Component Identifiers (CID[1]) Module Identifier (MID[2]) Auxiliary Hydraulic Control (MID No. 106)	
CID	**Component**
0070	Parking Brake Switch
0168	Voltage Fault
0598	Two Speed Motor Solenoid
1180	Auxiliary Hydraulic Solenoid #1
1181	Auxiliary Hydraulic Solenoid #2
1184	Auxiliary Hydraulic Solenoid Supply
1187	Continuous Flow Switch
1188	Operator Interlock Override Switch
1189	Auxiliary Hydraulics Lever
1190	Arm Bar / Seat Switch
1694	Two Speed Motor Solenoid Supply
1695	Two Speed Switch
1931	High Pressure / High Flow Solenoid
1935	Auxiliary Hydraulic Flow Selector Switch
1939	Auxiliary Hydraulic High Flow Supply
1940	Auxiliary Hydraulic High Flow Diverter Solenoid
1942	High Pressure Tool Detection Switch

[1] The CID is a diagnostic code that indicates which circuit is faulty.
[2] The MID is a diagnostic code that indicates which electronic control module

Failure Mode Identifiers (FMI)[1]	
FMI No.	**Failure Description**
0	Data valid but above normal operational range.
1	Data valid but below normal operational range.
2	Data erratic, intermittent, or incorrect.
3	Voltage above normal or shorted high.
4	Voltage below normal or shorted low.
5	Current below normal or open circuit.
6	Current above normal or grounded circuit.
7	Mechanical system not responding properly.
8	Abnormal frequency, pulse width, or period.
9	Abnormal update.
10	Abnormal rate of change.
11	Failure mode not identifiable.
12	Bad device or component.
13	Out of calibration.
14	Parameter failures.
15	Parameter failures.
16	Parameter not available.
17	Module not responding.
18	Sensor supply fault.
19	Condition not met.
20	Parameter failures.

[1]The FMI is a diagnostic code that indicates what type of failure has occurred.

Engine & Platform Off Machine Switch Specification				
Part No.	**Function**	**Actuate**	**Deactuate**	**Contact Position**
134-0404	Hydraulic Filter Bypass Switch	275.8 to 303.4 kPa (40 to 44 psi)	206.8 kPa MIN (30 psi MIN)	Normally Open
192-0836	Backup Pressure Switch	517.0 + 41.4, - 68.9 kPa (75.0 + 6.0, -10.0 psi)	386.1 + 41.4, - 68.9 kPa (56.0 + 6.0, -10.0 psi)	Normally Open
224-0744	High Flow Pressure Switch	375.9 + 37.9, - 58.6 kPa (54.5 + 5.5, -8.5 psi)	263 kPa MIN (38.1 psi MIN)	Normally Closed
236-1872	Hydraulic Oil Temperature Switch	102 ± 3°C (215.6 ± 5.4°F)	90°C MIN (194°F MIN)	Normally Open

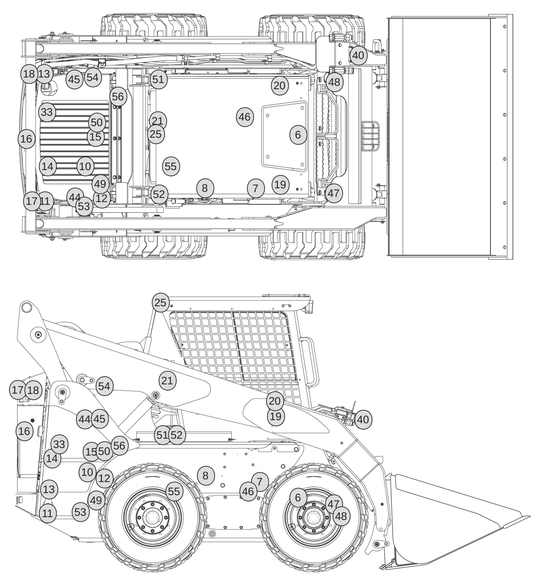
Engine & Platform Resistor, Sender and Solenoid Specifications			
Part No.	**Component Description**		**Resistance (Ohms)[1]**
233-7139	Solenoid:	Quick Coupler	6.36 ± 0.4
172-0970	Solenoid:	Detent Valve	9.4
185-4254	Solenoid:	A1 & A2 Continuous Flow (High Flow XPS)	2.2 ± 0.2
195-9700	Solenoid:	C+ & C- (High Flow XPS) Implement Pilot Parking Brake Transmission	10 ± 0.5
216-0610	Solenoid:	Two Speed	2.2 ± 0.2
224-7782	Sender:	Fuel (287 / 267)	Empty: 240 - 245 Full: 28 - 33
224-8545	Sender:	Fuel (267 / 277)	Empty: 240 - 245 Full: 28 - 33
231-2105	Sender:	Fuel (216B / 226 / 232B / 242)	Empty: 240 - 250 Full: 28 - 33
231-2106	Sender:	Fuel (247 / 257)	Empty: 240 - 250 Full: 28 - 33
224-8544	Sender:	Fuel (236 / 246 / 252 / 262 / 248 / 268)	Empty: 240 - 250 Full: 28 - 33
238-9397	Resistor:	DMML ALT	120.0 ± 6.0

[1] At room temperature unless otherwise noted.

Wire Description					
Wire Number	**Wire Color**	**Description**	**Wire Number**	**Wire Color**	**Description**
Power Circuits			**Lighting Circuits Cont.**		
101	RD	Bat (+) / Main Breaker	608	GN	Rear Work Lamp SW / Rear LH & RH Floods
102	RD	Roading Breaker / Stop Lamp Relay / Roading Lamp SW / Stop Pressure SW / Flasher	610	OR	Front Work Lamp SW / LH & RH Floods
			614	PU	Panel Switch Lamps
105	RD	Key Start SW / AUX Bleed Off SW	617	BR	LH Stop Tail Lamp / LH Head Turn Lamp/ Signal Lamp Group / License Lamp
109	RD	Alt Output (+) / Start Relay / Cold Start Relay / Roading Breaker / Main Power Relay A - D	618	YL	RH Stop Tail Lamp / RH Head Turn Lamp
			619	GN	Roading Lamp SW / LH & RH Head Turn Lamp
110	GN	PWR Fuel Shut Off	674	BU	Operator Interlock Control / Action Lamp Group
111	YL	Main Power Relay Output D	676	PU	Operator Interlock Control / Action Lamp Group
112	PU	Main Power Relay Output A-C	**Control Circuits**		
114	RD	LH Handle Forward Horn SW	779	WH	Hyd Quick Coupler SW / Quick Coupler Sol Valve
117	YL	OCPLR Auto Level	780	PU	Hyd Quick Coupler SW / Quick Coupler Sol Valve
118	GY	Power Wiper Washer	781	PK	LH Handle / 2 Speed Trigger SW
119	PK	Power Radio	782	GY	LH Handle / Work Tool C1 SW
120	BU	Power Backup Alarm	A751	YL	Power Tools Switch
122	BU	Misc. Power	A752	BR	Power Tools Switch / Water Pump
123	WH	High Flow SW / Fuel Level Ind / Action Lamp	E769	WH	Lockout Relay / Detent Valve / Opt Interlock Cont
			F780	PK	Operator Interlock Control / AUX Hyd Control / Park Brake SW
124	RD	Heater & HVAC Key SW Relay			
125	RD	HVAC Condenser Fan Relay	G798	PU	Main Power Relay A-D / Machine Security System
126	PK	Operator Interlock Control	H746	YL	Solenoid Demand Fan (+)
127	OR	Cold Start SW	H747	BR	Solenoid Demand Fan (-)
128	PK	AUX Hyd Control / AUX Bleed Off SW	H759	BR	Work Tool (C+) Relay / (C+) Solenoid
134	YL	Front Working Lamp SW	H759	OR	Work Tool (C-) Relay / (C-) Solenoid
135	BU	Rear Working Lamp SW	H791	GN	RH Handle WKTL (C+) SW / Relay (C+) Coil
144	GN	Beacon SW / Beacon Socket	H792	BR	RH Handle WKTL C1 SW / Relay (C-) Coil
145	PK	Power Socket + 12 Volts	J764	BR	Temp Sensor Ground
180	GN	Jumper Demand Fan	M732	OR	Start Relay / Machine Security System Control
Ground Circuits			M733	PK	Tool Connector / Work Tool Relay (C+/C-) Output
200	BK	Main Chassis	R752	BR	Hydraulic Temp. Sensor
201	BK	Operator Interlock Control / Park Brake SW	X734	GY	LOC Code IP, Bit 2
202	BK	Armrest SW	B77	YL	Cold Start Relay / Glow Plugs
203	BK	AUX Hyd Control / High Flow SW Implement Lockout SW / LH & RH Handle / Machine Security System / Detent Valve	F846	PU	RH Action Lamp Group / Machine Security System
			G848	GN	RH Action Lamp Group / Machine Security System
			S44	OR	Cat Data Link (+)
			S45	BR	Cat Data Link (-)
Basic Machine Circuits			961	BR	OVRD Switch
304	WH	Starter Relay / Starter	975	WH	Operator Interlock Cont / Transmission Solenoid / Implement Pilot Solenoid
306	GN	Operator Interlock Control / Machine Security System	A958	WH	Operator Interlock Cont / Park Brake Solenoid
307	OR	Key Start SW / Operator Interlock Control	E917	WH	Implement Lockout SW
308	YL	Key Start SW / Alternator / Res DMML Alt / Machine Security System Control	E918	GN	Implement Lockout SW / Operator Interlock Cont / AUX Hydraulic Control
321	BR	Back Up Pressure SW / Back Up Alarm	F905	YL	Auto Leveler SW / Valve D/VTR ARC MTL 248 refl
322	GY	LH Handle Forward Horn SW / Horn Jumper	G869	YL	Park Brake Sol / Operator Interlock Control
327	PK	Fuel Pump PRM	G882	PK	Implement Lockout SW / AUX Hyd Control
A309	GY	Fuel Shutdown Solenoid / Diode Block	G883	GN	Armrest SW / Seat SW
A346	BU	Start Relay / Machine Security System Cont	G884	PK	Armrest SW / Operator Interlock Control / AUX Hydraulic Control
A347	GN	Main Power Relay Coil A - D	G985	PU	Seat SW / Operator Interlock Control / AUX Hydraulic Control
Monitoring Circuits					
403	GN	Alternator (R) Term. / Hour Meter / Machine Security System Control	K927	BU	Hyd Quick Coupler SW / Quick Coupler Solenoid
404	YL	LH Action Lamp Gp / Hyd Oil Temperature SW	L987	WH	Cold Start Relay / Cold Start SW
405	GY	LH Action Lamp Gp / AUX Bleedoff SW / Engine Oil Pressure SW	L998	OR	A1 & A2 Solenoid / AUX Hydraulic Control
			L999	GN	Two Speed Solenoid / AUX Hydraulic Control
406	PU	LH Action Lamp Gp / Engine Cool Temp SW	M901	YL	RH Action Lamp Interlock Override / AUX Hyd Cont
436	OR	LH Action Lamp Gp / Hydraulic Filter Bypass SW	M904	OR	LOC Code IP, Bit 0
439	YL	RH Action Lamp G/P / Implement Lockout SW	M905	WH	LOC Code IP, Bit 1
440	BR	RH Action Lamp G/P / Air Filter Indicator	M906	BU	R/C 2 Valve Group Solenoid / Diode
447	PK	RH Action Lamp G/P / Fuel Level Ind / Fuel Sender	M907	GY	R/C 1 Valve Group Solenoid / Diode
C444	YL	RH Action Lamp G/P / Alternator / Res DMML Alt	N967	PK	8XD - COMM # 1
C457	BU	Stop Pressure SW 1	N960	OR	TXD - COMM # 1
C460	BU	Tool Connector / Jumper	N979	GN	Signal GND - COMM # 1
G465	PK	Cold Start Pump / Cold Start Thermo SW	P978	GN	A1 Solenoid / AUX Hydraulic Control
H416	GN	Transmission Solenoid / Operator Interlock Control	P979	YL	A2 Solenoid / AUX Hydraulic Control
Accessory Circuits			P980	OR	Flow Control Sol / AUX Hydraulic Control
500	BR	Wiper Washer SW / Front Wiper Motor	P981	PU	Two Speed Solenoid / AUX Hydraulic Control / High Flow Relay / RH Action Lamp
501	GN	Wiper Washer SW / Front Wiper Motor			
506	PU	Wiper Washer SW / Washer Bottle	P982	BU	LH Handle 2 Speed Trigger SW / AUX Hyd Control
513	OR	A/C Compressor Relay Output / A/C Comp Sol	P983	GN	High Flow SW / AUX Hydraulic Control
514	PU	A/C Condenser Fan Motor Relay Output / Fans	P984	YL	Work Tool Relay (C+/C-) Output / AUX Hyd Cont
536	WH	Turn Signal SW / Hazard SW	P986	PU	RH Handle Work Tool A2 SW / AUX Hyd Cont
537	GN	Turn Signal SW / Hazard SW / Flasher	P987	GN	AUX Bleed Off SW / AUX Hydraulic Control
549	PK	RH Handle / Work Tool Trigger SW	P988	OR	Lockout Relay / IMP Pilot Sol / Opt Interlock Cont
567	WH	A/C Pressure SW / Compressor Relay Coil	P991	PK	High Flow SW / AUX Hydraulic Control
A571	PU	Tool Connector / Spare Relay Fuse Block 1	P993	OR	LH Handle Cont Flow SW / AUX Hydraulic Control
C576	BU	Stop Lamp Relay / Stop Pressure SW 1	P994	BU	RH Handle Roller Power / AUX Hydraulic Control
Lighting Circuits			P996	GN	RH Handle Roller Signal / AUX Hydraulic Control
603	PK	Beacon Socket / Beacon SW	P997	BR	RH Handle Roller Ground / AUX Hydraulic Control
604	OR	Stop Lamp Relay / RH & LH Stop Tail Lamp / Signal Lamp Group	R995	BU	Coolant Temp. Sensor
			T801	YL	Ferrite Coil / Machine Security System Control
605	YL	Turn Signal SW / LH Stop Tail lamp / LH Head Turn Lamp / Signal Lamp Group	T902	PK	MSS Exciter Coil / Machine Security System Cont
			V906	YL	High Flow Relay / High Flow Solenoid
606	GY	Turn Signal SW / RH Stop Tail lamp / RH Head Turn Lamp / Signal Lamp Group	Y852	YL	Demand Fan Speed Sensor

Engine & Platform Component Location					
Component	**Schematic Location**	**Machine Location**	**Component**	**Schematic Location**	**Machine Location**
Alarm - Backup	C-14	16	Relay - Main Power B (A)	E-12	45
Alternator (A)	C-7	14	Relay - Main Power B (B)	G-15	44
Alternator (B)	I-10	33	Relay - Main Power C (A)	E-12	45
Battery (A)	A-8	11	Relay - Main Power C (B)	G-15	44
Battery (B)	G-11	13	Relay - Main Power D (A)	D-12	45
Breaker - Main (A)	B-9	45	Relay - Main Power D (B)	G-15	44
Breaker - Main (B)	H-12	45	Relay - Start (A)	D-7	45
Breaker - Roading (A)	B-9	45	Relay - Start (B)	I-10	45
Breaker - Roading (B)	H-12	44	Resistor - DMML Alternator (A)	C-7	14
Coil - Ferrite Asy.	C-2	19	Sender - Fuel Level (A)	F-12	12
Control - Auxiliary Hydraulic Control	F-1	47	Sender - Fuel Level (B)	H-15	46
Control - Operator Interlock	H-1	48	Socket - Power +12 Volts	F-5	6
Diode - Block (A)	A-7	15	Solenoid - (C-) High Flow (A)	E-5	8
Diode - Fuel Pump	D-15	11	Solenoid - (C-) High Flow (B)	C-5	8
Fuses - Block 1	G-5	6	Solenoid - (C+) High Flow (A)	E-5	8
Fuses - Block 2 (Work Tools)	G-7	6	Solenoid - (C+) High Flow (B)	D-5	8
Glow Plugs (A)	A-7	15	Solenoid - A1	E-7	8
Glow Plugs (B)	G-10	15	Solenoid - A2	E-7	8
Ground - Engine Stud (A)	B-7	49	Solenoid - Boost Flow (A)	D-5	8
Ground - Engine Stud (B)	H-10	49	Solenoid - Cold Start Pump (B)	G-10	14
Ground - Lower Frame	I-15	21	Solenoid - Continuous Flow (A)	D-5	8
Ground - Lower Platform	D-4	39	Solenoid - Continuous Flow (B)	C-5	8
Ground - Upper Frame	I-15	21	Solenoid - Detent Valve (248,268, High Flow)	B-5	19
Ground - Upper Frame Stud (A)	C-12	51	Solenoid - Fuel Shutdown (A)	B-7	33
Ground - Upper Frame Stud (B)	F-15	11	Solenoid - Fuel Shutdown (B)	H-10	14
Handle - 1 SW - LH	I-1	20	Solenoid - Impl Pilot (248,268,High Flow)	A-5	19
Handle - 2 SW - LH	H-2	20	Solenoid - Implement Pilot	C-2	19
Handle - 2 SW - RH	D-1	19	Solenoid - Parking Brake	D-3	39
Handle - 2 SW - RH	D-2	19	Solenoid - Quick Coupler (A)	B-12	11
Handle - 3 SW / Roller - RH	D-2	19	Solenoid - Quick Coupler (B)	E-15	53
Handle - 5 SW - LH	I-2	20	Solenoid - Transmission	H-3	20
Horn - Forward (A)	F-12	51	Solenoid - Two Speed (B)	E-6	39
Horn - Forward (B)	H-15	52	Solenoid - Valve Grp D/VTR ARC MTL (B) 248 High Flow	F-15	52
Lamp - License	C-15	16			
Lamp - Signal Group	C-15	16	Solenoid - Valve Grp D/VTR XR XRMTL (A)	B-12	52
Lamp - Stop/Tail - LH Attachment	C-14	18	Solenoid - Valve Grp D/VTR XR XRMTL (B) 268 High Flow	F-15	52
Lamp - Stop/Tail - RH Attachment	B-14	17			
Motor - Fuel Prime Pump (B)	E-15	11	Stud - Power (A)	C-9	45
Motor - Starter (A)	A-9	10	Stud - Power (B)	H-12	44
Motor - Starter (B)	G-12	50	Switch - Air Filter Indicator (A)	B-12	45
Motor - Water Pump	I-8	25	Switch - Air Filter Indicator (B)	E-15	44
Relay - (C-) Fuse Block 2	G-8	6	Switch - Backup Pressure	H-3	20
Relay - (C+) Fuse Block 2	H-8	6	Switch - Cold Start Thermo Temp (B)	G-10	14
Relay - (C+/C-) Fuse Block 2	H-8	6	Switch - Engine Coolant Temperature (A)	B-7	14
Relay - (C1) Fuse Block 2	G-8	6	Switch - Engine Coolant Temperature (B)	H-10	33
Relay - (C2) Fuse Block 2	G-8	6	Switch - Engine Oil Pressure (A)	B-7	33
Relay - Boost Flow (A)	E-6	6	Switch - Engine Oil Pressure (B)	H-10	14
Relay - Cold Start (A)	D-7	45	Switch - High Flow (248,268)	A-4	19
Relay - Cold Start (B)	I-10	45	Switch - Hydraulic Filter Bypass (A)	D-12	13
Relay - Fuel Pump	D-15	11	Switch - Hydraulic Filter Bypass (B)	F-15	54
Relay - Lockout (248,268,Boost Flow)	B-6	7	Switch - Hydraulic Oil Temp (A)	F-12	51
Relay - Main Power A (A)	E-12	44	Switch - Hydraulic Oil Temp (B)	I-15	51
Relay - Main Power A (B)	G-15	44			

(A) = 216B / 226 / 232 / 242 / 247 / 257
(B) = 236B / 246 / 248 / 252 / 262 / 267 / 268 / 277 / 287



Machine Harness Connector And Component Locations

Engine & Platform Connector Location		
Connector Number	**Schematic Location**	**Machine Location**
CONN 1	B-12 , E-14	56
CONN 2	B-14 , B-15	18
CONN 3	C-13 , C-14	13
CONN 4	C-12 , C-14	52
CONN 5	B-12 , D-14	46
CONN 6	H-14	55
CONN 7	H-14	34
CONN 8	B-10 , D-13	34
CONN 9	C-10 , E-13	34
CONN 10	E-13	34
CONN 11	C-10 , F-13	51
CONN 12	D-10 , F-13	51
CONN 13	E-10 , G-13	51
CONN 14	E-10 , G-13	51
CONN 15	E-10 , H-13	51
CONN 16	H-9 , I-13	12
CONN 17	F-12	44
CONN 18	F-12	51
CONN 19	I-12	45
CONN 20	F-10	51
CONN 21	C-9	51
CONN 22	G-9	13
CONN 23	I-9	14
CONN 24	C-8	13
CONN 25	I-8	7
CONN 26 TOOL	I-7	40
CONN 27	A-6 , D-4	7
CONN 28	B-6 , D-6	7
CONN 29	D-6	39
CONN 30	D-6 , E-6	6
CONN 31 SERVICE	F-5	19
CONN 32	B-5	19
CONN 33	B-4 , D-2	19

The connectors shown in this chart are for harness to harness connectors. Connectors that join a harness to a component are generally located at or near the component. See the Component Location Chart.

Related Electrical Service Manuals	
Title	**Form Number**
K3A Alternator: 239-0772	SENR5841
R2.7KW Electric Starting Motor: 143-0539	SENR3828
Auxiliary Hydraulic Control system:	RENR2893
Operator Interlock Control:	RENR2864

CATERPILLAR®

RENR6419-04
December 2007

Schematic

Skid Steer Loaders:
216B, 216B2, 226B, 226B2, 232B, 232B2, 236B, 236B2, 242B, 242B2, 246B, 248B, 252B, 252B2, 262B, 268B

Multi Terrain Loaders:
247B, 247B2, 257B, 257B2, 267B, 277B, 287B

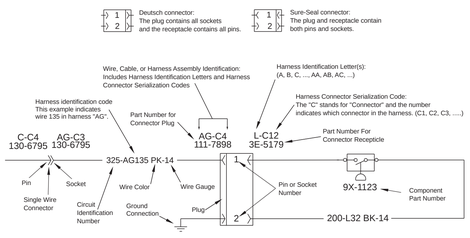
Electrical System

216B: RLL1-6799	**232B2:** SCH2475-2824	**246B:** PAT1-UP	**252B2:** SCP4600-5409	**268B:** LBA1-UP
216B2: RLL6800-7699	**236B:** HEN1-6749	**247B:** MTL1-5074	**257B:** SLK1-7299	**277B:** MDH1-UP
226B: MJH1-10574	**236B2:** HEN6750-8069	**247B2:** MTL5075-5699	**257B2:** SLK7300-8299	**287B:** ZSA1-UP
226B2: MJH10575-12174	**242B:** BXM1-4224	**248B:** SCL1-UP	**262B:** PDT1-UP	
232B: SCH1-2474	**242B2:** BXM4225-4774	**252B:** SCP1-4599	**267B:** CYC1-UP	

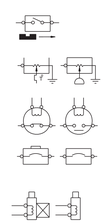
Volume 1 of 2: Engine & Chassis

Printed in U.S.A.

Harness And Wire Electrical Schematic Symbols



Electrical Schematic Symbols And Definitions



FUSE - A component in an electrical circuit that will open the circuit if too much current flows through it.

REED SWITCH - A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch; it opens the contacts of a normally closed reed switch.

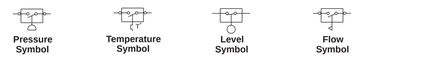
SENDER - A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.

RELAY (Magnetic Switch) - A relay is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close the switch part of the relay.

CIRCUIT BREAKER (C/B) - A component in an electrical circuit that will open the circuit if too much current flows through it. This does not destroy the circuit breaker and it can be reset to become part of the circuit again.

SOLENOID - A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a piece of metal that can do work.

Electrical Schematic Symbols And Definitions



Normally open switch that will close with an increase of a specific condition (temp-press-etc.).

Normally open switch that is closed due to an applied condition, and will open again with a specific decrease in that condition.

Normally closed switch that will open with an increase of a specific condition.

Normally closed switch that is open due to an applied condition, and will close again with a specific decrease in that condition.

The circle indicates that the component has screw terminals and a wire can be disconnected from it.

No circle indicates that the wire cannot be disconnected from the component.

This indicates that the component has a wire connected to it that is connected to ground.

This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.

RENR6419-04 VOL 1 of 2
20 Page, (Dimensions: 39 inches x 24 inches)

RENR6419-04 VOL 1 of 2

20 Page, Color 2, (Dimensions: 39 inches x 24 inches)

PLATFORM AND ENGINE
FOR MODELS 236, 246, 248,
252, 262, 267, 268, 277, 287

WORK TOOL ATTACHMENT HARNESSES

FUSE BLOCK 2
221-3881

FUSE BLOCK 1
221-3880

LOWER PLATFORM

PLATFORM AND ENGINE
FOR MODELS 216, 226,
232, 242, 247, 257

TWO-SPEED SOL (ATCH)
FOR MODELS 236, 246,
252, 262, 248, 268

HIGH FLOW (ATCH)
FOR MODELS 226, 242, 257

HIGH FLOW XPS (ATCH)
FOR MODELS 248, 268

RH POD HARNESS ATCH FOR MODELS 248, 268
AND HIGH FLOW MODELS 226, 242, 257

REAR DOOR

RR DOOR EXT HARN
(ITALY ONLY) (ATCH)

WIRE GROUP COLOR DESCRIPTIONS

- WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS OFF.
- WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON.
- STARTING CIRCUIT.
- GROUND CIRCUIT.
- STARTING AID CIRCUIT.
- MONITOR CIRCUIT.
- AUX. HYDRAULIC CONTROL CIRCUIT.
- IMPLEMENT CONTROL CIRCUIT.
- MACHINE SECURITY CONTROL CIRCUIT.
- OPERATOR INTERLOCK CONTROL CIRCUIT.
- HEATER AND AIR CONDITIONER CIRCUIT.
- TURN SIGNAL/WIPER/WASHER CIRCUIT.

ABBREV	COLOR
WH	WHITE
OR	ORANGE
RD	RED
PK	PINK
BK	BLACK
YL	YELLOW
PU	PURPLE
BR	BROWN
GN	GREEN
BU	BLUE

SYMBOL	DESCRIPTION
	BLADE, SPADE, RING, OR SCREW TERMINAL
	SPLICE
	CIRCUIT NOT CONNECTED
	ELECTRICAL CONNECTION TO MACHINE STRUCTURE
	INTERNAL ELECTRICAL CONNECTION TO SURFACE OF COMPONENT
	CONNECTOR
	ATCH WIRE, CABLE & COMPONENT
	CIRCUIT GROUPING DESIGNATION

SERVICE CONNECTOR	
PIN	DESCRIPTION
A	GROUND
B	GROUND
C	SWITCH BATT+ LOW PSI (+)
D	SWITCH LOW MED (-)

LOCATION	NOTE
VARIOUS	NOTE A: WIRE PA299 TO BE TWISTED TOGETHER AT LEAST ONE TURN PER IN.
VARIOUS	NOTE B: ASSEMBLE TOGETHER TO STUD
3H 5 E-G, C-D 3H 2 B-G, B-C, C-E	NOTE C: 2" RADIUS LAMP HARN TO CAB1, CON A(+C) TO E-11 AND B(-D) TO E-10
3H 1 C-G	NOTE D: 2" RADIUS AND APPLYING HARN TO CAB2, CON B(+C) TO E-11 AND A(-D) TO E-10
3H 1 C-14	NOTE E: 2" RADIUS LAMP HARN TO CAB3, CON A(+C) TO E-11 AND B(-D) TO E-10
3H 1 F-12	NOTE F: USE FUEL LEVEL SENSOR HARNESS ONLY ON 301.7, 301.8, 302 MACHINES
3H 1 D-5, B-10	NOTE G: FOR 950 ATCH ROOM CON 7F-28 (2H F4-C26) AND THEN DIRECT P-025 (2H F4-C25) TO T-D2)
3H 1 A-5	NOTE H: JUMPER #3 REQUIRED FOR USE WITH TWO SPEED SOLENOID FOR USER PLOW MOUNTED ROBOX JUMPER #3 AND DIRECT PRESSURE SENSOR TO MACHINE
3H 1 E-9	NOTE I: 2H7 PA90 FOR TWO SPEED SOLENOID FOR USE WITH MODELS 236, 246, 252, 262, 267, 268, 277, 287
3H 2 A-11	NOTE M: 2H7 102 FOR USE WITH EAME MACHINES ONLY
3H 2 E-12	NOTE N: REMOVE JUMPER WHEN USING MACHINE SWITCH
3H 1 E-13	NOTE P: JUMPER #3, REQUIRED FOR USE WITH TWO SPEED SOLENOID ATCH
3H 2 E,F-8	NOTE R: HARNESS SUPPLIED WITH AIR CONDITIONING UNIT
3H 2 H-6	NOTE S: HARNESS SUPPLIED WITH AIR CONDITIONING UNIT
3H 1 C-8	NOTE T: ASSEMBLE TERMINALS INTO CONNECTOR CALLED OUT IN SMART LEVEL SERVICE MACHINE ASSEMBLY

THIS DIAGRAM IS FOR THE 8 DECKS

MID STEER AND MULTI-TERRAIN LOADERS — 216-9420 DIN 3E

THIS DIAGRAM IS FOR THE FOLLOWING MODELS:

3185 (SL526) - 3285 (SL916) - 3325 (SL550) - 3425 (SL919) (MID STEER LOADER)
3479 (SL522) - 3779 (SL525) (MULTI-TERRAIN LOADER)
2958 (SL517) 2468 (SL514) 2468 (SL527) 2525 (SL524) 3024 (SL521) - 2666 (SL528) (MID STEER LOADER)
3179 (SL523) - 3379 (SL526) (MULTI-TERRAIN LOADER)

COMPONENTS ARE SHOWN INSTALLED IN A FULLY OPERABLE MACHINE WITH THE KEY ANG ENGINE OFF AND THE TRANSMISSION SHIFTER IN NEUTRAL AND DOWN DRYS.

CONN	PART NO.	CAVS	SEX	NOTE	DESCRIPTION
A	216-4752	07	BKZ	H-13	CAB - ENGE ONLY
DA	220-7389	04	BKZ	H-13	CAB - MACH ONLY
J	372-1624	02	BK	D-2	DEMAND FAN
JA	372-1625	02	BKZ	C-7	DUAL CONT - SAP
J	220-5824	04	BKZ	C-7	DUAL CONT - BKAP ALR
JA	220-5825	01	BKZ	C-7	DUAL CONT - LAMP IND
JC	220-5826	01	BKZ	C-7	DUAL CONT - SOL SAP PLT 1
JD	220-5828	01	BKZ	C-7	DUAL CONT - SOL SAP PLT 2
K	220-5760	06	BKZ	C-7	DUAL CONT - SOL (ENG ONLY)
N	216-4755	04	BKZ	C-13	WORK TOOLS - AM
N	216-4724	04	BKZ	C-7	WORK TOOLS - AM
P	216-4754	04	BKZ	C-7	JOYSTICK - ENGE
T	216-4709	02	BKZ	F-1	MACHINE SECURITY SYSTEM
U	221-3876	04	BKZ	D-6	WIPER / WASHER
V	221-3877	05	BKZ	I-7	WIPER / WASHER AUX
W	221-3878	04	BKZ	D-6	WIPER MOTOR
AC	221-3879	03	BKZ	D-5	AIR CONDITIONER
FJ	252-2198	01	BKZ	E-14	AC COMPRESSOR JUMPER
FJ	252-2199	01	BKZ	E-14	AC COMPRESSOR
KA	216-4727	05	BKZ	H-2	ROADING LAMP EXTENSION
KB	216-4726	05	BKZ	H-2	ROADING LAMP (RIGHT SIDE) HR
KB	220-7990	04	BKZ	H-2	ROADING LAMP (RIGHT SIDE) ARC
LJ	196-5039	04	BKZ	I-5	LH REAR LAMP EXTENSION
LK	196-5040	04	BKZ	I-5	RH REAR LAMP
MA	212-9324	04	BKZ	H-5	REAR HYDRAULICS
MJ	183-7117	02	BKZ	B-16	RR DOOR EXT (ITALY ONLY)
MJ	216-4723	04	BKZ	B-16	REAR DOOR EXT
-	216-4847	04	BKZ	D-6	WIPER MOTOR
-	216-4849	06	BKZ	D-6	AIR CONDITIONING UNIT
-	266-2928	04	BKZ	D-5	DIODE (SERVICE METER)
-	266-2928	04	BKZ	D-13	DIODE (SERVICE METER)
CONN 2 - 4					
A	216-4750	08	BKT	F-11	ENGINE
A	216-4721	04	BKT	F-12	ENGINE
FJ	252-2198	01	BKT	E-14	AC COMPRESSOR JUMPER
FJ	252-2199	01	BKT	F-12	AC COMPRESSOR
FL	220-9007	01	BKT	D-8	FUEL LEVEL SENSOR JUMPER
-	-	-	-	-	HIGH FLOW XPS
CONN 5 - 8					
A	220-9052	04	BKT	F-11	LOWER PLATFORM
A	220-9053	04	BKT	F-12	LOWER PLATFORM
EC	275-2783	04	BKT	C-8	JUMPER-BLOCKING DIODE
FM	220-9005	03	BKT	E-8	HIGH FLOW
PA	280-1159	04	BKT	E-8	LOWER PLATFORM
CONN 9 - 12					
MA	220-9013	01	BKT	B-8, H-12	LIGHTING MACHINE JUMPER
MC	245-1911	02	BKT	B-12	GCPLX JUMPER
MC	245-1911	02	BKT	E-16	GCPLX JUMPER
PM	220-9006	03	BKT	E-16	HIGH FLOW XPS STUD
-	130-9951	00	BKZ	E-15	HIGH FLOW JUMPER WHEN USING MACH SWITCH
-	130-9951	00	BKT	E-15	TWO-SPEED JUMPER
-	220-9053	01	BKZ	E-15	WORK JUMPER
-	570-0329	00	BK	E-2, C-9	WORK AS
-	101-9161	01	BK	E-2, C-9	WORK AS
-	101-9161	01	BK	E-2, C-9	WORK AS
-	194-3995	00	BK	E-15	SEAT SWITCH
CONN 13 - 16					
C4	220-7945	01	BKT	A-4, D-11	MACHINE GROUND
CC	142-7519	02	BKT	E-11	BATTERY POS TO STARTER (BETA MACH)
CC	220-7944	01	BKT	A-4, E-8	BATTERY POS TO STARTER (ALPHA MACH)
CONN 17 - 20					
-	196-4993	01	BKT	I-15	UPPER FRAME GND TO LOWER FRAME GND
-	275-2783	01	BKT	C-8	DIODE (SERVICE METER)
-	76-1065	00	BKZ	B-7	ENG FLYWHEEL GND TO ENG GND
-	76-1065	00	BKZ	H-15	HYD TANK TO CAB GND
-	76-1065	00	BKZ	H-11	HYD TANK TO CAB GND

Component Identifiers (CID[1]) Module Identifier (MID[2]) Auxiliary Hydraulic Control (MID No. 106)	
CID	**Component**
0070	Parking Brake Switch
0168	Voltage Fault
0598	Two Speed Motor Solenoid
1180	Auxiliary Hydraulic Solenoid #1
1181	Auxiliary Hydraulic Solenoid #2
1184	Auxiliary Hydraulic Solenoid Supply
1187	Continuous Flow Switch
1188	Operator Interlock Override Switch
1189	Auxiliary Hydraulics Lever
1190	Arm Bar / Seat Switch
1694	Two Speed Motor Solenoid Supply
1695	Two Speed Switch
1931	High Pressure / High Flow Solenoid
1935	Auxiliary Hydraulic Flow Selector Switch
1939	Auxiliary Hydraulic High Flow Supply
1940	Auxiliary Hydraulic High Flow Diverter Solenoid
1942	High Pressure Tool Detection Switch

[1] The CID is a diagnostic code that indicates which circuit is faulty.
[2] The MID is a diagnostic code that indicates which electronic control module

Failure Mode Identifiers (FMI)[1]	
FMI No.	**Failure Description**
0	Data valid but above normal operational range.
1	Data valid but below normal operational range.
2	Data erratic, intermittent, or incorrect.
3	Voltage above normal or shorted high.
4	Voltage below normal or shorted low.
5	Current below normal or open circuit.
6	Current above normal or grounded circuit.
7	Mechanical system not responding properly.
8	Abnormal frequency, pulse width, or period.
9	Abnormal update.
10	Abnormal rate of change.
11	Failure mode not identifiable.
12	Bad device or component.
13	Out of calibration.
14	Parameter failures.
15	Parameter failures.
16	Parameter not available.
17	Module not responding.
18	Sensor supply fault.
19	Condition not met.
20	Parameter failures.

[1]The FMI is a diagnostic code that indicates what type of failure has occurred.

Attachment & Cab Off Machine Switch Specification				
Part No.	**Function**	**Actuate**	**Deactuate**	**Contact Position**
184-1564	Stop Pressure 1 & 2	375.9 +37.9, -58.6 kPa (54.5 + 5.5, -8.5 psi)	263 kPa (38.2 psi)	Normally Closed[2]
236-6923	A/C Refrigerant Pressure	275 to 1750 kPa[1] (40 to 255 psi)	" " " "	Normally Open[2]

[1] With increasing pressure the closed condition can be maintained up to 2800 kpa (405 psi), with decreasing pressure the closed condition can be maintained down to 170 kpa (25psi).

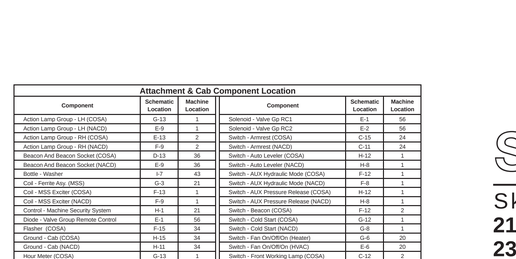
[2] Contact position at the contacts of the harness connector.

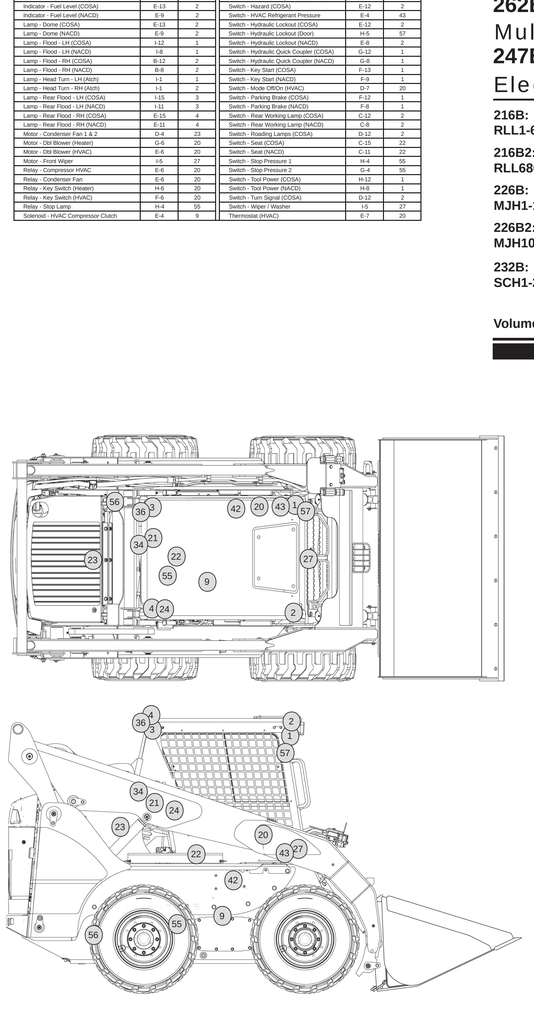
Resistor, Sender and Solenoid Specifications			
Part No.	**Component Description**		**Resistance (Ohms)[1]**
212-3350	Solenoid:	Remote Control 1	4.0 ± 0.2Ω
215-3272	Solenoid:	Remote Control 2	4.0 ± 0.2Ω
231-6287	Solenoid:	A/C Compressor	10.5

[1] At room temperature unless otherwise noted.

Wire Description					
Wire Number	**Wire Color**	**Description**	**Wire Number**	**Wire Color**	**Description**
Power Circuits			**Lighting Circuits Cont.**		
101	RD	Bat (+) / Main Breaker	608	GN	Rear Work Lamp SW / Rear LH & RH Floods
102	RD	Roading Breaker / Stop Lamp Relay / Roading Lamp SW / Stop Pressure SW / Flasher	610	OR	Front Work Lamp SW / LH & RH Floods
			614	PU	Panel Switch Lamps
105	RD	Key Start SW / AUX Bleed-Off SW	617	BR	LH Stop Tail Lamp / LH Head Turn Lamp/ Signal Lamp Group / License Lamp
109	RD	Alt Output (+) / Start Relay / Cold Start Relay / Roading Breaker / Main Power Relay A - D	618	YL	RH Stop Tail Lamp / RH Head Turn Lamp
			619	GN	Roading Lamp SW / LH & RH Head Turn Lamp
110	GN	PWR Fuel Shut Off	674	BU	Operator Interlock Control / Action Lamp Group
111	YL	Main Power Relay Output D	676	PU	Operator Interlock Control / Action Lamp Group
112	PU	Main Power Relay Output A-C	**Control Circuits**		
114	RD	LH Handle Forward Horn SW	779	WH	Hyd Quick Coupler SW / Quick Coupler Sol Valve
117	YL	QCPLR Auto Level	780	PU	Hyd Quick Coupler SW / Quick Coupler Sol Valve
118	GY	Power Wiper Washer	781	PK	LH Handle / 2 Speed Trigger SW
119	PK	Power Radio	782	GY	LH Handle / Work Tool C1 SW
120	YL	Power Backup Alarm	A751	YL	Power Tools Switch
122	BU	Misc. Power	A752	BR	Power Tools Switch / Water Pump
123	WH	High Flow SW / Fuel Level Ind / Action Lamp	F766	WH	Lockout Relay / Detent Valve / Opir Interlock Cont
			F780	PK	Operator Interlock Control / AUX Hyd Control / Park Brake SW
124	RD	Heater & HVAC Key SW Relay			
125	RD	HVAC Condenser Fan Relay	D798	PU	Main Power Relay A-D / Machine Security System
126	PK	Operator Interlock Control	H746	YL	Solenoid Demand Fan (+)
127	OR	Cold Start SW	H747	BR	Solenoid Demand Fan (-)
128	PK	AUX Hyd Control / AUX Bleed Off SW	H758	BR	Work Tool (C+) Relay / (C+) Solenoid
134	YL	Front Working Lamp SW	H759	OR	Work Tool (C-) Relay / (C-) Solenoid
135	BU	Rear Working Lamp SW	H791	GN	RH Handle WKTL (C+) SW / Relay (C+) Coil
144	GN	Beacon SW / Beacon Socket	H792	BR	RH Handle WKTL C1 SW / Relay (C-) Coil
145	BU	Power Socket + 12 Volts	J764	BR	Temp Sensor Ground
180	GN	Jumper Demand Fan	M732	OR	Start Relay / Machine Security System Control
Ground Circuits			M733	PK	Tool Connector / Work Tool Relay (C+/C-) Output
200	BK	Main Chassis	R732	BR	Hydraulic Temp. Sensor
201	BK	Operator Interlock Control / Park Brake SW	X734	GY	LOC Code #1 Bit 2
202	BK	Armrest SW	877	YL	Cold Start Relay / Glow Plugs
203	BK	AUX Hyd Control / High Flow SW Implement Lockout SW / LH & RH Handle / Machine Security System / Detent Valve	F846	PU	RH Action Lamp Group / Machine Security System
			G848	GN	RH Action Lamp Group / Machine Security System
			944	OR	Cat Data Link (+)
			945	BR	Cat Data Link (-)
Basic Machine Circuits			961	BR	GVRD Switch
304	WH	Starter Relay / Starter	975	WH	Operator Interlock Cont / Transmission Solenoid / Implement Pilot Solenoid
306	GN	Operator Interlock Control / Machine Security System	A958	WH	Operator Interlock Cont / Park Brake Solenoid
307	OR	Key Start SW / Operator Interlock Control	E917	WH	Implement Lockout SW
308	YL	Key Start SW / Alternator / Res DMML Alt / Machine Security System Control	E918	GN	Implement Lockout SW / Operator Interlock Cont / AUX Hydraulic Control
321	BR	Back Up Pressure SW / Back Up Alarm	F905	YL	Auto Leveler SW / Valve SVTR ARC MTL 248 HF
322	GY	LH Handle Forward Horn SW / Horn Jumper	G969	YL	Park Brake Sol / Operator Interlock Control
327	PK	Fuel Pump PRM	G982	PK	Implement Lockout SW / AUX Hyd Control
A309	GY	Fuel Shutdown Solenoid / Diode Block	G983	GN	Armrest SW / Seat SW
A348	BU	Start Relay / Machine Security System Cont	G984	PK	Armrest SW / Operator Interlock Control / AUX Hydraulic Control
A347	GN	Main Power Relay Coil A - D	G985	PU	Seat SW / Operator Interlock Control / AUX Hydraulic Control
Monitoring Circuits					
403	GN	Alternator (R) Term. / Hour Meter / Machine Security System Control	K927	BU	Hyd Quick Coupler SW / Quick Coupler Solenoid
404	YL	LH Action Lamp Gp / Hyd Oil Temperature SW	L987	WH	Cold Start Relay / Cold Start SW
405	GY	LH Action Lamp Gp / AUX Bleedoff SW / Engine Oil Pressure SW	L998	OR	A1 & A2 Solenoid / AUX Hydraulic Control
			L999	GN	Two Speed Solenoid / AUX Hydraulic Control
406	PU	LH Action Lamp Gp / Engine Cool Temp SW	M901	YL	RH Action Lamp Interlock Override / AUX Hyd Cont
436	OR	LH Action Lamp Gp / Hydraulic Filter Bypass SW	M904	OR	LOC Code #1 Bit 6
439	YL	RH Action Lamp G/P / Implement Lockout SW	M905	WH	LOC Code #1 Bit 1
440	BR	RH Action Lamp G/P / Air Filter Indicator	M906	BU	RC 2 Valve Group Solenoid / Diode
447	PK	RH Action Lamp G/P / Fuel Level Ind / Fuel Sender	M907	GY	RC 1 Valve Group Solenoid / Diode
C444	YL	RH Action Lamp G/P / Alternator / Res DMML Alt	N957	PK	RXD - COMM # 1
C457	BU	Stop Pressure SW 1	N960	OR	TXD - COMM # 1
C460	BU	Tool Connector / Jumper	N979	GN	Signal GND - COMM # 1
G465	PK	Cold Start Pump / Cold Start Thermo SW	P978	GN	A1 Solenoid / AUX Hydraulic Control
H416	GN	Transmission Solenoid / Operator Interlock Control	P979	YL	A2 Solenoid / AUX Hydraulic Control
Accessory Circuits			P980	OR	Flow Control Sol / AUX Hydraulic Control
500	BR	Wiper Washer SW / Front Wiper Motor	P981	PU	Two Speed Solenoid / AUX Hydraulic Control / High Flow Relay / RH Action Lamp
501	GN	Wiper Washer SW / Front Wiper Motor			
506	PU	Wiper Washer SW / Washer Bottle	P982	BU	LH Handle 2 Speed Trigger SW / AUX Hyd Control
513	OR	A/C Compressor Relay Output / A/C Comp Sol	P983	GN	High Flow SW / AUX Hydraulic Control
514	PU	A/C Condenser Fan Motor Relay Output / Fans	P984	YL	Work Tool Relay (C+/C-) Output / AUX Hyd Cont
536	WH	Turn Signal SW / Hazard SW	P986	PU	RH Handle Work Tool A2 SW / AUX Hyd Cont
537	GN	Turn Signal SW / Hazard SW / Flasher	P987	GN	AUX Bleed Off SW / AUX Hydraulic Control
549	PK	RH Handle / Work Tool Trigger SW	P988	OR	Lockout Relay / IMP Pilot Sol / Opir Interlock Cont
567	WH	A/C Pressure SW / Compressor Relay Coil	P991	PK	High Flow SW / AUX Hydraulic Control
A573	PU	Tool Connector / Spare Relay Fuse Block 1	P993	OR	LH Handle Cont Flow SW / AUX Hydraulic Control
C576	BU	Stop Lamp Relay / Stop Pressure SW 1	P994	BU	RH Handle Roller Power / AUX Hydraulic Control
Lighting Circuits			P996	GN	RH Handle Roller Signal / AUX Hydraulic Control
603	PK	Beacon Socket / Beacon SW	P997	BR	RH Handle Roller Ground / AUX Hydraulic Control
604	OR	Stop Lamp Relay / RH & LH Stop Tail Lamp / Signal Lamp Group	R995	BU	Coolant Temp. Sensor
			T901	YL	Ferrite Coil / Machine Security System Control
605	YL	Turn Signal SW / LH Stop Tail lamp / LH Head Turn Lamp / Signal Lamp Group	T902	PK	MSS Exciter Coil / Machine Security System Cont
			Y905	YL	High Flow Relay / High Flow Solenoid
606	GY	Turn Signal SW / RH Stop Tail lamp / RH Head Turn Lamp / Signal Lamp Group	Y952	YL	Demand Fan Speed Sensor

Attachment & Cab Component Location					
Component	**Schematic Location**	**Machine Location**	**Component**	**Schematic Location**	**Machine Location**
Action Lamp Group - LH (COSA)	G-13	1	Solenoid - Valve Gp RC1	E-1	56
Action Lamp Group - LH (NACD)	E-9	1	Solenoid - Valve Gp RC2	E-2	56
Action Lamp Group - RH (COSA)	E-13	2	Switch - Armrest (COSA)	C-15	24
Action Lamp Group - RH (NACD)	F-9	2	Switch - Armrest (NACD)	C-11	24
Beacon And Beacon Socket (COSA)	D-13	36	Switch - Auto Leveler (COSA)	H-12	1
Beacon And Beacon Socket (NACD)	E-9	36	Switch - Auto Leveler (NACD)	H-8	1
Bottle - Washer	I-7	43	Switch - AUX Hydraulic Mode (COSA)	F-12	1
Coil - Ferrite Asy. (MSS)	G-3	21	Switch - AUX Hydraulic Mode (NACD)	F-8	1
Coil - MSS Exciter (COSA)	F-13	1	Switch - AUX Pressure Release (COSA)	H-12	1
Coil - MSS Exciter (NACD)	F-9	1	Switch - AUX Pressure Release (NACD)	H-8	1
Control - Machine Security System	H-1	21	Switch - Beacon (COSA)	F-12	2
Diode - Valve Group Remote Control	E-1	56	Switch - Cold Start (COSA)	G-12	1
Flasher (COSA)	F-15	34	Switch - Cold Start (NACD)	G-8	1
Ground - Cab (COSA)	H-15	34	Switch - Fan On/Off/On (Heater)	G-6	20
Ground - Cab (NACD)	H-11	34	Switch - Fan On/Off/On (HVAC)	E-6	20
Hour Meter (COSA)	G-13	1	Switch - Front Working Lamp (COSA)	C-12	2
Hour Meter (NACD)	G-9	1	Switch - Front Working Lamp (NACD)	C-8	2
Indicator - Fuel Level (COSA)	E-13	2	Switch - Hazard (COSA)	E-12	2
Indicator - Fuel Level (NACD)	E-9	2	Switch - HVAC Refrigerant Pressure	E-4	43
Lamp - Dome (COSA)	E-13	2	Switch - Hydraulic Lockout (COSA)	E-12	2
Lamp - Dome (NACD)	E-9	2	Switch - Hydraulic Lockout (Door)	H-5	57
Lamp - Flood - LH (COSA)	I-12	1	Switch - Hydraulic Lockout (NACD)	E-8	2
Lamp - Flood - LH (NACD)	I-8	1	Switch - Hydraulic Quick Coupler (COSA)	G-12	1
Lamp - Flood - RH (COSA)	B-12	2	Switch - Hydraulic Quick Coupler (NACD)	G-8	1
Lamp - Flood - RH (NACD)	B-8	2	Switch - Key Start (COSA)	F-13	1
Lamp - Head Turn - LH (Aloft)	I-1	1	Switch - Key Start (NACD)	F-9	1
Lamp - Head Turn - RH (Aloft)	I-1	2	Switch - Mode Off/On (HVAC)	D-7	20
Lamp - Rear Flood - LH (COSA)	I-15	3	Switch - Parking Brake (COSA)	F-12	1
Lamp - Rear Flood - LH (NACD)	I-11	3	Switch - Parking Brake (NACD)	F-8	1
Lamp - Rear Flood - RH (COSA)	E-15	4	Switch - Rear Working Lamp (COSA)	C-12	2
Lamp - Rear Flood - RH (NACD)	E-11	4	Switch - Rear Working Lamp (NACD)	C-8	2
Motor - Condenser Fan 1 & 2	D-4	23	Switch - Roading Lamps (COSA)	D-12	2
Motor - Dbl Blower (Heater)	G-6	20	Switch - Seat (COSA)	C-15	22
Motor - Dbl Blower (HVAC)	E-6	20	Switch - Seat (NACD)	C-11	22
Motor - Front Wiper	I-5	27	Switch - Stop Pressure 1	H-4	55
Relay - Compressor HVAC	E-6	20	Switch - Stop Pressure 2	G-4	55
Relay - Condenser Fan	E-6	20	Switch - Tool Power (COSA)	H-12	1
Relay - Key Switch (Heater)	H-6	20	Switch - Tool Power (NACD)	H-8	1
Relay - Key Switch (HVAC)	F-6	20	Switch - Turn Signal (COSA)	D-12	2
Relay - Stop Lamp	H-4	55	Switch - Wiper / Washer	I-5	27
Solenoid - HVAC Compressor Clutch	E-4	9	Thermostat (HVAC)	E-7	20





Machine Harness Connector And Component Locations

Attachment & Cab Connector Location		
Connector Number	**Schematic Location**	**Machine Location**
CONN 4	I-3, I-4	13
CONN 5	H-5	55
CONN 8	G-3	34
CONN 9	F-15	34
CONN 11	G-15 , G-11	34
CONN 12	H-15 , H-11	34
CONN 20	H-6 , F-6	42
CONN 24	E-3	13
CONN 34	H-15 , H-12 , H-3	34
CONN 35	I-7 , I-8, I-13	1
CONN 36	I-3	13
CONN 37	I-6	43
CONN 38	E-4	9

The connectors shown in this chart are for harness to harness connectors. Connectors that join a harness to a component are generally located at or near the component. See the Component Location Chart.

Related Electrical Service Manuals	
Title	**Form Number**
K3A Alternator: 239-0772	SENR5841
R2.7KW Electric Starting Motor: 143-0539	SENR3828
Auxiliary Hydraulic Control system:	RENR2893
Operator Interlock Control:	RENR2864

CATERPILLAR®

RENR6419-04
December 2007

Schematic

Skid Steer Loaders:
216B, 216B2, 226B, 226B2, 232B, 232B2, 236B, 236B2, 242B, 242B2, 246B, 248B, 252B, 252B2, 262B, 268B

Multi Terrain Loaders:
247B, 247B2, 257B, 257B2, 267B, 277B, 287B

Electrical System

216B: RLL1-6799	**232B2:** SCH2475-2824	**246B:** PAT1-UP	**252B2:** SCP4600-5409	**268B:** LBA1-UP
216B2: RLL6800-7699	**236B:** HEN1-6749	**247B:** MTL1-5074	**257B:** SLK1-7299	**277B:** MDH1-UP
226B: MJH1-10574	**236B2:** HEN6750-8069	**247B2:** MTL5075-5699	**257B2:** SLK7300-8299	**287B:** ZSA1-UP
226B2: MJH10575-12174	**242B:** BXM1-4224	**248B:** SCL1-UP	**262B:** PDT1-UP	
232B: SCH1-2474	**242B2:** BXM4225-4774	**252B:** SCP1-4599	**267B:** CYC1-UP	

Volume 2 of 2: Cab

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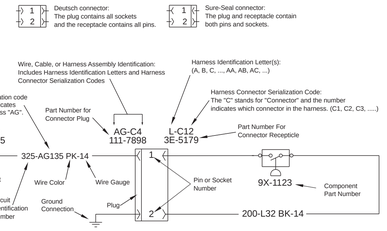
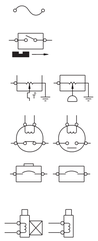
Harness And Wire Electrical Schematic Symbols



Electrical Schematic Symbols And Definitions



FUSE - A component in an electrical circuit that will open the circuit if too much current flows through it.

REED SWITCH - A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch; it opens the contacts of a normally closed reed switch.

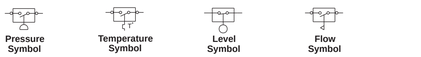
SENDER - A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.

RELAY (Magnetic Switch) - A relay is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close the switch part of the relay.

CIRCUIT BREAKER (C/B) - A component in an electrical circuit that will open the circuit if too much current flows through it. This does not destroy the circuit breaker and it can be reset to become part of the circuit again.

SOLENOID - A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a piece of metal that can do work.

Electrical Schematic Symbols And Definitions



Pressure Symbol | **Temperature Symbol** | **Level Symbol** | **Flow Symbol**

Normally open switch that will close with an increase of a specific condition (temp-press-etc.).

Normally open switch that is closed due to an applied condition, and will open again with a specific decrease in that condition.

Normally closed switch that will open with an increase of a specific condition.

Normally closed switch that is open due to an applied condition, and will close again with a specific decrease in that condition.

The circle indicates that the component has screw terminals and a wire can be disconnected from it.

No circle indicates that the wire cannot be disconnected from the component.

This indicates that the component has a wire connected to it that is connected to ground.

This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.

RENR6419-03 VOL 2 of 2
20 Page, (Dimensions: 39 inches x 24 inches)

RENR6419-04 VOL 2 of 2

20 Page, Color 2, (Dimensions: 39 inches x 24 inches)

EAME CAB

NACD CAB

LH PANEL

RH PANEL

ROADING LAMP HARNESS AND JUMPER ATCH

WASHER PUMP AND WIPER / WASHER ATCH

HEATER GP ATCH

STOP LAMP SW ATCH

MACHINE SECURITY SYSTEM ATCH

REAR AUXILIARY HYDRAULIC ATCH

HVAC [ATCH]

DUAL CONT [ATCH]

DEMAND FAN [ATCH]

CKT	PART NO.	CHG	LOC	NOTE	DESCRIPTION
					HARNESS AS - CHASSIS
C	216-4752	07	SHZ		CAB
CN	235-7999	04	SHZ	H-11	CAB - RADIO ONLY
F	272-1626	02	SH 2 C-2		DEMAND FAN
G	216-4711	04	SHZ G-4		STOP LAMP SW
J	233-5824	01	SHZ C-7		DUAL CONT - SHUT PLR
JJ	233-5825	01	SHZ C-7		DUAL CONT - SHUT PLR 1
JJJ	233-5826	01	SHZ C-7		DUAL CONT - SSL INP PLT 1
JJK	233-5826	01	SHZ C-7		DUAL CONT - SSL INP PLT 2
K	216-4753	04	SHZ C-7		HEATER (CONN, CRNR, DRN ONLY)
L	216-4755	04	SH1 D-3		REAR SCREEN
N	216-4725	04	SH1 C-7		WORK TOOLS - 3R
P	233-7961	01	SH1 C-7		WORK TOOLS - ARO
R	216-4754	04	SH1 D-3		JOYSTICK - RIGHT
S	216-4724	04	SH1 C-7		WIPER / WASHER SYSTEM
T	221-5876	04	SH1 C-7		WIPER / WASHER
V	221-5877	05	SH2 C-7		WIPER / WASHER AUX
W	221-5878	04	SH1 D-3		AIR CONDITIONER
WJ	221-5879	03	SH1 D-3		AIR CONDITIONER
WJ	253-2156	01	SH2 E-4		AC COMPRESSOR JUMPER
X	198-3362	06	SH1 C-12, H-14		HORN JUMPER
XJ	216-4727	03	SH2 H-2		ROADING LAMP EXTENSION
XJ	233-7960	01	SH2 H-2		ROADING LAMP (FRONT SIDE) HR
XJ	233-7960	02	SH2 H-2		ROADING LAMP (FRONT SIDE) ARO
LJ	198-3239	01	SH1 C-15	E	LH REAR LAMP EXTENSION
RJ	235-8009	01	SH1 A-8		RH REAR LAMP
RJ	212-4534	02	SH2 H-2	D	RH ROADING LAMP
W	233-8012	01	SH1 D-9		WORK TOOLS - PLATFORM (ITALY ONLY)
W	233-8012	01	SH1 D-9		WORK TOOLS - PLATFORM
-	218-5847	00	SH 2 H-6	S	HEATER UNIT
-	218-5848	00	SH 2 H-6	S	HEATER AUTOMATIC UNIT
-	296-2828	00	SH2 D-15		DIODE (SERVICE METER)
-	296-2828	00	SH2 D-13		DIODE (SERVICE METER)
					HARNESS AS - ENG, ENG ACC, ACT, SHT
E	216-4722	04	SH1 C-12		LOWER PLATFORM
E	216-4721	04	SH1 C-12		ENGINE
F	258-4199	03	SH1 D-13		UPPER PLATFORM
FJ	202-2166	01	SH1 F-12	F	FUEL LEVEL JUMPER
FJ	233-8017	01	SH1 F-12		FUEL LEVEL JUMPER
					HARNESS AS - ENG, ENG ACC, ACT, SHT
A	203-9002	04	SH1 F-1		LOWER PLATFORM
EA	264-9106	01	SH1 C-8		ENGINE
EJ	270-2702	00	SH1 C-8		JUMPER-BLOCKING DIODE
P	258-4199	03	SH1 D-13		UPPER PLATFORM
PA	262-1159	01	SH1 F-10		UPPER PLATFORM
					WIRE AS -
BK	223-9313	01	SH1 B-7, H-12		STARTING BRACKET JUMPER
HC	245-1911	02	SH1 E-13		SUPLR JUMPER
HE	245-1911	02	SH1 E-13		SUPLR JUMPER
PR	225-7982	01	SH1 B-9		BATR BRK TO PWR STUD
-	133-9691	00	SH1 A-5	R	HORN FLOW JUMPER
-	133-9692	00	SH1 A-5	R	HORN FLOW JUMPER
-	155-0312	00	SH2 I-12	N	BEACON
-	370-3333	00	SH 2 C-5		WIRE AS.
-	370-3334	00	SH 2 C-5		WIRE AS.
-	157-5430	00	SH 2 C-5		WIRE AS.
-	134-3985	00	SH 2 C-11, C-15		SEAT SWITCH
					HARNESS AS - ENG, ENG ACC, ACT, SHT
GA	232-7305	01	SH1 A-16, I-16		MAGNUM GROUND
GC	142-7913	02	SH1 G-11		BATTERY POS TO STARTER (BETA MAGN)
GJ	225-7954	01	SH1 F-9,9		BATTERY POS TO STARTER (ALPHA MAGN)
					STARTER
-	88-4965	01	SH1 C-15		UPPER POWER WIRE TO LOWER POWER WIRE
-	70-1080	00	SH1 H-10		ENG FLYWHEEL WIRE TO ENG GND
-	70-1080	00	SH1 B-7		ENG FLYWHEEL WIRE TO ENG GND
-	70-1080	00	SH2 H-11		ARO TANK TO ENG GND
-	70-1080	00	SH2 H-11		HYD TANK TO ENG GND

WIRE GROUP COLOR DESCRIPTIONS
WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS OFF.
WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON.
STARTING CIRCUIT.
GROUND CIRCUIT.
STARTING AID CIRCUIT.
MONITOR CIRCUIT.
AUX. HYDRAULIC CONTROL CIRCUIT.
IMPLEMENT CONTROL CIRCUIT.
MACHINE SECURITY CONTROL CIRCUIT.
OPERATOR INTERLOCK CONTROL CIRCUIT.
HEATER AND AIR CONDITIONER CIRCUIT.
TURN SIGNAL/WIPER/WASHER CIRCUIT.

SYMBOL	DESCRIPTION
	BLADE, SPADE, RING, OR SCREW TERMINAL
	SPLICE
	CIRCUIT NOT CONNECTED
	ELECTRICAL CONNECTION TO MACHINE STRUCTURE
	INTERNAL ELECTRICAL CONNECTION TO SURFACE OF COMPONENT
	CONNECTOR
	ATCH WIRE, CABLE & COMPONENT
XX#	CIRCUIT GROUPING DESIGNATION

ABBREV	COLOR
RD	RED
WH	WHITE
OR	ORANGE
YL	YELLOW
PK	PINK
BK	BLACK
BU	BLUE
PU	PURPLE
BR	BROWN
GN	GREEN
GU	BLUE

THIS DIAGRAM IS FOR THE 8 SERIES
SKID STEER AND MULTI-TERRAIN LOADERS 216-6435 CHS.52

THIS DIAGRAM IS FOR THE FOLLOWING MODELS:

2160 (SL539) - 2298 (SL516) - 2328 (SL555) - 2428 (SL519) (SKID STEER LOADER)
2470 (SL522) - 2476 (SL525) (MULTI-TERRAIN LOADER)
2566 (SL517) - 2468 (SL516) - 2488 (SL527) - 2520 (SL525) - 2628 (SL521) - 2686 (SL528) (SKID STEER LOADER)
2578 (SL524) - 2778 (SL535) - 2878 (SL538) (MULTI-TERRAIN LOADER)

COMPONENTS ARE SHOWN INSTALLED IN A FULLY OPERABLE MACHINE WITH THE ENGINE RUNNING OFF AND THE TRANSMISSION SHIFTER IN NEUTRAL AND DOOR OPEN.

LOCATION NOTE

VARIOUS	NOTE A: WIRE PAIRS TO BE TWISTED TOGETHER AT LEAST ONE TURN PER 25 mm
VARIOUS	NOTE B: ASSEMBLE TERMINALS TO STUD
SH 1 B-10, C-13 SH 2 B-9, B-7, I-4	NOTE C: IF ROADING LAMP ATCH-WIRE IS USED, CONN KJ-C2 TO P-C17 (OR PA-C17) AND KJ-C3 TO A-C1
SH 2 F-1, F-3	NOTE D: IF REAR AUX HYD ATCH-WIRE IS USED, CONN RH-C2 TO E-C1 AND RH-C3 TO E-C1
SH 1 C-14	NOTE E: USE FUEL LEVEL SENDER EXTENSION HARNESS ONLY ON 287, 277, OR 287 MACHINES
SH 1 F-12	NOTE F: USE FUEL LEVEL SENDER EXTENSION HARNESS ONLY ON 287, 277, OR 287 MACHINES
SH 1 D-13, B-10	NOTE J: FOR 885 HYDX REMOVE CONN PC-J4 (OR PA-CP2) AND THEN CONNECT P-J25 (OR PA-J25) TO P-CP2
SH 1 A-5	NOTE K: JUMPER AS, REQUIRED FOR USE WITH TWO-SPEED SOLENOID FOR HIGH FLOW HPS MACHINES REMOVE JUMPER AS, AND CONNECT PRESSURE SWITCH TO CONNECTOR K-J1
SH 1 E-9	NOTE L: CKT 9561 FOR THE SPEED SOLENOID FOR USE WITH MODELS 264, 248, 252, 262, 267, 277, 246, AND 289
SH 2 H-11	NOTE N: CKT 152 FOR USE WITH EAME MACHINES ONLY
SH 2 C-12	NOTE R: REMOVE JUMPER WHEN USING BRAZON BRUTOR
SH 1 E-13	NOTE S: JUMPER AS, REQUIRED FOR USE WITH TWO-SPEED SOLENOID ATCH
SH 2 D,F-9	NOTE X: HARNESS SUPPLIED WITH AIR CONDITIONING UNIT
SH 2 H-5	NOTE Y: HARNESS SUPPLIED WITH HEATER UNIT
SH 1 I-8	NOTE T: ASSEMBLE TERMINALS INTO CONNECTOR CALLED CALLED OUT IN GROUP LEVEL STARTING MACHINE ASSEMBLY