Group 40DC - Open Operator Station Work Lighting (SE5C)
Group 40DD - Turn Signal Switch and Warning Lights (SE6)
Group 40EA - Light Switch, Headlights and Signal Lights (License and Clearance Lights) (SE7A)
Group 40EB - Cab Work Lighting (License and Clearance Lights) (SE7B)
Group 40ED - Warning Light Switch and Turn Signal Lighting (License and Clearance Lights) (SE8)
Group 40FA - Junction Block Power (SE9)
Group 40GA - Trailer Connector (SE10)
Group 40GB - Trailer Connector (Implement Flood Light Connector) (SE11)
Group 40HA - Loader Lights (SE12)
Group 40IA - Back-Up Alarm (SE13A)
Group 40IB - Beacon Light (SE13B)
Group 40JA - Mid-Mount SCV (SE14)
Group 40KA - Power Outlets (Square Terminals) (SE15A)
Group 40KB - Power Outlets (Round Terminals) (SE15B)
Group 40LA - Heating (SE16)
Group 40LB - Air Conditioning (SE17)
Group 40MA - Wipers (Two Speed) (SE19)
Group 40MB - Wipers (Single Speed) (SE20)
Group 40MC - Rear Wipers (SE21)
Group 40NA - Dome Light, Door Switch and Radio (SE22)
Group 40OA - Air Seat (SE23)
Group 40PA - Instrument Cluster Control (ICC) (SE24)
Group 40QA - Seat, Rear PTO and Wheel Speed (SE25A)
Group 40QB - Multi-Function Control Lever (SE25B)
Group 40RA - ELX Relay and Fuses (SE26)
Group 40SA - Mechanical Front-Wheel Drive (MFWD) (SE27)
Group 40TA - Brake Switch (SE28)
Group 40UA - Electrohydraulic Control Unit (EHC) (SE29A)
Group 40UC - Power Train Reverser (PTR) (SE29B)
Group 40UD - Chassis Control Unit (CCU) (SE29C)
Group 40VA - Engine Control Unit (ECU) (SE30)
Group 40WA - Controller Area Network (SE32)
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Group 40ZD - Wiring Harnesses

Section 240D - ELECTRICAL TESTS AND ADJUSTMENTS

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Group 50AA - Starting and Charging
Group 50AC - Neutral Start
Group 50BA - Accessory Power
Group 50CA - Horn
Group 50DA - Light Switch, Headlights, and Signal Lights
Group 50DB - Cab Work Lighting
Group 50DC - Open Operator Station Work Lighting
Group 50DD - Turn Signal Switch and Warning Lights
Group 50EA - Light Switch, Headlights and Signal Lights (License and Clearance Lights)
Group 50EB - Cab Work Lighting (License and Clearance Lights)

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Non-Tractor ECU Code List	
ECU 002003.09	No CAN Message Received From Source Address 3
ECU 002006.09	No CAN Message Received From Source Address 6
ECU 002006.14	Incorrect CAN Message Received From Source Address 7
ECU 002006.19	Communication Error with Source Address 7
ECU 002025.09	No CAN Message Received From Source Address 25
ECU 002071.09	No CAN Message Received From Source Address 71
ECU 002629.03	Sensor Voltage Out Of Range High
ECU 002629.04	Sensor Voltage Out Of Range Low
ECU 002630.00	Charge Air Cooler Outlet Temperature Signal Extremely High
ECU 002630.03	Charge Air Cooler Outlet Temperature Signal Out Of Range High
ECU 002630.04	Charge Air Cooler Outlet Temperature Signal Out Of Range Low
ECU 002630.15	Charge Air Cooler Outlet Temperature Signal Slightly High
ECU 002630.16	Charge Air Cooler Outlet Temperature Signal Moderately High
ECU 002659.02	EGR Flow Signal Invalid
ECU 002659.03	EGR Flow Signal Out of Range High
ECU 002659.04	EGR Flow Signal Out of Range Low
ECU 002659.07	EGR Flow with Engine Off
ECU 002659.14	EGR Flow Signal Error
ECU 002659.15	EGR Flow Signal Moderately High
ECU 002659.17	EGR Flow Signal Moderately Low
ECU 002790.16	Calculated VGT Compressor Outlet Temperature Moderately High
ECU 002791.05	EGR Valve Drive Circuit Fault
ECU 002791.06	EGR Valve Drive Circuit Has Low Resistance
ECU 002791.07	EGR Valve Desired and Actual Position Mismatch During a Learn
ECU 002791.13	EGR Valve Calibration Error
ECU 002791.15	EGR Valve Fully Open Position Error
ECU 002791.17	EGR Valve Fully Closed Position Error
ECU 002795.07	VGT Vane Desired and Actual Position Mismatch
ECU 002797.03	Injector High Voltage Supply #1 Out of Range High
ECU 002797.05	Injector High Voltage Supply #1 Circuit Has High Resistance
ECU 002797.06	Injector High Voltage Supply #1 Circuit Has Low Resistance
ECU 002798.03	Injector High Voltage Supply #2 Out of Range High
ECU 002798.05	Injector High Voltage Supply #2 Circuit Has High Resistance
ECU 002798.06	Injector High Voltage Supply #2 Circuit Has Low Resistance
ECU 003246.00	DPF Outlet Temperature Extremely High
ECU 003246.12	DPF Outlet Temperature Error

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Group 05B - General References

Observable Symptoms and System Diagnostics - Summary of References

05B - General References

Observable Symptoms and System Diagnostics - Summary of References

20 - Engine Diagnostics

Engine System Problems

30 - Fuel, Air Intake, Exhaust, and Cooling Diagnostics

Fuel and Air System Problems

40 - Electrical Diagnostics

Back-Up Alarm Problems

Charging System Problems

Door Switch and Dome Light Problems

Electrical Connector Problems

Horn Problems

Lighting System Problems

Power Outlet Problems

Starting System Problems

Trailer Connector and Junction Block Problems

45 - Electronic Control Unit Diagnostics

CAN System Diagnosis

Chassis Control Unit (CCU) Problems

Codes After Adding / Removing Control Units

Control Unit Problems

Control Unit Programming Failed

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Group 05B - General References

Engine - Summary of References

05B - General References

Engine - Summary of References

Engine Information

10AA - Engine Calibrations, Preliminary Checks and Operational Checks

Engine Calibrations, Preliminary Checks and Operational Checks

20AA - Engine Theory of Operation

Engine Theory of Operation

30AA - Engine Schematics

Engine Schematics

40AA - Engine Component and Connector Information

Engine Components

50AA - Engine Tests and Adjustments

Engine Test Procedures and Adjustments

Engine Performance Testing

Engine Performance Variables

Engine Information

This vehicle specific technical manual has only engine information which is specific to the vehicle. Most of the engine information is found in the relevant engine component technical manual. Use this manual in conjunction with relevant component technical manual (CTM) to diagnose engine problems.

- 4045 PowerTech ™ OEM Diesel Engines Below 130kW (174 hp) (Interim Tier 4/Stage III B platform) CTM.

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The PTR calculates a clutch pedal position between 0 and 250 based on the clutch pedal sensor A and B inputs. When the clutch pedal is fully released, the position is 0. When the clutch pedal is fully depressed, the position is 250. The clutch logic sends a position of 255 if clutch pedal sensors A and B are out of range, or if there is a comparison error between both sensors. If the vehicle is in normal mode, a position of 255 commands a pressure value of 0. If the vehicle is in come-home mode, a position of 255 commands a pressure of 1750 kPa (17.5 bar) (253 psi).

Clutch Pedal Pressure Command

The clutch pedal position pressure command is compared to the PTR pressure command. The lower of the two values is used as the final pressure command.

When the clutch pedal is released quickly, the resulting vehicle acceleration can be abrupt. Therefore, the PTR monitors how quickly the clutch pedal is released. If it notices that the clutch pedal is released too quickly, the PTR restricts the rate at which the clutch is engaged.

Optional High / Low Forward Shift

The high / low shift option provides the function of shifting the transmission between the high and low transmission forward speeds. The high and low switches are momentary and are located on the gearshift lever. They are marked with a rabbit and a turtle.

At control unit start-up, the high / low option is forced to low. A normal shift is initiated by depressing either high or low switch. If both switches are pressed simultaneously, the shift request is ignored. If both switches are pressed for a minimum of 2 seconds, the shift is commanded to low. If one or both switches are held for at least 30 seconds, the shift is commanded to low, a DTC is generated and the transmission light is illuminated.

If a high command is received and the PTR control unit indicates a fault, the control unit keeps trying to engage high. If after about 480 milliseconds the fault still exists, a DTC will be generated and the transmission service light will illuminate. If the condition exists for a minimum of 1 second, the DTC is stored and made inactive. The transmission light is turned off and the switch state is set to low. The control unit then stops attempting to energize the high or low solenoid.

Power Reverser Fine-Tuning

→NOTE:

This feature is available for PowrReverser transmissions.

→NOTE:

Clutch modulation and how the tractor behaves when changing direction of travel can be fine-tuned via diagnostic addresses PTR065, PTR066, PTR067, PTR068, PTR069 and PTR070.

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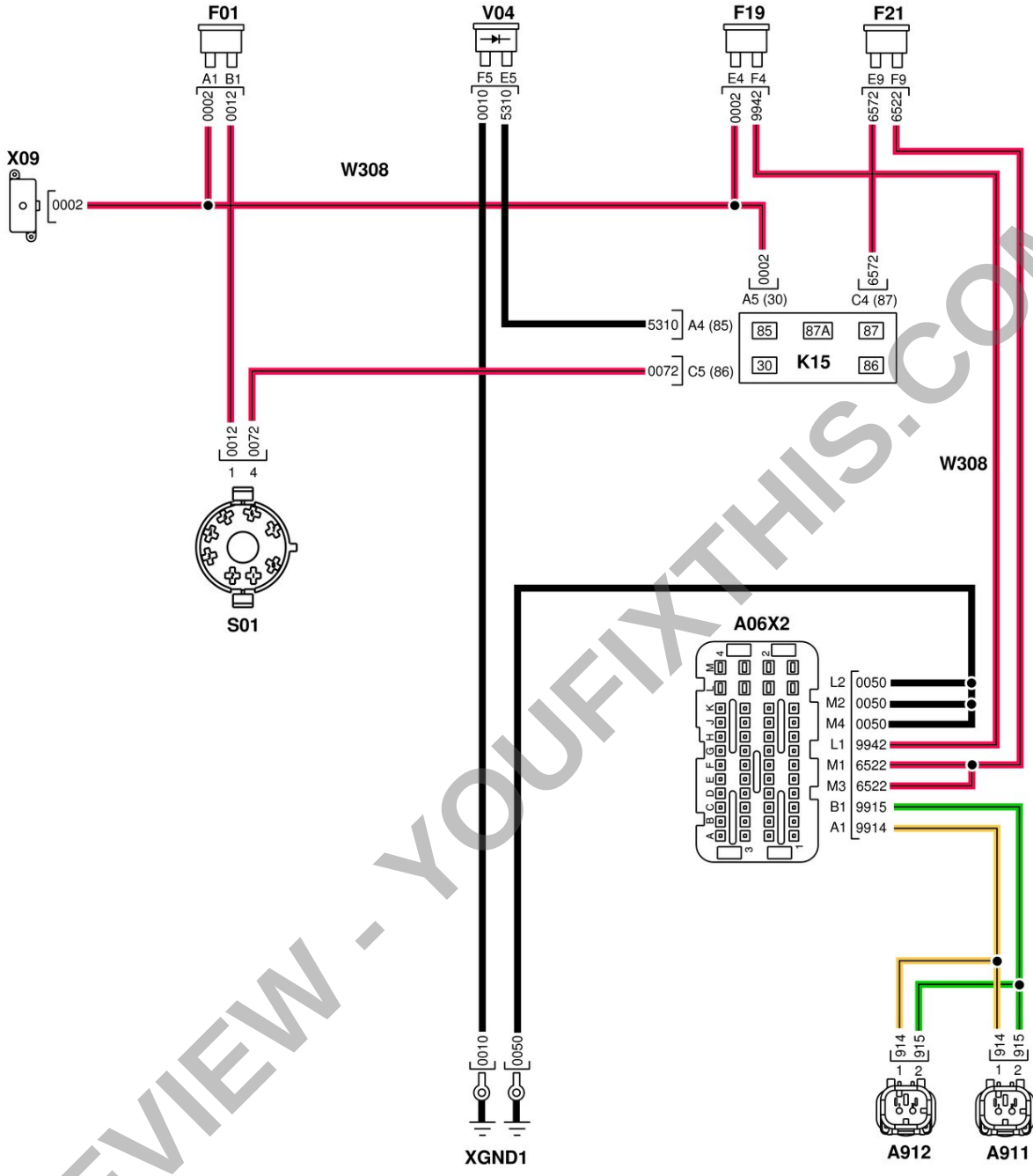
K06	K06 Trailer Power Relay
K07	K07 Accessory Relay
S01	S01 Key Switch
W508	W508 Cab Harness (PR, Secondary Brake)
W576	W576 Transmission Harness (PR, Secondary Brake)
W905	W905 Front Console Harness (PR, Secondary Brake)
X01_1	X01_1 Trailer Connector (with Implement Flood Light Connector)
X01_2	X01_2 Implement Flood Light Connector
X16	X16 Left Rear Junction Block to Cab Power Harness
X130	X130 Cab/OOS Chassis to Transmission Harness
X140	X140 Cab to Front Console Harness
X142	X142 Cab to Front Console Harness
XGND1	XGND1 Single Point Ground

See the following for fuse and relay information:

- Load Center Fuses and Relays (with License and Clearance Lights)

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Electrohydraulic Control Unit (EHC) Circuit Diagram (OOS)

LEGEND:

A06X2	A06X2 Electrohydraulic Control Unit (EHC) Connector
A911	A911 CAN Terminator (Cab/Operator Station)
A912	A912 CAN Terminator (Chassis)
F01	F01 (30A) Key Switch Fuse

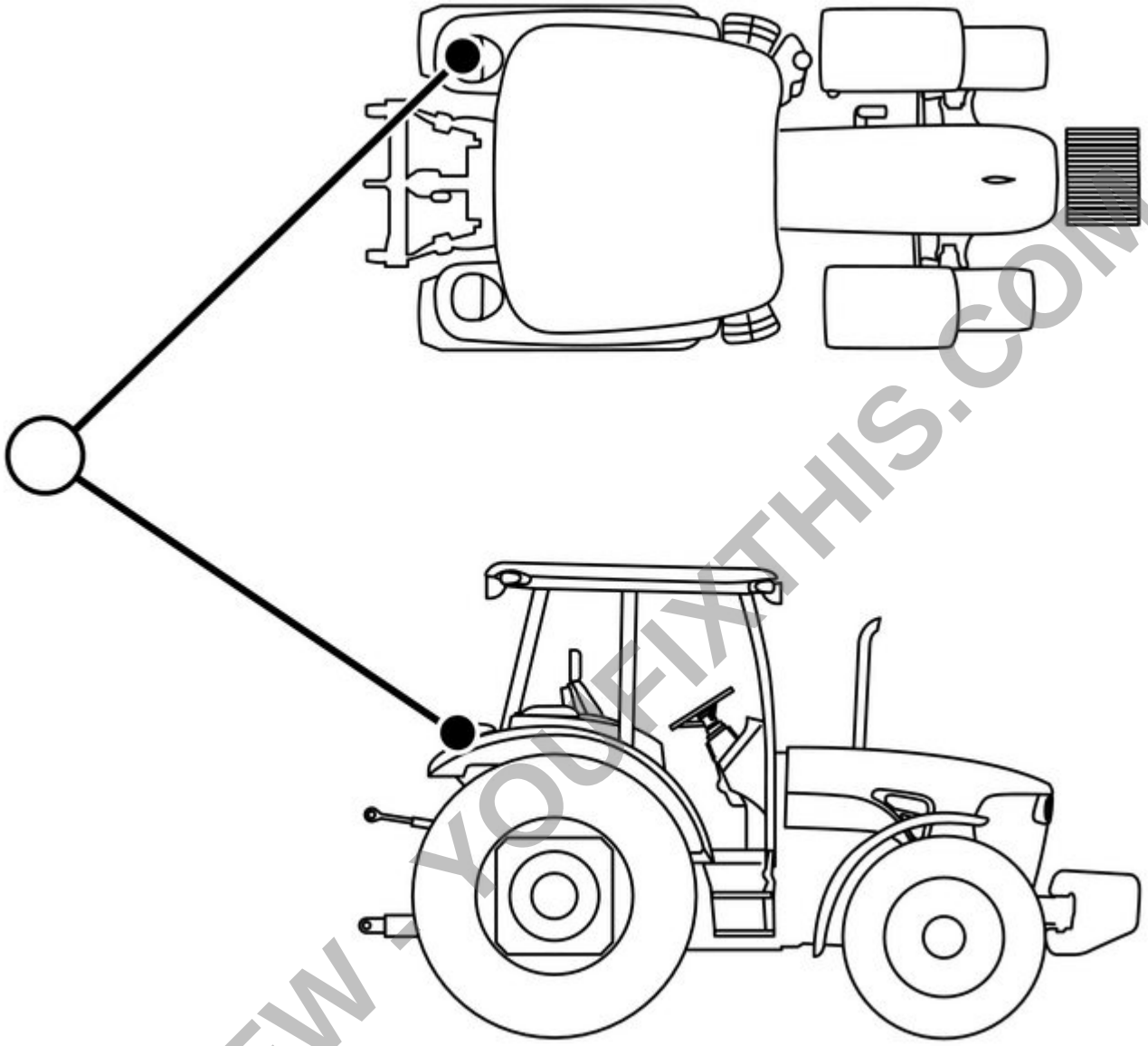
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H03 Layout (Cab SN PXCG087000839—)

H03 Left Tail/Turn Light (Cab SN PXCG087000839—)			
Schematic Section:	Light Switch, Headlights, and Signal Lights Schematic and Circuit Diagram (SE5A)		
Wiring Harnesses:	W506 Cab Harness (PR)		
Terminal	**Circuit Number**	**Wire Color**	**Circuit Function**
A	1123	Orange	12 V Input
B	1118	Gray	12 V Input
C	1123	Orange	12 V Input
D	0010	Black	Ground

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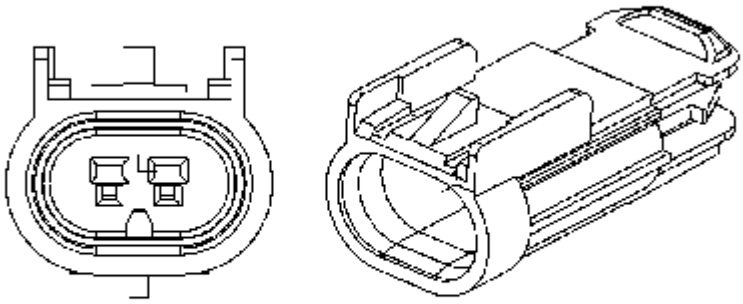
H03 Location Overview

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Group 40IA - Back-Up Alarm (SE13A)

H06 Back-Up Alarm



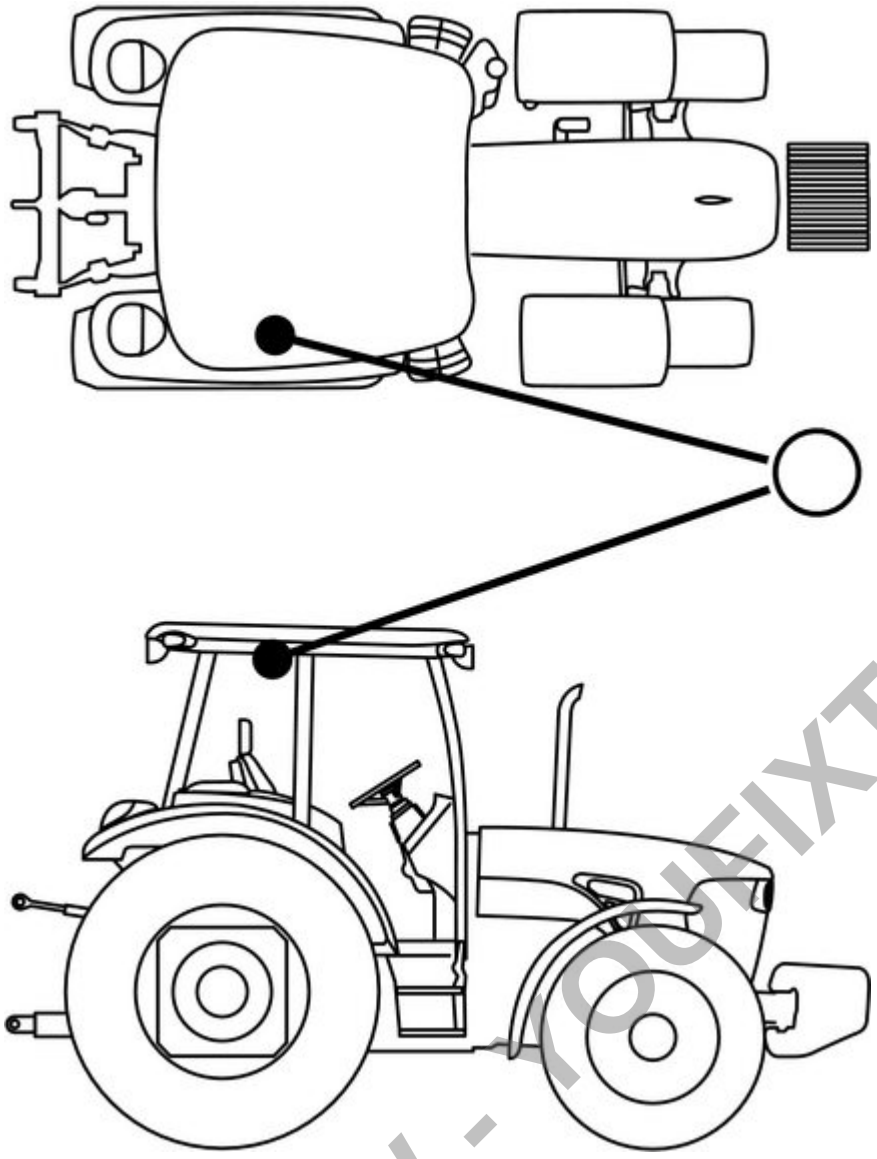
H06 Connector - 15326806

H06 Layout

H06 Back-Up Alarm			
Schematic Section:	Back-Up Alarm Schematic and Circuit Diagram (SE13A)		
Wiring Harnesses:	W308 Chassis Harness (OOS, PR) W575 Transmission Harness (PR) W576 Transmission Harness (PR, Secondary Brake)		
Terminal	**Circuit Number**	**Wire Color**	**Circuit Function**
A	6511	Brown	12 V Input
B	0110	Black	12 V Output

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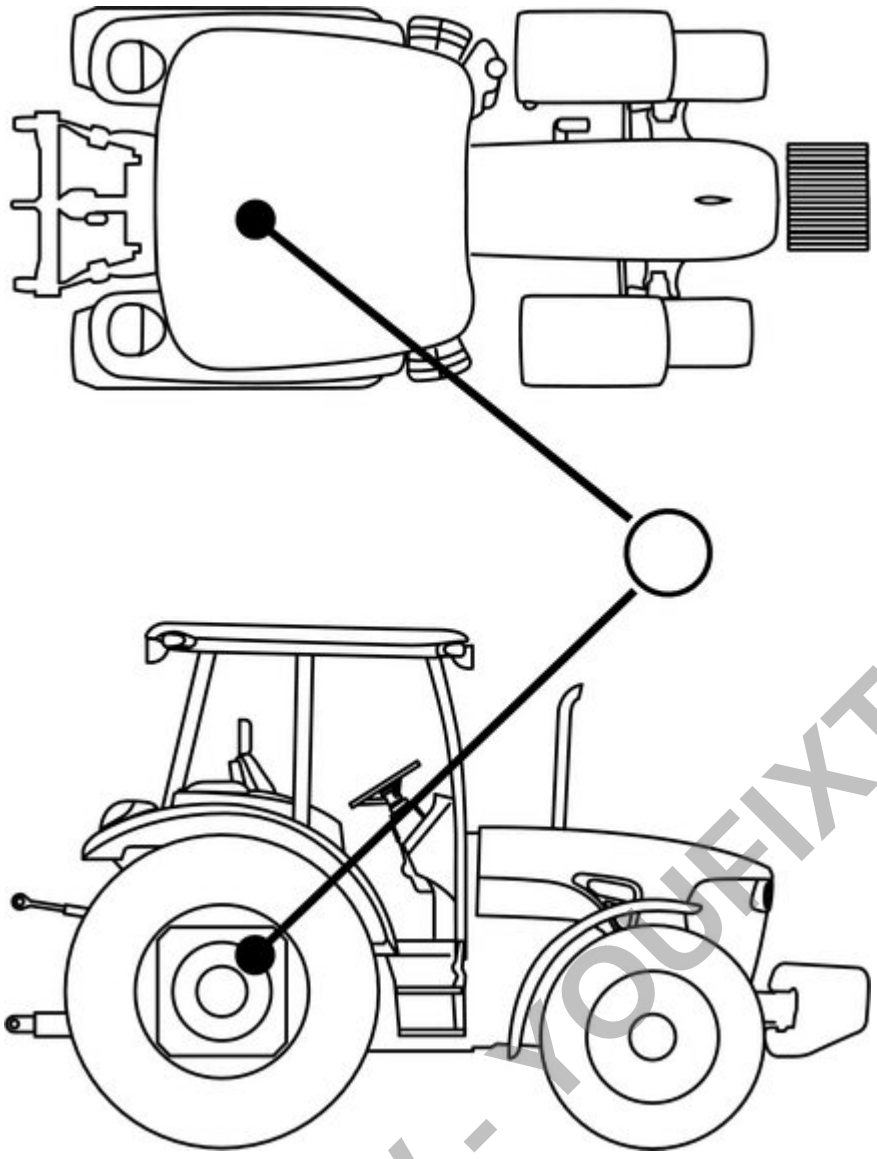
E18 Location Overview



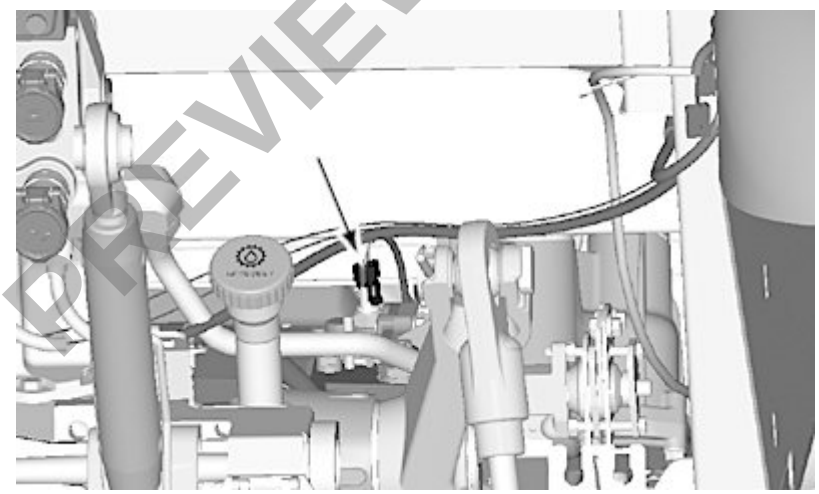
E18 Location

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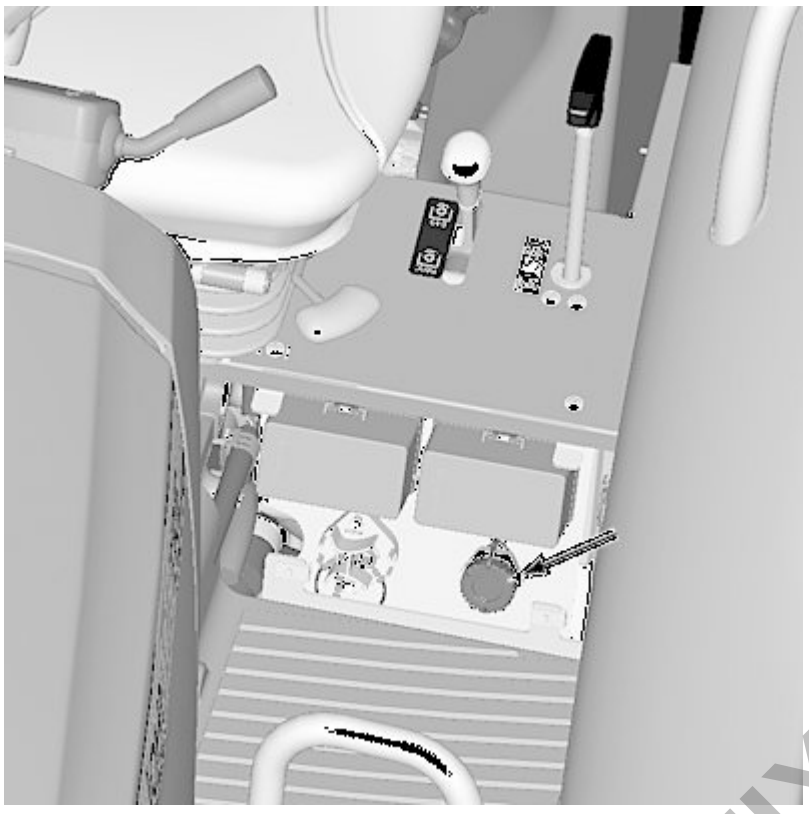
S18 Location Overview



S18 Location

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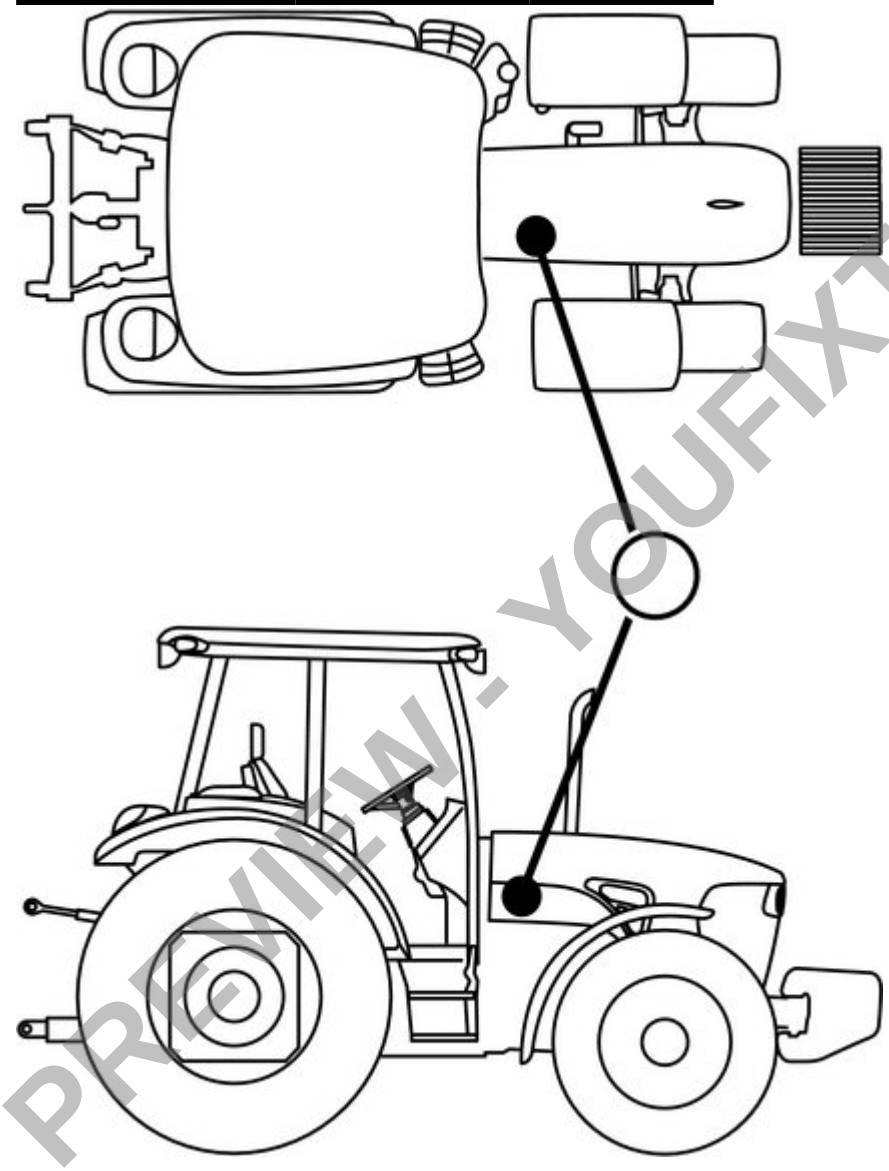
X10 Location (OOS)

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X103 Layout

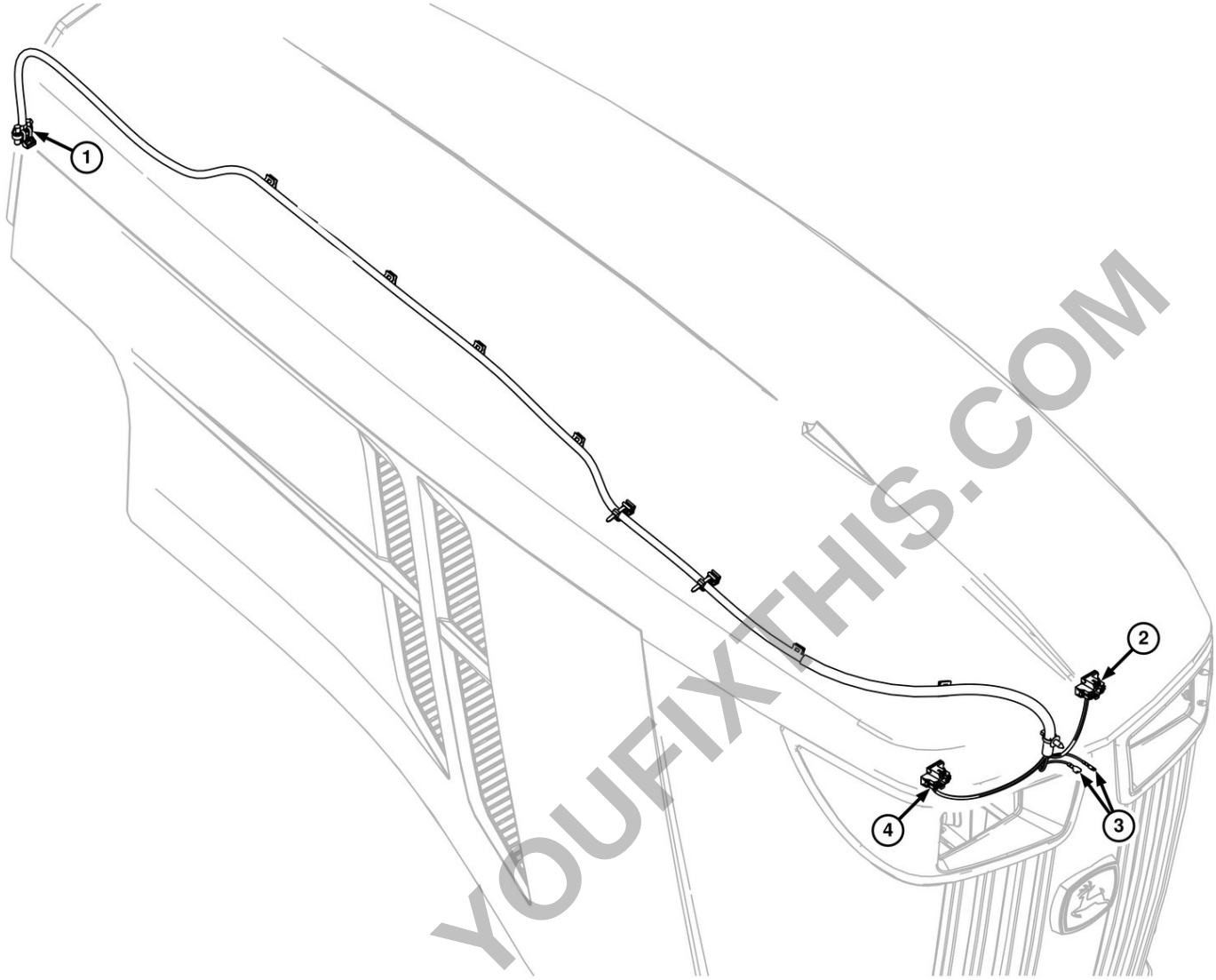
X103 Loader Light Switch to Hood Harness Connector		
Wiring Harnesses:	W103 Loader Light Switch Harness	
Terminal	**Circuit Number**	**Wire Color**
A	134	Yellow
B	139	White
C	010	Black
D	903	Orange



X103 Location Overview

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W100 Hood Harness

LEGEND:

1 X104_1 Hood Harness
2 E02 Left Front High/Low Beam HeadlightorE02 Left Front High/Low Beam Headlight (with License and Clearance Lights)
3 H01 Horn
4 E01 Right Front High/Low Beam HeadlightorE01 Right Front High/Low Beam Headlight (with License and Clearance Lights)

W101 Left Loader Light Harness

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(1) Operational Check

Action:

1. PlaceS06 Light Switchin ROAD position.
2. PlaceS45 HI/LO Headlight Switchin LOW position.
3. Verify right and left low beam headlights are illuminated.
4. Verify Instrument Control Cluster (ICC) and radio backlighting is illuminated.
5. Place HI/LO headlight switch in HIGH position.
6. Verify right and left high beam headlights are illuminated.
7. Verify high beam indicator on ICC is illuminated.
8. Place S06 Light Switch in WORK position and verify headlight lights are illuminated.

Result:

YES: All checks are good. Check is complete.

NO: Both low and high beam headlights do not illuminate.GO TO 2.

NO: Low beam headlights illuminate, but high beam headlights and high beam indicator on ICC do not illuminate.GO TO 5.

NO: High beam headlights illuminate, but low beam headlights do not illuminate.GO TO 5.

NO: Headlights are illuminated when light switch is in ROAD position, but headlights do not illuminate when light switch is in WORK position, or vice versa.GO TO 6.

NO: All headlights illuminate, but ICC, radio, or right hand console light (cab) do not illuminate. Repair circuit 1109 between terminal 2 of V01 Diode Block and corresponding component as necessary.Repeat this check.

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Action:

→NOTE:

Circuits 1115 and 0010 are identified as circuits 115 and 010 in the W924 Roof Harness and circuits 107 and 310 in the W118 Right-Hand Handrail Light Harness.

1. Key switch OFF.
2. PlaceS43 Turn Signal Switch (with License and Clearance Lights)in RIGHT TURN position.
3. Use digital multimeter to check for pulsing battery voltage of malfunctioning light at:
   - Terminal A ofH02 Right Tail/Turn Light (with License and Clearance Lights).
   - Terminal B ofH16 Right Front Clearance/Turn/Warning Light (with License and Clearance Lights).
   - Terminal 4 ofX01_1 Trailer Connector (with Implement Flood Light Connector).
4. Use digital multimeter to check for continuity to ground of the malfunctioning light at:
   - Terminal D of H02 Right Tail/Turn Light.
   - Terminal C of H16 Right Front Clearance/Turn/Warning Light.
   - Terminal 3 of X01_1 Trailer Connector (with Implement Flood Light Connector).

Result:

YES: All checks are good. Replace light bulb of malfunctioning light.GO TO 1.

NO: No or low voltage pulsing at terminal B of H16. Check circuit 1115 between terminal 87 of K03 relay and terminal B of H16 for open, short, or high resistance. Check connectors X918 and X126 for damage or corrosion. Repair as necessary.GO TO 1.

NO: No or low voltage pulsing at terminal A of H02. Check circuit 1115 between terminal 87 of K03 relay and terminal A of H02 for open, short, or high resistance. Repair as necessary.GO TO 1.

NO: No continuity to ground at terminal C of H16, terminal D of H02, or terminal 3 of X01_1. Repair circuit 0010 as necessary.GO TO 1.

NO: No or low voltage pulsing at terminal 4 of X01_1 Outlet Trailer Connector. Check circuit 1115 between terminal 87 of K03 relay and terminal 4 of X01_1 connector for open, short, or high resistance. Check connector X130 for damage or corrosion. Repair as necessary.GO TO 1.

NO: Right turn indicator on ICC does not flash. Disconnect ICC connector A01X2 and check for pulsing voltage at terminal D of connector. If no pulsing voltage, check circuit 1115 between terminal 87 of K03 relay and terminal D of A01X2 connector for open, short, or high resistance. Check connector X141 for damage or corrosion. Repair as necessary.GO TO 1.

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(7) M08 Rear Washer Pump Circuit Check

Action:

1. Key switch OFF.
2. Access and disconnect M08 Rear Washer Pump .
3. Place key switch in RUN position (engine OFF).
4. PlaceS11 Rear Wiper Switchin WASH position.
5. Use digital multimeter to check for battery voltage on terminal A of M08 rear washer pump connector.
6. Use digital multimeter to check continuity to ground at terminal B of M08 rear washer pump connector.

Result:

YES: All checks are good. Replace M08 rear washer pump.GO TO 1.

NO: No or low voltage on terminal A. Repair circuit 2229 between M08 rear washer pump and S11 rear wiper switch as necessary. Check connector X918 or X919 for damage or corrosion. Repair as necessary.GO TO 1.

NO: No continuity to ground at terminal B. Repair circuit 0010 as necessary.GO TO 1.

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(3) Switch Continuity Check

Action:

1. Key switch OFF.
2. Access and remove S14 Forward Neutral Reverse (FNR) Switch .
3. Use digital multimeter to check switch operation using the following table:

S14 Forward Neutral Reverse (FNR) Switch Continuity Check

S14 Forward Neutral Reverse (FNR) Switch Continuity Check	
Switch Position	**Terminal Continuity**
FORWARD	Terminals D and B
NEUTRAL	Terminals D and C
REVERSE	Terminals D and A

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6. Upload the software payloads to the vehicle control units one at a time.
7. Configure the control unit diagnostic addresses according to the options on the vehicle.

   →NOTE: When control units are reprogrammed, new addresses may be made available; such addresses may be altered. Options are learned through the returned file to SDS. If an option is set through software download and the corresponding hardware is not on the vehicle, there could be an error code generated. Conversely, if hardware has been installed and software was not configured for it, the optional hardware would not work. Also, there may not be any error codes.

8. Turn key switch to OFF position for at least 30 seconds.
9. Turn key switch to START position (engine ON), run vehicle in park, at low idle.

   →NOTE: Programing may generate diagnostic trouble codes which must be cleared.

10. Calibrate the control units as necessary.
11. Confirm vehicle operation.
12. Repeat steps 1 through 12 for the next control unit.

Result:

YES: Programming complete

NO: Reconnect, check power, and conduct procedure again.

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EIC 180 — Field Cruise On/Off Input Address

→NOTE:

See Access Control Unit Addresses .

Address turns on/off field cruise check box on the engine page.

(1) Address Description

Action:

1. Place Key in RUN position (engine OFF).
2. Verify display meets specification:

Item	Measurement	Specification
EIC Address 180		
Field Cruise On/Off	Not Active	0
	Active	1

Result:

YES: Return to diagnosis.

EIC 181 — Field Cruise Engine Speed Limit Input Address

→NOTE:

See Access Control Unit Addresses .

Address adjusts the field cruise speed on the engine page.

→NOTE:

Actual range of engine speeds depends on the vehicle platform.

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Group 10AA - Calibrations, Preliminary Checks and Operational Checks

John Deere Drive Systems and Transmission Calibrations, Preliminary Checks and Operational Checks—Use Component Technical Manual



Component Technical Manual (CTM)

For complete calibrations, preliminary checks and operational checks information, use the relevant component technical manual (CTM) in conjunction with this machine manual.

- PowrReverser ™ Transmission - John Deere™ Pune Works(Sr. No.PY1068XXXXXXX, LV12363, LV12364, PY10953, LV12781 and PY10952)

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Steering - Cooler Flow Test

Reference

(1) Install Test Equipment

Action:

1. Perform Install Test Equipment 60-9 .
2. Heat hydraulic oil to 38 °C (100 °F). See Hydraulics - Heating Hydraulic Oil .

Result:

YES:GO TO 2.

(2) Cooler Flow Check

Action:

1. Open flow meter control valve completely.
2. Start engine and set speed to 1000 rpm.
3. Adjust flow meter control valve to maintain 1000 kPa (10 bar) (145 psi) and record flow.
4. Open flow meter valve completely.
5. Increase engine speed to 1500 rpm.
6. Adjust flow meter control valve to maintain 1000 kPa (10 bar) (145 psi) and record flow.
7. Open flow meter valve completely.
8. Increase engine speed to 2000 rpm.
9. Adjust flow meter control valve to maintain 1000 kPa (10 bar) (145 psi) and record flow.
10. Open flow meter valve completely and shut off engine.
11. Compare recorded pump flow to specification.**Cooler flow with flowmeter installed in place of cooler.**

Minimum pump flows at 38 °C (100 °F)

Minimum Steering Pump Flows at 38 °C (100 °F)		
1000 rpm	1500 rpm	2000 rpm
10.1 lpm (2.7 gpm)	15.9 lpm (4.2 gpm)	21.6 lpm (5.7 gpm)

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G14 Deluxe Triple Rear SCV Assembly
V51 SCV Priority Valve
V53 Rear SCV I Spool Valve
V54 Rear SCV II Spool Valve
V55 Rear SCV III Spool Valve
1 Sump Passage
2 Inlet Passages
3 Return Pressure Passage
4 Retract Port
5 Pressure Inlet Passage
6 Extend Port
7 System Neutral Flow
8 Trapped Oil
9 Return Oil
10 System Pressure Oil
11 SCV I Retract Port
12 SCV I Extend Port
13 SCV II Retract Port
14 SCV II Extend Port
15 SCV III Retract Port
16 SCV III Extend Port

Triple rear SCV operation is the same as dual rear SCV, seeHydraulics - Dual Rear SCV Neutral Operation.

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(6) Engine Temperature Check

Action:

Allow time for engine coolant to rise to a normal operating temperature.

→NOTE:

Engine should reach operating temperature in 15—20 minutes.

Result:

YES: Coolant in normal operating range.GO TO 7.

NO: Engine will not reach normal operating temperature.Return to diagnosis.

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