Group SE06A—SE06A — CLC Control Unit and TEC Control Unit
Group SE06B—SE06B — CLC - North American Lighting
Group SE06C—SE06C — CLC - European Lighting
Group SE07—SE07 — Accessory Connectors
Group SE08—SE08 — Controller Area Network (CAN) Termination
Group SE09—SE09 — Corner Post Display, ICU, SUP
Group SE10—SE10 — Cab Controller (CAB, ASU, & ACU/HCU [AQ+/PQ+ Only])
Group SE10A—SE10A — CAB Control Unit Common Functions
Group SE10B—SE10B — CAB - AutoPowr™/IVT™ and PowrQuad PLUS™/AutoQuad PLUS™ Functions
Group SE10C—SE10C — CAB - Functions of ACU (AQ+/PQ+ Only)
Group SE10D—SE10D — CAB - Rear Hitch Control Unit (HCU) Functions (PowrQuad PLUS/AutoQuad PLUS Only)
Group SE10E—SE10E — CAB - ActiveSeat™ Control Unit (ASU) Functions
Group SE11—SE 11 - Vehicle Control Unit (CCU, VLC, PTI/PTQ)
Group SE11A—SE11A — PTI/PTQ - Chassis Control Unit (CCU) Functions
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Group SE11C—SE11C — PTI
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Group SE13—SE13 — ACU
Group SE14—SE14 - Deluxe Hydraulic Control Unit (HCU, SCU, SFA, BRC)
Group SE14A—SE14A — HCU
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Group SE14D—SE14D — Brake System Control Unit (BRC)
Group SE15—SE15 — SCO
Group SE16—SE16 — Engine Control Unit (ECU) Level 14
Group SE17—SE17 — JDLink™
Group SE18—SE18 — GreenStar™ Display, Receiver, & Processor
Group SE19—SE19 — Power Take-Off Front Control Unit (PTF)
Group SE20—SE20 — SSU

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Group 05—General References
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Group ASU—ASU
Group ATC—ATC
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Group ICU—ICU
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Group SCO—SCO
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Group SFA—SFA
Group SSU—SSU
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Group VLC—VLC

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Group 05—AutoPowr™ / IVT™ Transmission

Section 255—PowrQuad PLUS™ AND AutoQuad PLUS™ TRANSMISSION
Group 05—PowrQuad PLUS™ and AutoQuad PLUS™ Transmission

Section 256—Drive Systems
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Section 260—STEERING AND BRAKES
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Section 299—SERVICE TOOLS
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4 System Check	No system checks required.	**OK:** GO TO 5.

HP51992,00004CC -19-06DEC05-6/8

5 Electrical Circuit Check	**AutoPowr™/IVT™** Perform ”ACU-IMS Sequence Switch Circuit Test (AutoPowr™/IVT™)”. **PowrQuad PLUS™/AutoQuad PLUS™** Perform ”ACU-IMS Sequence Switch Circuit Test (PowrQuad PLUS™/AutoQuad PLUS™)”.	**OK:** GO TO 6. **NOT OK:** Problem identified: Repair as necessary. GO TO 2.

HP51992,00004CC -19-06DEC05-7/8

6 Additional Checks and Intermittent Failure Evaluation	This step is a guideline for troubleshooting problems that still exist after standard diagnostics have been performed. These problems are due to: 1. Specific operating conditions. 2. Harness, connector or terminal problems. 3. Intermittent failures. Perform ”Troubleshooting Unresolved Electrical/Electronic Problems”, which will provide guide lines and a checklist for isolating the problem.	**OK:** GO TO 2. **NOT OK:** Problem identified. Repair as needed. GO TO 2. **NOT OK:** Problem not identified. Perform ”Armrest Control Unit Test”. GO TO 2.

HP51992,00004CC -19-06DEC05-8/8

ACU 523969.11 — Upshift/Downshift Switch Conflict

Both Upshift and Downshift buttons are pressed at the same time.

JH22292,0000004 -19-01OCT07-1/8

Code Diagnosis

Alarm Level: *Information*

Displayed Text: *Operator Controls*

Control Unit Response: *Function Disabled*

Required Tools:

JDG1478 — Digital Multimeter

JT07328 — Terminal Test Kit

See Section 299, Group 10 for tool listings.

Continued on next page

JH22292,0000004 -19-01OCT07-2/8

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Code Diagnosis

Alarm Level: *Service Alert*

Displayed Text: *Secondary Handbrake System*

Control Unit Response: *Limited Function*

The Following Tools May Be Required for Proper Diagnosis:

JDG1478 —Digital Multimeter.

JT07328 — Terminal Test Kit

See Section 299, Group 10 for tool listings.

HP51992,000012A -19-31JAN06-2/8

1 Preliminary Checks

1. Place key switch in RUN position (engine OFF).
2. Access BRC Address 006.
3. Verify that the display at BRC Address 006 meets the following specification:

BRC Address 006—Specification

Secondary Handbrake Pressure Sensor Voltage—Secondary Handbrake Pressure Sensor Voltage (Low Range)	0.20 volts
Secondary Handbrake Pressure Sensor Voltage (High Range)	4.50 volts

OK: GO TO 2.

NOT OK: Perform "BRC-Secondary Handbrake Pressure Sensor Circuit Test".

GO TO 2.

HP51992,000012A -19-31JAN06-3/8

2 Verify Code

Recall, record and clear codes.

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

If not using ServiceAdvisor™ or if unable to make a connection: See "Recall, Record and Clear Codes" for the on-board display procedure.

Recall codes and check for return of this code.

OK: Code does not return.

GO TO 3.

NOT OK: Code returns.

GO TO 4.

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HP51992,000012A -19-31JAN06-4/8

3 Code Operational Checks

1. Start vehicle.
2. Operate secondary handbrake through full range.
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).

OK: Code does not return. Diagnosis complete.

NOT OK: Code returns.

GO TO 4.

Continued on next page

HP51992,000012A -19-31JAN06-5/8

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2 Verify Code	Recall, Record, and Clear Codes. If using ServiceAdvisor™: This procedure can be performed by making a connection to the vehicle and using the "Diagnostics" tab to view and clear codes. If not using ServiceAdvisor™ or if unable to make a connection: See Recall, Record, and Clear Codes for the on-board display procedure. Recall codes again and check for return of this code.	**OK:** Code does not return. GO TO 3. **NOT OK:** Code returns. GO TO 4.

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MB33986,00001F6 -19-13FEB06-4/8

3 Code Operational Checks	1. Turn key switch to RUN position (engine OFF). 2. 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).*	**OK:** Code does not return. Diagnosis complete. **NOT OK:** Code returns. GO TO 4.

MB33986,00001F6 -19-13FEB06-5/8

4 System Checks	No system checks required.	**OK:** GO TO 5.

MB33986,00001F6 -19-13FEB06-6/8

5 Electrical Circuit Checks	Perform Cab Load Center (CLC) Control Unit Sensor Supply Voltage Circuit Test.	**OK:** GO TO 6. **NOT OK:** Repair as needed. GO TO 2.

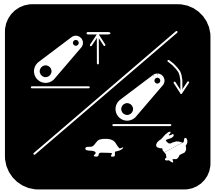
MB33986,00001F6 -19-13FEB06-7/8

6 Additional Checks and Intermittent Failure Evaluation	This step is a guideline for troubleshooting problems that still exist after standard diagnostics have been performed. These problems are typically due to: • Specific operating conditions • Harness, connector, or terminal problems • Intermittent failures Perform Troubleshooting Unresolved Electrical/Electronic Problems, which provides guide lines and a checklist for isolating the problem.	**OK:** GO TO 2. **NOT OK:** Problem identified. Repair as needed. GO TO 2. **NOT OK:** Problem not identified. Perform Cab Load Center Control Unit (CLC & TEC) Test.

MB33986,00001F6 -19-13FEB06-8/8

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1 Preliminary Checks	1. Start engine.  RXA0066171 —UN—14MAR03 *Height / Rate Button* 2. Depress Hitch Height / Rate Button on CommandCenter™ twice. 3. Use the Command Dial on CommandCenter™ to set hitch rate of drop to ”5” (max speed). 4. Depress CommandCenter™ Select Switch to save rate of drop setting. 5. Depress Hitch Height / Rate Button on CommandCenter™ once. 6. Use the Command Dial on CommandCenter™ to set hitch raise limit to highest setting. 7. Depress CommandCenter™ Select Switch to save hitch raise limit setting 8. Fully lower the rear hitch. 9. Return the Rear Hitch Control Lever to Neutral position. 10. Access HCU Address 017. 11. Verify that the display at HCU Address 017 meets the following specification: **HCU Address 017—Specification** Rear Hitch Solenoid Current Command—Neutral Position.....0 mA 12. Slowly cycle the Rear Hitch Control Lever to the Full Rearward position. Verify that the display at HCU Address 017 ramps up to meet the following specification: **HCU Address 017—Specification** Rear Hitch Raise Solenoid Current Command—Raise Commanded.....500 to 1500 mA 13. Return the Rear Hitch Control Lever to the Neutral position. Verify that the display at HCU Address 017 meets the following specification: **HCU Address 017—Specification** Rear Hitch Solenoid Current Command—Raise Commanded.....0 mA 14. Slowly cycle the Rear Hitch Control Lever to the Full Forward position. Verify that the display at HCU Address 017 ramps up to meet the following specification: **HCU Address 017—Specification** Rear Hitch Lower Solenoid Current Command—Raise Commanded..... -500 to -1500 mA	**OK:** GO TO 2. **NOT OK:** Current display does not meet specification. GO TO 4

Continued on next page

DP51502,000018C -19-06MAR06-3/8

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PTI 524234.02 — Clutch Enable Pressure Incorrect

Code Caused By: Clutch Enable Pressure Sensor circuit reading does not agree with other on-board pressure sensors for longer than 15 sec.

DP51502,00000E5 -19-16MAR06-1/8

Code Diagnosis

Alarm Level: *Information*

Displayed Text: *Transmission system*

Control Unit Response: *Limited Function*

Required Tools:

JDG1478 —Digital Multimeter

JT07328 — Terminal Test Kit

See Section 299, Group 10 for tool listings.

DP51502,00000E5 -19-16MAR06-2/8

1 Preliminary Checks	Check to make sure clutch enable pressure sensor connector (B670) is securely plugged in.	**OK:** GO TO 2.

DP51502,00000E5 -19-16MAR06-3/8

2 Verify Code	Recall, record and clear codes. If using ServiceAdvisor™: This procedure can be performed by making a connection to the vehicle and using the ”Diagnostics” tab to view and clear codes. If not using ServiceAdvisor™ or if unable to make a connection: See ”Recall, Record, and Clear Codes” for the on-board display procedure. Recall codes again and check for return of this code.	**OK:** Code does not return. GO TO 3. **NOT OK:** Code returns. GO TO 4.

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DP51502,00000E5 -19-16MAR06-4/8

3 Code Operational Checks	1. Place RHR or LHR in PARK position. 2. Start vehicle. *NOTE: Do NOT use Clutch and/or Brake Pedal.* 3. Drive vehicle in forward or reverse. 4. 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).*	**OK:** Code does not return. Diagnosis complete. **NOT OK:** Code returns. GO TO 4.

Continued on next page

DP51502,00000E5 -19-16MAR06-5/8

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1 Preliminary Check

1. Inspect area around 9-pin option jumper on rear of tractor for any visual signs of damage or accumulated debris.
   Correct any problems found.
2. Access SCU Address 021 and verify display meets following specification:

Sensor Voltage—Specification

Supply Voltage—Key switch in RUN position (engine off).....4.75-5.25 V

OK: GO TO 2.

NOT OK: Voltage out of specification.

GO TO 4.

DP51502,000010F -19-14MAR06-3/8

2 Verify Code

Recall, record and clear codes.

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

If not using ServiceAdvisor™ or if unable to make a connection: See ”Recall, Record, and Clear Codes” for the on-board display procedure.

Recall codes again and check for return of this code.

OK: Code does not return.
GO TO 3

NOT OK: Code returns.

GO TO 4.

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DP51502,000010F -19-14MAR06-4/8

3 Code Operational Checks

1. Key switch OFF.
2. Disconnect implement option jumper.
3. Start vehicle.
4. 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).

OK: Code does not return.
Diagnose for implement problem.

Diagnosis complete.

NOT OK: Code returns.
Diagnose for tractor problem.

GO TO 4.

DP51502,000010F -19-14MAR06-5/8

4 System Checks

No system checks required.

OK: GO TO 5.

DP51502,000010F -19-14MAR06-6/8

5 Electrical Circuit Check

Perform ”SCU-Selective Control Unit Sensor Power and Ground Circuit Test”.

OK: GO TO 6.

NOT OK: Repair as needed.

GO TO 2.

Continued on next page

DP51502,000010F -19-14MAR06-7/8

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2 Verify Code	Recall, record and clear codes. If using ServiceAdvisor™: This procedure can be performed by making a connection to the vehicle and using the "Diagnostics" tab to view and clear codes. If not using ServiceAdvisor™ or if unable to make a connection: See "Recall, Record, and Clear Codes" for the on-board display procedure. Recall codes again and check for return of this code.	**OK:** Code does not return. GO TO 3. **NOT OK:** Code returns. GO TO 4.

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MB33986,00001C3 -19-28FEB06-4/8

3 Code Operational Checks	1. Turn key switch to OFF position. 2. Disconnect the Wheel Angle Sensor. 3. Turn key switch to RUN position (engine OFF). 4. 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).*	**OK:** Code does not return. Diagnosis complete. **NOT OK:** Code returns. GO TO 4.

MB33986,00001C3 -19-28FEB06-5/8

4 System Checks	No system checks required.	**OK:** GO TO 5.

MB33986,00001C3 -19-28FEB06-6/8

5 Electrical Circuit Check	Perform SSU-Wheel Angle Sensor Circuit Test.	**OK:** GO TO 6. **NOT OK:** Repair as needed. GO TO 2.

MB33986,00001C3 -19-28FEB06-7/8

6 Additional Checks and Intermittent Failure Evaluation	This step is a guideline for troubleshooting problems that still exist after standard diagnostics have been performed. These problems are typically due to: • Specific operating conditions • Harness, connector, or terminal problems • Intermittent failures Perform "Troubleshooting Unresolved Electrical/Electronic Problems", which provides guide lines and a checklist for isolating the problem.	**OK:** GO TO 2. **NOT OK:** Problem identified. Repair as needed. GO TO 2. **NOT OK:** Problem not identified. Perform "Steering System Control Unit (SSU) Test".

MB33986,00001C3 -19-28FEB06-8/8

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Heated Seat System Diagnostics

Information for diagnosing heat seat system problems.

NOTE: Service code diagnosis may resolve observable symptoms and must be performed first. Consult with customer for resolution of unrelated codes.

Recommended Diagnostic Procedures

NOTE: The heated seat switch, (S943) has an light emitting diode (LED). The LED indicates diagnostic action for circuitry between the control unit, the switch, and the heating elements. Flashing OFF more than ON means the heating sensor in the seat cushion heating element is not functioning. Flashing ON more than OFF, when key on, means the heating elements are not powered, (open circuit). Flashing ON more than OFF, when key off, means the heating elements are incorrectly powered, (short circuit).

NOTE: The power must be disconnected from the heated seat control unit to reset the system and clear flashing fault signals. If heated seat system is connected to ignition switch power, turn ignition off to reset. If heated seat system is connected to non-switched power source, disconnect power harness to reset.

1. Heated Seat Supply Voltage and Ground Circuit Test
2. Heated Seat Heating Element Circuit Test
3. Heated Seat Switch Circuit Test

MB33986,0000660 -19-11SEP06-1/1

High-Low Beam Head Light Switch Circuit Diagnostics

Information for diagnosing High-Low Beam Head Light Switch Circuit problems

NOTE: Service code diagnosis may resolve observable symptoms and must be performed first. Consult with customer for resolution of unrelated codes.

Recommended Diagnostic Procedures

1. Steering Column Module-High/Low Beam Light Switch Circuit Test
2. Steering Column Module Circuit Test (SE05)

MB33986,000028D -19-11APR06-1/1

Horn Switch Circuit Diagnostics

Information for diagnosing Horn Switch Circuit problems

NOTE: Service code diagnosis may resolve observable symptoms and must be performed first. Consult with customer for resolution of unrelated codes.

Recommended Diagnostic Procedures

1. Steering Column Module-Horn Switch Circuit Test
2. Steering Column Module Circuit Test (SE05)

MB33986,0000290 -19-11APR06-1/1

Left Door Switch Circuit Diagnostics

Information for diagnosing Left Door Switch Circuit problems

NOTE: Service code diagnosis may resolve observable symptoms and must be performed first. Consult with customer for resolution of unrelated codes.

Recommended Diagnostic Procedures

1. Left Hand Door Switch Circuit Test (SE05)

MB33986,000028A -19-11APR06-1/1

Left Junction Block Circuit Diagnostics

Information for diagnosing Left Junction Block Circuit problems

NOTE: Service code diagnosis may resolve observable symptoms and must be performed first. Consult with customer for resolution of unrelated codes.

Recommended Diagnostic Procedures

1. Left Junction Block Circuit Test

MB33986,0000291 -19-11APR06-1/1

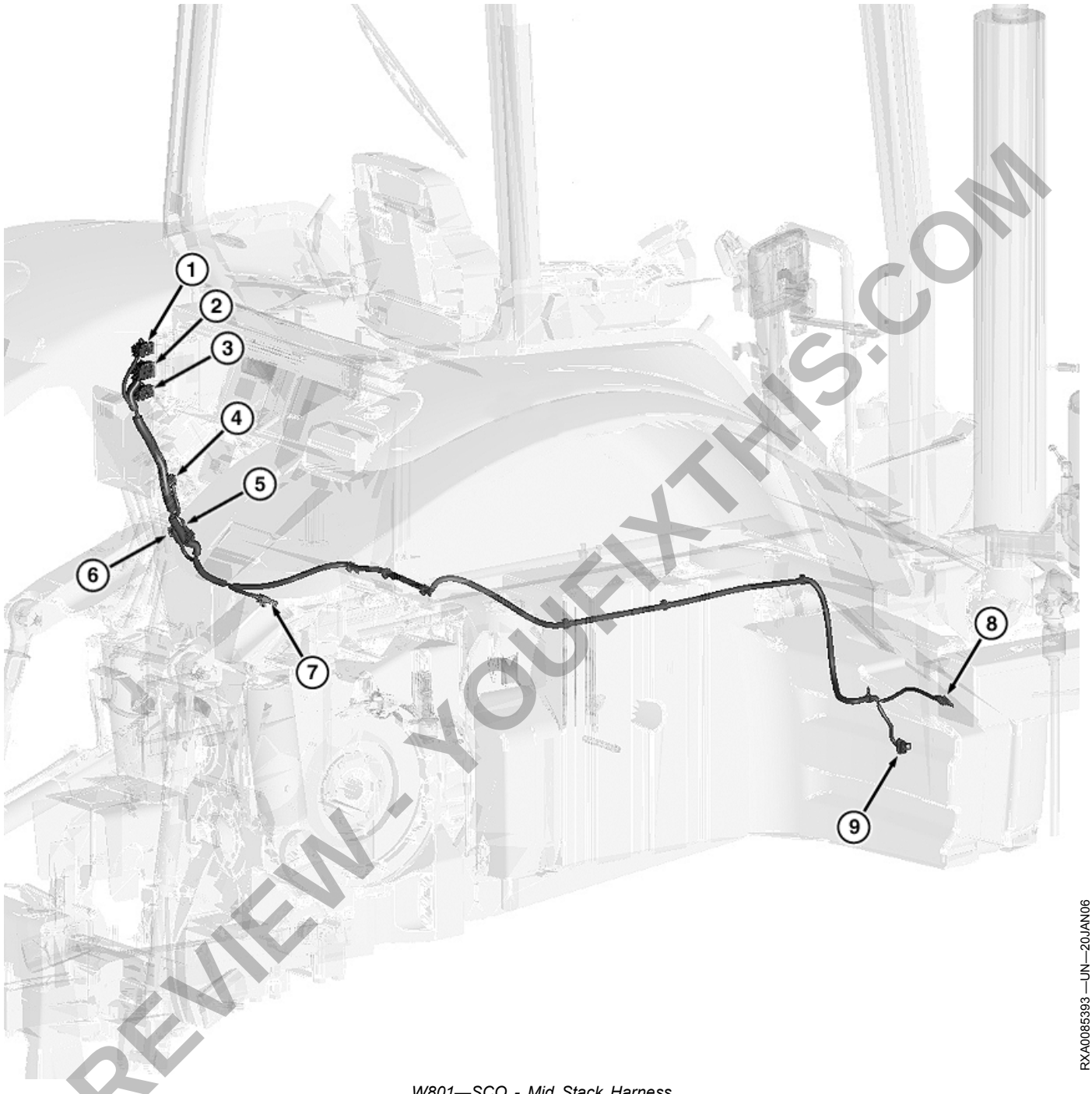
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W801—SCO - Mid Stack Harness



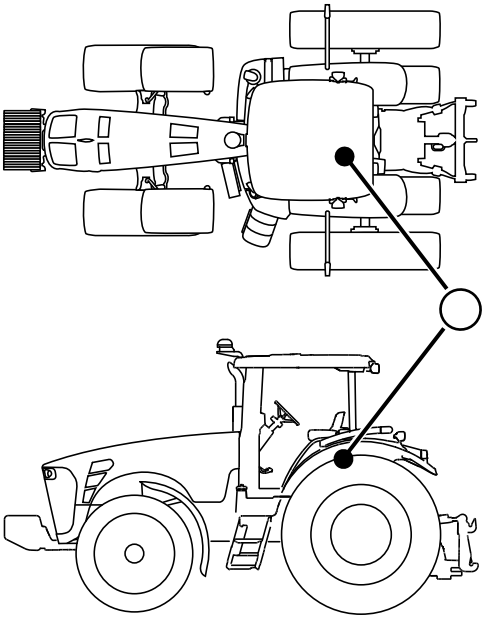
W801—SCO - Mid Stack Harness

1. A772X1 SCO Connector (SE15) (W801)
2. A772X2 SCO Connector (SE15) (W801)
3. A772X3 SCO Connector (SE15) (W801)
4. X770 Chassis to SCO - Mid Stack Harness Interconnect (SE15) (W305, W306, W307, W308, W801)
5. X912A CAN Tractor Passive Terminator Connector (SE8) (W573, W574, W700, W801, W871)
6. X912B CAN Tractor Passive Terminator Interconnect (SE8) (W573, W574, W700, W801, W871)
7. X801 Front External Hitch Switch Extension Harness Interconnect (SE15) (W801, W870, W871)
8. X871 SCO - Mid Stack to Grapple Valve Harness Interconnect (SE15) (W801, W872)
9. X870 SCO - Mid Stack to SCV V/SCV VI Harness Interconnect (SE15) (W801, W876)

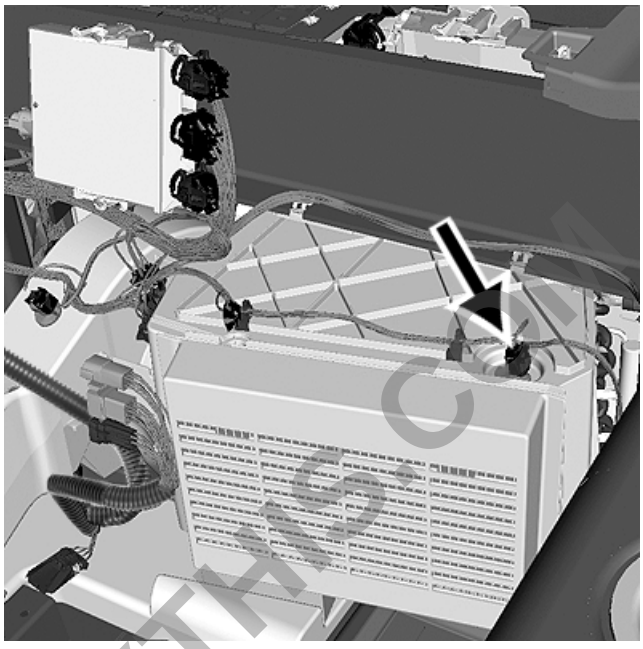
EB80707,0000349 -19-18JAN06-1/1

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RXA0082843 —UN—12AUG05

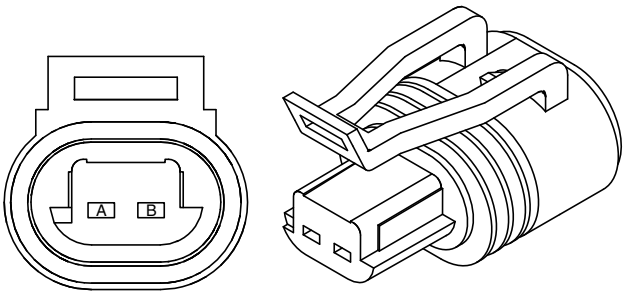
B220—Cab Temperature Sensor Theory Of Operation

The cab temperature sensor (B220) is located on the top of the evaporator core housing. The cab temperature sensor is provided with a 5 V supply voltage from the Automatic Temperature Control Unit (ATC) (A220) via circuit 266 and shares a common single point ground circuit with the outlet air temperature sensor (B223), ambient air temperature sensor (B222) and evaporator temperature sensor (B221) via circuit 050. The cab temperature sensor function is to provide the ATC a cab air temperature reading to allow the ATC to determine heating and cooling needs. The cab temperature input is used to determine the temperature set point by the ATC in conjunction with the outlet air temperature sensor input when in AUTO mode. The difference between the cab temperature sensor input and the temperature set point is the set point error which influences the amount of air flow commanded to heat or cool the cab quickly. The cab air temperature sensor voltage input to the ATC is represented at ATC Address 040.

EB80707,000011E -19-21NOV05-2/2

B221—Evaporator Temperature Sensor (SE3) (W220)

B221—Evaporator Temperature Sensor (SE3)		
2 Terminals		
Terminal	**Circuit Number**	**Wire Color**
A	268	Grey
B	050	Black



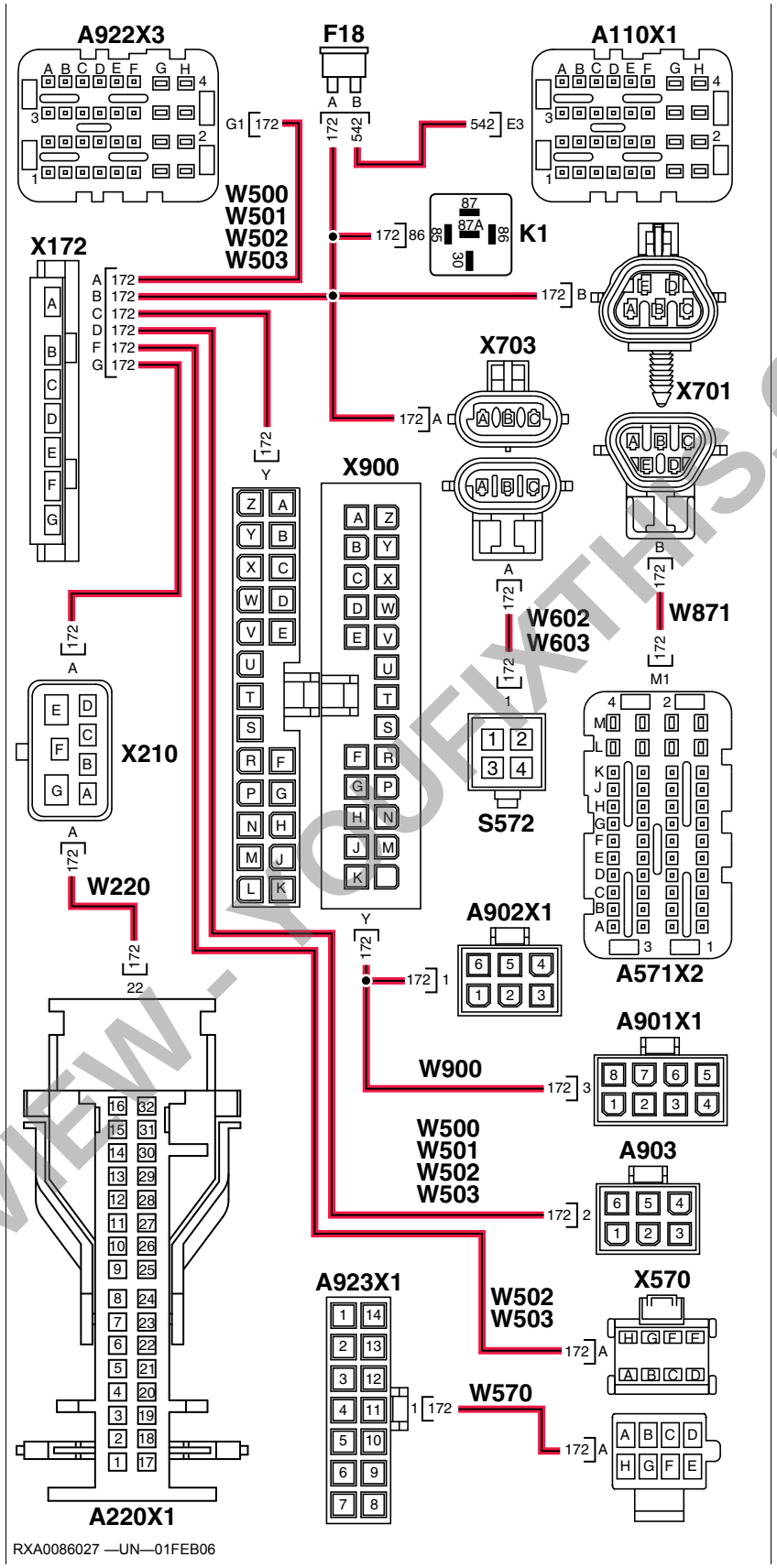
RXA0060712 —UN—30JAN07

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EB80707,000011F -19-21NOV05-1/2

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MB33986,00003B8 -19-28FEB06-5/10

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Test Procedure

NOTE: The following tools may be required for proper diagnosis:

□ *JDG1478 — Digital Multimeter*
□ *JT07328 — Terminal Test Kit*

See Section 299, Group 10 for tool listings.

MB33986,00003C7 -19-26JAN06-2/7

1 Operational Check

1. Turn key switch to RUN position (engine OFF).
2. Access CLC Address 029, Right Tail Lights.
3. Place the road light switch to any position other than exit/egress or off.

   NOTE: Tail lights are not programmable and do not illuminate when light switch in the exit/egress and off positions.

4. Verify that the display at Address 029 meets the following specification and lights illuminate:

CLC Address 029—Specification

Right Tail Lights—Right Tail Light
Command Status..... 0XXXXX.XX = Off
1XXXXX.XX = On
Right Tail Light Current ..... X00000.00 = amps (Low Range)
X00007.00 = amps (High Range)

NOTE: When Right Tail Light status is Off, then Right Tail Light current is 0.00 amps. When Right Tail Light status is On, then Right Tail Light current is somewhere between 0.50 and 7.00 amps.

OK: Address display is within specification and operating normally. Return to diagnosis in progress.

NOT OK: Value at address 029 does not meet specification.

GO TO 2.

MB33986,00003C7 -19-26JAN06-3/7

2 Access Component To Be Tested

Access and disconnect the Right Tail Light connector (see E130 NA Only).

OK: GO TO 3.

MB33986,00003C7 -19-26JAN06-4/7

3 Install Test Equipment

- JDG1478 — Digital Multimeter
- JT07328 — Terminal Test Kit

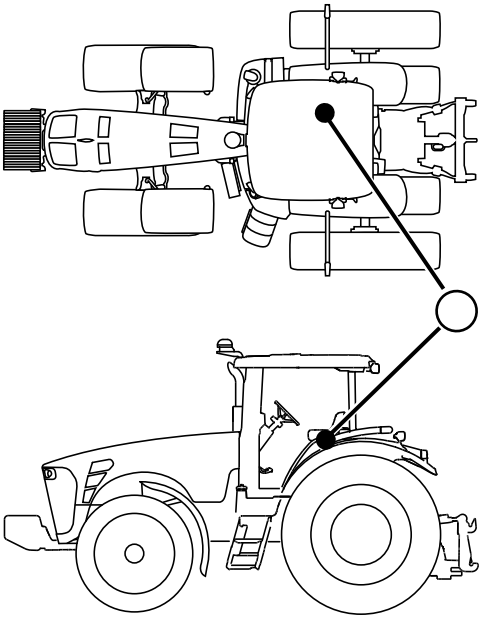
OK: GO TO 4.

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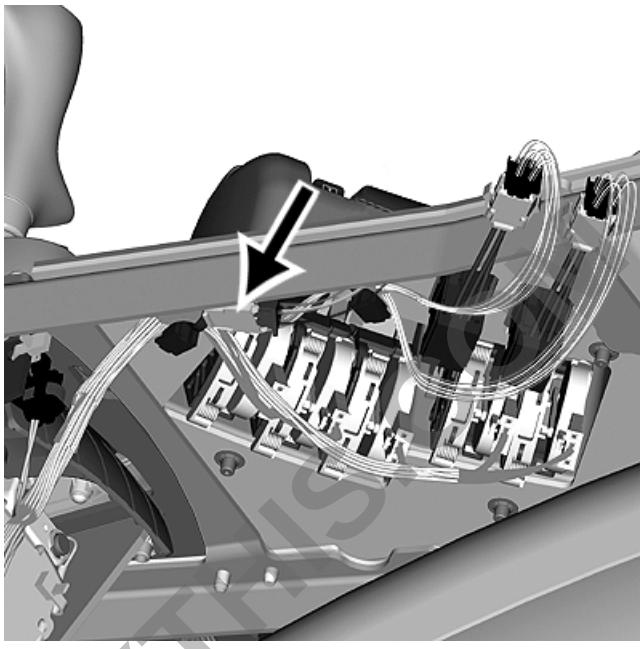
MB33986,00003C7 -19-26JAN06-5/7

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RXA0081504 —UN—20JUN05



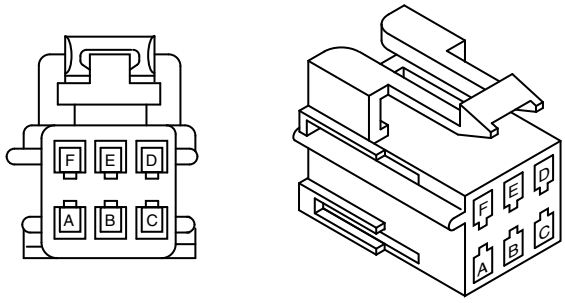
RXA0087115 —UN—13MAR06

The IMS Sequence Switch is located in the right hand console. The function of the switch is to provide the Armrest Control Unit with an operator input that will indicate which stored sequence the operator is commanding the IMS to execute. The IMS Sequence Switch inputs consist of Sequence 1, Sequence 2, and OFF switch positions which are all monitored and displayed at ACU Address 016.

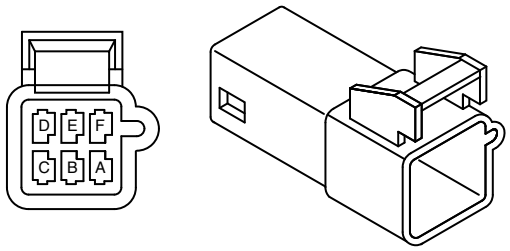
EB80707,000019E -19-15MAY06-2/2

S511 — AutoShift Resume Switch (SE10C) (W500, W501) (PowrQuad PLUS™/AutoQuad PLUS™ Only)

S511 — AutoShift Resume Switch (SE10C)		
6 Terminals		
Terminal	**Circuit Number**	**Wire Color**
A	669	White
B	021	Brown
C	684	Yellow
D	186	Blue
E	021	Brown
F	Not used	—



RXA0085542 —UN—03JAN06



RXA0085541 —UN—03JAN06

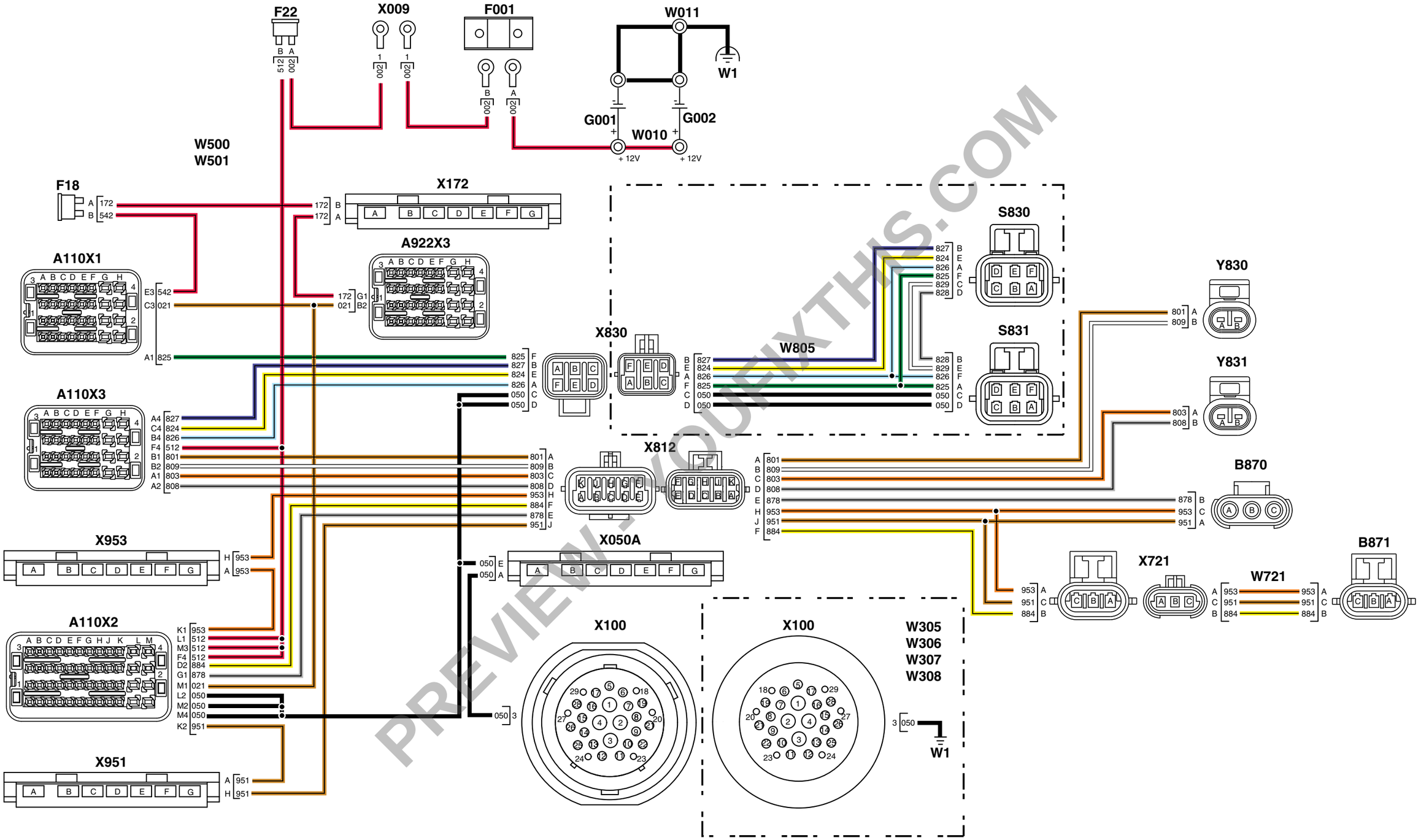
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RXA0086102 —UN—24JAN06



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- A110-4 Hitch Control Unit (HCU) & SCV Control Unit (SCU) Functions (PowrQuad PLUS™/AutoQuad PLUS™ Only) (SE10D)
- A110X1 CAB, ASU Connector (SE10) (W500, W501, W502, W503)
- A110X2 CAB, ASU Connector (SE10) (W500, W501, W502, W503)

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3 Chassis Control Unit, Sensor Supply Voltage Test

1. Turn key switch to OFF position.
2. Locate and disconnect one of the components listed in step 4.
3. Turn key switch to RUN position (engine OFF).
4. Use JDG1478 — Digital Multimeter to check for sensor supply voltage from the vehicle harness terminal of one component to chassis ground.
   - B303 Fuel Level Sensor, terminal B.
   - B307 Air Filter Restriction Sensor, terminal 2
   - B510 Transmission Pump Pressure Sensor, terminal 2
   - B511 Park Brake Pressure Sensor (AutoPowr™/IVT™ Only), terminal 2
   - B526 Diagnostic Pressure Sensor (AutoPowr™/IVT™ Only) , terminal 2
   - B573 Rear PTO Oil Temperature Sensor, terminal A
   - B670 Clutch Enable Pressure Sensor (AutoPowr™/IVT™ Only), terminal 2
   - B671 Enable Pressure Sensor (PowrQuad PLUS™/AutoQuad PLUS™ Only), terminal 2
   - B700 Hydraulic Oil Temperature Sensor, terminal A
5. Repeat step 1 through step 4 for the next component.

Chassis Control Unit Sensor Supply Voltage—Specification

Sensor Supply Voltage—Key switch in RUN position (engine OFF).....4.8-5.2 V

NOTE: Use a chassis ground point rather than the ground circuit at the connector to test for supply voltage. This step of the procedure is only to test the integrity of the supply voltage circuit.

Review Vehicle Control Unit (CCU, VLC, PTI, or PTQ) Schematic and Diagram to diagnose the Chassis Control Unit Sensor Supply Voltage circuit malfunction.

OK: Chassis Control Unit Sensor Supply Voltage OK to all components.

Return to diagnosis in progress.

NOT OK: Repair component(s) circuit 953 as necessary.

GO TO 4.

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4 Chassis Control Unit, Sensor Signal Test

Perform test for component(s) as necessary:

- CCU-Air Filter Restriction Sensor Circuit Test
- Transmission Pump Pressure Sensor
- Park Brake Pressure Sensor
- Diagnostic Pressure Sensor
- CCU-Rear PTO Oil Temperature Sensor Circuit Test
- Clutch Enable Pressure Sensor (AutoPowr™/IVT™ Only)
- Enable Pressure Sensor (PowrQuad PLUS™/AutoQuad PLUS™ Only)

Review Vehicle Control Unit (CCU, VLC, PTI, or PTQ) Schematic and Diagram to diagnose the Chassis Control Unit Sensor Supply Voltage circuit malfunction.

OK: Chassis Control Unit Sensor Signal Voltage OK to all components.

Return to diagnosis in progress.

NOT OK: Replace 5 Volt component that failed test or repair component signal circuit as necessary.

GO TO 5.

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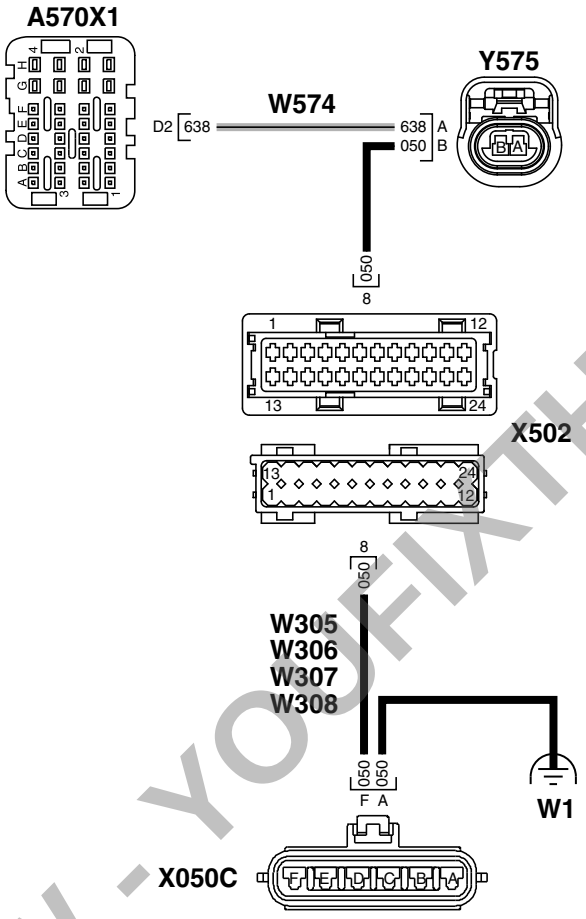
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1 Complete Circuit Resistance Check

Disconnect control unit connector A570X1. Use a JDG1478 —Digital Multimeter to test circuit A570X1 pin D2 to Single Point Ground (W1) of complete Park Brake Solenoid circuit (including coil resistance) to control unit.

Park Brake Solenoid Complete Circuit—Specification

Resistance—Resistance to Control Unit..... 7-12 Ohm



RXA0086255 —UN—01FEB06

Park Brake Supply Solenoid Circuit Wiring Diagram

A570X1—VLC, CCU, PTI or PTQ Connector (SE11) (W573, W574)
W305—Chassis Harness with Manual SCVs
W306—Chassis Harness with Manual SCVs, Front Brake, and ILS™
W307—Chassis Harness with EH SCVs
W308—Chassis Harness with EH SCVs, Front Brake, and ILS™
W574—Transmission Harness (AutoPowr™/IVT™)
W1—Single Point Ground
X050C—Circuit 050 Splice Connector (W305, W306, W307, W308)
X502— Chassis Harness to Transmission Harness (SE11) (W305, W306, W307, W308, W573, W574)
Y575— Park Brake Supply Solenoid (SE11C) (W574) (AutoPowr™/IVT™ Only)

- A570X1 VLC, CCU, PTI or PTQ Connector (SE11) (W573, W574)
- W305 Chassis Harness with Manual SCVs
- W306 Chassis Harness with Manual SCVs, Front Brake, and ILS™
- W307 Chassis Harness with EH SCVs
- W308 Chassis Harness with EH SCVs, Front Brake, and ILS™
- W574 Transmission Harness (AutoPowr™/IVT™)
- W1 Single Point Ground (W011, W013, W305, W306, W307, W308)
- X050C Circuit 050 Splice Connector (W305, W306, W307, W308)

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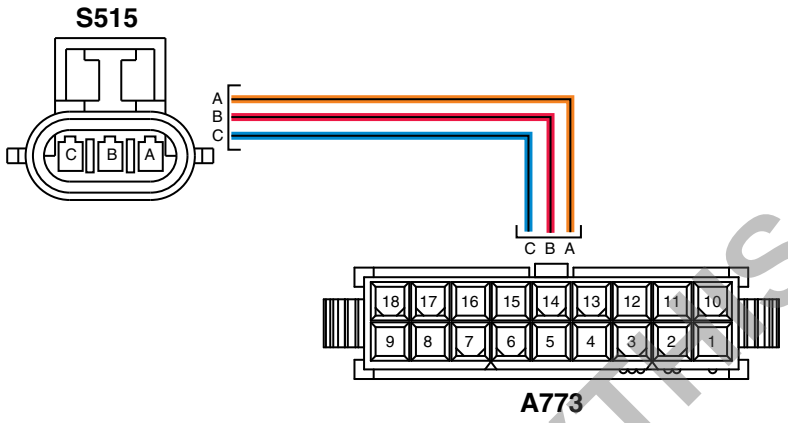
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4 Component Supply Voltage Test

Use a JDG1478 — Digital Multimeter to test for supply voltage on terminal B of Transport Lock switch connector according to the specification below:

Transport Lock Switch—Specification

Supply Voltage—Key Switch in RUN (engine OFF)..... 12.5 — 14.5 V



RXA0088042 —UN—23MAR06

A773— Single Lever Control Assembly (SE13)
S515— Transport Lock Switch (SE13)

- A773 Single Lever Control Assembly (SE13)
- S515 Transport Lock Switch (SE13)

NOTE: Use a chassis ground point rather than the ground circuit at the connector to test for supply voltage. This step of the procedure is only to test the integrity of the supply voltage circuit.

OK: GO TO 5.

NOT OK: Repair red (12 V) power circuit between terminal B and A773 (A923X4) terminal 10.

GO TO 1.

Continued on next page

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6 Component Output Circuit Test

1. Access SCO Address 015. The display should read:

SCO Address 015—Specification

Switch Disconnected—Jumper Not Installed.....0000

2. Use a jumper wire to bridge from terminal E to terminal D of connector. Check the display at SCO Address 015 according to the specification below:

SCO Address 015—Specification

Switch Disconnected—Jumper Installed.....0010

3. Use a jumper wire to bridge from terminal E to terminal F of connector. Check the display at SCO Address 015 according to the specification below:

SCO Address 015—Specification

Switch Disconnected—Jumper Installed.....0001

4. Use a jumper wire to bridge from terminal B to terminal C of connector. Check the display at SCO Address 015 according to the specification below:

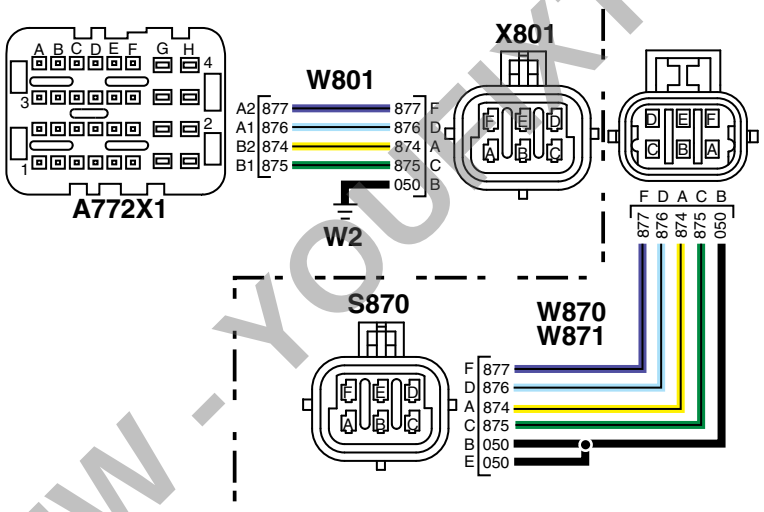
SCO Address 015—Specification

Switch Disconnected—Jumper Installed.....0100

5. Use a jumper wire to bridge from terminal B to terminal A of connector. Check the display at SCO Address 015 according to the specification below:

SCO Address 015—Specification

Switch Disconnected—Jumper Installed.....1000



RXA0086983 —UN—23FEB06

A772X1—SCO Connector (SE15) (W801)
S870— Front Hitch External Raise/Lower Switch (SE15) (W870, W871)
W2—Chassis Ground
W801— SCO - Mid Stack Harness
W870— Front Hitch Switch Extension Harness
W871— PTF - Front PTO/Front Hitch Harness
X801— Front External Hitch Switch Extension Harness Interconnect (SE15) (W801, W870, W871)

- A772X1 SCO Connector (SE15) (W801)
- S870 Front Hitch External Raise/Lower Switch (SE15) (W870, W871)
- W2 Chassis Ground (W013 W305, W306, W307, W308)
- W801 SCO - Mid Stack Harness
- W870 Front Hitch Switch Extension Harness
- W871 PTF - Front PTO/Front Hitch Harness
- X801 Front External Hitch Switch Extension Harness Interconnect (SE15) (W801, W870, W871)

OK: Replace component.

GO TO 1.

NOT OK: Repair ground circuit 050 as needed.

GO TO 1.

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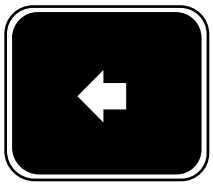
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8 Auto Clear DTC Hours Setting

1. Access ICU Address 070. The display should read:
   ICU.001-T
   Inp:070
   X —Auto Clear DTC Hours Setting.
2. Press the Select Switch to change the value displayed.



RXA0064762 —UN—16JAN03

CommandCenter™ Select Switch

3. Turn the Command Dial to select the desired digit at ICU Address 070.
4. Press the Select Switch to change the desired digit.
5. Turn the Command Dial CW to increase the value, or CCW to decrease the value. Enter one of the following values for the amount of hours between auto purging of DTC's:
   ICU.001-T
   Inp:070
   40 —Hours.
   OR...
   ICU.001-T
   Inp:070
   60 —Hours.
   OR...
   ICU.001-T
   Inp:070
   80 —Hours.
   OR...
   ICU.001-T
   Inp:070
   100 —Hours.
   OR...
   ICU.001-T
   Inp:070
   150 —Hours.
   OR...
   ICU.001-T
   Inp:070
   200 —Hours.
   OR...
   ICU.001-T
   Inp:070
   250 —Hours.
6. Press Select Switch to save the value entered.
7. Turn Command Dial to the Enter icon.
8. Press Select Switch to save value at this address.

OK: GO TO next required configuration/setting.

Continued on next page

RG33894,0000106 -19-19SEP07-15/53

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❷ Operate System Diagnostic "Beep" Mode Supported Controls	Operate the following instrument / device while listening for a warning horn audible signal ("Beep") and an address number to be displayed in the CommandCenter™.	
	• Hazard Light Switch	**OK:** If a "beep" is heard and an address displayed when a instrument / device is operated, diagnosis complete. Return to diagnosis in progress.
	• Key Switch	**NOT OK:** If no "beep" is heard, or no address is displayed when a instrument / device is operated, access the specific address for that instrument / device to check for proper operation. GO TO 3.
	All the same instruments / devices or circuits that support the System Diagnostic "Beep" Mode are also sensing and monitoring circuits that the CAB uses to activate system alert and / or status indicators. Therefore the warning horn audible signal ("Beep") occurs when the same instruments / devices are disconnected and connected to the wiring harness.	**NOT OK:** If a "beep" indicates a harness or connection problem, use a JDG1478 — Digital Multimeter to check harness leads and connector terminals. Repair as needed.

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❸ Access Individual Address, Diagnostic "Beep" Alert	*NOTE: If a certain circuit is creating intermittent problems, the Individual Address Diagnostic "Beep" Alerts can be used to check for intermittent malfunctions in harnesses or connectors. Tugging on or moving connectors and / or harnesses while at the individual address may reveal a poor circuit or connection if the warning horn sounds.* 1. Turn key switch to RUN position (engine off). 2. Access the individual SSU address related to the instrument / device in the table, through the CommandCenter™ display. *NOTE: See Access Control Unit Addresses for instructions.*	**OK:** GO TO 4.

Continued on next page

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4 Hydraulic Oil Condition	Check hydraulic oil condition: • Oil reservoir low? Oil level should be between top and bottom marks on the sight glass. Possible causes: - Improper service interval - External leaks • Oil reservoir high? Possible causes: - Improper fill procedures • Oil milky or dirty? View sight glass. Possible causes: - Water in oil (milky) - Filter plugged (dirty) - Metal particles (mechanical failure) • Oil discolored or has burned odor (overheated oil) Possible causes: - Kinked hoses - Crushed pipes - Plugged oil cooler - Wrong oil viscosity - Internal leaks - Slippage of transmission clutches - Leaking transmission pump suction line	**OK:** GO TO 5. **NOT OK:** Make note to repair. GO TO 5.

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DP51502,000103D -19-21FEB06-6/8

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System Response to a Missing Shuttle Check Valve

1. Hitch Shuttle Check Valve Missing
   a. Hitch operation should be normal because the load sense leak will be through the steering valve 1.5 mm orifice and the load sense circuit will probably be saturated.
   b. There will be no power steering because the signal goes to sump through the hitch load sense bleed passage.
   c. No power brakes (same reason as b).
   d. All SCVs will not operate because the load signal goes to sump through the hitch load sense bleed passage.
   e. Power Beyond will not operate (same reason as b).
2. SCV 1 Shuttle Check Valve Missing
   a. Hitch operation will be normal because the hitch shuttle check valve prevents any further load sense signal leak to sump.
   b. There will be no power steering unless the SCV 1 is operated to block the load sense bleed passage to sump.
   c. No power brakes (same reason as b).
   d. All SCV operation will be near normal because the load sense leak will be through the steering valve 1.5 mm orifice and load sense circuit will probably be saturated. Maximum pressure is limited by the steering load sense relief valve at 18000 kPa (180 bar) (2600 psi).
   e. Power Beyond will operate (same reason as d).
3. SCV 2 Shuttle Check Valve Missing
   a. Hitch operation is normal because shuttle check valve prevents any further load sense signal leak to sump.
   b. Steering operation is normal because SCV 1 shuttle check valve prevents any further load sense signal leak to sump.
   c. Brake operation is normal (same reason as b).
   d. SCV 1 will not operate because load sense signal goes to sump through SCV 2 load sense sump passage.
   e. SCV 2 operation will not operate because load sense signal goes to sump through SCV 1 load sense sump passage.
   f. SCVs 3, 4, and 5 will not operate (same reason as e).
   g. Power Beyond will not operate because load sense signal goes to sump through SCV 2 load sense sump passage.
4. Power Beyond Shuttle Valve Check Missing
   a. Hitch operation will be normal because shuttle check valve prevents any further load sense signal leak to sump.
   b. Steering operation will be normal because SCV 2 shuttle check valve prevents any further load sense signal leak to sump.
   c. Brakes will be normal (same reason as b).
   d. SCV 1 operation will be normal because shuttle check valve prevents any further load sense signal leak to sump.
   e. SCV 2 operation will be normal because the leakage through the 0.8 mm orifice still allows saturation of the load sense circuit.
   f. Power Beyond will not operate because load sense signal goes to sump through SCV load sense bleed next to Power Beyond. If that SCV is put into operation, the Power Beyond operation will be normal.
5. Steering (Brake) Shuttle Check Valve Missing
   a. Hitch operation will be normal because shuttle check valve prevents any further load sense signal leak to sump.
   b. There will be no power steering because the load sense signal is leaking to sump through the brake valve. Steering operation will be normal when brakes are operated.
   c. No power brakes because the load sense signal will leak to sump through the steering valve warm up orifice. Brake operation will be normal if the steering is operated.
   d. All SCV operation will be normal because shuttle check valve prevents any further load sense signal leak to sump. SCV 1 shuttle check valve prevents the load sense signal of all SCVs from mixing with the steering load sense circuit.
   e. Power Beyond operation is normal because the SCV shuttle check valves prevent any further leak to sump. SCV 1 shuttle check valve prevents the load sense signal from the Power Beyond from mixing with the steering load sense circuit.

The examples of missing shuttle check valves are based upon a starting point with all control valves at neutral. If any combination of control valves is activated and one valve is then neutralized, the results can be different than shown in the chart. Also the results are different when more than one shuttle check valve is missing.

After repair return to diagnosis in progress.

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