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(16) Field (Flood) Lights

Action:

Turn light switch to Field Light Position.

Are all of the Flood Lights on?

Result:

YES:GO TO**(17)**

NO:GO TO Work Lights Diagnostics (Section 240, Group 15).

(17) PTO Indicator Light

Action:

Engage PTO lever.

Does PTO indicator light on dash illuminate?

Result:

YES:DONE

NO:GO TO PTO Indicator Diagnostics (Section 240, Group 15).

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PTR 524173.02- Clutch Pedal Compare Error

149

Clutch Pedal Position Data Erratic, Intermittent or Incorrect

Power Reverser Transmission Electrical Theory of Operation

Power Reverser Electrical Schematics

Power Reverser Electrical Diagnostics

Wet Clutch Electrical Theory of Operation

Wet Clutch Electrical Schematics

Wet Clutch Electrical Diagnostics

Connector Information [X102] [X107] [X108] [X111] [X112] [X113] [X122] [X123] [X124] [X125] [X126] [X127] [X128] [X129] [X130] [X148] [X166] [X168] [X701] [X720] [X721]

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Water temperature sensor Tier 3

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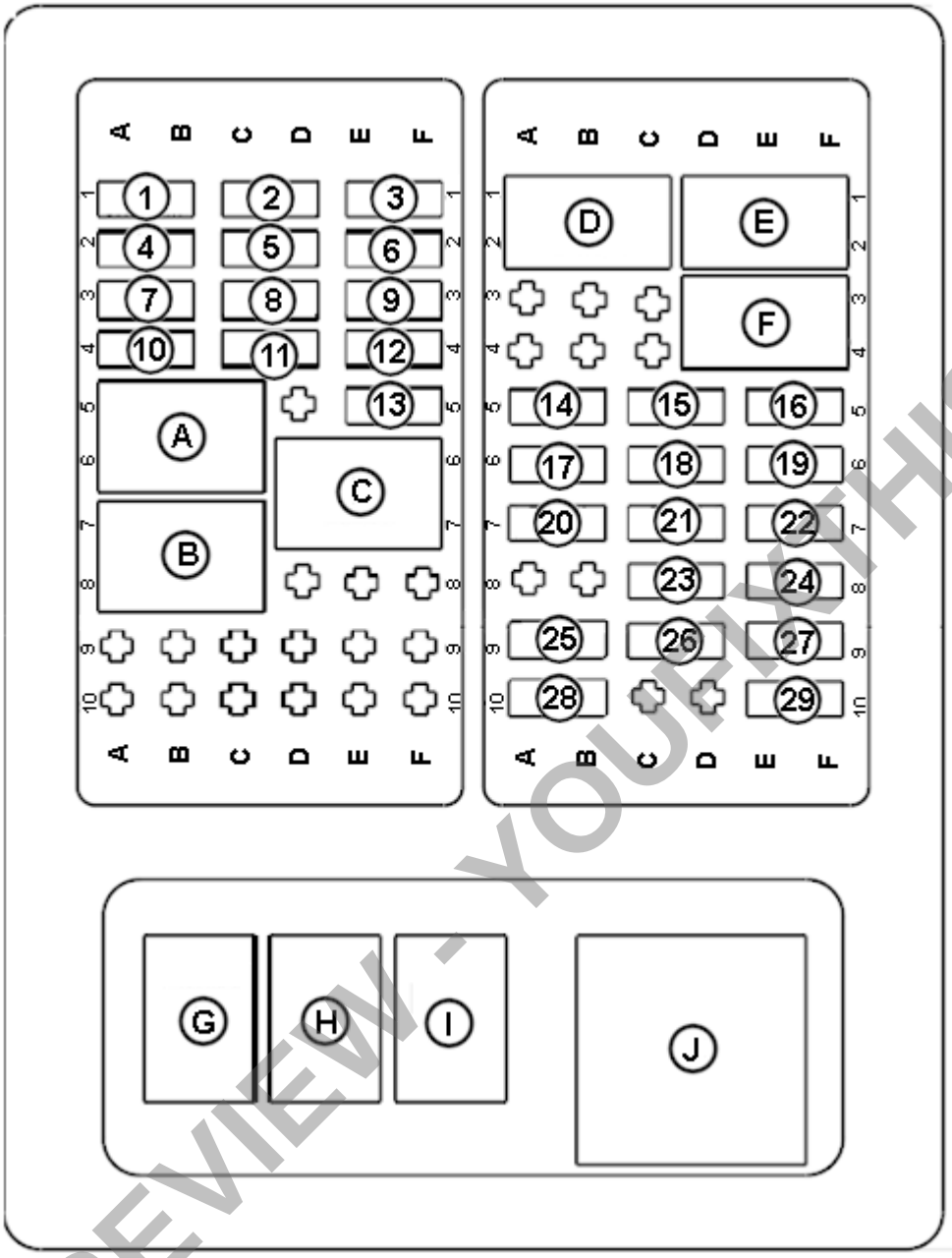
Load Center Fuses and Relays-Cab (6115D/6130D with Dry clutch and with Handbrake)



LEGEND:

A	K16 NEUTRAL
B	K24 EH SYS PWR
C	K17 R FLASH
D	K02 L TURN
E	K03 R TURN
F	K27 TAIL/LIC
G	K26 ACCESSORY RELAY
H	K25 HI/LO HEAD LIGHT RELAY
I	K04 NEUTRAL RELAY
J	DIODE MODULE
1	F09 – 10A DIAGNOSTIC
2	SPARE 10

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Forward and Reverse Solenoids Circuit Test

Forward and Reverse Solenoids Circuit Test

→NOTE:

The following tools are recommended for proper diagnosis:

1. **Digital Multimeter**
2. **JDG774 —Jumper Harness**
3. **DFRW126 —Modified Tap Out Harness Leads**

See Section 299, Group 10 for tool listings.

(1) Access Component to Be Tested

Action:

If problem in the forward circuit is indicated, disconnect the forward solenoid valve connector X122 .

If problem in the reverse circuit is indicated, disconnect the reverse solenoid valve connector X125 .

→NOTE:

Wet clutch tractors do not have a reverse solenoid.

Result:

YES:GO TO 2.

(2) Install Test Equipment

Action:

Install DFRW126 harness at the solenoid.

Result:

YES:GO TO 3.

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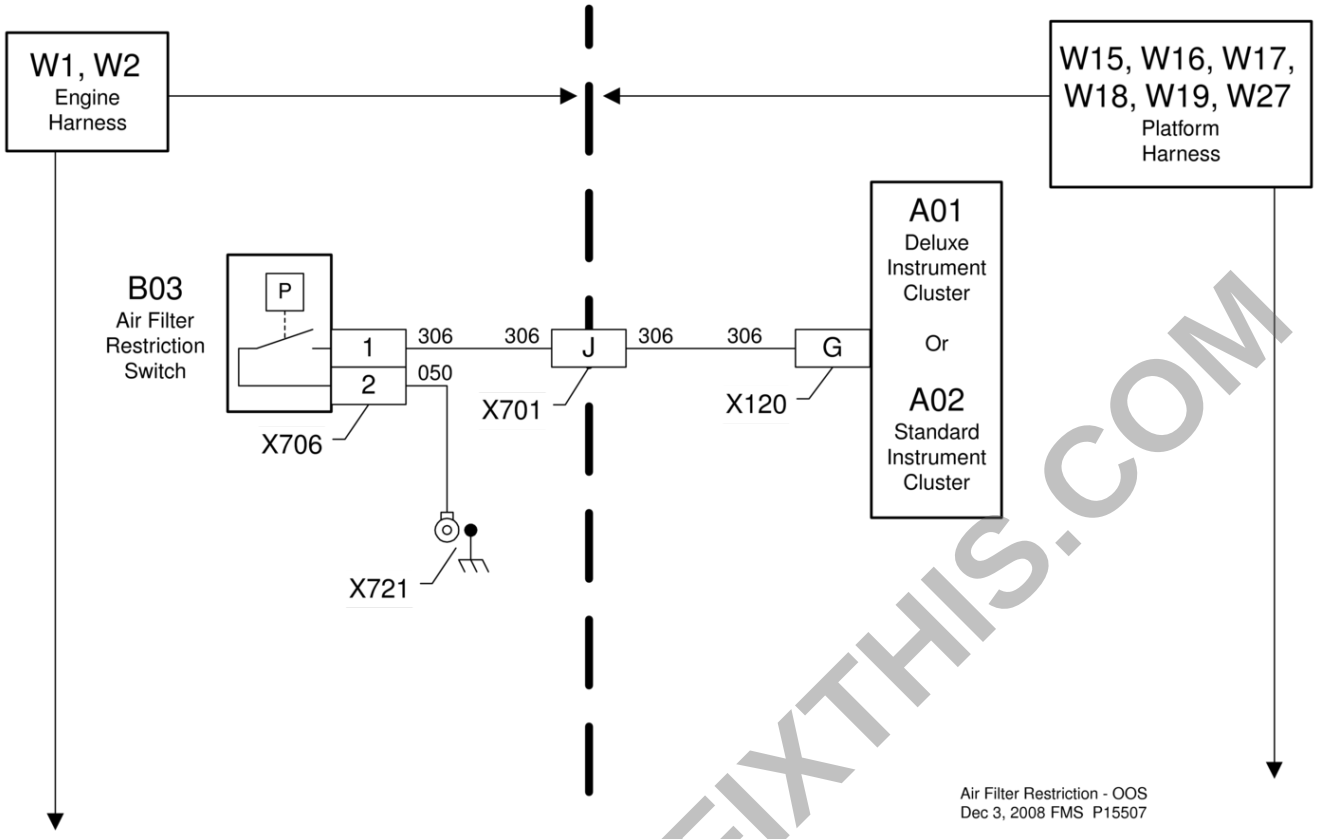

LEGEND:

A01	Deluxe Instrument Cluster
A02	Standard Instrument Cluster
B03	Air Filter Restriction Switch
W1	Engine Harness, Tier 0 or Tier 1
W2	Engine Harness, Tier 3
W15	Platform Harness, Open Operator Station with Power Reverser and Tier 3
W16	Platform Harness, Open Operator Station with Dry Clutch and Tier 3
W17	Platform Harness, Open Operator Station with Power Reverser and Tier 0 or Tier 1
W18	Platform Harness, Open Operator Station with Dry Clutch and Tier 0 or Tier 1
W19	Platform Harness, Open Operator Station with Wet Clutch and Tier 0 or Tier 1
W27	Platform Harness, Open Operator Station with Wet Clutch and Tier 3

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(20) Procedure

Action:

Measure resistance between Active CAN Bus Terminator connector X116, harness end, circuit 030 (pin D) and frame ground. (X116 connected).

Is resistance less than 3 Ohms?

Result:

YES: Repair circuit 030.GO TO**(2)**

NO: Replace Active CAN Bus Terminator.GO TO**(2)**

(21) Procedure

Action:

Key Switch in the RUN position

Measure voltage between Active CAN Bus Terminator connector X116, circuit 912 (pin B) and frame ground (X116 connected).

Is it 12 VDC?

Result:

YES: Repair circuit 912 between X116 and X117.GO TO**(2)**

NO:GO TO**(22)**

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(8) Procedure

Action:

Disconnect engine temperature sender connector X709.

Disconnect instrument cluster connector X120.

Measure resistance on circuit 304 (X709, pin A) (X120, pin E).

Is resistance less than 3 Ohms?

Result:

YES: Repair circuit 080.GO TO**(1)**

NO: Repair circuit 304.GO TO**(1)**

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Horn Diagnostics

Horn Problem

(1) Horn Operational Check

Action:

Press the Horn Switch (S5).

Does the Horn sound OK?

Result:

YES:GO TO**DONE**

NO:GO TO**(2)**

(2) Horn Check

Action:

Observe the horn (B2).

Is it clean and free of debris?

Result:

YES:GO TO**(3)**

NO: Clean or repair.GO TO**(1)**

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Standard Instrument Panel Diagnostics

Standard Instrument Panel Problem

(1) Procedure

Action:

Key Switch to RUN position.

Does instrument cluster power up?

Result:

YES:GO TO**(2)**

NO:GO TO**(31)**

(2) Procedure

Action:

When the key switch is turned ON, the instrument cluster performs a light and gauge check for approximately one second.

During the check, all indicators must light and all gauges must cycle fully to the right.

Does the light and gauge check function correctly?

Result:

YES:GO TO**(3)**

NO: Replace the instrument cluster.GO TO**(1)**

(3) Procedure

Action:

Is the STOP light on the instrument cluster turned ON?

Result:

YES:GO TO**(7)**

NO:GO TO**(4)**

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(6) Procedure

Action:

Remove right turn relay K05.

Check resistance of circuit 010 (pin 85) to frame ground.

Is resistance less than 3 Ohms?

Result:

YES:GO TO**(7)**

NO: Repair circuit 010 to ground point X720.GO TO**(1)**

(7) Procedure

Action:

Remove right turn relay K05.

Key Switch ON.

Activate left turn signal.

Check voltage between circuit 113 and frame ground.

Is voltage 12 V?

Result:

YES:GO TO**(8)**

NO: Repair circuit 113.GO TO**(1)**

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(28) Procedure

Action:

On tractors with a handbrake, circuit 147 goes to fuse F32 instead of trailer connector X01. From fuse F32, it goes through circuit 177 to trailer connector X221.

Check voltage between circuit 147 at each of the rear work light connectors and circuit 010. (Trailer connector X01, pin 2) (X172, pin A) (X173, pin A).

Is voltage 12 V?

Result:

YES: Replace light bulbs as needed.GO TO**(1)**

NO: Repair circuit 010.GO TO**(1)**

(29) Procedure

Action:

Remove front work light relay K09.

Disconnect connectors at each work light connected to circuit 167.

Check circuit 167 for short to ground, short to power, high resistance, or open circuit.

Is circuit 147 OK?

Result:

YES: Replace relay K09.GO TO**(1)**

NO: Repair circuit 167.GO TO**(1)**

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(8) Procedure

Action:

Swap Not Neutral Relay K16 with a known good relay.

Brake pedals locked in parked position.

Move speed shift lever to the center of the H pattern between 1 and 3.

Access PTR address 006.

Item	Measurement	Specification
PTR Address 006	Value	0001

Move speed shift lever into a gear.

Access PTR address 006.

Item	Measurement	Specification
PTR Address 006	Value	0010

Do address values match shifter position?

Result:

YES: Replace relay.GO TO**(1)**

NO:GO TO**(9)**

(9) Procedure

Action:

Remove relay K16.

Measure resistance of circuit 010 between pin 85 and frame ground.

Is resistance less than 3 Ohms?

Result:

YES:GO TO**(10)**

NO: Repair circuit 010 to ground point X720.GO TO**(1)**

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Starting System with Wet Clutch, Cab, Tier 0 or Tier 1

LEGEND:

A06	Electro-Hydraulic Controller (EHC)
F01	Key Switch Fuse
F20	EHC Switched Power Fuse
F30	Fuel Flow Relay Fuse
G01	Battery
K04	Neutral-PTO Off Relay
K10	Fuel Flow Relay
K12	Neutral Latch Relay
K16	Not Neutral Relay
K18	Neutral Start Relay
K24	Transmission Controller Switched Power Relay
M01	Starter Motor
S01	Key Switch
S02	Rear PTO Switch
S03	Neutral Start Switch
V03	Start Relay Diode
V07	Fuel Flow and Latch Relay Diode
W1	Engine Harness, Tier 0 or Tier 1
W4	Transmission Harness, Wet Clutch
W10	Cab Harness, with Wet Clutch and Tier 0 or Tier 1
W12	Front Console Harness, with Wet Clutch
W20	Positive Battery Cable
W21	Negative Battery Cable
Y01	Fuel Flow Solenoid

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front washer pump.

Rear Wipers

When key switch is in ACCESSORY or RUN position, current flows through circuit 212 to the coil of wiper relay, energizing the relay. Fuse F15 sends unswitched power to the wiper relay through circuit 272. With the wiper relay energized, power becomes available at terminal B of rear wiper switch, through circuit 223.

When rear wiper switch is in the ON position, current flows through circuit 228 to rear wiper motor, activating the wiper motor.

When the rear wiper switch is moved to the WASH (momentary) position, current flows through circuit 229 to rear washer pump, activating the pump.

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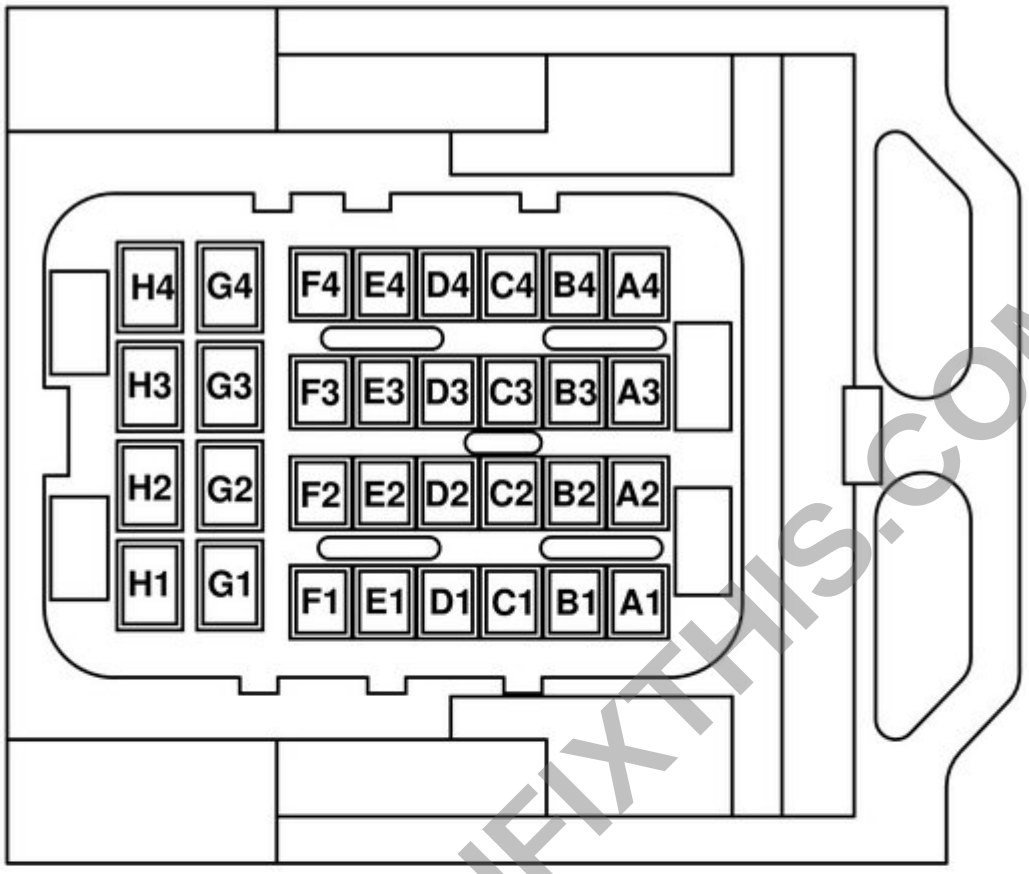

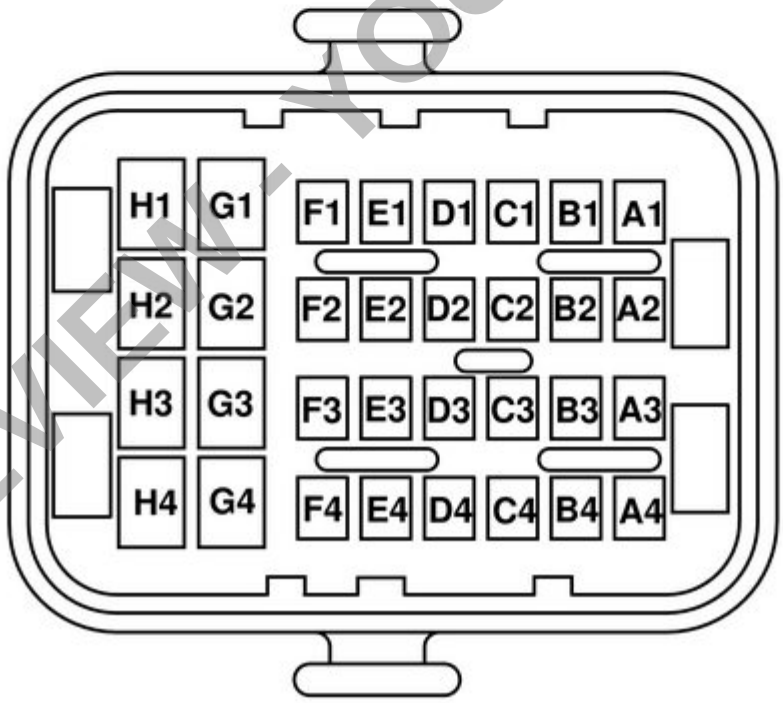

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Pin Number	Circuit Code	Circuit Code - ECE
A1	PLUG	PLUG
A2	PLUG	PLUG
A3	PLUG	533
A4	506	506

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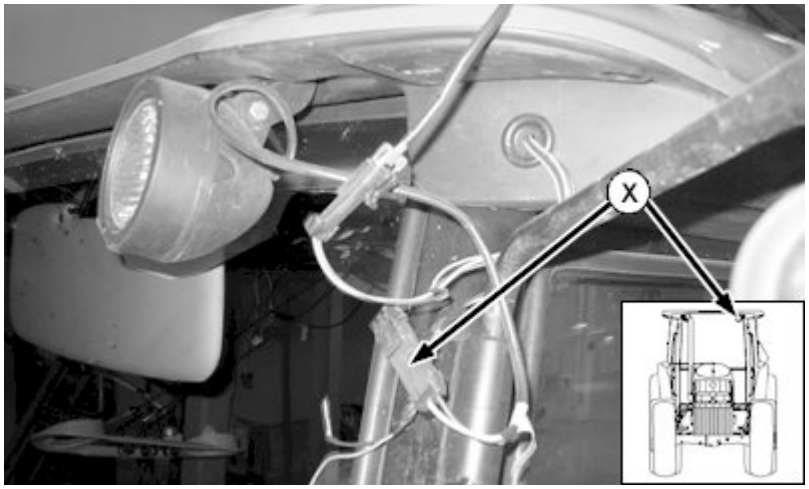
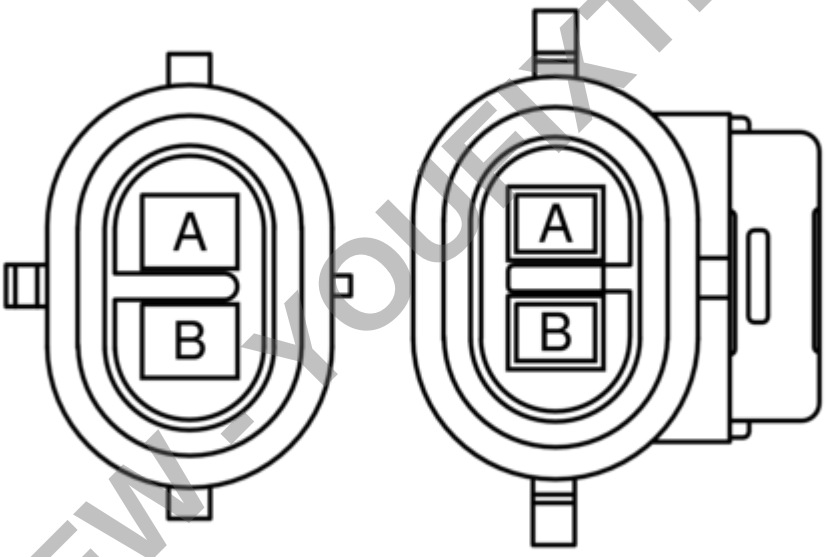
X173 - Left Front Work Lamp





Pin Number	Circuit Code
A	147
B	010

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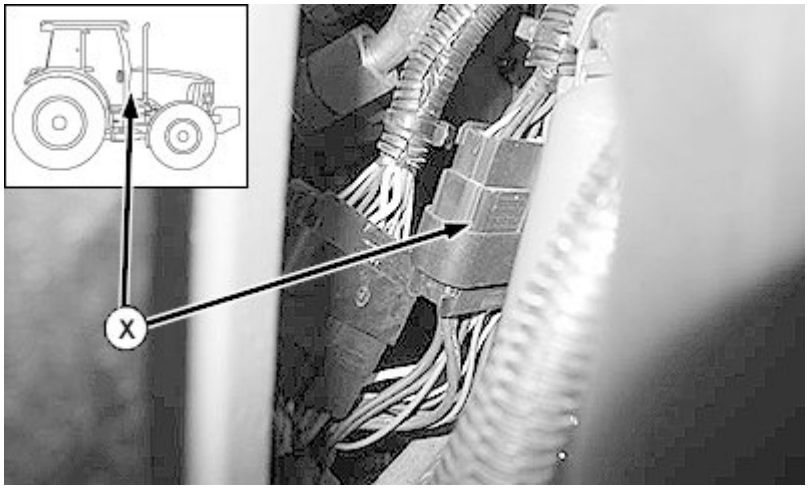
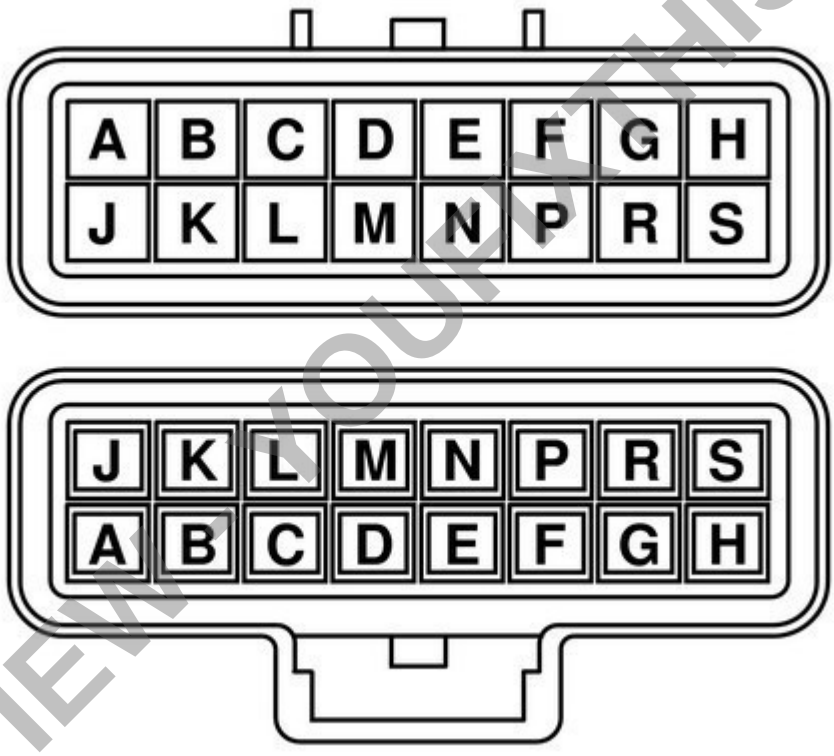
X702 - Chassis Harness to Engine Harness





Pin Number	Circuit Code
A	PLUG
B	414
C	427
D	428
E	443
F	445
G	447
H	448
J	PLUG

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(14) Procedure

Action:

CAUTION:

Avoid unexpected machine movement. The range lever MUST be in TOW, the speed lever must be in NEUTRAL, and the brakes must be locked in PARK for this test.

Brake pedals locked in PARK position.

Range lever in TOW position between B and C.

Disconnect Forward solenoid connector X122.

Speed lever in Neutral. Engine running.

Access forward clutch pressure PRT address 37.

Is pressure less than 50 kPa?

Result:

YES: See Wet Clutch Electrical Diagnostics (Section 240, Group 15).

NO: Replace the solenoid valve.GO TO**(2)**

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(5) Range A Reverse Test

Action:

Engine running.

Transmission in A range.

Disengage traction clutch, bring machine to a complete stop and shift to Reverse gear.

Engage clutch.

Does machine move in A Reverse?

Result:

YES:GO TO**(6)**

NO:GO TO**(14)**

(6) Gear B1 Test

Action:

Engine running.

Disengage traction clutch, bring machine to a complete stop and shift to first gear.

Shift Transmission into B range.

Engage clutch.

Does machine move in B1?

Result:

YES:GO TO**(7)**

NO:GO TO**(14)**

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Section 260 - BRAKE SYSTEM DIAGNOSIS AND TEST

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(4) Check Rockshaft Operation

Action:

Does the Rockshaft operate correctly?

Result:

YES:DONE

NO:GO TO**(5)**

(5) Check Rockshaft Raise Mode

Action:

Does the Rockshaft not raise or raises slow?

Result:

YES:GO TO**(6)**

NO:GO TO**(9)**

(6) Check Implement Pump

Action:

Check implement pump pressure and flow. See test procedure.

Is the flow within specifications?

Result:

YES:GO TO**(7)**

NO:Replace implement hydraulic pump. GO TO**(4)**

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(7) Pump Stall Pressure Test Results

Action:

- Neutral pressure above zero on all mid stack SCVs. Test indicates work port bleed up caused by rear SCV engagement. Disengage rear SCV and repeat test.GO TO**(2)**
- Neutral pressure still above zero on all mid stack SCVs with rear SCV disengaged. Test indicates restriction in rear SCV stack. Inspect and repair as necessary.GO TO**(2)**
- Neutral pressure above zero on at least one but not all SCVs. Test indicates stuck or damaged spool in suspect SCV. Inspect and repair as necessary.GO TO**(2)**
- Neutral and stall pressure at zero at all SCVs. Test indicates implement pump or pump drive failure. Inspect and repair as necessary.GO TO**(2)**
- Stall pressure above specification at all SCVs. Test indicates implement relief valve out of adjustment. Inspect and repair as necessary.GO TO**(2)**
- Stall pressure below specification on ALL SCVs.GO TO**(8)**
- DUAL MID STACK SCVs: Stall pressure within specification on one SCV but below specification on other SCV. Test indicates stuck or damaged spool or leak in suspect SCV. Inspect and repair as necessary.GO TO**(2)**
- TRIPLE MID STACK SCVs (if equipped):
  - Stall pressure on third function SCV within specification, but out of specification on both bucket and lift SCVs. Test indicates possible bypass valve malfunction in mid stack SCV. Inspect and repair as necessary.GO TO**(2)**
  - Third function SCV out of specification but both bucket and lift SCVs within specification. Test indicates bypass valve malfunction or stuck or damaged spool or leak in third function SCV. Inspect and repair as necessary.GO TO**(2)**
  - Third function SCV within specification but either bucket or lift SCV (not both) out of specification. Test indicates stuck or damaged spool or leak in suspect SCV. Inspect and repair as necessary.GO TO**(2)**

Result:

YES: Problem identified. Repair as indicated.GO TO**(2)**

NO: Test result not listed.GO TO**(8)**

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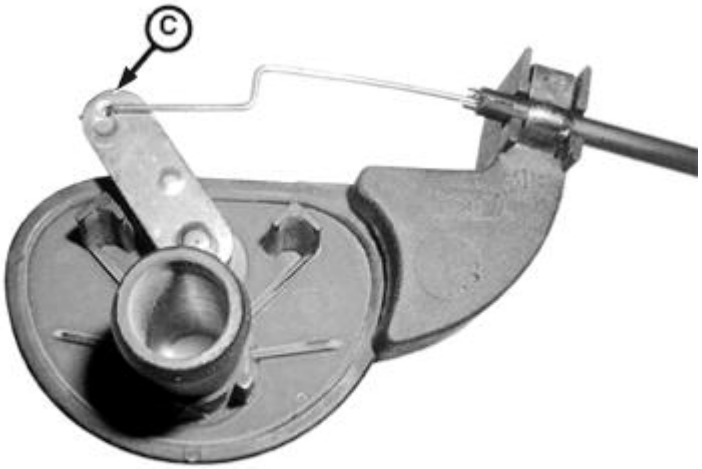

Full Closed Position

LEGEND:

A	Heater Cable
B	Heater Valve Arm—Full Open Position
C	Heater Valve Arm—Full Closed Position

Turn the heater temperature control knob (clockwise) to full heat and adjust cable until the heater valve arm is in the full open position (B).

[2] - Turn the heater temperature control knob (counterclockwise) until closed. Heater valve arm should be in the full closed position (C). Adjust cable loosening the clip A and reinstall it as required.

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