PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

The following method is basically for checking wires in electronic circuits but can also be used in electrical circuits.

1. Disconnect all components (A and E) from the circuit, including diodes and resistors when possible, to isolate the circuit to a single wire (C), so that the wire is open at all ends.
2. Ground one end of wire (C) with a jumper wire (M) to the machine frame (L).
3. Connect DFRW51—Electronic Circuit Load Tester (F) at wire terminal (D) and battery positive (+) terminal (G). The current draw of the test lamp is 3.8 to 4.2 amps at 12.2 to 12.6 volts.
4. Connect a multimeter across battery terminals (G and H), red to positive (G) and black to negative (H). Record baseline voltage.
5. Move black multimeter lead to each point (I, L, B, and D) and record voltage.

   →NOTE: Each connection should cause a 0.1 to 0.2 voltage drop. There are five connections in the example (H, I, L, B, and D) which will cause a total of 0.5 to 1.0 voltage difference between (H) and (D) as compared to the voltage across (G) and (H).

6. When the voltage drop between any two adjacent test points is greater than 0.4 volts, there is excessive resistance in circuit (C) between those two points. Example: (G) to (H) = 12.4 volts, (G) to (I) = 12.2 volts, (G) to (L) = 12.1 volts, (G) to (B) = 12.0 volts and (G) to (D) = 10.8 volts would indicate high resistance between points (B) and (D). The minimum expected voltage between (G) and (D) is 11.8 volts.

Check for Current Draw

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(4) System Checks

Action:

EOL Data Faults can sometimes be corrected by downloading new software. Attempt to download new software for this application.

See Programming Control Units .

Result:

YES: Software download was successful. Perform setups and calibrations as required.

NO: Software download unsuccessful or did not solve problem.GO TO 5.

(5) Electrical Circuit Checks

Action:

Perform Electro-Hydraulic Controller Unswitched Supply Voltage and Ground Test .

Perform Electro-Hydraulic Controller Switched Supply Voltage and Ground Test .

Result:

YES:GO TO 6.

NO: Problem identified. Repair as needed.GO TO 2.

(6) Additional Checks and Intermittent Failure Evaluation

Action:

Perform Troubleshooting Unresolved Problems .

Result:

YES:GO TO 2.

NO: Problem identified. Repair as needed.GO TO 2.

NO: Problem not identified.Replace control unit. Perform setups and calibrations as required.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(2) Verify Codes

Action:

Recall, record, and clear codes.

If using Service ADVISOR ™ : This procedure can be performed by making a connection to the vehicle and using the Diagnostics tab to view and clear codes.

If using performance monitor: See Performance Monitor General Operation, under Electro-Hydraulic Controller General Information , for more information.

Recall codes again and check for return of this code.

Result:

YES: Code does not return.GO TO 3.

NO: Code returns.GO TO 4.

(3) Code Operational Checks

Action:

1. Start vehicle.
2. Operate vehicle in forward gear, engaging and disengaging clutch pedal.
3. Check for code return.

→NOTE:

If problem is intermittent, repeat check until code returns. If unable to recreate code but operator reports continued problems, see Step 6 (Additional Checks and Intermittent Failure Evaluation).

Result:

YES: Code does not return. Diagnosis complete.

NO: Code returns.GO TO 4.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(2) Perform Pump Flow Test

Action:

Perform pump flow test. See Pump Flow Test (Tractors With SCV)—Later Version

Result:

YES:GO TO 3.

NO: Repair as indicated in this test and confirm repair.GO TO 1.

(3) Perform Main Relief Valve Test

Action:

Perform main relief valve test. See Main Relief Valve Test (Tractors With SCV)—Later Version

Result:

YES:GO TO 4.

NO: Repair as indicated in this test and confirm repair.GO TO 1.

(4) Perform SCV Leakage Test

Action:

Perform SCV leakage test. See SCV Leakage Test

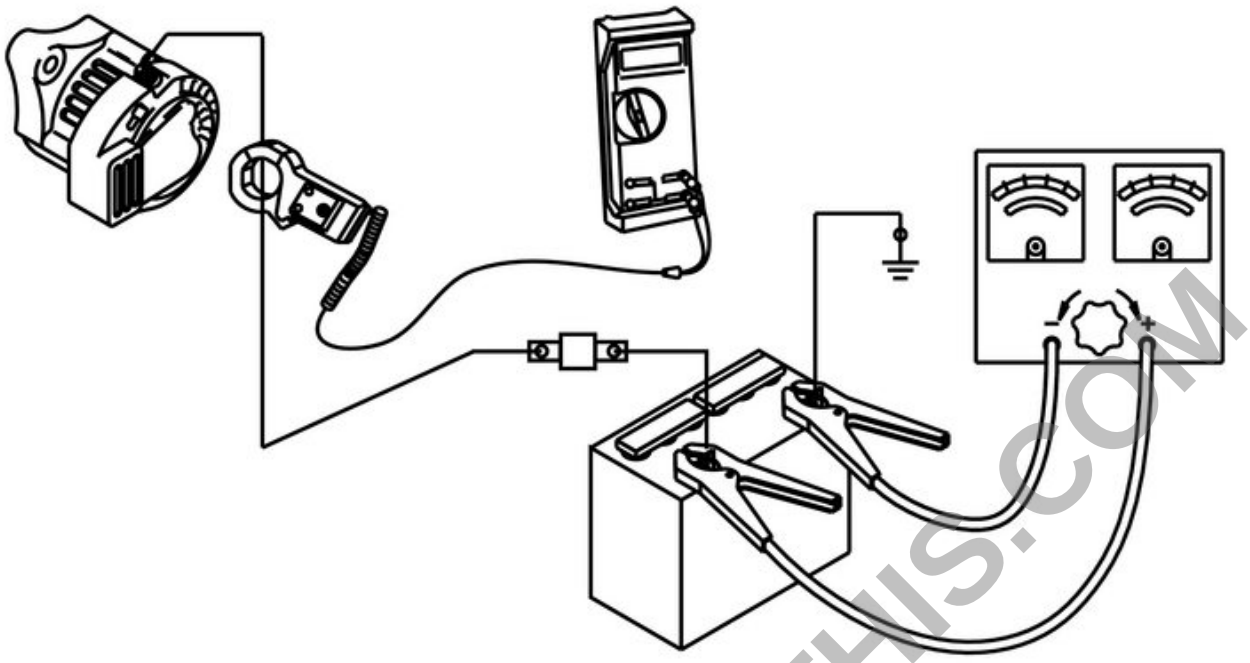
Result:

YES: Diagnosis complete.

NO: Repair as indicated in this test and confirm repair.GO TO 1.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



Charging Circuit Wiring Diagram

1. Be sure battery is fully charged and all tractor accessories are off.
2. Turn load knob of load tester off (fully counterclockwise).
3. Connect red load tester clamp to positive (+) post of battery.
4. Connect black load tester clamp to negative (—) post of battery.
5. Put current clamp-on probe over large red cable between alternator and starter.
6. Start engine and run at 2400 rpm.

IMPORTANT: Perform this test as quickly as possible to prevent damage to the electrical system components.

Slowly turn load knob clockwise until current clamp-on probe meter displays maximum current output. Record reading.

IMPORTANT: Load system only as necessary to obtain maximum current output. Do not reduce system voltage any lower than 11 volts.

Turn load knob off (fully counterclockwise).

9. Let engine run and watch when current gun reading is 10 amps or less.
10. Read and record meter voltage.

Item	Measurement	Specification
Alternator Output		
Alternator Output	Amperage	Minimum 10 amps at 2400 rpm
	Regulated Voltage	14.2—14.8 VDC at 2400 rpm

Download full manual at youfixthis.com
PREVIEW - YOUFIXTHIS.COM

Rear Work Light Circuit Test

Reference

→NOTE:

The following tools may be required for proper diagnosis:

1. **JT05791—Digital Multimeter**

See Section 299, Group 10 for tool listings.

→NOTE:

The following drawings are available for circuit diagnosis:

- **Functional Schematics Listing .**
- **Rear Work Lights Diagnostic Wiring Diagram .**

(1) Fuse F4 Circuit Check

Action:

1. Remove and check fuse F4 and replace if failed.
2. Check for continuity between fuse F4 supply terminal and VEC battery terminal.
3. If continuity is not present between fuse F4 supply terminal and VEC battery terminal, replace VEC.
4. Check for battery voltage at VEC battery terminal.
5. If battery voltage is not present, check circuit 002 between VEC battery terminal and fuse link.
6. Disconnect VEC blue harness connector.
7. With fuse F4 installed, check for battery voltage at terminal A of VEC blue connector.
8. If voltage is not available to terminal A of VEC blue connector, replace VEC.

Result:

YES: Circuits check good.GO TO 2.

NO: Repair as needed.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Instrument Cluster Operation—Coolant Temperature Gauge

Unswitched power from battery (G1) is available at the following components:

- 125-Amp Fuse Link (F26)
- 20-Amp Fuse (F1)
- Key Switch (S1)
- Instrument Cluster (A1) (Terminal J1-H)

When the key switch (S1) is turned to the RUN position, current flows from the key switch through circuit 032 to 10-amp fuse (F18). From 10-amp fuse (F18), current flows through circuit 072 to terminal J1-A of the instrument cluster (A1), causing the instrument cluster to power up.

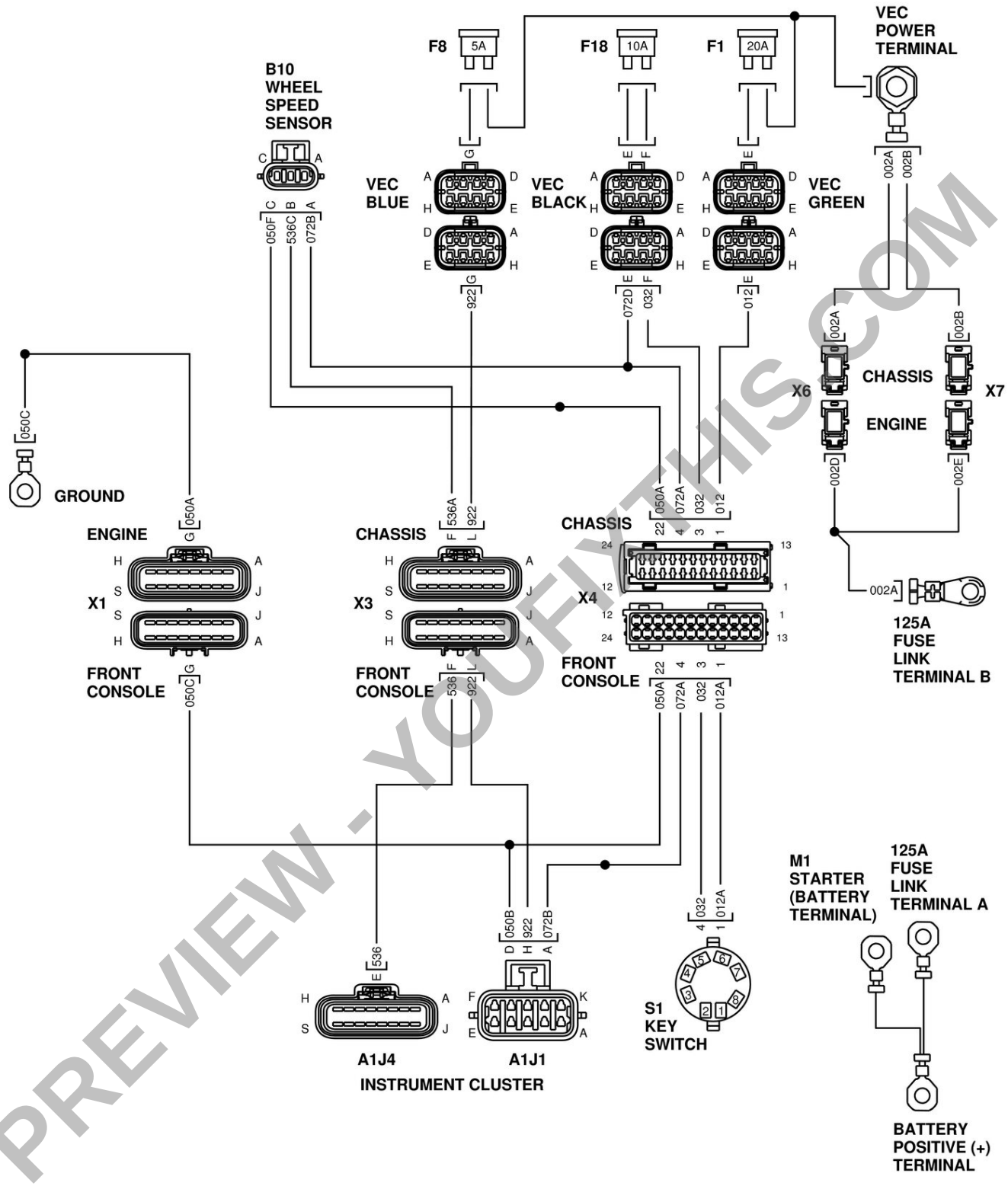
The temperature sender is a variable resistor that responds to changes in coolant temperature. Low coolant temperatures cause high resistance. High coolant temperatures cause low resistance.

The instrument cluster (coolant temperature gauge) measures the resistance of the temperature sender, then moves the pointer on coolant temperature gauge to the corresponding temperature level. Ground is provided to coolant temperature sender (B2) from terminal J4-P of instrument cluster (A1) through circuit 030. To determine the coolant temperature, the resistance of coolant temperature sender is measured by instrument cluster terminal J1-E through circuit 304.

The resistance of the temperature sender between the extreme high and low positions varies in proportion to changes in the coolant temperature. Therefore, the temperature gauge will accurately display any engine temperature that is within the designed parameters.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



PREVIEW - YOUFIXTHIS.COM

Wheel Speed Sensor Diagnostic Wiring Diagram

LEGEND:

A1J1	Instrument Cluster Connector (10-pin)
A1J4	Instrument Cluster Connector (16-pin)
B10	Wheel Speed Sensor
F1	20-Amp Fuse

Download full manual at youfixthis.com

Mid Mount SCV Circuit Test—Load Center

Reference

→NOTE:

The following tools may be required for proper diagnosis:

1. **JT05791—Digital Multimeter**

See Section 299, Group 10 for tool listings.

→NOTE:

The following drawings are available for circuit diagnosis:

- **Functional Schematics Listing—Load Center (-Aug 2012) .**
- **Mid-Mount SCV Diagnostic Wiring Diagram—Load Center .**

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(9) Rear Wiper Switch (S13) Circuit Check

Action:

1. Place key switch (S1) in the RUN position.
2. Check for battery voltage at terminal B of rear wiper switch (S13), circuit 223.
3. If battery voltage is not available to terminal B, check circuit 223 between terminal A of rear wiper switch (S13) and terminal 87 of wiper system relay (K21).
4. Place rear wiper switch in the ON position.
5. Check for battery voltage at terminal C of rear wiper switch, circuit 228.
6. If battery voltage is not available to terminal C, replace switch.
7. Place rear wiper switch in the WASH position.
8. Check for battery voltage at terminal E of rear wiper switch, circuit 229.
9. If battery voltage is not available to terminal E, replace switch.

Result:

YES: Circuits check good.GO TO 10.

NO: Repair as needed.

(10) Rear Wiper Motor (M7) Circuit Check

Action:

1. Check for continuity between terminal 2 of rear wiper motor (M7) and ground.
2. If continuity is not present at terminal 2, repair circuit 010 between terminal 2 of rear wiper motor and ground.
3. Place key switch (S1) in the RUN position.
4. Place rear wiper switch in the ON position.
5. Check for battery voltage at terminal 1 of rear wiper motor.
6. If battery voltage is not available to terminal 1, check circuit 228 between terminal 1 rear wiper motor and terminal B of rear wiper switch.

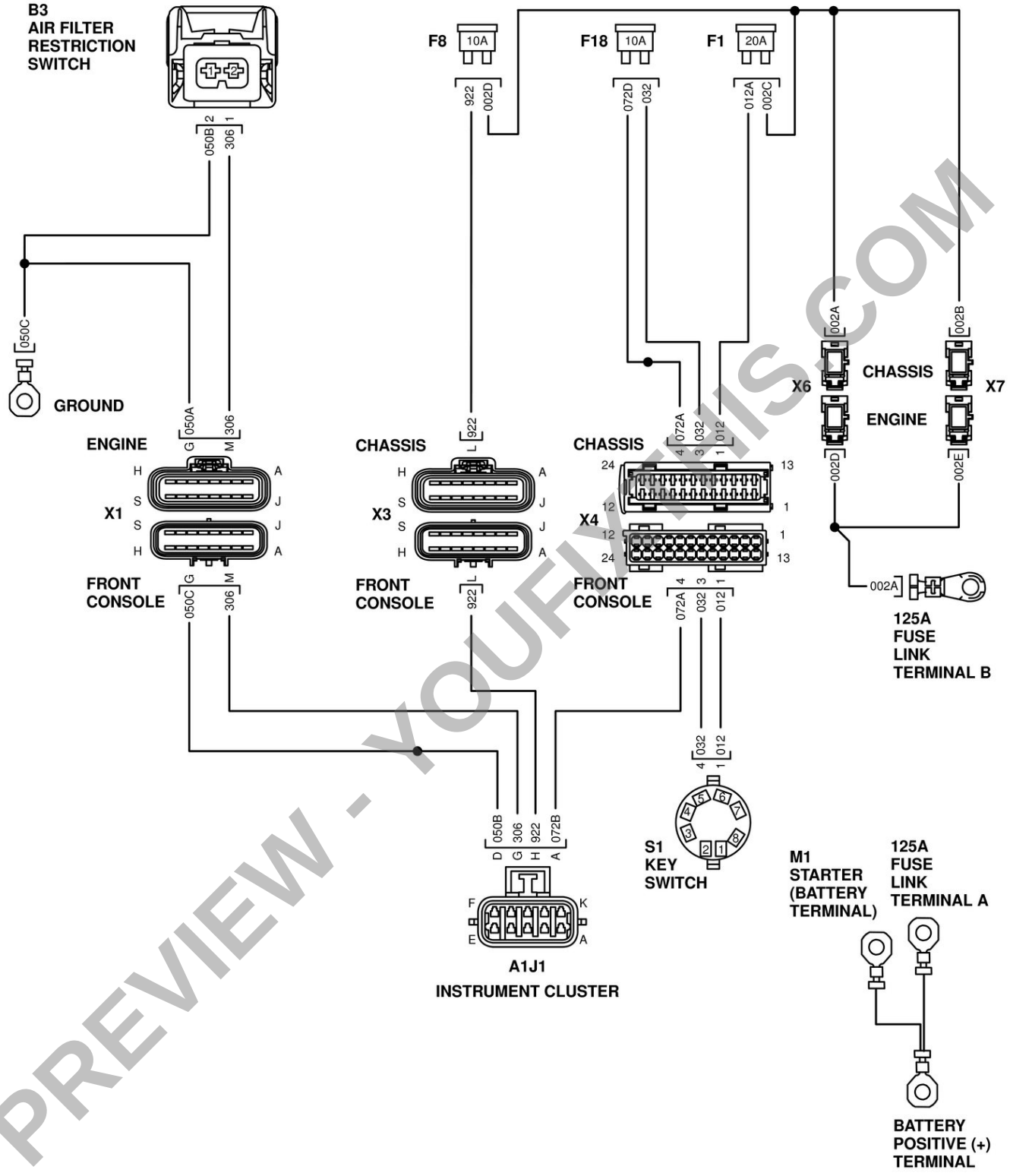
Result:

YES: Circuits check good.GO TO 11.

NO: Repair as needed.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



PREVIEW - YOUFIXTHIS.COM

Air Filter Restriction Switch Diagnostic Wiring Diagram

LEGEND:

A1J1	Instrument Cluster Connector (10-pin)
B3	Air Filter Restriction Switch
F1	20-Amp Fuse
F8	10-Amp Fuse

Download full manual at youfixthis.com

(10) Trailer Power Relay (K6) Circuit Check

Action:

1. Remove trailer power relay (K6) from socket.
2. Check circuit 010 for continuity between terminal 85 of trailer power relay (K6) socket and ground.
3. **Cab Tractor:** check circuit 092 for continuity between terminal 87 of trailer power relay (K6) socket terminal A of chassis harness connector (X13). If continuity is present, check circuit 092 for continuity between terminal A of 7-pin trailer harness connector (X13) and and terminal 7 of 7-pin trailer connector (X14).**Open Operator Station:** check circuit 092 for continuity between terminal 87 of trailer power relay (K6) socket and terminal 7 of 7-pin trailer connector (X14).

Result:

YES:GO TO 11.

NO: Repair as needed.

(11) Junction Block (X11) Circuit Check

Action:

1. Check terminal 262 for battery voltage at junction block (X11).
2. If battery voltage is not available to terminal 262, remove fuse F6.
3. Check circuit 262 for continuity between output terminal of fuse F6 and terminal 262 of junction block (X11).
4. Place key switch in ACC position.
5. Check circuit 202 for battery voltage at junction block (X11) terminal 202.
6. If battery voltage is not available to terminal 202, place key switch in OFF position.
7. Check circuit 202 for continuity between output terminal of fuse F11 and terminal 202 of junction block (X11).
8. Check circuit 110 for continuity between terminal 110 of junction block (X11) and ground.

Result:

YES:GO TO 12.

NO: Repair as needed.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(5) Circuit 212 Check

Action:

1. Remove accessory relay (K7) from socket.
2. Place key switch in the RUN position.
3. Check circuit 212 for battery voltage at terminal 86 of accessory relay (K7) socket.
4. If battery voltage is not available to terminal 86 of accessory relay (K7) socket, place key switch in OFF position and disconnect key switch connector.
5. Check circuit 212 for continuity between terminal 86 of accessory relay (K7) socket and terminal 3 of key switch (S1) connector.

Result:

YES:GO TO 6.

NO: Repair as needed.

(6) Accessory Relay (K7) Check

Action:

Test accessory relay (K7).

Result:

YES:GO TO 7.

NO: Replace accessory relay (K7).

(7) Accessory Relay (K7) Circuit Check

Action:

1. Remove accessory relay (K7) from socket.
2. Check circuit 002 for battery voltage at terminal 30 of accessory relay (K7) socket.
3. Check circuit 010 for continuity between terminal 85 of accessory relay (K7) socket and ground.

Result:

YES:GO TO 8.

NO: Repair as needed.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SE29—EH Transmission, SE30—EH Controller and SE33—Service Advisor™

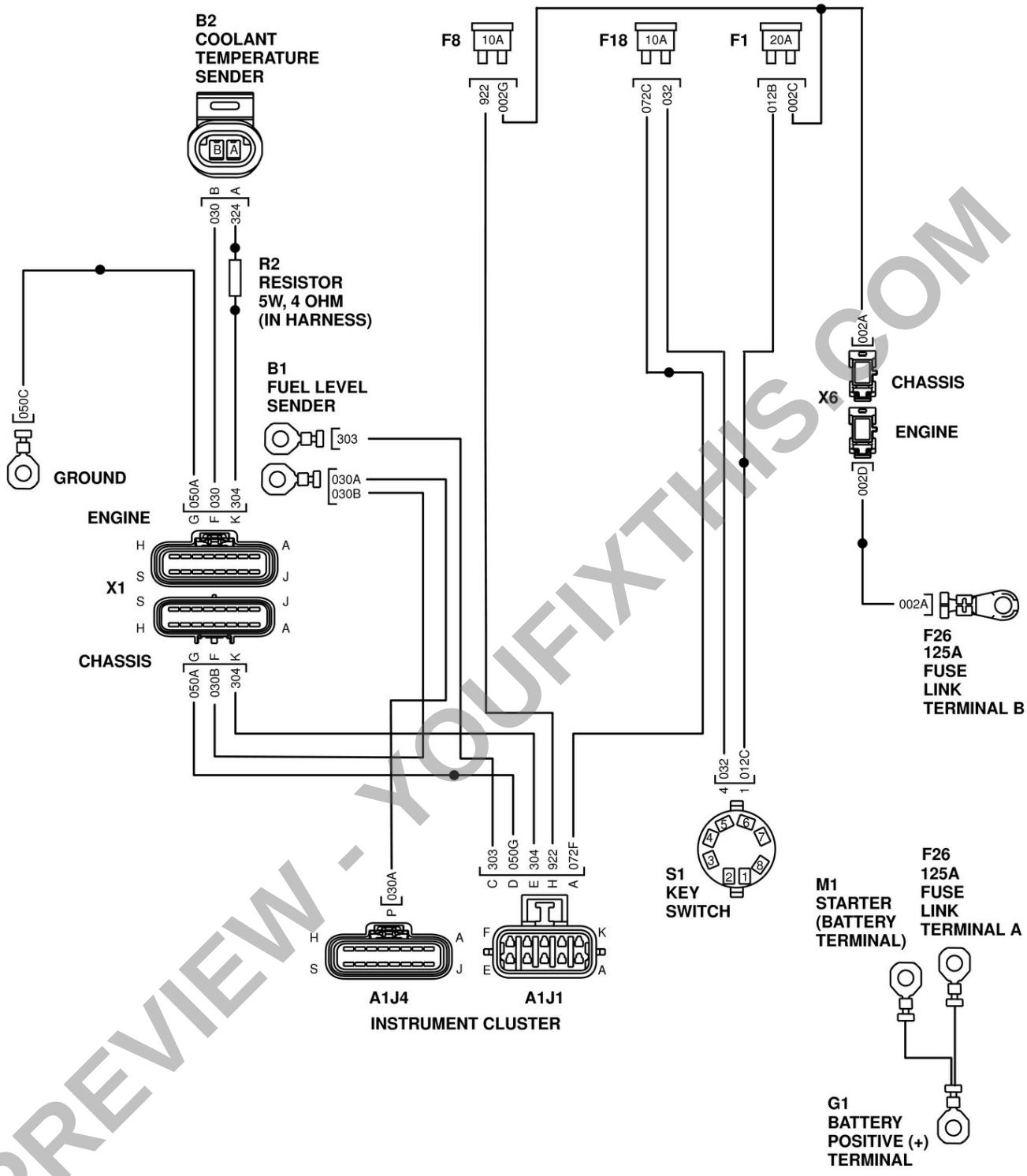
LEGEND:

A6	Electro-Hydraulic Control Unit
B9	Countershaft Speed Sensor
B11	Hydraulic Oil Temperature Sensor
B12	Enable Pressure Sensor
B13	Clutch Pedal Position Sensor
B15	Engine Speed Sensor
B16	Rear PTO Speed Sensor
F17	Forward Neutral Reverser Switch Fuse
F19	Service ADVISOR Fuse
K16	Neutral Relay
K17	Transmission Enable Relay
R4	Infinitely Variable Shuttle Control
S18	Rear PTO Switch
S20	Directional Reverser Switch
S21	Clutch Disengagement Switch
S23	Park Switch
S34	Speed Lever Neutral Switch
X10	Service ADVISOR Socket
Y5	Forward Solenoid
Y6	Reverse Solenoid
Y7	Clutch Enable Proportional Valve
Y8	PTO Solenoid

Cold Start Circuit Diagnostic Wiring Diagram—Load Center—Cab (Aug 2012-)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



PREVIEW - YOUFIXTHIS.COM

Engine Coolant Temperature Sender Diagnostic Wiring Diagram

LEGEND:

A1J1	Instrument Cluster Connector (10-pin)
A1J4	Instrument Cluster Connector (16-pin)
B1	Fuel Level Sender
B2	Coolant Temperature Sender

Download full manual at youfixthis.com

Electro-Hydraulic Controller Unswitched Supply Voltage and Ground Test

Reference

→NOTE:

The following tools may be required for proper diagnosis:

1. **JT05791—Digital Multimeter**

(1) Preliminary Check

Action:

- Visually inspect around the batteries and alternator for any visual signs of damage or accumulated debris.
- Check fuse F19.
- Visually inspect F26 fusible link for damage.

Result:

YES:GO TO 2.

NO: Correct condition.GO TO 2.

(2) Battery Check

Action:

Perform Battery Inspection Test or Battery Inspection Test—Load Center or Battery Inspection Test—Load Center (Aug 2012-) .

Result:

YES:GO TO 3.

NO: Repair as needed. Diagnosis complete.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(5) Prepare Vehicle for Transmission Calibration

Action:

→NOTE: If the vehicle moves during calibration, a diagnostic trouble code will be stored and the calibration will be terminated.Make sure the vehicle is parked on perfectly level ground to prevent error code and terminated calibration of PTR.

Park vehicle on level ground.

2. Place directional reverser lever in NEUTRAL position, gearshift lever in PARK position and range shift lever in NEUTRAL position.
3. Turn off A/C and MFWD, if equipped.
4. Do not use foot brakes, steering, SCVs, hitch, clutch (except for continuing after an error message), or PTO during the calibration procedure except to heat hydraulic oil before beginning calibration.
5. Start engine and set engine speed to 2400 rpm.
6. Access the PTR through the performance monitor. See Performance Monitor General Operation .
7. Scroll through the available PTR addresses until the desired address is selected.

Result:

YES:GO TO 6.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Item	Measurement	Specification
Supply Voltage	Key Switch in RUN Position (engine off)	12.5—14.5 V

Result:

YES:GO TO 6.

NO: See PTR - Countershaft Speed Sensor Diagnostic Wiring Diagram . Repair circuit 050 as needed.GO TO 1.

(6) Component Output Circuit Check

Action:

See PTR - Countershaft Speed Sensor Diagnostic Wiring Diagram to test for shorts, high resistance, and continuity on circuit 537.

Result:

YES: Replace component.GO TO 1.

NO: Repair as needed.GO TO 1.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

systems. The open center fixed displacement steering pump (3) draws oil from the differential case through the main hydraulic filter (2). Oil from the pump is supplied to the steering valve (4), giving steering priority. All return oil from the steering valve (4) is supplied to the brake valve (5) and hydraulic oil cooler (7). The return oil from the hydraulic oil cooler (7) is supplied to the junction block (28). The junction block (28) supplies oil to the PTO clutch lubrication valve (42) and also for transmission lubrication (41).

The transmission pump (6) draws oil from the differential case through the suction strainer (1) and supplies the PR control valve (8) through the oil passages drilled in the clutch housing. This oil is supplied to the enable proportional shift valve (15). Enable proportional solenoid valve (14) is controlled by the operator clutch pedal commands by way of transmission control unit signal. When the enable valve is repositioned by the pilot pressure of its respective solenoid valve, oil will flow through the enable valve to supply the transmission forward solenoid valve (17) and reverse solenoid valve (19). When the transmission shift valve is repositioned by the pilot pressure of its respective solenoid valve, oil will flow through the shift valve to its respective clutch element, forward clutch pack (26) or reverse clutch pack (27). If at any time during operation the enable valve is deactivated, oil supply to all transmission shift valves that engage the clutch are shut off. When the transmission is put in forward or reverse position, hydraulic oil engages the respective clutch. As oil pressure increases above 20 bar, it opens the relief valve (10). The lubrication relief valve (12) maintains 2.8±0.2 bar of pressurized oil to its respective clutch elements for lubrication through the lubrication shuttle valve (21), which is engaged only when the forward or reverse solenoid is energized.

Oil from the PR control valve (8) is also supplied to the EH PTO solenoid valve (34) and MFWD solenoid valve (31). When the MFWD solenoid valve (31) is activated, oil pressure is routed through the MFWD solenoid valve (31) to the MFWD clutch (32). When the MFWD solenoid valve (31) is shut off, pressure to its element is shut off. At the same time, element circuit oil is vented to the sump, releasing its respective clutch.

When the EH PTO solenoid valve (34) is activated, flow through the valve to the sump is stopped. Controlled oil pressure from the PTO spool valve (35) is used for gradual EH PTO clutch pack (40) engagement. When the EH PTO solenoid valve (34) is shut off, pilot pressure to the EH PTO spool valve (35) is routed to the sump, causing the EH PTO spool valve (35) to shift to the opposite position by valve spring pressure. With the EH PTO spool valve (35) in the off position, the PTO clutch engagement pressure oil is routed to the sump through the EH PTO spool valve (35). At the same time, oil is redirected to the EH PTO brake (39).

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

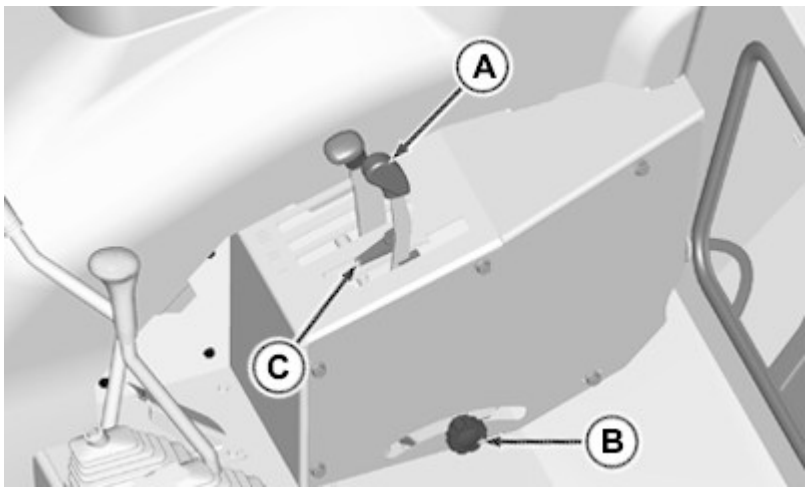
[9] - If linkage (B) moves forward, loosen jam nut (C) and turn adjustment nut (D) counterclockwise until a gap of 6 mm (0.25 in.) is between (A and D). Repeat steps 6, 7 and 8.

[10] - Loosen jam nut (C) and turn adjustment nut (D) until seated against plate (A).

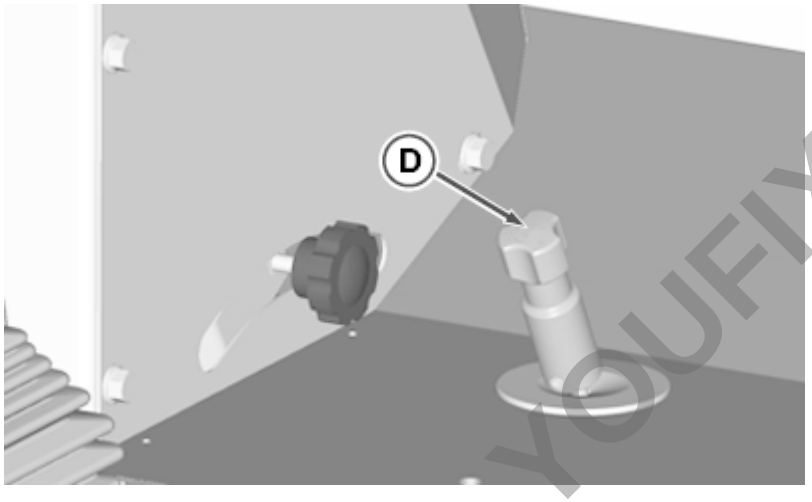
[11] - Hold adjustment nut (D), using a wrench, and tighten jam nut (C).

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



Mechanical Hitch Control



Rate-of-Drop Valve

LEGEND:

A Rockshaft Position Control Lever
B Rockshaft Draft Control Knob
C Rockshaft Position Control Lever Stop
D Rate-of-Drop Valve

PROCEDURE:

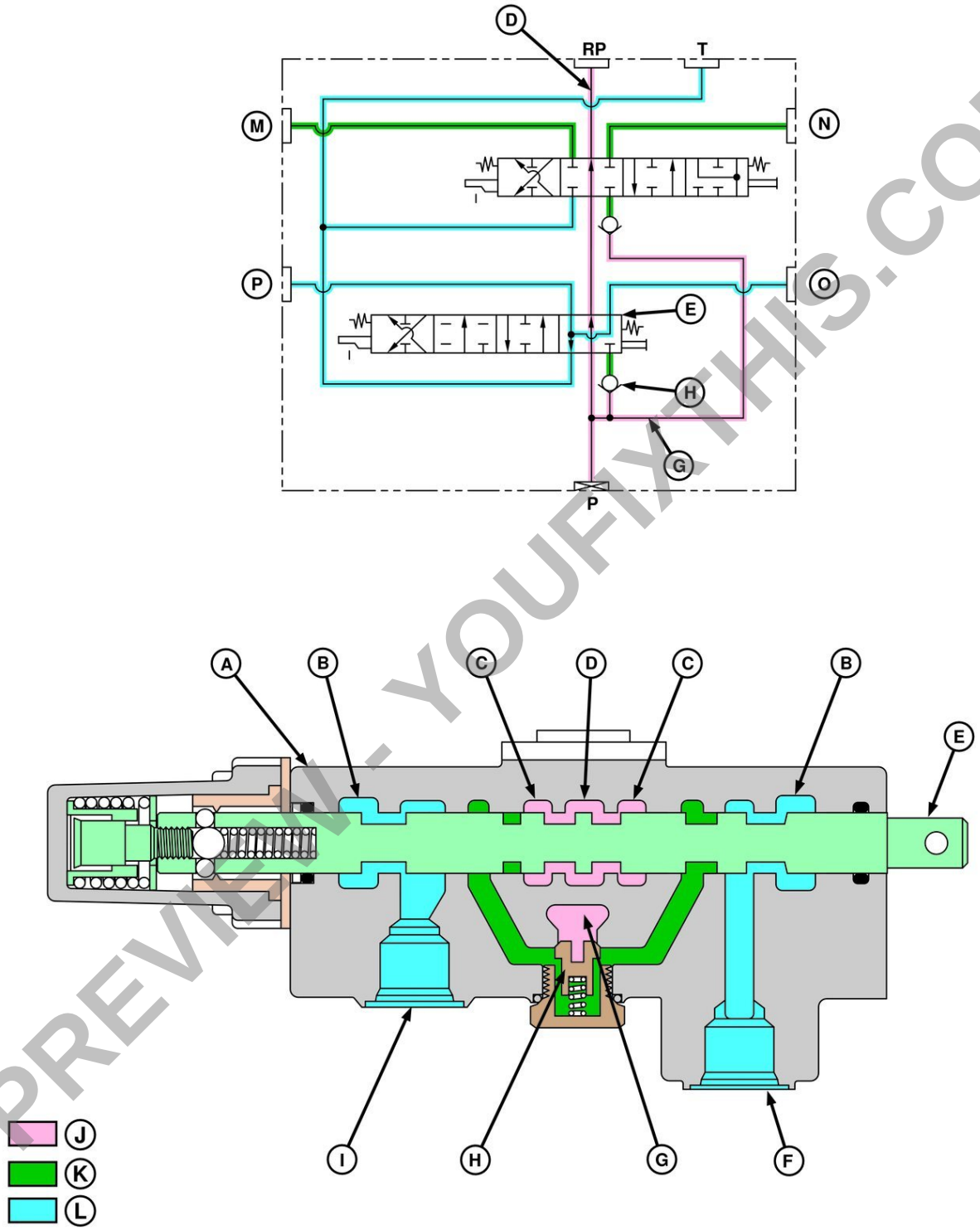
- Move rockshaft position control lever stop (C) forward.
- Move rockshaft position control lever (A) forward.
- Move draft control knob (B) forward.

→NOTE: The speed at which the hitch arms rise during the last few inches of travel at the highest position is slower than the hitch movement from the bottom. The two different raise rates are normal and due to the action of the rockshaft control valve.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Dual Mid-Mount Control Valve Operation—Float Position



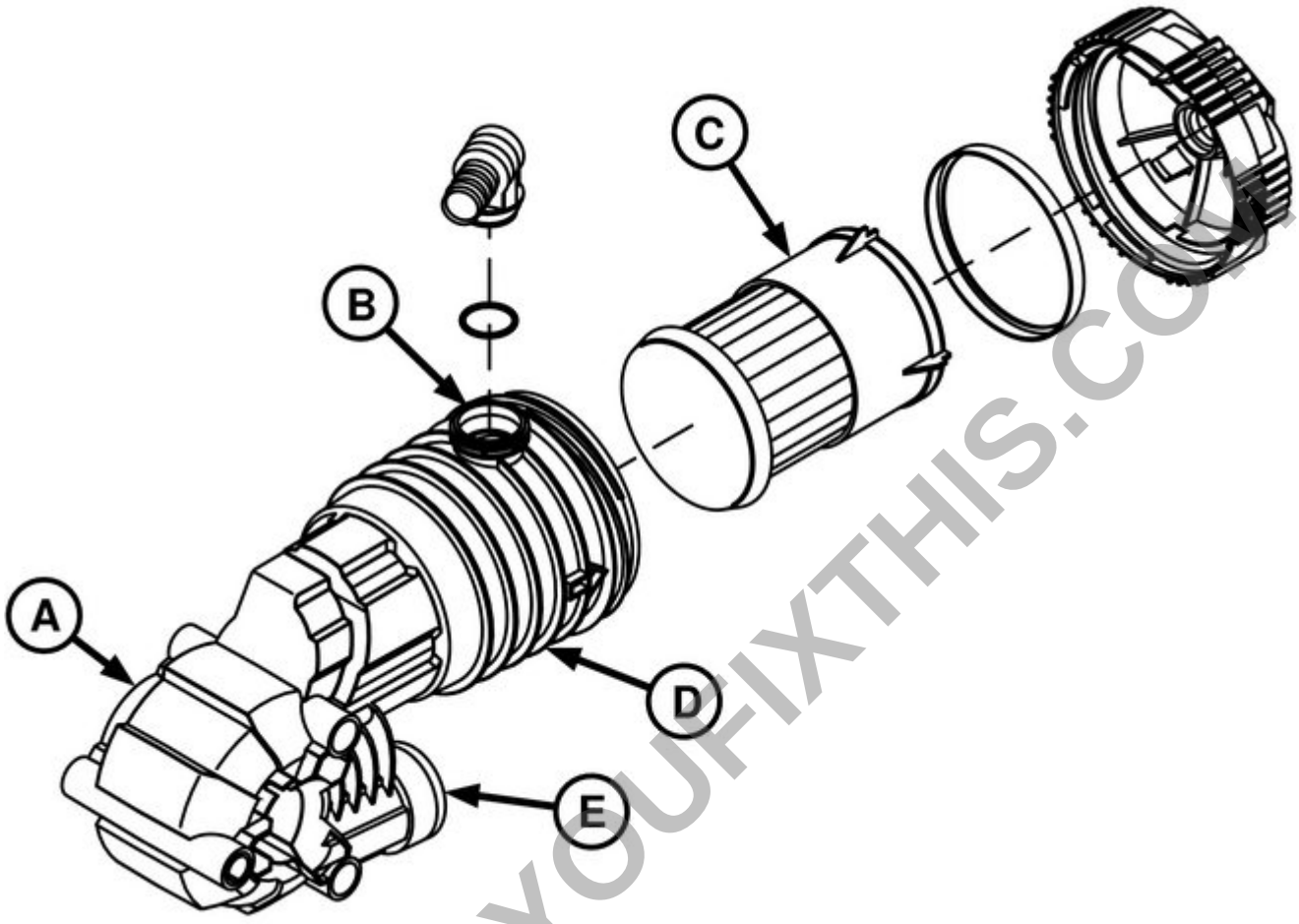
Dual Mid-Mount SCV

LEGEND:

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Main Hydraulic Filter Operation—Later Version



Hydraulic Filter/Manifold

LEGEND:

- A Inlet Port
- B Auxiliary Inlet Port
- C Filter Element
- D Filter Housing
- E Outlet Port

With the engine ON, suction from the engine mounted hydraulic pump forces hydraulic oil from the transmission to the filter housing through inlet port (A). Oil normally bypasses filter element (C) and flows out through outlet port (E) to the suction line and on to the hydraulic pump. Oil from the transmission is filtered only by the suction screen in the transmission.

Return oil from the rear SCVs and the mid-mount control valve enters filter housing (D) through auxiliary inlet port (B) and flows through filter element (C) to outlet port (E). If the filter element becomes restricted, a bypass valve within the filter element will open allowing hydraulic flow to the outlet port. Hydraulic oil flowing through the bypass valve, is filtered through a secondary paper element within filter element (C).

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(5) Air Duct Distribution Check

Action:

Check flow of air from left and right interior air ducts with blower speed control at PURGE.

Operate air ducts in the following positions:

- Open/Close—Air is regulated by duct opening.
- Rotation—Air is directed at windshield, operators body or operators feet.

Result:

YES:GO TO 6.

NO: Repair or replace air ducts and/or duct work. Repeat step.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 1923 pages

The full manual includes:

- All 1923 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

John Deere 5083E Limited, 5093E Limited, 5101E Limited Diagnostic

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual