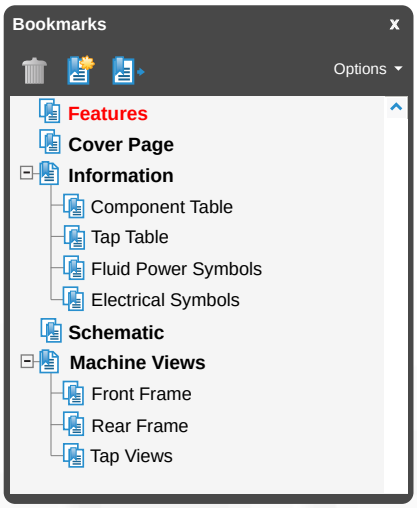
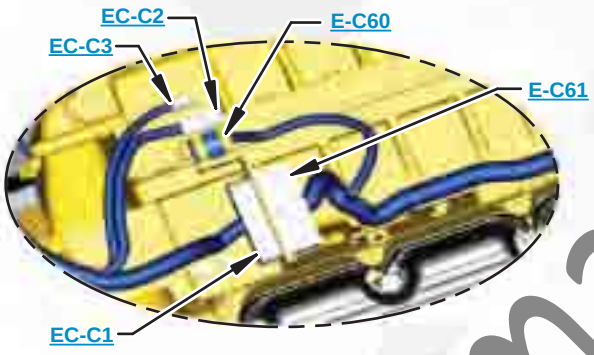
INTERACTIVE SCHEMATIC



The Bookmarks panel will allow you to quickly navigate to points of interest.

This document is best viewed at a screen resolution of 1024 X 768.

To set your screen resolution do the following:
RIGHT CLICK on the **DESKTOP**.
Select **PROPERTIES**.
CLICK the **SETTINGS TAB**.
MOVE THE SLIDER under **SCREEN RESOLUTION** until it shows **1024 X 768**.
CLICK OK to apply the resolution.



Click on any text that is BLUE and underlined. These are hyperlinks that can be used to navigate the schematic and machine views.

VIEW ALL CALLOUTS

When only one callout is showing on a machine view this button will make all of the callouts visible. This button is located in the top right corner of every machine view page.

HOTKEYS (Keyboard Shortcuts)

	FUNCTION	KEYS
	Zoom In	"CTRL" / "+"
	Zoom Out	"CTRL" / "-"
	Fit to Page	"CTRL" / "0" (zero)
	Hand Tool	"SPACEBAR" (hold down)
	Find	"CTRL" / "F"

CATERPILLAR®

SENR8332-03
January 2014

Schematic

D8R Track-Type Tractor Electrical System

7XM1-UP
9EM1-7399

Printed in U.S.A.

COMPONENT LOCATION

Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Action - Alarm	D-7	C	Hydraulic (Gauge) - Sender	A-7	18
Backup - Alarm	F-9	1	Powertrain Oil (Gauge) - Sender	A-3	19
Alternator	A-1	2	Air Conditioner Clutch - Solenoid	A-2	16
12 Volt - Batteries	F-6	3	Diverter Valve - Solenoid	E-8	20
Alternator (60A) - Breaker	E-8	E	Prelube Timer - Solenoid	D-2	12
Blower Motor (20A) - Breaker	F-7	E	Ripper Pin Puller - Solenoid	C-9	20
Breaker - Remote Conden ser (20A)	F-7	E	Start Aid - Solenoid	B-2	21
Bus Bar	F-2	4	Arc - Suppressor	A-2	16
Voltage - Converter	F-5	5	A/C Refrigerant Pressure - Switch	B-2	16
Alternator - Filter	B-5	B	Backup Alarm - Switch	D-7	C
Fuses	E-7	E	Blower - Switch	D-6	7
Coolant Temp - Gauge	A-6	B	Coolant Temperature - Switch	B-2	22
Fuel Level - Gauge	A-5	B	Disconnect - Switch	F-5	14
Hydraulic Oil Temp - Gauge	B-5	B	Diverter Valve - Switch	A-7	23
Powertrain Temp - Gauge	B-6	B	Engine Coolant Flow (EMS) - Switch	B-2	24
Horn - For ward	E-1	6	Engine Coolant Temperature (EMS) - Switch	B-2	22
Action - Lamp	C-5	B	Engine Oil Pressure (EMS) - Switch	B-2	25
Cigar - Lighter	B-7	D	Flood Lamp - Switch	C-5	B
Service - Meter	B-6	B	Forward Horn - Switch	A-7	D
Operator - Monitor	C-6	B	Front Wiper - Switch	B-7	A
Blower - Motor	D-4,C-4	7	Fuel Pressure (EMS) - Switch	B-2	26
Condenser - Motor	B-9	7	Hydraulic Oil Temp (EMS) - Switch	A-7	18
Front Wiper - Motor	B-4	8	Hydraulic Oil Filter Press (EMS) - Switch	A-9	27
Left Wiper - Motor	F-5	9	Switch - Hydraulic Oil Filter Temp (EMS)	A-9	27
Rear Wiper - Motor	D-8	10	Key Start - Switch	D-5	B
Right Wiper - Motor	A-6	11	Left Wiper - Switch	B-7	A
Starter (Prelube Atch) - Motor	E-2	12	Neutral/Start - Switch	D-7	C
Washer Pump - Motor	A-8	13	Oil Pressure (Atch) - Switch	D-2	12
Power - Outlet	B-7	14	Operator Monitor Test - Switch	C-5	B
Radio	A-5	A	Powertrain Oil Filter Press (EMS) - Switch	A-8	27
Aux Start - Receptacle	F-2	15	Powertrain Oil Temp (EMS) - Switch	A-3	19
Relay	B-9	7	Powertrai - Switch n Oil Filter Temp (EMS)	A-8	27
Main - Relay	E-8	E	Rear Wiper - Switch	B-8	A
Start - Relay	F-7	E	Right Wiper - Switch	B-8	A
Blower Motor Speed - Resistor	C-4	7	Ripper Pin Puller - Switch	A-8	D
Starter Diagnostic - Resistor	F-1	12	Running Lamp - Switch	B-5	B
Coolant Temperature (Gauge) - Sender	A-2	16	Start Aid - Switch	D-5	B
Fuel (Gauge) - Sender	B-9	17	Thermostat (A/C) - Switch	E-6	7

Always check component part numbers with Parts Manual for your specific machine.
Machine locations are repeated for components located close together.

A = Components located in operator's compartment.

B = Components located in dash.

C = Components located in operator's left console.

D = Components located in operator's right console.

E = Components located on relay panel.

CONNECTOR LOCATION

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

Machine locations are repeated for connectors located close together.

* = Connector is located at the component.

B = Components located in dash

D = Components located in operator's right console

E = Components located on relay panel

SPECIFICATIONS AND RELATED MANUALS

RESISTOR AND SOLENOID SPECIFICATIONS		
Component	**Part No.**	**Resistance (Ohms) [1]**
Resistor - Blower Motor Speed	9G-1950	Overall 2.0 ± .1; Tap 1.0 ± .05
Resistor - Starter/Diagnostic	6T-2217	150.0± 7.5
Solenoid - Air Conditioner Clutch	102-0347	14.4± 0.6
Solenoid - Diverter Valve	127-0574	31.0 ± 3.0
Solenoid - Ripper Pin Puller	9G-9988	24.9
Solenoid - Start Aid	3E-6332	6

[1]At room temperature.

OFF MACHINE SWITCH SPECIFICATIONS				
Part No.	**Function**	**Actuate**	**Deactuate**	**Normal Condition**
3E-2030	Engine Coolant Flow (EMS)	362 ± 29 mN (1.3 ± 0.1 oz)	303 mN MIN (1.1 oz MIN)	Normally Open
3T-5825	Power Train Oil Temp (EMS)	129.4 ± 2.8°C (265.0 ± 5.0°F)	118.3°C (245.0°F)	Normally Closed
6T-4949	Engine Oil Pressure (EMS)	93.0 ± 21.0 kPa (13.5 ± 3.0 psi)	69.0 ± 21.0 kPa (10.0 ± 3.0 psi)	Normally Open
7N-9785	Engine Coolant Temp (EMS)	107.2 ± 2.8°C (225.0 ± 5.0°F)	91.0°C MIN (196.0°F MIN)	Normally Closed
8C-3569	Hydraulic Oil Filter Temp (EMS)	37.8 ± 2.8°C (100.0 ± 5.0°F)	26.7°C MIN (81.0°F)	Normally Closed
8N-1693	Engine Coolant Temp (St Aid)	37.8 ± 2.8°C (100.0± 5.0°F)	26.7°C MIN (80.0°F)	Normally Closed
8N-2248	Hydraulic Oil Temp (EMS)	101.7 ± 2.8°C (215.0 ± 5.0°F)	93.3°C MIN (200.0°F MIN)	Normally Closed
9G-3341	Power Train Oil Filter Temp (EMS)	51.7±2.8°C (125.0± 5.0°F)	43.0°C MIN (110.0°F MIN)	Normally Closed
9W-3187	Fuel Pressure (EMS)	93.0 ± 21.0 kPa (13.5 ± 3.0 psi)	69.0 ± 21.0 kPa (10.0± 3.0 psi)	Normally Closed
9X-7781	Hydraulic Oil Filter/ Power Train Filter Pressure (EMS)	210 ± 70 kPa (30± 10 psi)	– --	Normally Open
105-9152	Oil Pressure (Arch)	30 ± 7 kPa (4.3± 1.0 psi)	30± 7 kPa (4.3 ± 1.0 psi)	Normally Closed
114-5334	Refrigerant Pressure (AC)	275 to 1750 kPa[1] (40 to 255 psi)	– --	Normally Open [2]

[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 (25psi).

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

RELATED ELECTRICAL SERVICE MANUALS	
Title	**Form No.**
Alternator (100-5047): Consist No.100-5045 Consist No.100-5046	 SENR4130 SENR2082
Electronic Monitoring System (EMS)	SENR2945
Starting And Charging Systems	SENR2947
Starting Motor: (6V-0890) Consist No. 6V-0890	 SENR3860

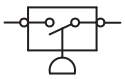
WIRE DESCRIPTION

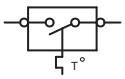
Wire Number	Wire Color	Description
Power Distribution Circuits		
101	RD	BAT
102	BU	HD LMP
105	BR	KEY SW
108	BU	AUX CKT
109	OR	ALT OUTPUT (+) TERM.
112	PU	MAIN POWER RELAY OUTPUT
113	OR	OPR MON PANEL VMIS B+ SWITCHED
114	GN	WARNING HORN (FORWARD)
116	BR	AUX CKT
121	YL	BACKUP ALARM TO LAMP
123	WH	AUX CKT
124	GN	A/C
Ground Circuits		
200	BK	MAIN CHASSIS
201	BK	OPR MON PANEL VMIS CMS
203	BK	CHASSIS DIAGNOSTIC
207	BK	STARTER DIAGNOSTIC
Basic Machine Circuits		
301	BU	STARTER NO.1 SOL
302	OR	STARTER NO.1 RESISTOR TO DIAGNOSTIC
304	WH	STARTER RELAY NO.1 OUTPUT
306	GN	STARTER RELAY COIL TO NEUT START SW OR KEY SW
307	OR	KEY SW TO NEUT START SW OR VMIS SENSOR MODULE
308	YL	MAIN POWER RELAY COIL
310	PU	START AID SW TO START AID SOL
311	WH	START AID SOL TO TEMP SW
321	BR	BCKP ALARM LAMP TRAVEL ALARM
322	GY	WARNING HORN (FORWARD)
Monitoring Circuits		
403	GN	ALTERNATOR (R)TERM.
404	YL	OPR MON HYD OIL TEMP
405	GY	OPR MON OIL PRESS. (LO SETTING)
406	PU	OPR MON COOLANT TEMP
410	WH	OPR MON FAULT ALARM
411	PK	OPR MON MASTER FAULT LAMP
412	BU	OPR MON COOLANT FLOW
413	BR	OPR MON FUEL PRESS.

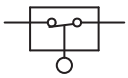
Wire Number	Wire Color	Description
Monitoring Circuits (cont'd)		
415	GN	OPR MON TEST SW
424	GY	OPR MON POWER TRAIN TEMP
426	BR	OPR MON POWER TRAIN OIL FILTER
441	OR	ENG COOLANT TEMP GAGE
442	GY	HYD SYSTEM TEMP GAGE
443	YL	POWER TRAIN TEMP GAGE
449	BU	SPDOM SENDER (SIGNAL NO.1)
499	GY	OPR MON IMPLEMENT OIL FILTER
A447	PK	PRELUBE OIL PRESS
Accessory Circuits		
500	BR	WIPER - FRONT (PARK)
501	GN	WIPER - FRONT (LO)
502	OR	WIPER - FRONT (HI)
503	BR	WIPER - REAR (PARK)
504	YL	WIPER - REAR (LO)
505	BU	WIPER - REAR (HI)
510	YL	WASHER - PRIMER
513	OR	A/C COMPRESSOR/REFRIGERANT PRESS. SW
515	GY	BLOWER MOTOR (HI)
516	GN	BLOWER MOTOR (MEDIUM)
517	BU	BLOWER MOTOR (LO)
521	YL	A/C SW TO REFRIGERANT SW
522	WH	A/C CLUTCH TO THERMOSTAT SW
523	BR	WIPER - LEFT (PARK)
524	BU	WIPER - LEFT (LO)
525	GY	WIPER. LEFT (HI)
526	YL	WIPER - RIGHT (PARK)
527	GN	WIPER. RIGHT (LO)
528	PK	WIPER - RIGHT (HI)
600	BR	DASH LAMP BASIC
608	GN	FLOOD LAMP - REAR
609	YL	FLOOD LAMP - SIDE
610	OR	HEAD LAMP BASIC
779	WH	COUPLER ENGAGE SOL
780	PU	COUPLER DISENGAGE SOL
978	GN	CST AUTOSHIFT - SLOW MODE SW 1
987	WH	DIVERTER SOL

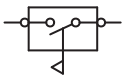
HARNESS and WIRE
Electrical Schematic Symbols

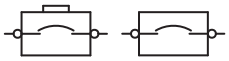
Symbols


Pressure Symbol


Temperature Symbol

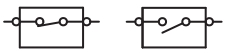

Level Symbol

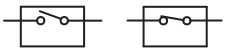

Flow Symbol

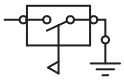

Circuit Breaker Symbol

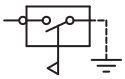
Symbols and Definitions

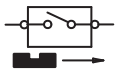

Fuse: A component in an electrical circuit that will open the circuit if too much current flows through it.

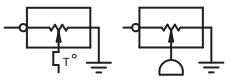

Switch (Normally Open): A switch that will close at a specified point (temp, press, etc.). The circle indicates that the component has screw terminals and a wire can be disconnected from it.

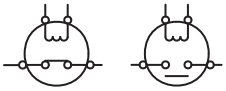

Switch (Normally Closed): A switch that will open at a specified point (temp, press, etc.). No circle indicates that the wire cannot be disconnected from the component.

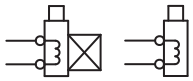

Ground (Wired): This indicates that the component is connected to a grounded wire. The grounded wire is fastened to the machine.

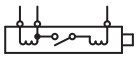

Ground (Case): This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.


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.

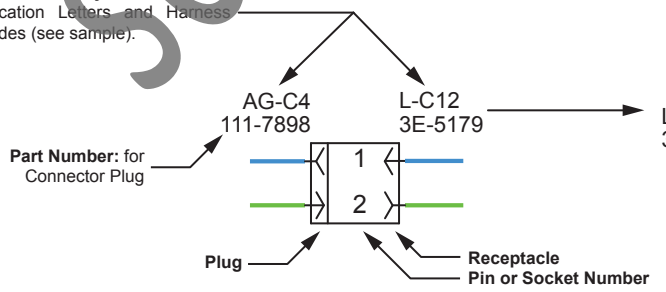

Relay (Magnetic Switch): A relay is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close the switch part of the relay.

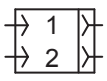

Solenoid: A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a piece of metal that can do work.


Magnetic Latch Solenoid: A magnetic latch solenoid is an electrical component that is activated by electricity and held latched 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.

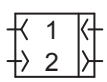
Harness and Wire Symbols

Wire, Cable, or Harness Assembly Identification: Includes Harness Identification Letters and Harness Connector Serialization Codes (see sample).

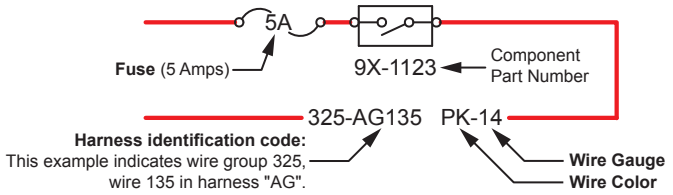


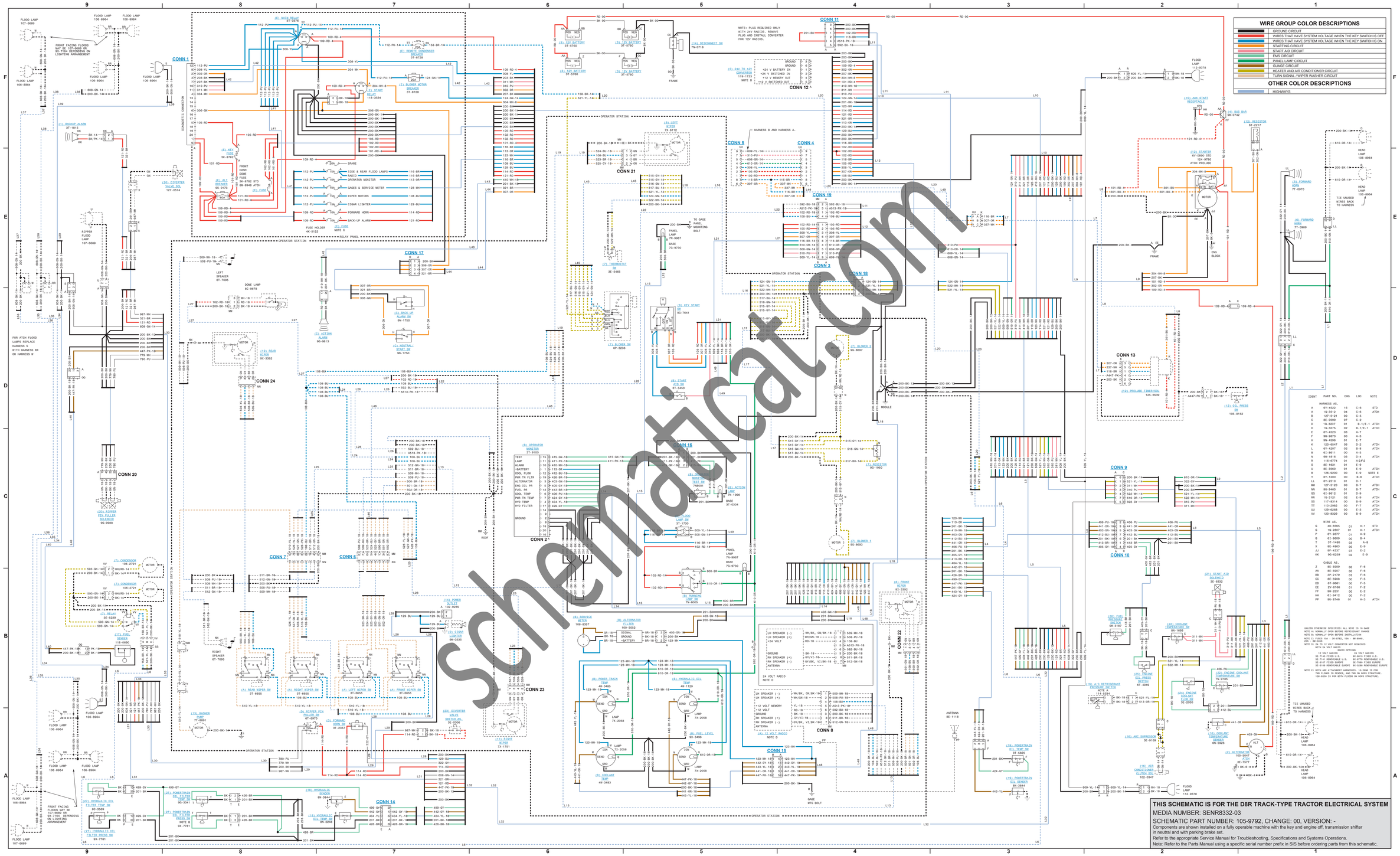


Deutsch connector: Typical representation of a Deutsch connector. The plug contains all sockets and the receptacle contains all pins.



Sure-Seal connector: Typical representation of a Sure-Seal connector. The plug and receptacle contain both pins and sockets.





IDENT	PART NO.	CHG	LOC	NOTE
HARNESS AS,				
A	6Y-4522	16	C-6	STD
A	1G-3512	04	C-6	ATCH
B	127-5121	00	C-5	
C	8E-0599	07	C-2	
D	1G-3237	01	B-1/E-1	ATCH
D	1G-3275	02	B-1/E-1	ATCH
E	6Y-4523	03	A-7	
F	9W-9973	00	A-3	
H	9N-4596	01	E-7	
K	1G-6047	03	D-2	ATCH
L	6Y-4207	02	B-8	ATCH
M	6E-9911	00	A-5	
N	9W-1816	03	D-4	ATCH
R	116-6774	01	A/2/F-2	
S	8E-1631	01	E-9	
U	8E-3560	01	E-9	ATCH
W	126-9200	00	E-9	NOTE E
Y	6Y-1300	00	B-8	ATCH
LL	6Y-2510	01	D-1	
MM	127-5120	00	B-7	ATCH
NN	9G-9463	01	B-7	ATCH
QQ	6E-9912	01	D-9	
RR	1G-3121	02	E-9	ATCH
SS	117-6314	00	B-9	ATCH
TT	110-2982	00	F-7	ATCH
UU	129-6268	00	E-3	ATCH
VV	123-8329	00	B-9	ATCH
WIRE AS,				
G	4D-6565	01	A-1	STD
G	1G-2607	01	A-1	ATCH
F	6Y-9377	01	A-9	
G	6E-8609	00	B-4	
T	3T-1480	03	A-8	
X	8E-4863	00	E-9	
JJ	9F-4337	07	E-2	
KK	9G-6259	02	E-9	
CABLE AS,				
Z	8E-5909	00	F-6	
AA	8E-5907	00	F-6	
BB	9F-2179	00	F-6	
CC	8E-5908	00	F-5	
DD	6T-9661	00	F-5	
EE	6156	01	F-2	
FF	9W-2531	00	E-2	
HH	6I-9412	00	F-2	
PP	9U-8746	01	A-3	ATCH

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

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

MACHINE COMPONENT AND CONNECTOR LOCATIONS

VIEW ALL CALLOUTS