

Wire Description					
Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
Power Circuits					
101	RD	Belt (1)	501	GN	Wiper - Front Left
103	RD	Domo Lamp	506	PU	Washer - Front
105	RD	New Alternator	508	PU	Radio Speaker Left
109	RD	All Output (+) Term.	509	WH	Radio Speaker Left (Common)
110	RD	Timer Relay	511	BR	Radio Speaker Right
111	RD	Engine Pump Control	512	GN	Radio Speaker Right (Common)
112	PU	Main Power Rly Output	513	GR	A/C Compressor/Refrigerant Pressure Sw.
113	DR	VMSB B+ Switched	519	PK	Thermistor to A/C Pressure Sw
114	RD	Warning Horn (Forward)	524	BU	Wiper - Left Low
115	RD	Cap / Chassis Lamp	579	BR	A/C Blower Motor No.1
116	GY	Wiper / Wiper	580	GY	Wiper Sw To Intermittent Module
120	YL	A/C Converter	A237	PK	Seat Heater
124	RD	A/C	A288	DR	Wiper Sw To Wiper Cont
129	BU	Clear Lighter	A288	GN	Safety Sol Relay To Sol
135	BU	Radio / TV Socket	C537	GN	A/C Photo Sensor + Sig
139	DR	Hyd Lock Solenoid	C538	DR	A/C Photo Sensor - Sig
140	BU	Lubricator	C576	BU	Switch #1 to Medium Pressure Sol #1
147	PU	Aux Gnd	C577	GY	Switch #1 to Medium Pressure Sol #2
149	PU	Boom Lamp	C578	YL	Radio Switch to Radio
150	RD	Hyd Lock Sw.	C592	WH	Diode to Battery Relay
Lighting Circuits					
151	GN	Neutral Start Limit Sw.	607	PK	Flood Lamp - Front
152	BU	Aux Gnd	615	YL	Cap Flood Lamp
154	RD	Neutral Start Limit Sw.	616	BU	Boom Flood Lamp
168	RD	Refueling Pump	633	BU	Flash Lighting Ckt
172	RD	Engine Governor	638	WH	Rotary Beacon
173	YL	Seat Heater	Control Circuits		
176	YL	Aux Gnd	763	BU	Torque Converter SW
177	RD	Main Brk	786	GN	Engine Speed Cont - Hi Press SW
178	GN	Main Brk	788	YL	Engine Speed (1)
179	BU	Key Power	791	RD	Engine Speed Cont - Lo Sol
180	GN	Aux Gnd	A718	PU	Start Aux Control Sensor Signal
185	YL	Backup	A756	PK	Throttle SW #1
189	RD	Time Relay	A756	PK	Throttle SW #2
191	WH	Aux Gnd	A757	GY	Throttle SW #3
196	BU	Inspection Lamp	A758	BR	Electronic Pump Cont
Ground Circuits					
200	BK	Main Chassis	A761	PU	Electronic Pump Cont
201	BK	Operator Monitor Return	A762	PU	Electronic Pump Cont
210	BK	Converter Output (24V/2 Volt)	A768	GY	Pump Control Valve #1 (+)
235	BK	Electronic Pump Cont Gnd	A769	GY	Pump Control Valve #2 (-)
Basic Machine Circuits					
304	WH	Starter Relay No.1 Output	A770	PK	Electronic Pump Control Bypass Sw. to Resistor
306	GN	Starter Relay Coil to Neutral Start Sw. or Key Sw.	A771	PK	Fuse SW
307	DR	Key SW to VMSB Sensor Module	FF71	DR	Backup SW
308	YL	Main Power Relay Coil	FF73	DR	Governor Accel
309	GY	Alternator Regulator Terminal	FF74	WH	Governor Decel
310	PU	Start Aux SW To Start Aux Sol	A703	PK	Pin Pulse Sw To Aux Start Relay
319	YL	Air Heater Sw. to Air Heater Relay	877	YL	Flow Plug Magnets Sw. to Glow Plug
320	DR	Horn Relay, Coil To SW	954	GN	Hammer SW A
321	BR	Backup Alarm Lamp Travel Alarm	955	BU	Hammer SW A
322	GY	Backup Alarm Lamp Travel Alarm	K304	GN	Pump Discharge Sig
323	WH	Fuel Pump Power	K305	RD	Pump Discharge (1) B
325	PK	Fuel Pump Relay Coil-Out	K306	GN	Swing Brake Sol Signal
327	PK	Shutdown Sol	K307	BU	Swing Brake Sol (+) B
330	YL	Neutral Start Relay Coil	K308	BU	Swing Brake Sol (+) B
365	YL	Fuel Pump Relay To SW	K311	PK	ESP Controller RS485 (+)
Monitoring Circuits					
403	GN	Alternator Oil Term.	K312	GN	ESP Controller RS485 (-)
405	GY	Op Men Oil Press. (Low Setting)	K367	BU	DI V Sensor
412	BU	Op Men Cool Flow	L509	GR	Controller RS-232C Tx
430	BU	Op Men Air Filter	L568	GR	Electronic Pump Control Pa Valve (-)
487	DR	Hyd Oil Flow SW	L569	WH	Electronic Pump Control Pa Valve (+)
491	PK	Hyd Oil Pump Sensor	L570	DR	Electronic Pump Control To Switch Common Return
492	GY	Coolant Temp Sensor Signal	L571	GN	Electronic Pump Control To Travel Pressure Sol
495	GN	Fuel Level Signal	L572	BU	Low Idle Switch
498	WH	Op Men Thresh Hyd Oil Level	L574	GN	Electronic Pump Control to Boom Raise Pressure Sw
6468	BU	Engine Oil Level	L675	PK	Start Aid Control Lamp Output
14114	YL	Warning Switch to Alarm	L676	GN	Excavator Fuel Pump Switch
14115	BR	Alarm to Warning Pressure Switch	L677	YL	Trenching Sol
Accessory Circuits					
500	BR	Wiper - Front (Parks)	L678	GY	Level Finish Sol
			8630	BU	Lamp Relay

Component Location Chart					
Component	Schematic Location	Machine Location	Component	Machine Location	Schematic Location
Actuator - Eng Governor	D-9	D	Sensor - A/B Coolant Temp	C-8	21
Air Heater	B-9	3	Sensor - A/C Photo	F-2	A
Alarm - Travel	D-9	3	Sensor - Fuel Level	A-2	23
Alternator	C-4	4	Sensor - Pump Discharge Press	A-7	24
Battery	E-9, F-9	6	Solenoid - Air Conditioner Clutch	B-6	26
Breaker 1 - Bat	G-9	D	Solenoid - ATCH Hammer	G-2	G
Breaker 1 - Bat	H-9	D	Solenoid - ATCH Medium Press	B-7	23
Breaker 2	G-9	D	Solenoid - Engine Shutdown	A-9	F
Breaker 3	H-9	D	Solenoid - Eng Pump Cont	A-7	F
Control - Eng/Pump	B-4-C-4	7	Solenoid - Hydraulic Lock	H-2	G
Control - Wiper	E-2	A	Solenoid - Level Finish	A-7	F
Converter-12V 7A	B-5	9	Solenoid - Swing Brake	A-2	32
Engine Speed Pickup	B-6	25	Solenoid - Travel Speed	A-7	F
Fuse - Blower	J-4, B	C	Solenoid - Trenching	A-7	F
Group - ATCH Conditioner	H-6	18	Switch - Air Cleaner	D-8	35
Group - Heater	H-6	18	Switch - Air Heater	H-7	C
Indicator - Hydraulic Oil Filter	B-7	E	Switch - ATCH Aux	D-4	B
Motor - Service	F-2	A	Switch - A TCH Hammer Press	G-2	G
Motor - Lower Wiper	F-2	A	Switch - ATCH Overload Warning	D-5	B
Motor - Starter	B-6	14	Switch - ATCH Overload Warning, Press	D-2	G
Motor - Upper Wiper	G-1	A	Switch - ATCH Radio	D-4	B
Motor/Washer	F-9	1	Switch - A TCH Refrigerant Low Press	B-8	26
Multiposition Joystick LH	J-2	C	Switch - ATCH Refueling Start	B-2	29
Multiposition Joystick RH	F-3	B	Switch - ATCH Refueling Stop	B-2	30
Pump - ATCH Refueling	B-2	17	Switch - A TCH Rotating Beacon	D-4	B
Pump - Auto Lubrication	E-9	16	Switch - A TCH Seat Heater	D-4	B
Relay - Air Heater	G-7	D	Switch - Backup EPR Valve	D-4	C
Relay - Aux Hydraulic	J-9	D	Switch - Backup Gov	D-5	C
Relay - Boom Lamp	J-9	D	Switch - Boom Raise Press	C-7	34
Relay - Chassis/Cab Lamp	J-9	D	Switch - Coolant Level	E-9	36
Relay - Heater	J-7	D	Switch - Disconnect	G-9	D
Relay - Hydraulic Lock Solenoid	J-9	D	Switch - Engine Oil Level	A-9	37
Relay - Main	H-7	D	Switch - Engine Oil Pressure	B-8	38
Relay - Neutral Start	J-7	D	Switch - Hydraulic Lock Solenoid	B-7	E
Relay - Refueling 1	B-2	19	Switch - Implement Swing Press	C-7	39
Relay - Refueling 2	B-2	20	Switch - Key	B-3	B
Relay - Start	H-7	D	Switch - Neutral Start Limit	J-2	C
Relay - Start Cont	J-9	D	Switch - Panel	F-3	B
Relay - Time	J-7	D	Switch - Refueling Level	A-2	41
Resistor - Backup	H-9	D	Switch - Throttle Position	E-3	C
Sender - Coolant Temp	C-8	22	Switch - Travel Press	C-7	31
Sender - Hydraulic Oil Temp	B-7	E	Switch - Winch/hold	E-2	A
			Timer - Engine Shutdown	H-7	D
			Unit - Heater Control	J-8	D

Machine locations are repeated for components located close together:

- D - Located on or near relay panel.
- E - Located near hydraulic oil tank
- F - Located near pilot manifold
- G - Located on or near bottom platform
- A - Located in the cab
- B - Located in the left-hand console
- C - Located in the right-hand console.

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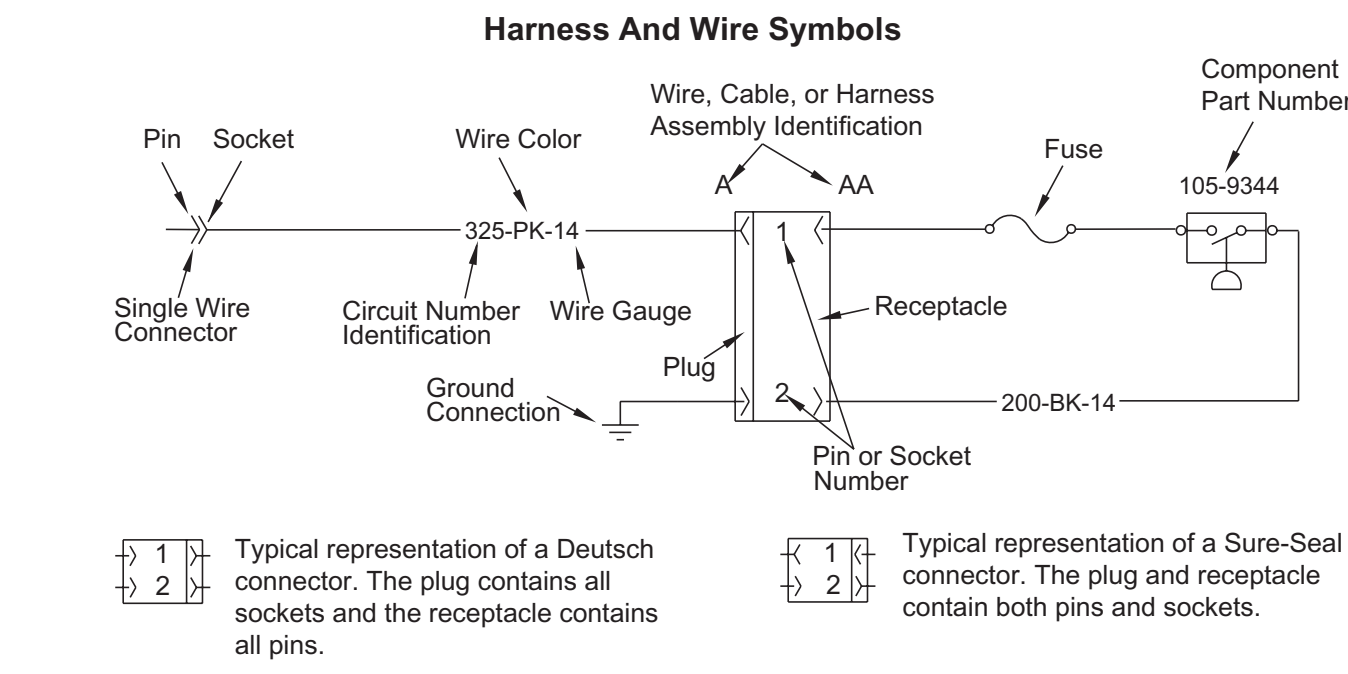
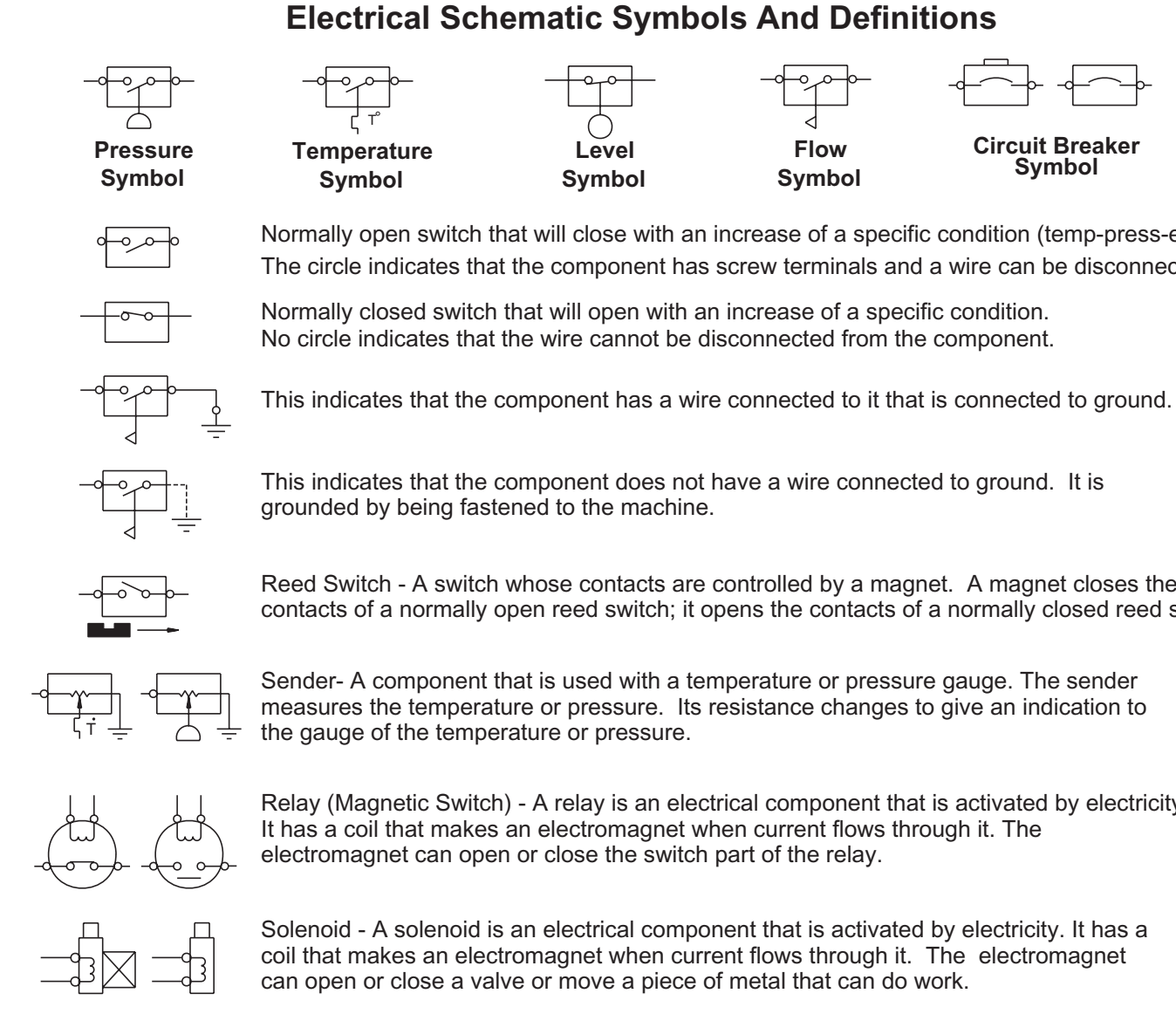
REN7932
October 2002

Schematic

317B & 318B Excavator Electrical System

317B:
9WV656-UP
6DZ564-UP

318B:
ADC666-UP
AEJ468-UP

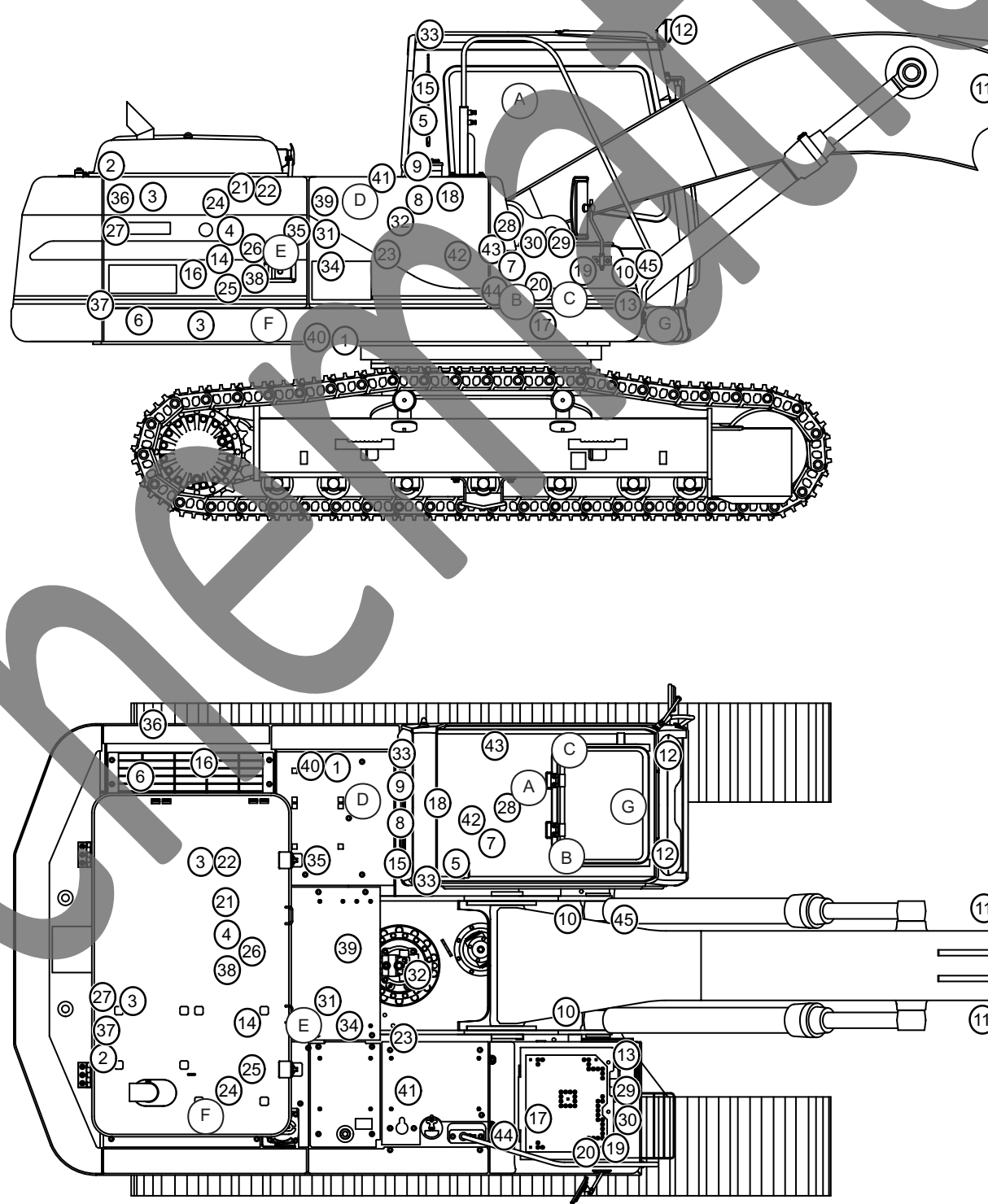


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Connector Location		
Connector Number	Schematic Location	Machine Location
CONN 1	G-8	D
CONN 2	H-9	D
CONN 3	G-8	D
CONN 4	G-8	D
CONN 5	D-8	D
CONN 6	D-8	D
CONN 7	D-7	D
CONN 8	G-7	D
CONN 9	F-6	G
CONN 10	E-6	G
CONN 11	E-6	G
CONN 12	E-6	G
CONN 13	C-6	A
CONN 14	C-6	A
CONN 15	C-6	A
CONN 16	C-6	A
CONN 17	C-6	A
CONN 18	C-6	A
CONN 19	B-5	G
CONN 20	B-5	G
CONN 21	H-5	G
CONN 22	H-5	G
CONN 23	H-5	G
CONN 24	H-4	G
CONN 25	H-4	G
CONN 26	D-3	7
CONN 27	D-3	7
CONN 28	C-2	32
CONN 29	B-2	17
CONN 30	B-2	19
CONN 31	B-2	19
CONN 32	A-2	41

Related Electrical Service Manuals	
Title	Form Number
Alternator	SEN1423
Starting Motor	REG00943
Engine/Pump Control	REN1998
Starting And Charging	REN1044



Machine Harness Connector And Component Locations

Resistor, Sender and Solenoid Specifications			
Part No.	Component Description	Resistance (Ohms) ¹	
102-8015	Resistor	41.00 ± 2.05	
105-9911	Sender	Fuel Level	Full: 8.25 ± 0.75 Half: 33.8 ± 2.0 Empty: 83.5 ± 1.5
111-9816	Solenoid	Engine Pump Control	1.7 ± 1.2
121-1490	Solenoid	Level Finish Trenching	32.0 ± 3.2
121-1491	Solenoid	Travel Speed Hydraulic Lock Swing Brake	32.0 ± 3.2
41-5384	Sender	Hydraulic Oil Temperature	130 to 7500

¹ At room temperature unless otherwise noted.

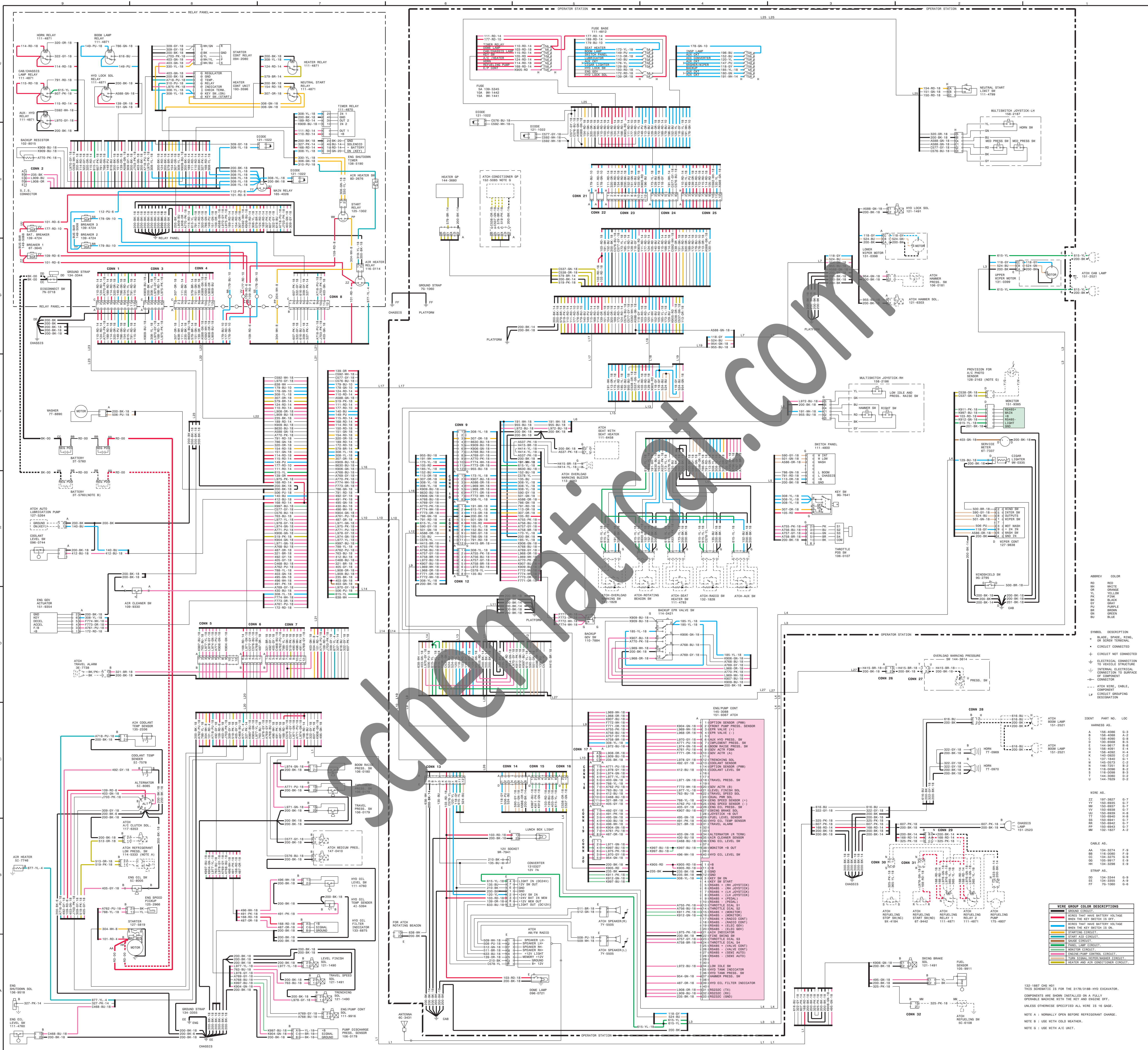
Off Machine Switch Specification				
Part No.	Function	Actuate	Deactuate	Contact Position
106-0179	Implement Pressure	1520 ± 80 kPa (220 ± 14 psi)	1120 kPa (160 psi)	Normally Open
106-0180	Boom Raise Pressure	2646 ± 136 kPa (384 ± 20 psi)	2166 ± 108 kPa (314 ± 16 psi)	1/2 Normally Open 1/3 Normally Closed
106-0181	Hammer Pressure	490 ± 24 kPa (71 ± 3.5 psi)	290 kPa (42 psi)	Normally Open
109-6330	Air Cleaner	685 ± 34 mm H ₂ O	-	Normally Open
114-6333	Refrigerant Pressure (A/C)	275 to 2800 kPa ¹ (40 to 405 psi)	-	Open

¹ A hysteresis band exists: 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 (25 psi).

² Contact position at the contacts of the harness connector.

Real Time Error Codes	
Code	Description of Problems
1301	Engine oil pressure is too low.
1302	Engine coolant temperature is too high.
1303	Hydraulic oil temperature is too high.
1364	Air filter is clogged.
1365	Battery voltage is not normal.
2201	Governor actuator feedback sensor circuit is open or shorted to battery voltage.
2202	Governor actuator feedback sensor circuit is shorted to body ground.
2201	Governor actuator feedback signal is not stable.
2302	Governor actuator feedback signal deviates.
2303	Governor actuator does not move.
2304	Calibration data error.
3201	Monitor RPM is not normal.
4101	Electric power supply to the controller is too much (43 volts).
4102	Over-current in proportional reducing valve.
4103	Proportional reducing valve circuit is open.
4104	Monitor power supply (digital output) over current.
4105	Over-current in digital output (trenching solenoid).
4106	Over-current in digital output (line control solenoid).
4107	Over-current in digital output (travel speed change solenoid).
4108	Over-current in digital output (travel alarm).
4109	Spare solenoid 1 (digital output) over current.
410A	Over-current in digital output (swing brake solenoid).
410B	Spare solenoid 2 (digital output) over current.
4201	Engine speed is not normal.
4202	Engine coolant temperature sensor is shorted to body ground.
4203	Hydraulic oil temperature sensor is shorted to body ground.
4204	PWM sensor of pump delivery pressure is shorted to body ground.
4205	Spare PWM sensor 1 is shorted to body ground.
4206	Spare PWM sensor 2 is shorted to body ground.
4207	PWM sensor of pump delivery pressure is open in circuit.
420A	Fuel sensor is shorted to body ground.
420B	Fuel sensor is open or shorted to battery voltage.
420C	Electric power supply is too low (below 23 volts).
420D	Electric power supply is too high (above 32 volts).
420E	Engine speed dial is not in one of the 10 specified positions.
4301	Data mismatch 1 between alternator and speed sensor (alternator is abnormal).
4302	Data mismatch 2 between alternator and speed sensor (speed sensor is abnormal).
4303	Engine stalls.
A201	Monitor communication is not normal.
A202	Monitor takes too much time to respond to controller's signal.
A203	Communication is abnormal in controller.

REN7932



ABBREV COLOR

RD	RED
WH	WHITE
OR	ORANGE
YL	YELLOW
PK	PINK
BL	BLACK
PU	PURPLE
BR	BROWN
GR	GREEN
BLU	BLUE

- SYMBOL DESCRIPTION
- + BLADE, SPARE, RING, OR SCREW TERMINAL
 - + CIRCUIT CONNECTED
 - CIRCUIT NOT CONNECTED
 - ⊖ ELECTRICAL CONNECTION TO VEHICLE STRUCTURE
 - ⊖ INTERNAL ELECTRICAL CONNECTION TO SURFACE CONNECTOR
 - ⊖ CONNECTOR
 - ⊖ ATCH WIRE, CABLE, COMPONENT
 - LA CIRCUIT GROUPING

IDENT PART NO. LOC

A	116-4006	0-3
B	156-4008	A-2
C	156-4009	B-8
D	144-9617	B-6
E	156-4002	A-4
F	156-4002	A-4
G	156-4002	A-4
H	156-4002	A-4
I	156-4002	A-4
J	156-4002	A-4
K	156-4002	A-4
L	137-1840	0-1
M	148-0074	C-2
N	116-0098	B-2
O	116-0098	B-2
P	148-0074	C-2
Q	148-0074	C-2
R	148-0074	C-2
S	148-0074	C-2
T	144-3088	D-2
U	144-7929	0-2

WIRE AS:

Z7	197-9877	0-7
WV	150-9029	0-7
VV	150-9029	0-7
USU	100-9029	0-8
TT	100-9040	0-8
UU	100-9041	0-7
PP	100-9042	0-7
MM	102-1627	A-2

CABLE AS:

AA	134-2074	F-9
BB	134-2075	F-9
CC	134-2075	F-9
DD	134-2075	F-9
EE	134-2075	F-9
FF	100-9029	0-8

1321887-0001
THIS SCHEMATIC IS FOR THE 3178/3183-HYD EXCAVATOR.
COMPONENTS ARE SHOWN INSTALLED ON A FULLY OPERABLE MACHINE WITH THE KEY AND ENGINE OFF, UNLESS OTHERWISE SPECIFIED ALL WIRE IS 16 GAGE.
NOTE A : NORMALLY OPEN BEFORE REFRIGERANT CHARGE.
NOTE B : USE WITH COLD WEATHER.
NOTE G : USE WITH A/C UNIT.