**SR130 SR200**
**SR150 SR220**
**SR175 SR250**
**SV185 SV250**
**SV300**

Alpha Series Skid Steer Loader

**TR270**
**TR320**
**TV380**

Alpha Series Compact Track Loader

# SERVICE MANUAL

**Part number 84423866**
1st edition English
July 2011

CASE CONSTRUCTION

MidWestTech | Case SR130, SR200, SR150, SR220, SR175, SR250, SV185, SV250, SV300, TR270, TR320, TV380 Skid Steer Loader Service Manual | Publication 84423866

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# Fuse and relay box - Testing Main Power Relay Control

***NOTE:*** *Use schematics*
***Wiring harness - Electrical schematic frame 03 (A.30.A)***
***Wiring harness - Electrical schematic frame 04 (A.30.A)***
***Wiring harness - Electrical schematic frame 14 (A.30.A)***

| N° | Test Point | Expected Result | Other Result (Possible Cause) |
|---|---|---|---|
| 1 | **Condition**<br>Remove the **MAIN POWER RELAY K-009** from the **MAIN POWER DISTRIBUTION FUSE BLOCK 1 Z-2008**. Use **ELECTRICAL POWER SYSTEM - Testing General Wire Testing (A.30.A)** to<br>**Check**<br>wire condition between **MAIN POWER DISTRIBUTION FUSE BLOCK 1 Z-2008** pin C9 and ground. | **Result**<br>No wire problems.<br>**Action**<br>Go to test **2** | **Result**<br>Wire problems are found.<br>**Action**<br>Repair or replace broken wire 947/985/983 (Black). |
| 2 | **Condition**<br>With the relay removed, and the ignition on,<br>**Check**<br>for voltage from **MAIN POWER DISTRIBUTION FUSE BLOCK 1 Z-2008** pin D7 and ground. | **Result**<br>**12 V**<br>**Action**<br>The relay control circuit wiring is good. Go to **Fuse and relay box - Testing Relay Testing (A.50.A)** to test relay. | **Result**<br>**0 V**<br>**Action**<br>Go to test **3** |
| 3 | **Condition**<br>Disconnect connector **X-316** from the **IGNITION BACKFEED DIODE V-007**. Use **ELECTRICAL POWER SYSTEM - Testing General Wire Testing (A.30.A)** to<br>**Check**<br>wire condition between **MAIN POWER DISTRIBUTION FUSE BLOCK 1 Z-2008** pin D7 and connector **X-316** pin B. | **Result**<br>No wire problems.<br>**Action**<br>See **Start control - Testing Ignition Switch (B.80.A)** for further testing. | **Result**<br>Wire problems are found.<br>**Action**<br>Repair or replace broken wire 144 (Orange). |



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# 5281- Aux Valve (Directional) - Solenoid Forward (A) Supply OC

SR130 Electro hydraulic controls, SR150 Electro hydraulic controls, SR175 Electro hydraulic controls, SV185 Electro hydraulic controls, SR200 Electro hydraulic controls, SR220 Electro hydraulic controls, SR250 Electro hydraulic controls, SV250 Electro hydraulic controls, SV300 Electro hydraulic controls, TR270 Electro hydraulic controls, TR320 Electro hydraulic controls, TV380 Electro hydraulic controls

## Control Module : UCM

**Context:**
Diagnostic Trouble Code 5281 has an error priority of White. White errors are not displayed on the Instrument Cluster and are not known to the Owner/Operator. They will appear in the EST fault stack when the technician checks for active trouble codes while troubleshooting another fault.
Disable Aux operating mode is enabled with Diagnostic Trouble Code 5281.

**Cause:**
UCM has sensed improper Loader Auxiliary Valve solenoid current. (The fault is only activated when Hydraulics are enabled and solenoid supply current is incorrect.)

**Possible failure modes:**

1. Open wire in circuit.
2. Failure of Proportional Aux Valve Extend solenoid.
3. UCM has internal failure.

**Solution:**

1. Use the machine to recreate conditions for error. Use the **EST** to verify **5281 - Aux Valve (Directional) - Solenoid Forward (A) Supply OC** is active.
   A. If the fault is active, continue with step **2**.
   B. If the fault is not active, the fault may be intermittent and not currently active, continue with step **8**.
2. Check for open circuit. Disconnect connector **X-24** from the **PROPORTIONAL AUX VALVE EXTEND SOLENOID**. Disconnect connector **X-CN1B** from the **UCM**. Using a multi-meter, check continuity between connector **X-24** pin 1 and connector **X-CN1B** pin 33.
   A. If there is continuity, continue with step **5**.
   B. If there is no continuity, there is an open wire condition on wire 514 (White) between connector **X-24** pin 1 and connector **X-CN1B** pin 33. Continue with step **3**.
3. Locate the open circuit. Disconnect connector **X-10** from connector **X-88**. Using a multi-meter, check continuity between connector **X-10** pin 12 and connector **X-CN1B** pin 33.
   A. If there is no continuity, there is an open wire condition on wire 514 (White) between connector **X-10** pin 12 and connector **X-CN1B** pin 33. Repair or replace the wire.
   B. If there is continuity, continue with step **4**
4. Locate the open circuit. Using a multi-meter, check continuity between connector **X-88** pin 12 and connector **X-24** pin 1.
   A. If there is no continuity, there is an open wire condition on wire 514 (White) between connector **X-88** pin 12 and connector **X-24** pin 1. Repair or replace the wire.
   B. If there is continuity, connectors **X-10** and **X-88** are not making a good connection at pin 12. Repair the connector.
5. Check for proper resistance in the **PROPORTIONAL AUX VALVE EXTEND SOLENOID**. Using a multi-meter to check for resistance between **PROPORTIONAL AUX VALVE EXTEND SOLENOID** pins 1 and 2.
   A. If resistance is normal, continue with step **6**.



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# Pump - General specification 46cc EHF Hydrostatic pump, used with large frame models.

SR250 Electro hydraulic controls, SV300 Electro hydraulic controls, TV380 Electro hydraulic controls

| | |
|---|---|
| Manufacturer | Bosch Rexroth |
| Type | Combination pump |
| Direction of Rotation | Clockwise |
| Nominal displacement | **46 cm³ (3 in³)** |
| Maximum displacement port A | **46 cm³ (3 in³ +/- ) 0.9 cm³ (0.1 in³)** |
| Maximum displacement port B | **46 cm³ (3 in³ +/- ) 0.9 cm³ (0.1 in³)** |
| Shaft test speed | **2000 RPM** |
| Charge pressure | **25 bar (363 psi +/- ) 1 bar (15 psi)** |
| Relief valve A | **385 bar (5583 psi +/- ) 10 bar (145 psi)** |
| Differential pressure A | **360 cm³ (22 in³ +/- ) 10 cm³ (0.6 in³)** |
| Relief valve B | **385 bar (5583 psi +/- ) 10 bar (145 psi)** |
| Differential pressure B | **360 cm³ (22 in³ +/- ) 10 cm³ (0.6 in³)** |
| Nominal voltage | **12 V** |
| Port | (A) Service line port |
| | (B) Service line port |
| | (T) Case drain port |
| | (X1) Control Pressure (before the orfice) |
| | (X2) Control Pressure (before the orfice) |
| | (R) Air bleed |
| | (Ma) Pressure gauge operating pressure A |
| | (Mb) Pressure Gauge Operating pressure B |
| | (G) Pressure port for auxiliary circuit |
| | (G2) Pressure port for auxiliary circuit |
| | (S) Boost suction port |
| | (Mg) Pressure gauge operating pressure G |
| | (Yst) Control pressure gauge port |



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# CASE SR175 / SV185 / SR130 / SR150 / SR200 / SR220 / SR250 / SV250 / SV300
# Alpha Series Skid Steer Loader - Electrohydraulic

# TR270 / TR320 / TV380
# Alpha Series Compact Track Loader - Electrohydraulic

## 84526326

ELECTRICAL SCHEMATIC, WORLDWIDE
2011 PRODUCTION—

SHEET 1 OF 5

| COMPONENT | ABBREVIATION |
|---|---|
| CONNECTOR | X-001 |
| DIODE | D-001 |
| FUSE | F-001 |
| LAMP | E-001 |
| MOTOR | M-001 |
| RELAY | K-001 |
| SENSOR/SENDER | B-001 |
| SPLICE | SP-001 |
| SWITCH | B-001 |
| WIRE BREAK | WB-001 |

**LEGEND**

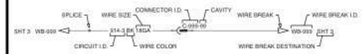
INDICATES CONSTANT POWER

INDICATES POWER WHEN KEY SWITCH IS ON

| SUBSYSTEM DESCRIPTION | SHEET # |
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**SCHEMATIC SYMBOLS**

| | | | |
|---|---|---|---|
| DIODE | FUSE | LAMP | MOTOR |
| COIL | CHASSIS GROUND (EARTH) | TWISTED WIRES | |



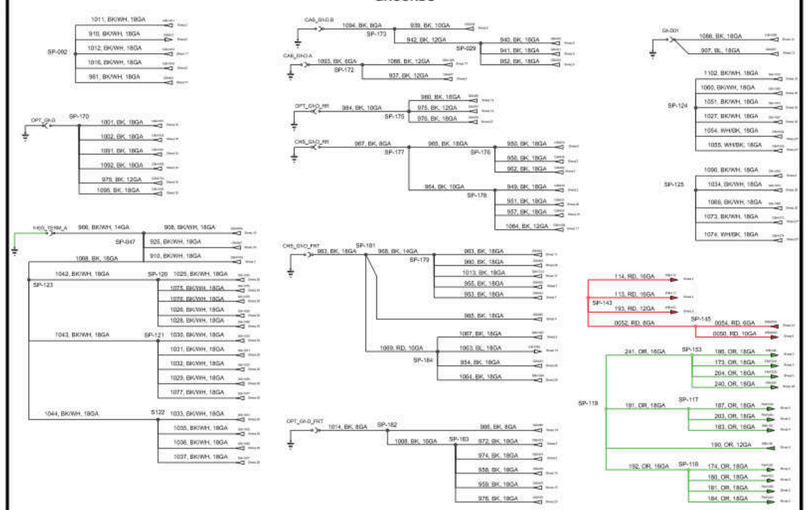

| COLOR | ABBREVIATION |
|---|---|
| BLACK | BK |
| BLUE | BL |
| LIGHT BLUE | LB |
| BLACK/WHITE | BK/WH |
| GREEN | GN |
| LIGHT GREEN | LG |
| ORANGE | OR |
| PINK | PK |
| VIOLET | VT |
| RED | RD |
| GREY | GY |
| TAN | TN |
| WHITE | WH |
| YELLOW | YE |

**WIRING REFERENCES**

431 - YE - 18GA
- 18GA — WIRE GAUGE (SQUARE MM)
- YE — WIRE COLOR
- 431 — CIRCUIT NUMBER

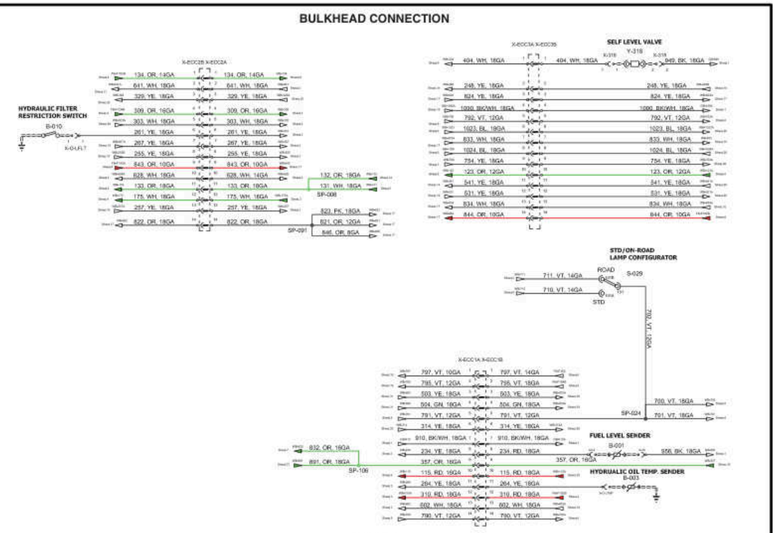
| WIRE CHART SIZE | |
|---|---|
| Square mm | AWG |
| 0.5 | 20 |
| 0.8 | 18 |
| 1.0 | 16 |
| 2.0 | 14 |
| 3.0 | 12 |
| 5.0 | 10 |
| 8.0 | 8 |

## GROUNDS



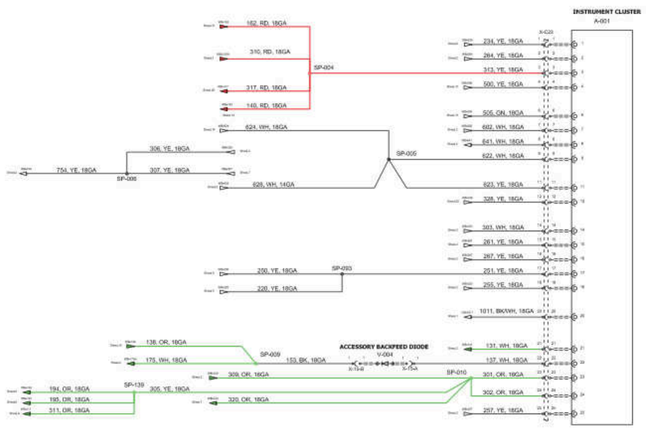
SHEET 1

## BULKHEAD CONNECTION



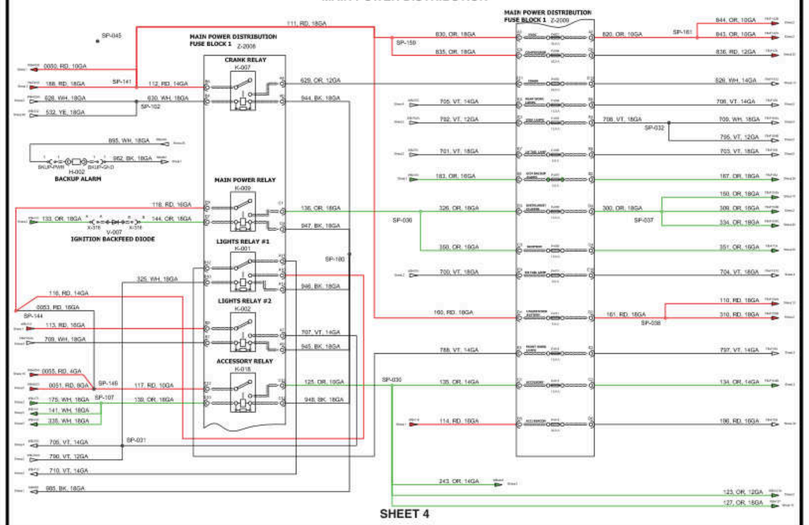

SHEET 2

## INSTRUMENT CLUSTER



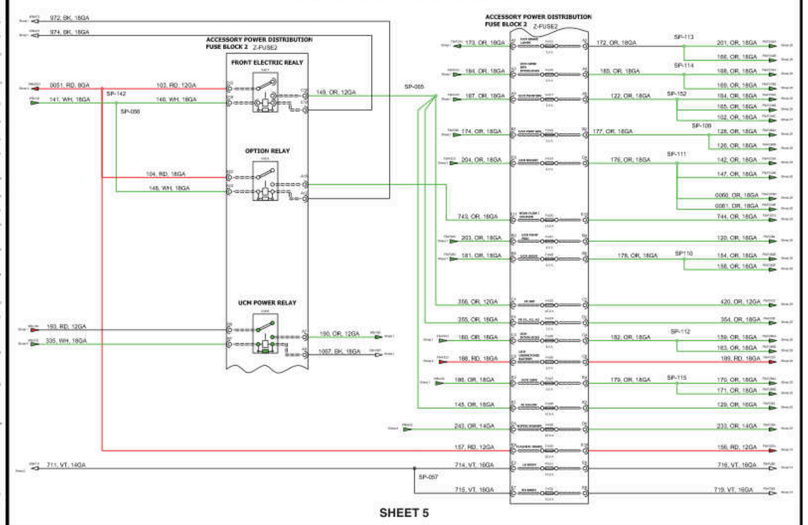

SHEET 3

## MAIN POWER DISTRIBUTION



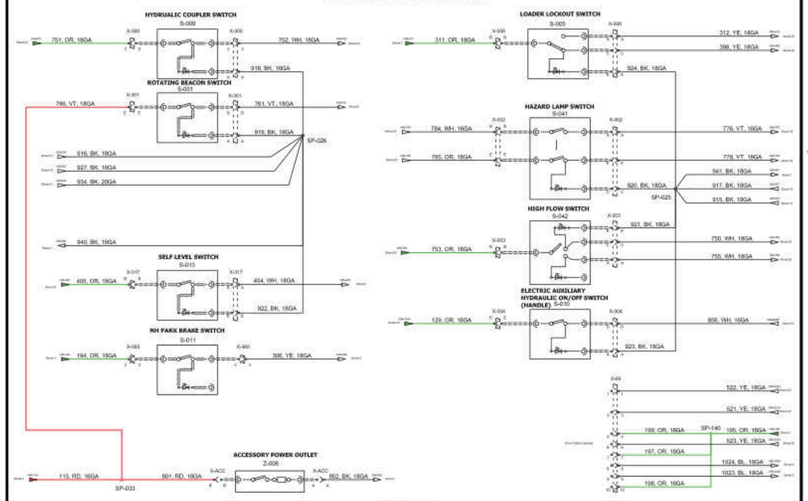

SHEET 4

## ACCESSORY POWER DISTRIBUTION



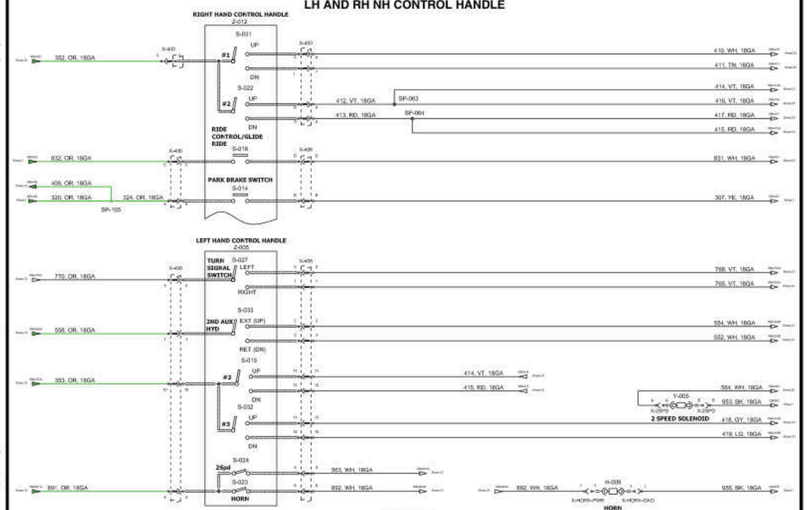

SHEET 5

## LEFT HAND CAB CONSOLE



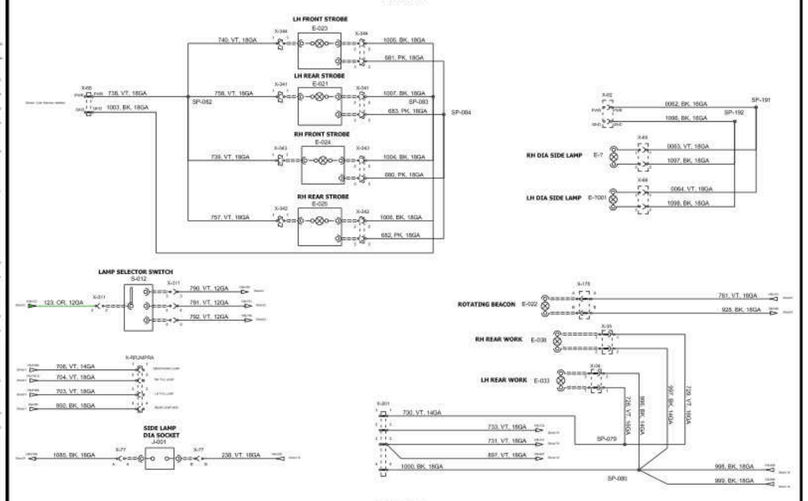

SHEET 6

## LH AND RH NH CONTROL HANDLE




SHEET 7

## LAMPS




SHEET 8



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