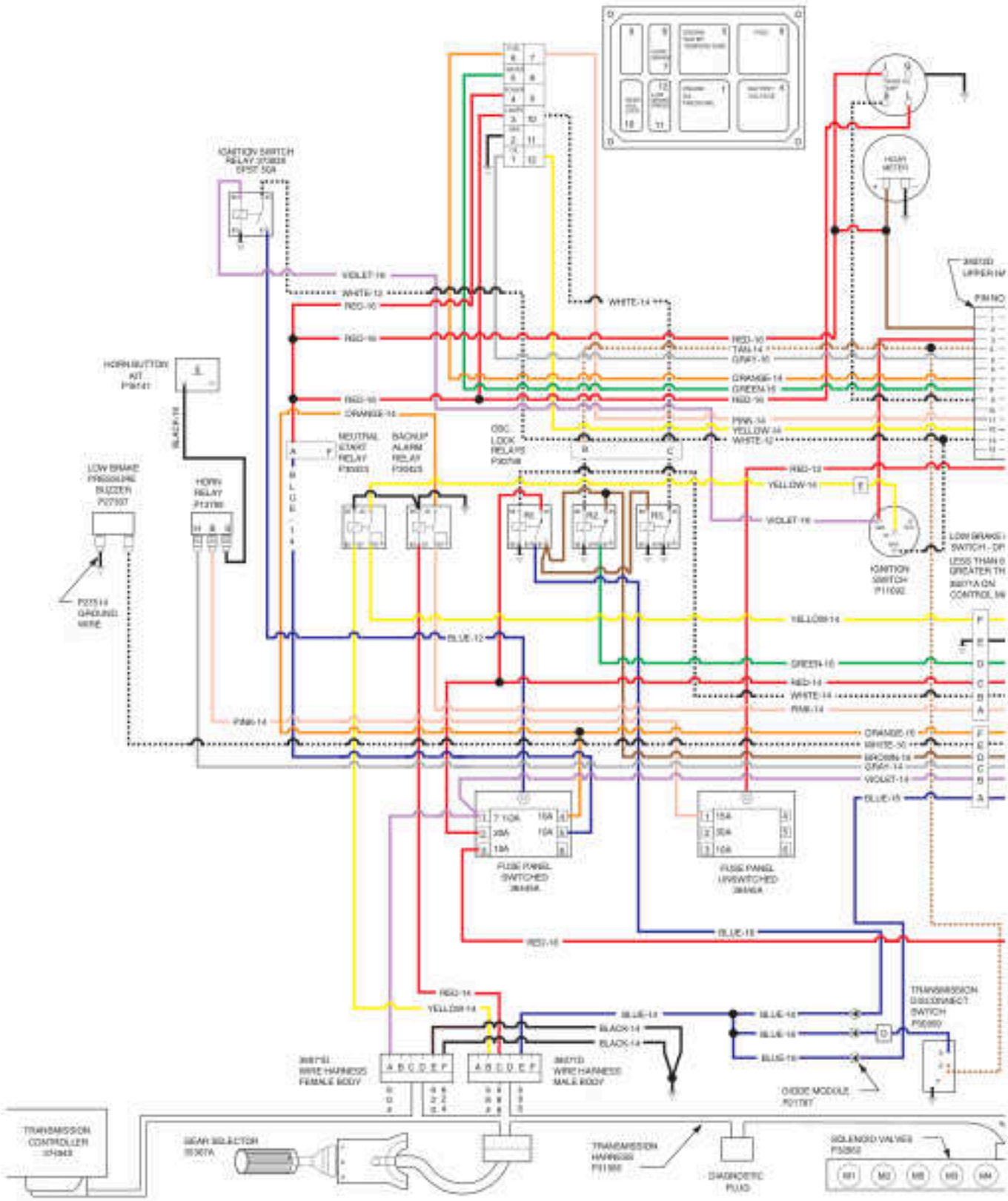


RETRACTING CYLINDER

1. Joystick is moved left to retract boom. Pilot lines to Husco "A2" ports are pressurized, shifting boom extend spool and unloader section spool simultaneously.
2. Husco 5000 unloader 3-way spool shifts, blocking center. Oil from pump 2 is routed out the "A" port to cylinder rod end, retracting the cylinder.
3. Husco 6000 boom extend 3-way spool shifts, but spool does **not** block center. Oil from pump 1 goes back to tank at low pressure. This conserves engine horsepower while retracting boom. The boom extend "B" port opens to tank so cylinder base end oil has a path to tank. Boom retraction speed is not effected using only one pump section because rod end has just over half the area of the base end. Because the boom retract operates off the Husco 5000 valve, 3175 psi is available for retracting loads.

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Electrical Diagram, Models 644B and 6K w/Control Manifold Hydraulic System - Diagram 6



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