

Wire Description					
Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
Power Circuits					
101	RD	Bat(+)	506	PU	Washer - Front
103	RD	Dome Lamp	508	WH	Radio Speaker-Left
105	RD	Key SW	509	WH	Radio Speaker-Left (Common)
109	RD	Air Output (+) Term	511	BR	Radio Speaker-Right
110	RD	Timer Relay	512	GN	Radio Speaker-Right (Common)
111	RD	Engine Pump Control	513	OR	A/C Compressor/Refrigerant Pressure Sw
112	PU	Main Power By Output	519	PK	Thermostat to A/C Pressure Sw
113	OR	WMS B+ Switched	524	BU	Wiper - Left (Low)
114	RD	Warning Horn (Forward)	579	BR	A/C Blower Motor No. 1
115	RD	Cab Chassis Lamp	590	GY	Wiper Sw To Intermittent Module
118	GY	Washer / Wiper	AS37	PK	Seat Heater
120	YL	A/C Converter	AS88	OR	Wiper SW To Wiper Cont
124	RD	A/C	AS89	GN	Safety Sol Relay To Sol
129	BU	Cigar Lighter	C537	GN	A/C Photo Sensor + Sig
135	BU	Radio / TV Socket	C538	OR	A/C Photo Sensor - Sig
139	OR	Hyd Lock Solenoid	C576	BU	Switch #1 to Medium Pressure Sol #1
140	BU	Lubricator	C577	GY	Switch #1 to Medium Pressure Sol #2
147	PU	Aux Ckt	C578	YL	Radio Switch to Radio
149	PU	Boom Lamp	C592	WH	Diode to Blade Relay
150	RD	Hyd Lock Sw	Lighting Circuits		
151	GN	Neutral Start Limit Sw	607	PK	Flood Lamp - Front
152	BU	Aux Ckt	615	YL	Cab Flood Lamp
154	RD	Neutral Start Limit Sw	616	BU	Boom Flood Lamp
168	RD	Refueling Pump	633	BU	Attach Lighting Ckt
172	RD	Engine Governor	638	WH	Rotary Beacon
173	YL	Seat Heater	Control Circuits		
176	YL	Aux Ckt	763	BU	Torque Converter SW
177	RD	Main Bkr	786	GN	Engine Speed Cont - HI Press SW
178	GN	Main Bkr	788	YL	Engine Speed (+)
179	BU	Key Power	791	RD	Engine Speed Cont - Lo Sol
180	GN	Aux Ckt	A718	PU	Start Aid Coolant Sensor Signal
185	YL	Backup	A756	PK	Throttle SW #1
189	RD	Timer Relay	A756	BU	Throttle SW #2
191	WH	Aux Ckt	A757	GY	Throttle SW #3
196	BU	Inspection Lamp	A758	BR	Throttle SW #4
200	BK	Main Chassis	A761	PU	Electronic Pump Cont
201	BK	Operator Monitor Return	A762	PU	Electronic Pump Cont
210	BK	Converter Output (24/12 Volt)	A768	BU	Pump Cont Valve #1 (+)
235	BK	Electronic Pump Cont Gnd	A769	GY	Pump Cont Valve #2 (+)
Basic Machine Circuits					
304	WH	Starter Relay Coil to Neutral Start Sw. or Key Sw.	F771	OR	Backup SW
306	GN	Starter Relay Coil to Neutral Start Sw. or Key Sw.	F772	WH	Backup SW
307	OR	Key SW to WMS Sensor Module	F773	OR	Governor Accel
308	YL	Main Power Relay Coil	F774	WH	Governor Decel
309	GY	Alternator Regulator Terminal	F774	WH	Governor Decel
310	PU	Start Aid SW To Start Aid Sol	J703	PK	All Pulse Sig. To Anti-Start Relay
320	RD	Horn Relay Coil to SW	871	YL	Glow Plug Magnetic Sw. to Glow Plug
321	BR	Backup Alarm Lamp Travel Alarm	954	GN	Hammer SW A
322	GY	Backup Alarm Lamp Travel Alarm	955	BU	Hammer Sol A
323	WH	Fuel Pump Power	K904	GN	Pump Discharge Sol
325	PK	Fuel Pump Relay Coil-Out	K905	RD	Pump Discharge (+) B
327	PK	Shutdown Sol	K906	GN	Swing Brake Sol Signal
330	YL	Neutral Start Relay Coil	K907	BU	Swing Brake Sol (+) B
365	YL	Fuel Pump Relay To SW	K909	BU	Backup SW (+) B
Monitoring Circuits					
403	GN	Alternator (R) Term	K911	PK	EIP Controller RS485 (+)
405	GY	Oil Mon Oil Press. (Low Setting)	K912	GN	EIP Controller RS485 (-)
412	BU	Oil Mon Cool Flow	K927	BU	I/O Sensor
430	BU	Oil Mon Air Filter	L908	OR	Controller RS-232C Tx
431	OR	Hyd Oil Flow Sw	L909	BU	Controller RS-232C Rx
491	PK	Hyd Oil Temp Sensor	L968	OR	Electronic Pump Control Psi Valve (-)
492	GY	Coolant Temp Sensor Signal	L969	WH	Electronic Pump Control Psi Valve (+)
495	GN	Fuel Level Signal	L970	GY	Electronic Pump Control To Switch Common Return
496	WH	Oil Mon Panel Hyd Oil Level	L971	GN	Electronic Pump Control to Travel Pressure Sw
498	BU	Engine Oil Level	L972	BU	Low Idle Switch
499	YL	Warning Switch to Alarm	L974	GN	Electronic Pump Control to Boom Raise Pressure Sw
1415	BR	Alarm to Warning Pressure Switch	L975	PK	Start Aid Control Lamp Output
Accessory Circuits					
500	BR	Wiper - Front (Park)	L976	GN	Excavator Fuel Pump Switch
501	GN	Wiper - Front (Low)	L977	YL	Trenching Sol
			L978	GY	Level Finish Sol
			8630	BU	Lamp Relay

Resistor, Sender and Solenoid Specifications			
Part No.	Component Description	Resistance (Ohms) ¹	
102-8015	Resistor: Backup	41.00 ± 2.05	
41-5394	Sender: Hydraulic Oil Temperature	6130 to 7500	
121-1490	Solenoid: Level Finish Trenching	32.0 ± 3.2	
121-1491	Solenoid: Travel Speed Hydraulic Lock Swing Brake	32.0 ± 3.2	
111-9916	Solenoid: Engine Pump Control	11.7 ± 1.2	

¹ At room temperature unless otherwise noted.

Off Machine Switch Specification				
Part No.	Function	Actuate	Deactuate	Contact Position
106-0179	Implement Pressure Travel Pressure	1520 ± 88 kPa (220 ± 14 psi)	1127 kPa MN (163 psi MN)	Normally Open
106-0180	Boom Raise Pressure	2648 ± 196 kPa (384 ± 28 psi)	2156 ± 196 kPa (313.00 ± 28.00 psi)	1-2 Normally Open 1-3 Normally Closed
106-0181	Hammer Pressure	490 ± 49 kPa (71 ± 7 psi)	290 kPa MN (42 psi MN)	Normally Open
9X-7781	Hyd Case Drain Pressure Hyd Pilot Filter Pressure Hyd Return To Tank Pressure Power Train Filter Pressure Steering Case Drain Pressure Steering Return Filter Pressure	210 ± 70 kPa (30 ± 10 psi)	--	Normally Open
111-9560	A/C Fan Override Pressure	1585 kPa ± 103 kPa (230 psi ± 14.9 psi)	1275 psi ± 103 kPa (185 psi ± 14.9 psi)	Normally Closed
114-5333	Refrigerant Pressure (A/C)	275 to 2800 kpa ¹ (40 to 406 psi)	--	Normally Open ²
118-8846	Front Pump Drive Lub Pressure	278 ± 28 kPa (40 ± 4 psi)	179 kPa MN (26 psi MN)	Normally Closed
128-5091	Neutralizer Pressure	551 kPa (80.3 psi)	344 kPa ± 20 kPa (49.9 psi ± 29 psi)	A-C Normally Closed A-B Normally Open
144-5661	Fuel Filter Pressure Hydraulic Cooling Filter Pressure Steering Cooling Filter Pressure	137.9 ± 13.8 kPa (20 ± 2 psi)	82.7 kPa MN (12.0 psi)	Normally Closed

¹With 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 (24psi).

²Contact position at the contacts of the harness connector.

Connector Location			
Connector Number	Schematic Location	Machine Location	Machine Location
CONN 1	G-9	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-5	A	
CONN 15	B-5	G	
CONN 16	B-5	G	
CONN 17	C-5	G	
CONN 18	C-5	A	
CONN 19	C-5	A	
CONN 20	C-5	7	
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	C-4	7	
CONN 27	A-4	7	
CONN 28	D-3	7	
CONN 29	D-2	45	
CONN 30	C-2	32	
CONN 31	B-2	17	
CONN 32	B-2	19	
CONN 33	B-2	19	
CONN 34	A-2	41	

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.



REN3271-01
October 2002

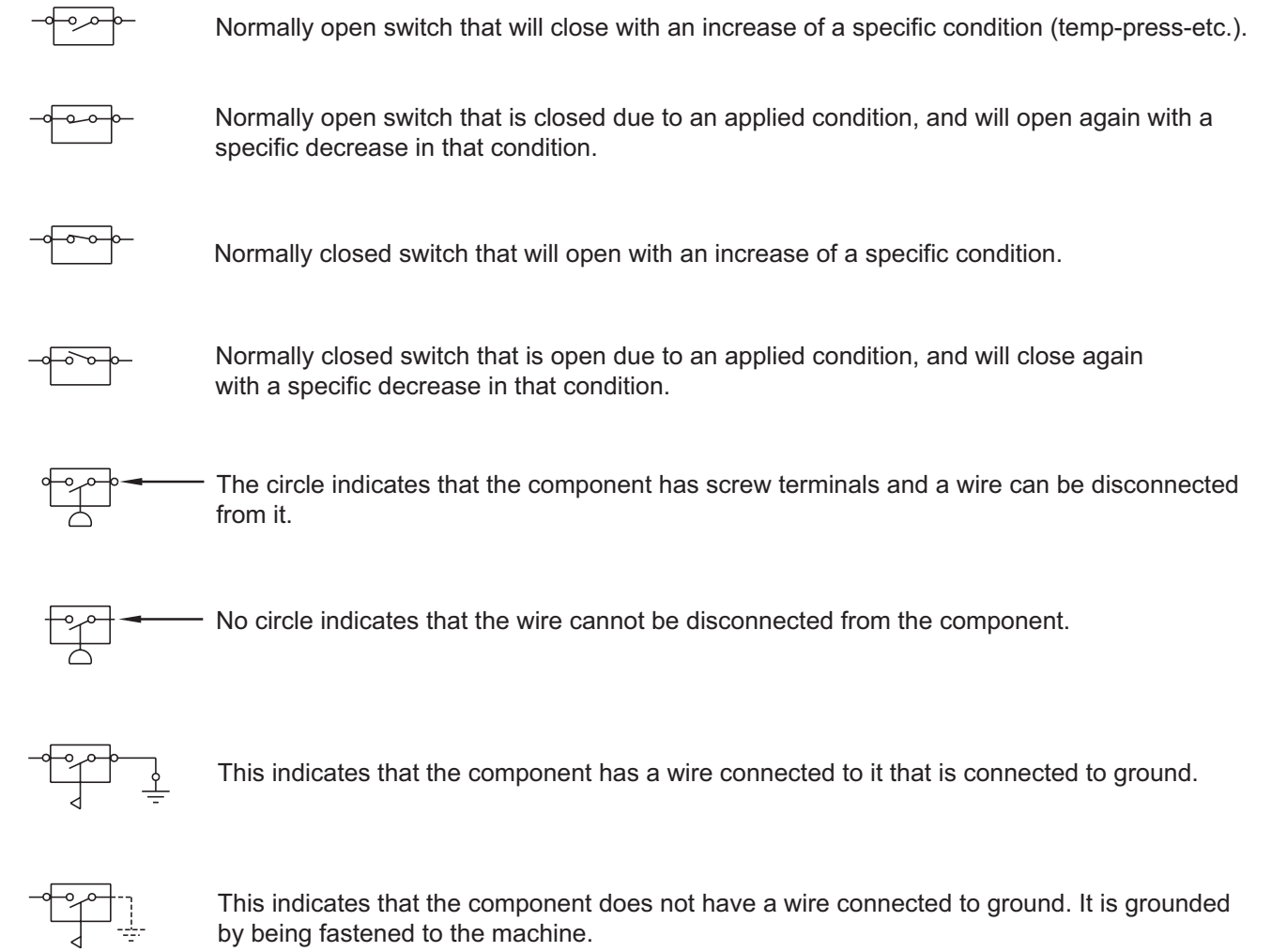
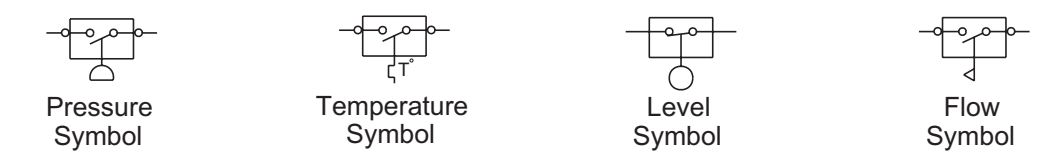
Schematic

317B & 318B Excavator Electrical System

317B:
9WVW-655
6DZ1-563

318B:
ADC1-665
AEJ1-467

Electrical Schematic Symbols And Definitions

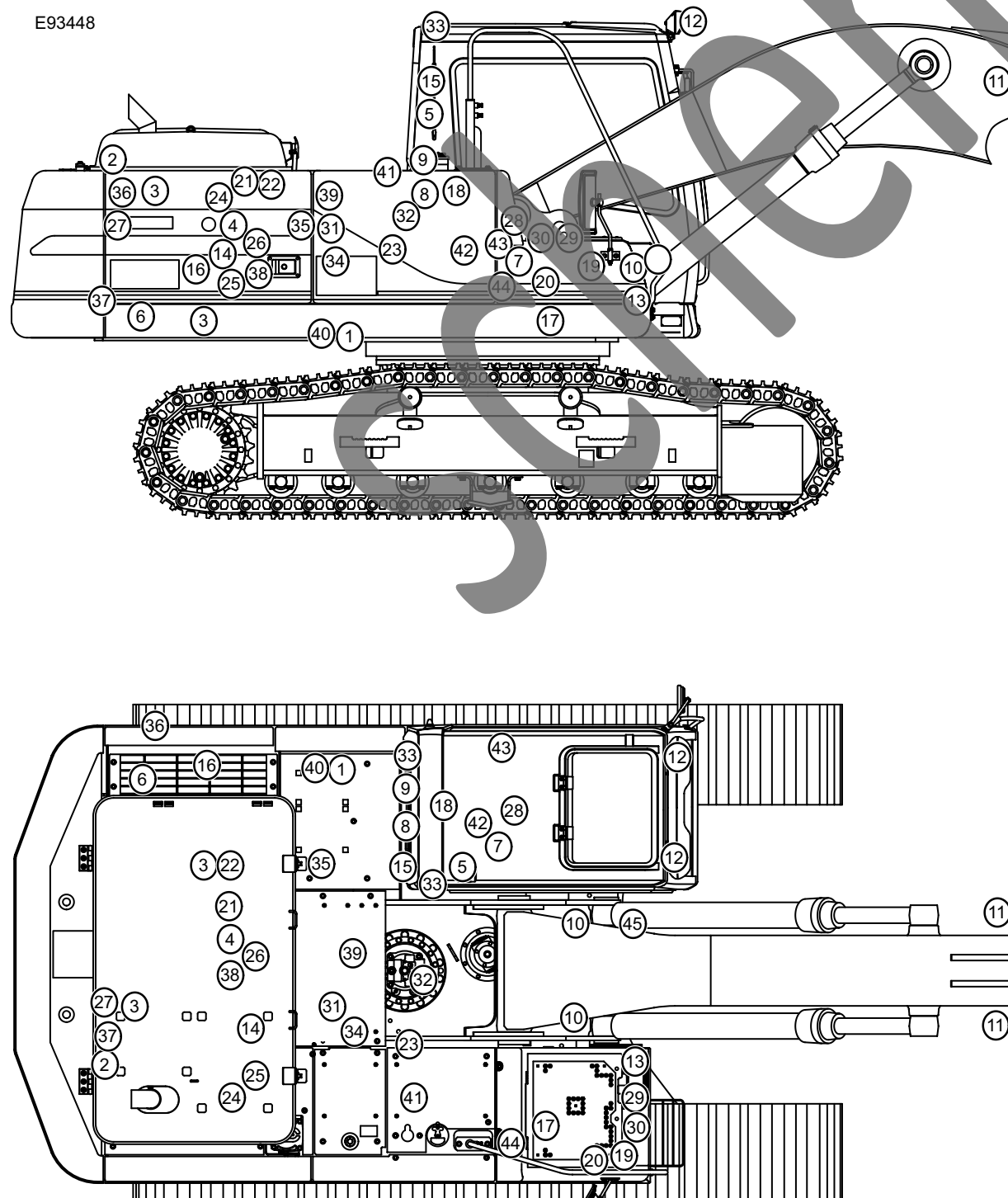


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Real Time Error Codes	
Code	Description of Problems
1301	Engine oil pressure is too low.
1302	Engine coolant temperature is too high.
1303	Hydraulic oil temperature is too high.
1304	Air filter is clogged.
1305	Battery voltage is not normal.
2201	Governor 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 RAM 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 (fine 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) to low (below 23 volts).
420D	Electric power supply (is) to 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 stall.
4301	Monitor communication is not normal.
A202	Monitor takes too much time to respond to controller's signal.
A203	Communication is abnormal in controller.

Related Electrical Service Manuals	
Title	Form Number
Alternator	SEN2143
Starting Motor	REG00843
Engine/Pump Control	REN1998
Starting And Charging	REN1044

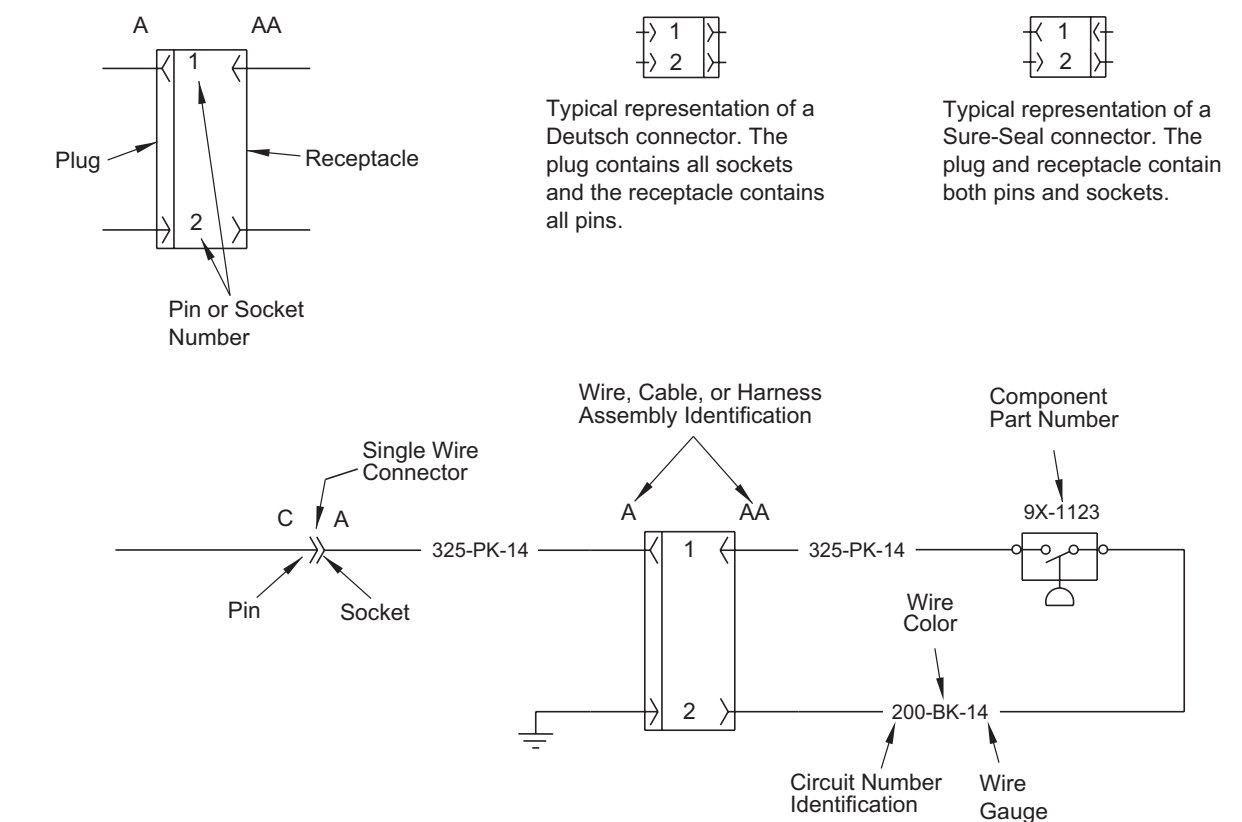


Machine Harness Connector And Component Locations

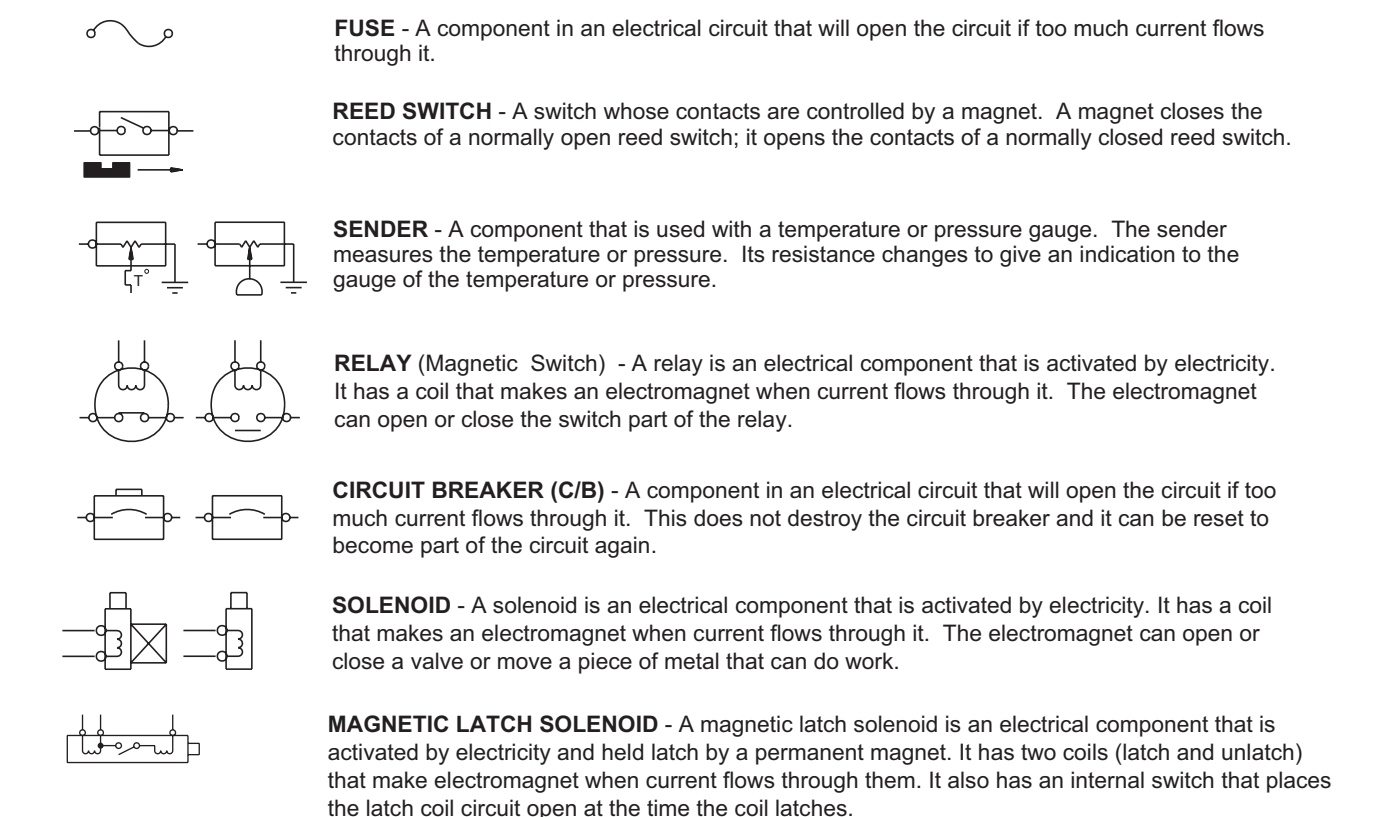
Component Location Chart				
Component	Schematic Location	Machine Location	Component	Machine Location
Actuator - Eng Governor	D-9	D	Relay - Timer	J-7 D
Air Heater	B-9	3	Resistor - Backup	J-9 D
Alarm - Travel	D-9	3	Seat With Seat Heater	F-5 28
Alternator	C-8	4	Sender - Coolant Temp	C-8 22
Antenna	A-8	5	Sender - Hydraulic Oil Temp	B-7 E
Battery	E-8, F-8	6	Sensor - A/C Coolant Temp	C-8 21
Block - Terminal	G-8	D	Sensor - A/C Photo	F-2 A
Breaker 1	G-9	D	Sensor - Fuel Level	A-2 23
Breaker 1 - Bat	G-9	D	Sensor - Pump Discharge Press	A-7 24
Breaker 2	H-9	D	Solenoid - Air Conditioner Clutch	B-8 26
Breaker 3	H-9	D	Solenoid - ATCH Medium Press	B-7 23
Control - Eng/Pump	B-4, C-4	7	Solenoid - Engine Shutdown	A-9 27
Control - Wiper	E-2	A	Solenoid - Eng/Pump Cont	A-7 F
Converter	J-3	8	Solenoid - Hydraulic Lock	H-2 G
Converter-12V 7A	B-5	9	Solenoid - Level Finish	A-7 F
Engine Speed Pickup	B-8	25	Solenoid - Swing Brake	A-2 32
Fuse - Block	J-4, 5, 6	C	Solenoid - Travel Speed	A-7 F
Glow Plug	A-9, B-9	2	Solenoid - Trenching	A-7 F
Group - A TCH Conditioner	H-6	16	Switcher - Air Cleaner	A-5, B-5 33
Group - Heater	H-6	16	Switch - ATCH Aux	D-9 35
Horn	C-2	10	Switch - ATCH Aux	D-2 G
Indicator - Hydraulic Oil Filter	B-7	E	Switch - A TCH Hammer Press	G-2 G
Lamp - ATCH Cab	G-1	12	Switch - ATCH Overload Warning	D-5 B
Lamp-Boom	C-1	11	Switch - ATCH Radio	D-4 B
Lamp - Chassis	B-2	13	Switch - A TCH Refrigerant Low Press	B-9 29
Lamp - Dome	A-6	A	Switch - ATCH Refueling Start	B-2 28
Lighter - Cigar	F-2	A	Switch - ATCH Refueling Stop	B-3 30
Meter - Service	F-2	A	Switch - A TCH Rotating Beacon	D-4 B
Monitor	F-2	A	Switch - A TCH Seat Heater	D-5 B
Motor - Lower Wiper	G-2	G	Switch - Backup EPR Valve	D-4 C
Motor - Starter	A-8	14	Switch - Backup Gov	D-5 C
Motor - Upper Wiper	G-1	A	Switch - Boom Raise Press	C-7 34
Master/Heater	F-9	1	Switch - Coolant Level	E-9 36
Multistation Joystick LH	H-2	C	Switch - Disconnect	G-9 D
Multistation Joystick RH	F-3	B	Switch - Engine Oil Level	A-9 37
Pump - ATCH Refueling	B-2	17	Switch - Engine Oil Pressure	B-8 38
Pump - Auto Lubrication	E-9	16	Switch - Horn	H-2 C
Radio	A-5	C	Switch - Hydraulic Oil Level	B-7 E
Relay - Air Heater	G-7	D	Switch - Implement Swing Press	C-7 39
Relay - Aux Hydraulic	J-9	D	Switch - Key	E-3 B
Relay - Boom Lamp	J-9	D	Switch - Neutral Start Limit	H-2 C
Relay - Chassis/Cab Lamp	J-9	D	Switch - Panel	F-3 B
Relay - Heater	H-7, J-7	D	Switch - Refueling Level	A-2 41
Relay - Horn	J-9	D	Switch - Throttle Position	E-3 C
Relay - Hydraulic Lock Solenoid	J-9	D	Switch - Travel Press	C-7 31
Relay - Main	H-7	D	Switch - Windshield	E-2 A
Relay - Neutral Start	J-7	D	Timer - Engine Shutdown	H-7 D
Relay - Refueling 1	B-2	19	Unit - Air Conditioner	H-5 A
Relay - Refueling 2	B-2	20	Unit - Air Heater Control	J-7 D
Relay - Start	H-7	D	Unit - Heater Control	H-7 D
Relay - Start Cont	J-8	D		

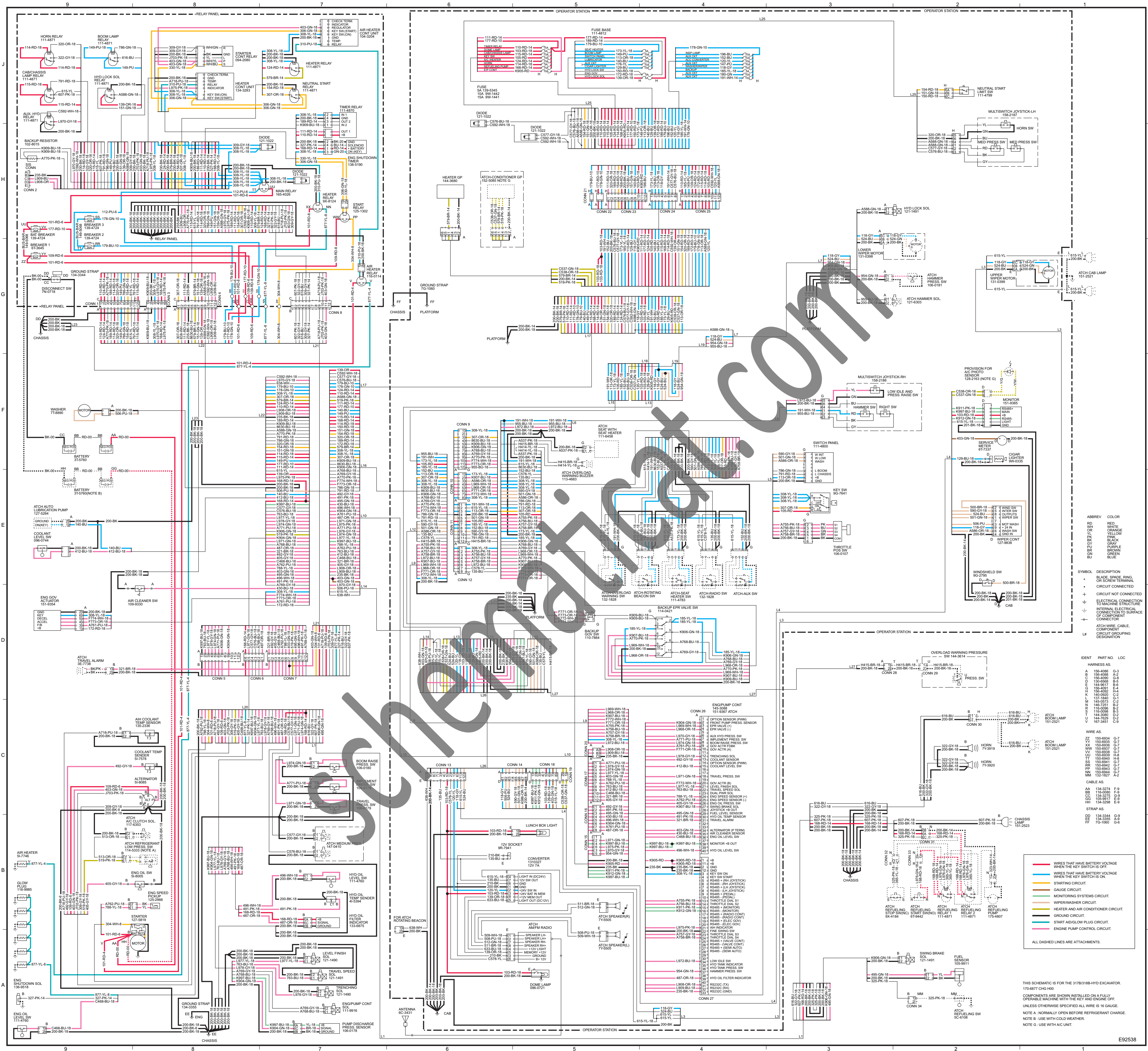
Machine locations are repeated for components located close together.
A - Located in the cab
B - Located in the left-hand console
C - Located in the right-hand console
D - Located on or near relay panel
E - Located near hydraulic oil tank
F - Located near pilot manifold
G - Located on or near bottom platform

Harness And Wire Electrical Schematic Symbols



Electrical Schematic Symbols And Definitions





- WIRES THAT HAVE BATTERY VOLTAGE WHEN THE KEY SWITCH IS OFF
 - WIRES THAT HAVE BATTERY VOLTAGE WHEN THE KEY SWITCH IS ON
 - STARTING CIRCUIT
 - GAUGE CIRCUIT
 - MONITORING SYSTEM CIRCUIT
 - WIPER/WASHER CIRCUIT
 - HEATER AND AIR CONDITIONER CIRCUIT
 - GROUND CIRCUIT
 - START/STOP/PAUSE CIRCUIT
 - ENGINE PUMP CONTROL CIRCUIT
- ALL DASHED LINES ARE ATTACHMENTS.

THIS SCHEMATIC IS FOR THE 31703188-HYD EXCAVATOR 1705877 CHD H00
COMPONENTS ARE SHOWN INSTALLED ON A FULLY OPERABLE MACHINE WITH THE KEY AND ENGINE OFF.
UNLESS OTHERWISE SPECIFIED ALL WIRE IS 16 GAUGE
NOTE A: NORMALLY OPEN BEFORE REFERRED CHANGE
NOTE B: USE WITH COLD WEATHER.
NOTE G: USE WITH A/C UNIT.

SYMBOL	DESCRIPTION
+	BLADE SHARP, BLIND OR SHARP TERMINAL
+	CIRCUIT CONNECTED
+	CIRCUIT NOT CONNECTED
+	ELECTRICAL CONNECTION
+	INTERNAL ELECTRICAL CONNECTION
+	EXTERNAL ELECTRICAL CONNECTION
+	ATCH WIRE, CABLE, COMPONENT
+	CIRCUIT GROUPING DESIGNATION

IDENT	PART NO.	LOC
HARNESS AS:		
A	156-008	G-2
B	156-008	A-2
C	156-008	E-4
D	156-008	E-4
E	156-008	E-4
F	156-008	E-4
G	156-008	E-4
H	156-008	E-4
I	156-008	E-4
J	156-008	E-4
K	156-008	E-4
L	156-008	E-4
M	156-008	E-4
N	156-008	E-4
O	156-008	E-4
P	156-008	E-4
Q	156-008	E-4
R	156-008	E-4
S	156-008	E-4
T	156-008	E-4
U	156-008	E-4
V	156-008	E-4
W	156-008	E-4
X	156-008	E-4
Y	156-008	E-4
Z	156-008	E-4
WIRE AS:		
AA	156-008	G-2
BB	156-008	A-2
CC	156-008	E-4
DD	156-008	E-4
EE	156-008	E-4
FF	156-008	E-4
GG	156-008	E-4
HH	156-008	E-4
II	156-008	E-4
JJ	156-008	E-4
KK	156-008	E-4
LL	156-008	E-4
MM	156-008	E-4
NN	156-008	E-4
OO	156-008	E-4
PP	156-008	E-4
QQ	156-008	E-4
RR	156-008	E-4
SS	156-008	E-4
TT	156-008	E-4
UU	156-008	E-4
VV	156-008	E-4
WW	156-008	E-4
XX	156-008	E-4
YY	156-008	E-4
ZZ	156-008	E-4
CABLE AS:		
AAA	156-008	F-8
BBB	156-008	F-8
CCC	156-008	F-8
DDD	156-008	F-8
EEE	156-008	F-8
FFF	156-008	F-8
GGG	156-008	F-8
HHH	156-008	F-8
III	156-008	F-8
JJJ	156-008	F-8
KKK	156-008	F-8
LLL	156-008	F-8
MMM	156-008	F-8
NNN	156-008	F-8
OOO	156-008	F-8
PPP	156-008	F-8
QQQ	156-008	F-8
RRR	156-008	F-8
SSS	156-008	F-8
TTT	156-008	F-8
UUU	156-008	F-8
VVV	156-008	F-8
WWW	156-008	F-8
XXX	156-008	F-8
YYY	156-008	F-8
ZZZ	156-008	F-8
STRAP AS:		
AAA	156-008	G-9
BBB	156-008	G-9
CCC	156-008	G-9
DDD	156-008	G-9
EEE	156-008	G-9
FFF	156-008	G-9
GGG	156-008	G-9
HHH	156-008	G-9
III	156-008	G-9
JJJ	156-008	G-9
KKK	156-008	G-9
LLL	156-008	G-9
MMM	156-008	G-9
NNN	156-008	G-9
OOO	156-008	G-9
PPP	156-008	G-9
QQQ	156-008	G-9
RRR	156-008	G-9
SSS	156-008	G-9
TTT	156-008	G-9
UUU	156-008	G-9
VVV	156-008	G-9
WWW	156-008	G-9
XXX	156-008	G-9
YYY	156-008	G-9
ZZZ	156-008	G-9