

Off Machine Switch Specification				
Part No.	Function	Actuate	Deactuate	Contact Position
3E-6425	Coolant Temp (St Aid)	38.0 ± 3.0°C (100.0 ± 5.0°F)	27.0°C MIN (81.0°F MIN)	Normally Closed
3E-7504	Trans Oil Temp	107.0 ± 3.0°C (225.0 ± 5.0°F)	96.0°C MIN (208.0°F MIN)	Normally Open
3E-7543	Hydraulic Oil Temp	82.0 ± 3.0°C (180.0 ± 5.0°F)	74.0°C MIN (165.0°F MIN)	Normally Open *
3E-7544	Engine Coolant Temp	108.0 ± 3.0°C (226.0 ± 5.0°F)	100.0°C MIN (212.0°F MIN)	Normally Open *
3E-7574	Differential Lube Pressure	90.0 kPa MAX (13.0 psi MAX)	35.0 ± 21.0 kPa (5.0 ± 3.0 psi)	A-B, Normally Open A-C, Normally Closed
101-3780	Engine Oil Pressure	80.0 kPa MAX (12.0 psi MAX)	38.0 ± 10.0 kPa (6.0 ± 1.5 psi)	Normally Closed

\* To check contact position of switch measure from Contact 2 to case.

Resistor, Sender and Solenoid Specifications			
Part No.	Component Description	Resistance (Ohms)†	
77-3828	Resistor - Blower Speed	Overall 1.0 ± 0.1 Tap 0.5 ± 0.05	
3E-0108	Resistor - Flasher Load	8.0 ± 0.4	
3E-7704	Solenoid - A/C Clutch	3.50 ± 0.15	
100-3915	Solenoid - Hitch	6.20	
4P-8020	Solenoid - Injector	4.0 ± 2.0	
3E-4331	Solenoid - Start Aid	1.50	

† At room temperature unless otherwise noted.

Connector Location								
Connector	Machine Location	Harness And/Or Components	Schematic Location	Connector	Machine Location	Harness And/Or Components	Schematic Location	
40 CONTACTS	1	E - 9U3176 F - 9U3175 Trailer Conn	E-4	7 CONTACTS	5	E - 9U3176 Trailer Conn	D-12	
34 CONTACTS	-	A - 9U3196 Draft Control	B-10	6 CONTACTS	6	E - 9U3176 J - 9U3177	A-12	
15 CONTACTS	-	F - 9U3045 Performance Monitor	E-11		7	E - 9U3170 M - 9U3182	F-12	
14 CONTACTS	-	F - 9U3175 Turn/Haz/Horn Sw	F-7		1	F - 9U3175 DD - 1018767	B-4	
12 CONTACTS	2	C - 9U3173 F - 9U3175 Rear Wiper Motor	B-6		-	-	-	D-11
	3	D - 9U3181 E - 9U3176 Fit Wiper Sw	E-3		-	F - 9U3175 Fit Wiper Sw	B-7	
	2	F - 9U3175 X - 9U3174 Fit Wiper Motor	B-5		-	X - 9U3174 Fit Wiper Motor	D-4	
	2	F - 9U3175 W - 9U2700	D-8		3	D - 9U3181 E - 9U3176	D-3	
	2	F - 9U3175 Y - 9U3184	E-10		3	E - 9U3176 Y - 9U3179	C-12	
	-	F - 9U3175 Monitor Panel	C-7		-	E - 9U3176 Rear Unit	A-5	
8 CONTACTS	4	V - 9U3845 Performance Monitor	E-11		-	-	-	-
	-	A - 9U3196 B - 9U3197	A-11		-	-	-	-
	-	F - 9U3175 Monitor Panel	C-7		-	-	-	-
	-	E - 9U3176 Belt Tension Buffer	C-3	-	-	-	-	
-	X - 9U3174 Radio	C-4	-	-	-	-		

\* = Connector is located at the component.  
Machine locations are repeated for connectors located close together.

Wire Description					
Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
<b>Power Circuits</b>			<b>Accessory Circuits</b>		
101	RD	BAT	500	BR	WIPER - FRONT (PARK)
102	BU	HOLMP	501	GN	WIPER - FRONT (LO)
105	BR	KEY SW	502	OR	WIPER - FRONT (HI)
106	WH	AUX CKT	503	BR	WIPER - REAR (PARK)
109	OR	ALT OUTPUT (+) TERM	504	YL	WIPER - REAR (LO)
112	PU	MAIN POWER RELAY OUTPUT	508	PU	RADIO SPEAKER - LEFT
114	GN	WARNING HORN (FORWARD)	509	WH	RADIO SPEAKER - LEFT (COMMON)
115	PK	AUX CKT	511	BR	RADIO SPEAKER - RIGHT
116	BR	AUX CKT	512	GN	RADIO SPEAKER - RIGHT (COMMON)
118	GY	AUX CKT	513	OR	A/C COMPRESSOR/REFRIGERANT PRESS. SW
119	PK	AUX CKT	515	GY	BLOWER MOTOR (HI)
123	WH	AUX CKT	516	GN	BLOWER MOTOR (MEDIUM)
124	GN	A/C	518	OR	HAZARD FLASHER TO SW
130	GN	AUX CKT	521	YL	A/C SW TO REFRIGERANT SW
135	BU	AUX CKT	522	WH	A/C CLUTCH TO THERMOSTAT SW
148	WH	AUX CKT	539	BU	TURN SIGNAL INDICATOR BASIC/RIGHT
153	WH	3 PT HITCH CONT	540	WH	TURN SIGNAL INDICATOR LEFT
165	YL	AUX CKT	557	YL	TRAILER CONNECTOR (LEFT TURN/HAZARD)
167	GN	AUX CKT	558	GN	TRAILER CONNECTOR (RIGHT TURN/HAZARD)
169	PK	AUX CKT	568	GN	ALERT BUZZER TO DOCKS
170	YL	AUX CKT	594	PU	FRONT WIPER SW (B) TO HI SPD RELY COIL (86)
172	GN	AUX CKT	595	YL	FRONT WIPER SW (C) TO HI SPD RLY (30) & LO SPD (85)
175	PK	AUX CKT	596	WH	FRONT WIPER HI SPD RELAY (87) TO LO SPD RELAY (87)
<b>Ground Circuits</b>			<b>Lighting Circuits</b>		
200	BK	MAIN CHASSIS	604	OR	STOP LAMP
201	BK	OPR MON PANEL	625	YL	TURN LAMP - LEFT
A220	BK	DRAFT CONTROL IDENT CODE 0	606	GY	TURN LAMP - RIGHT
<b>Basic Machine Circuits</b>			607	PK	FLOOD LAMP - FRONT
304	WH	STARTER RELAY NO. 1 OUTPUT	610	OR	HEAD LAMP BASIC
306	GN	STARTER RELAY COIL TO NEUT START SW OR KEY SW	611	PU	HEAD LAMP HI
307	OR	KEY SW TO NEUT START SW	614	PU	PARK/TAILODASH LAMP
310	PU	START AID SW TO START AID SOL	619	GN	HEAD LAMP LO
311	WH	START AID SOL TO TEMP SW	630	GY	FLOOD LAMP REAR (ATTACH)
320	OR	HORN RELAY COIL TO SW	635	BR	TURN SIGNAL COMMON
322	GY	WARNING HORN (FORWARD)	646	OR	LIGHT SW TO FRONT FLOOD RELAY
<b>Monitoring Circuits</b>			647	GN	LIGHT SW TO REAR FLOOD RELAY
404	YL	OPR MON HYD OIL TEMP	648	BU	LIGHT SW TO HEADLAMP BREAKER
405	GY	OPR MON OIL PRESS. (LO SETTING)	649	YL	LIGHT SW TO PARK/TAIL LAMP BREAKER
406	PU	OPR MON COOLANT TEMP	<b>Control Circuits</b>		
410	WH	OPR MON ACTION ALARM	710	GN	XMSN SPEED PICKUP SIGNAL
415	GN	OPR MON TEST SW	870	OR	3 PT HITCH CONT - DOWN SOL
419	YL	OPR MON PARKING BRAKE	871	BU	3 PT HITCH CONT - SOL COMMON
428	OR	OPR MON XMSN OIL TEMP	872	YL	3 PT HITCH CONT - UP SOL
441	OR	ENG COOLANT TEMP GAGE	888	PK	3 PT HITCH CONT - HITCH POSITION
447	PK	FUEL LEVEL GAGE	889	GY	3 PT HITCH CONT - HANDLE POSITION
449	BU	SPDOM SENDER (SIGNAL NO. 1)	890	PU	3 PT HITCH CONT - HOOKUP SW
450	YL	HITCH SENDER (1)	896	GY	3 PT HITCH CONTROL - DRAFT OFF/ON
457	PU	OPR MON SYSTEM AIR PRESS	8996	BR	3 PT HITCH CONTROL - SET POINT
459	PK	OPR MON PANEL IMPLEMENT POSITION	8997	PK	3 PT HITCH DRAFT SWITCH TO THROTTLE SWITCH
460	BU	OPR MON PANEL PROGRAM PIN	6202	BK	(-) BATTERY
464	GY	OPR MON PANEL ENG OIL PRESS. SENSOR	6702	BR	THROTTLE POSITION
465	OR	LO CHARGE PRESS. ALERT	6708	OR	RESUME
466	WH	OPR MON PANEL STER OIL TEMP	6737	PU	DIAGNOSTIC LAMP
471	PK	XMSN NEUT TO PARKING BRAKE			
477	YL	SPDOM SENDER (SIGNAL NO. 2)			
497	BU	SENSOR POWER			
A424	WH	PRESS. TRANSDUCER 1 SIGNAL			
A425	YL	PRESS. TRANSDUCER 2 SIGNAL			
B402	YL	INDICATOR LAMP DIFF LUBE PRESS			
B437	BR	HYDRAULIC OIL FILTER INDICATOR			
B449	YL	BELT TENSION BUFFER BOX TO RELAY			



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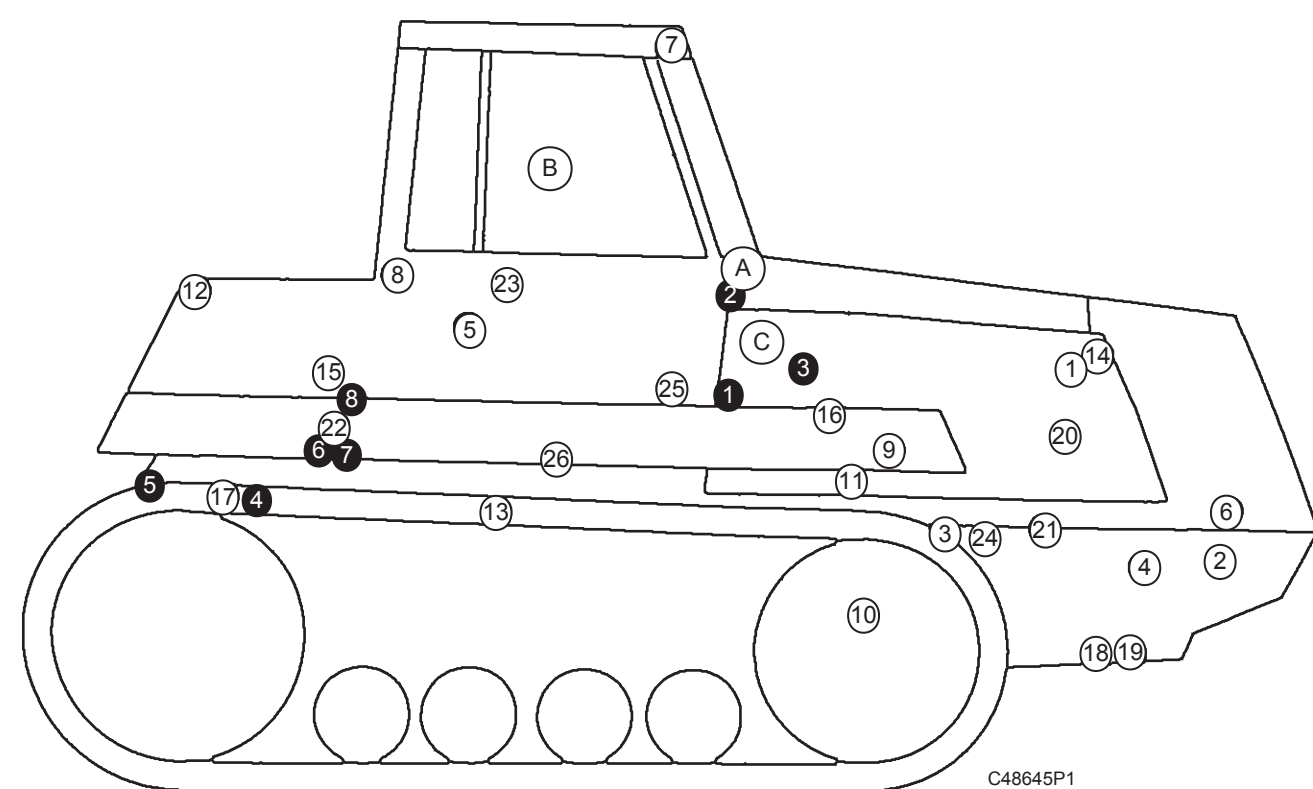
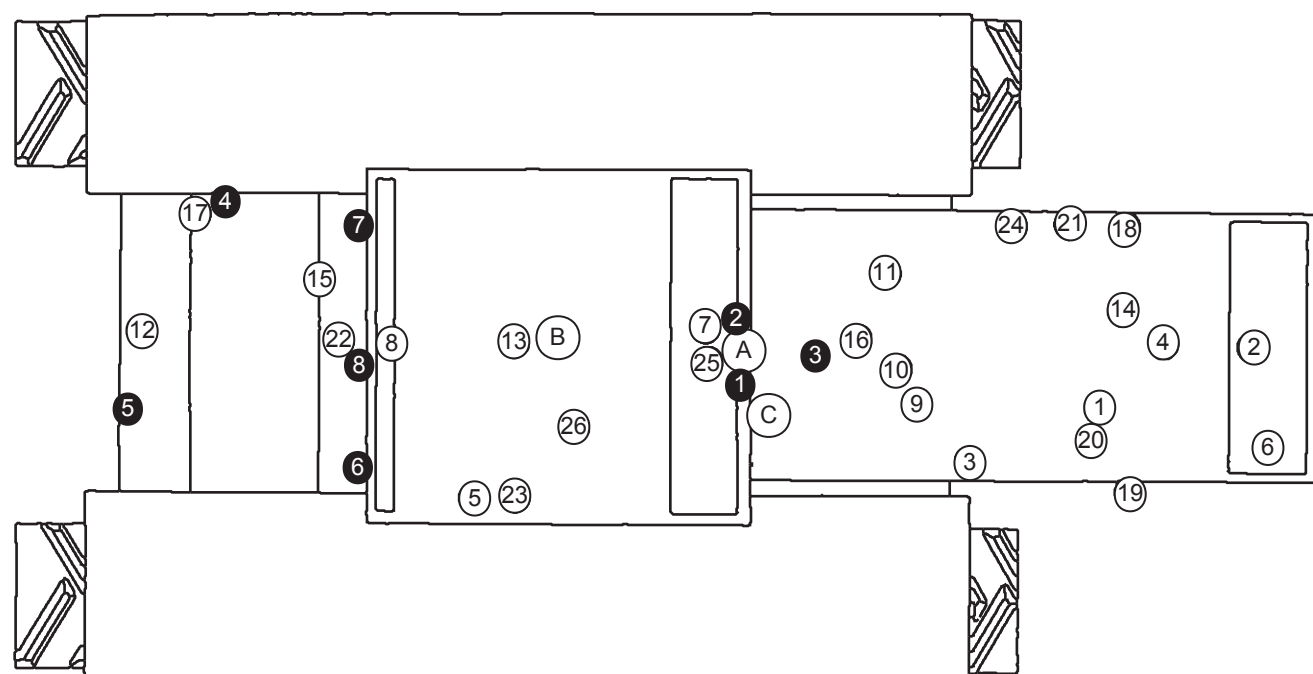
# Schematic

## Challenger 65C Agricultural Tractor Electrical System

2ZJ1-499

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MACHINE HARNESS CONNECTOR AND COMPONENT LOCATIONS

Related Electrical Service Manuals		
Title	Form Number	
Alternator (21 SI) Consist No. 9X-9096	SENRS4757	
Starting Motor (42 MT) Consist No. 3E-7864	SENRS3881	

Component Location					
Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Alternator (21 SI)	B-2	1	Resistor - Flasher Load	E-5	A*
Batteries	B-1	2	Sender - Engine Oil Press	E-2	11
Breaker - Alternator (135A)	B-2	3	Sender - Fuel Level	C-12	12
Breaker - Main (135A)	B-3	3	Sender - Transmission Speed	A-6	13
Breaker - Running Lamp (20A)	E-6	A	Sender/Switch - Coolant Temp	E-2	14
Breaker - Trailer Lamp (10A)	E-6	A	Sender/Switch - Hydraulic Oil Temp	C-12	15
Buffer - Belt Tension	C-2	4	Sensor - Engine Speed	E-2	16
Control - Draft	B-10	5	Sensor - Hitch Handle Position	C-10	5
Flasher	E-5	A*	Sensor - Hitch Position	B-12	17
Fuses	D-5	A*	Sensor - LH Belt Tension Press	F-1	18
Fuses	E-6	A*	Sensor - RH Belt Tension Press	B-2	19
Gauge - Coolant Temp	F-6	A*	Solenoid - A/C Clutch	D-2	20
Gauge - Fuel Level	D-9	A	Solenoid - Air Ride Seal	D-10	B
Gauge - Hydraulic Oil Temp	C-9	A	Solenoid - Hitch	A-12	17
Gauge - Oil Press	D-9	A	Solenoid - Start Aid	D-2	21
Gauge - Speed/Tach/Ser Hr	D-9	A	Switch - A/C	B-9	A
Horn - Alarm	D-5	A	Switch - A/C Pressure	D-2	14
Horn - Forward Warning	B-1	6	Switch - Blower Motor	B-9	A
Monitor - Electronic Control Gp	C-7	A	Switch - Differential Lube Press	A-8	22
Monitor - Performance	E-11	A	Switch - Draft On/Off/Set	B-10	23
Motor - Blower	B-4	C	Switch - Eng Coolant Temp (St Aid)	D-3	14
Motor - Front Wiper	D-4	7	Switch - Front Wiper	B-7	A
Motor - Rear Wiper	D-11	8	Switch - Hookup	B-11	23
Motor - Starting	C-3	9	Switch - Hydraulic Filter Flow	F-2	24
Radar (Perf Mon)	A-5	10	Switch - Key Start	C-6	B
Radio	C-4	B	Switch - Neutral Start	B-8	23
Relay - Belt Tension	F-7	A*	Switch - Oil Press	E-2	11
Relay - Forward Horn	E-7	A*	Switch - Rear Wiper	E-9	A
Relay - Front Flood Lamp	E-7	A*	Switch - Rotary Light	E-10	A
Relay - Lamp Test	F-7	A*	Switch - Running Lamp Dimmer	B-7	B
Relay - Left Turn	E-5	A*	Switch - Start Aid	F-8	A
Relay - Main Power	B-3	3	Switch - Stop Lamp	B-6	25
Relay - Rear Flood Lamp	E-7	A*	Switch - Thermostat	B-4	C
Relay - Right Turn	E-5	A*	Switch - Throttle	C-11	23
Relay - Start	A-2	3	Switch - Transmission Oil Temp	A-6	26
Relay - Trailer Left Turn	E-5	A*	Switch - Turn/Hazard/Horn	F-8	B
Relay - Trailer Right Turn	F-6	A*	Switch/Sender - Hydraulic Oil Temp	C-12	15
Relays - Front Wiper	D-6	A*	Switch/Sender - Coolant Temp	E-2	14
Resistor - Blower Motor Speed	B-4	C	Voltmeter	D-9	A

Machine locations are repeated for components located close together.

A = Components located in the dash.

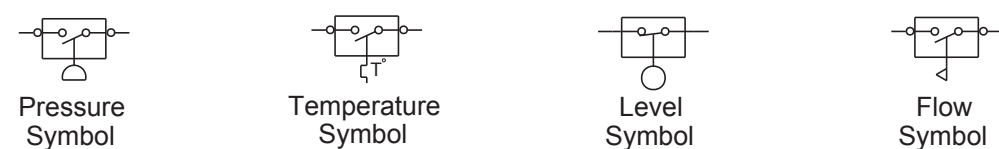
A\* = Components located under right side of dash.

A† = Components located under left side of dash.

B = Components located in operator's compartment.

C = Components located on the firewall.

### 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.

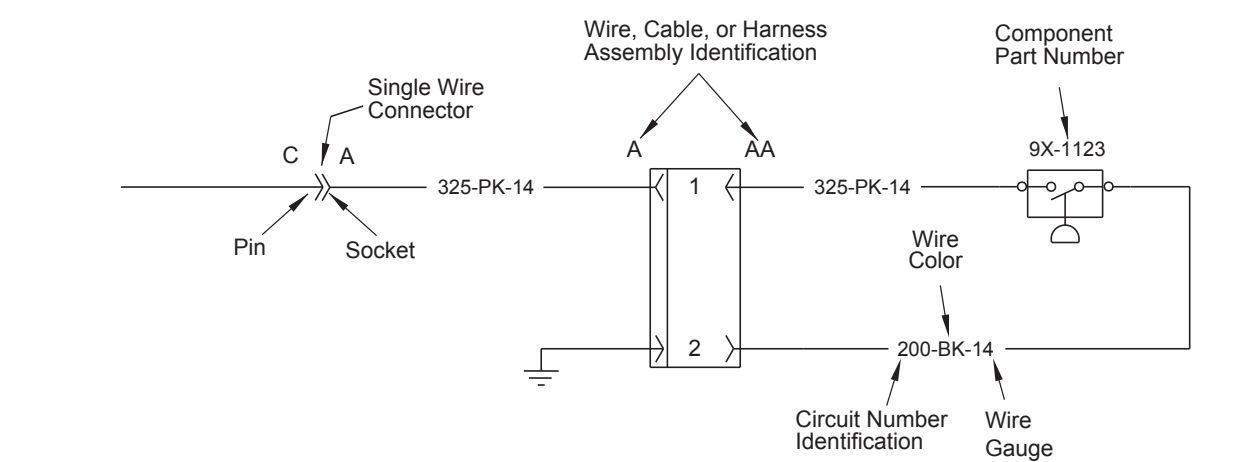
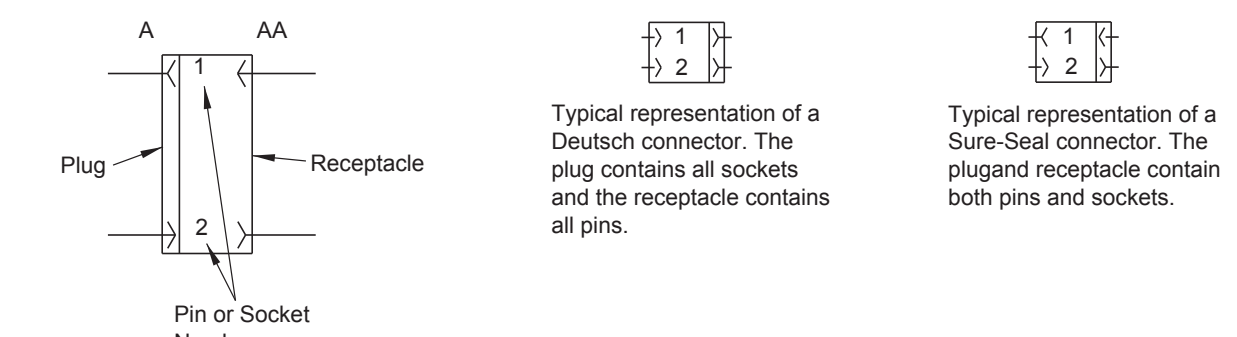
The circle indicates that the component has screw terminals and a wire can be disconnected from it.

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.

### 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.

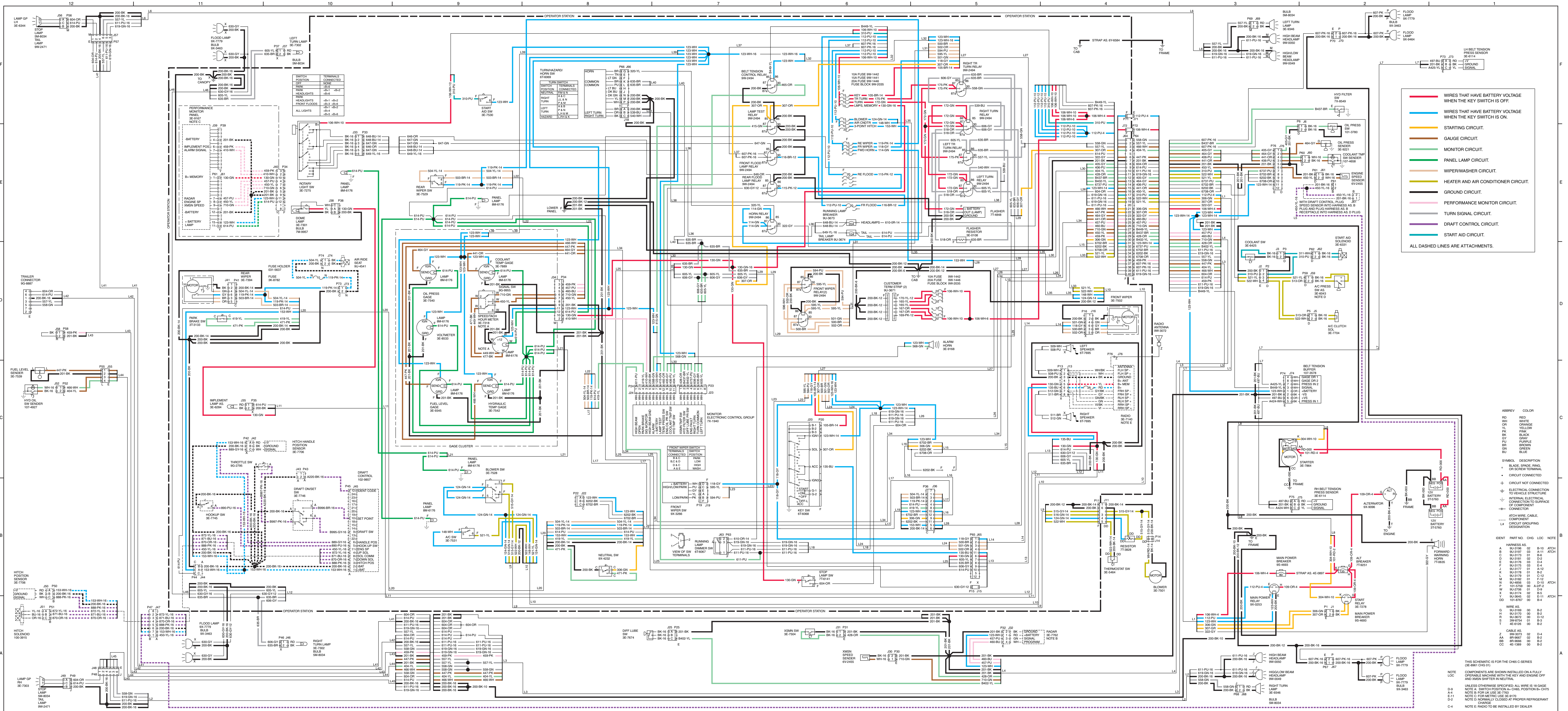
**RELAY (Magnetic Switch)** - A relay is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close the switch part of the relay.

**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.

**MAGNETIC LATCH SOLENOID** - A magnetic latch solenoid is an electrical component that is activated by electricity and held latch by a permanent magnet. It has two coils (latch and unlatch) that make electromagnet when current flows through them. It also has an internal switch that places the latch coil circuit open at the time the coil latches.





ABBREV	COLOR
RD	RED
WH	WHITE
CR	CRANEA
YL	YELLOW
PK	PINK
BL	BLACK
GR	GRAY
BR	BROWN
GN	GREEN
BLU	BLUE

SYMBOL	DESCRIPTION
—	BLADE, SPACE, RING, OR SCREW TERMINAL
—	CIRCUIT CONNECTED
+	CIRCUIT NOT CONNECTED
—	ELECTRICAL CONNECTION TO VEHICLE STRUCTURE
—	INTERNAL ELECTRICAL CONNECTION TO SURFACE OF COMPONENT
—	CONNECTOR
—	ATCH WIRE, CABLE, COMPONENT
L	CIRCUIT GROUPING DESIGNATOR

IDENT	PART NO.	CHG	LOC	NOTE
A	9A-3072	B	A10	HARNAS AS
B	9A-3197	CS	A-11	ATCH
C	9A-3197	CS	B-6	
D	9A-3197	CS	D-2	
E	9A-3197	CS	D-3	
F	9A-3197	CS	E-4	
G	9A-3197	CS	A-12	
K	9A-3178	CS	B-2	
N	9A-4856	CS	D-10	
M	9A-3185	CS	F-10	
P	101-8759	CS	A-2F-2	
N	9A-2706	CS	D-1	
X	9A-3174	CS	B-4	
DD	101-8767	CS	B-4	ATCH
G	9A-3197	CS	B-2	
R	9A-3197	CS	D-12	
S	9A-3197	CS	D-1	
T	4E-4126	CS	B-2	
Z	4E-4126	CS	D-4	
AA	89-9667	CS	B-2	
BB	89-9667	CS	B-2	
CC	4E-1389	CS	B-2	