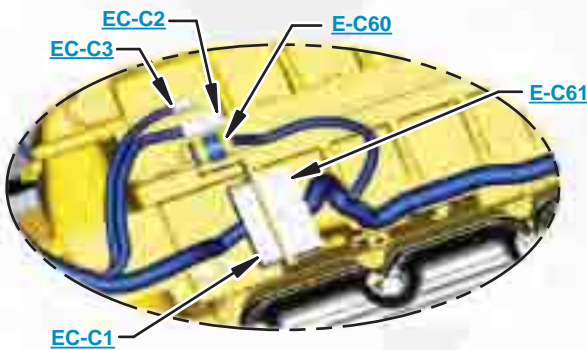




This document is best viewed at a screen resolution of 1024 X 768.

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.

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



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”



Schematic

D10R Track-Type Tractor Electrical System

AKT1-693

COMPONENT LOCATION

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Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Alarm - Action	G-18	A	Sensor - Shank In / Out	H-18	B
Alarm - Backup	K-16	1	Sensor - Tilt Pump Pressure	C-13	66
Alternator	J-3	2	Sensor - Timing Calibration	E-6	74
Batteries 1 & 2	J-5 , J-4	4	Sensor - Torque Converter Output	A-13	67
Batteries 3 & 4	B-4 , B-5	5	Sensor - Turbo Inlet	F-5	F
Breaker - Blower	H-10	E	Sensor - Turbo Outlet Pressure	F-1	29
Breaker - ECB	H-10	E	Sensor - XMSN Intermediate Speed 1	I-14	G
Breaker - Engine	H-10	E	Sensor - XMSN Intermediate Speed 2	I-14	G
Breaker - Flexxaire Fan	A-5	A	Sensor - XMSN Output Speed 1	J-15	G
Breaker - Front Floods	H-10	E	Sensor - XMSN Output Speed 2	J-15	G
Breaker - Implement	H-10	E	Sensor- Ultrasonic Fuel Level	K-16	83
Breaker - Key	H-10	E	Socket - 12V Power Outlet	F-18	B
Breaker - Main	H-11	E	Solenoid - A/C Compressor Clutch	I-3	32
Breaker - Remote Condenser	I-10	E	Solenoid - Blade Lower	F-12	G
Control - Heater Temperature	L-14	7	Solenoid - Blade Raise	G-12	G
Control - Heater/Blower Temperature	E-18 , F-18	B	Solenoid - Blade Tilt Left	F-12	G
Control - HEUI ECM	E-3	9	Solenoid - Blade Tilt Right	G-12	G
Control - Implement ECM	D-17	B	Solenoid - Dual Tilt Valve	I-1	45
Control - Powertrain ECB	L-9	7	Solenoid - ECPC Priority Valve	A-13	87
Control - VIDS ECM	G-16	B	Solenoid - Fan Demand	H-3	86
Converter - 24V to 12V	E-18 , G-18	B	Solenoid - First Gear Clutch 5	I-14	D
Converter - High Capacity 24V to 12V	B-15	70	Solenoid - Flexxaire Fan	A-4	86
Dimmer	F-9	A	Solenoid - Forward Clutch 2	I-14	D
Display - Speedometer / Tachometer	E-11	A	Solenoid - Implement Lockout	G-12	G
Fuse - Alternator	H-10	E	Solenoid - Injector 1	E-1	F
Fuses - Block	G-10	E	Solenoid - Injector 10	D-1	F
Gauge - Cluster	E-11	A	Solenoid - Injector 11	D-1	F
Handle - Implement Control	I-18	B	Solenoid - Injector 12	C-1	F
Handle - Ripper Control	H-18	B	Solenoid - Injector 2	D-1	F
Heater - Jacket Water (120V)	F-4	81	Solenoid - Injector 3	E-1	F
Heater - Jacket Water (240V)	F-4	81	Solenoid - Injector 4	D-1	F
Horn - Hi Tone	G-1	19	Solenoid - Injector 5	D-1	F
Horn - Lo Tone	G-1	19	Solenoid - Injector 6	D-1	F
Indicator - Operating Function Status	C-14	71	Solenoid - Injector 7	D-1	F
Indicator - Strip	F-11	E	Solenoid - Injector 8	D-1	F
Junction Block 1	K-5	4	Solenoid - Injector 9	D-1	F
Junction Block 2	B-5	5	Solenoid - LH Steer Brake	I-12	31
Keypad - VIDS	D-14	71	Solenoid - LH Steer Clutch	I-12	31
Lamp - Master Action	F-11	A	Solenoid - Lube Control	B-13	87
Lamp - Rear Master Action	H-17	8	Solenoid - Over Pressure Comp Valve	B-13	72
Module - Air Conditioner	I-3	32	Solenoid - Park Brake Dump	H-12	31
Module - Intermittent Wiper (Front)	B-8	64	Solenoid - Rail Pressure Control Valve	G-1	76
Module - Intermittent Wiper (Left)	B-8	64	Solenoid - Reverse Clutch 1	I-14	D
Module - Intermittent Wiper (Rear)	C-10	64	Solenoid - RH Steer Brake	H-12	31
Module - Intermittent Wiper (Right)	A-8	64	Solenoid - RH Steer Clutch	H-12	31
Motor - Blower 2	L-15 , K-15	7	Solenoid - Ripper Pin	A-16	44
Motor - Condenser 1	A-18	3	Solenoid - Ripper Shank IN	G-12	G
Motor - Condenser 2	A-18	3	Solenoid - Ripper Shank Lower	G-12	G
Motor - Console Raise / Lower	K-7	C	Solenoid - Ripper Shank Out	G-12	G
Motor - Fan/Defrost (Front)	F-10	A	Solenoid - Ripper Shank Raise	F-12	G

COMPONENT LOCATION

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Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Motor - Fan/Defrost (Rear)	D-10	46	Sensor - Ripper Raise / Lower	H-18	B
Motor - Seat Suspension	G-18	43	Solenoid - Second Gear Clutch 4	I-14	D
Motor - Washer (Front)	L-17	20	Solenoid - Servo Brake Dump	H-12	31
Motor - Washer (Left)	L-18	20	Solenoid - Start Aid	H-1	81
Motor - Washer (Rear)	L-18	20	Solenoid - Third Gear Clutch 3	I-14	D
Motor - Washer (Right)	L-17	20	Suppressor - Arc A	B-16	44
Motor - Wiper (Front)	B-7	21	Suppressor - Arc B	A-16	44
Motor - Wiper (Left)	B-7	22	Switch - A/C High Pressure	I-3	32
Motor - Wiper (Rear)	C-9	24	Switch - A/C Low Pressure	I-3	32
Motor - Wiper (Right)	A-7	24	Switch - A/C On	F-18	B
Motor- Starter #1	J-3	25	Switch - Accessory	D-10	A
Motor- Starter #2	C-4	80	Switch - Auto Downshift	D-9	C
Relay - Condenser	A-17	3	Switch - Bi Directional Mode	E-11	E
Relay - Flexxaire Fan 1	A-3	10	Switch - Blower	F-18	B
Relay - Flexxaire Fan 2	A-3	10	Switch - Brake	I-8	34
Relay - Intermittent Wiper (Front)	B-8	57	Switch - Console Raise / Lower	K-7	C
Relay - Intermittent Wiper (Left)	B-8	57	Switch - Coolant Flow	G-1	29
Relay - Intermittent Wiper (Rear)	C-10	57	Switch - Disconnect	J-5	27
Relay - Intermittent Wiper (Right)	A-8	57	Switch - Downshift	K-7	C
Relay - Main	H-11	E	Switch - Electro / Hydraulic Filter Bypass	C-5	72
Relay - Prelube	G-5	81	Switch - Flexxaire Fan	A-5	A
Relay - Start 1	H-11	E	Switch - Flood (Front)	E-10	A
Relay - Start 2	G-11	E	Switch - Flood (Rear)	E-10	A
Relay - Start Aid	I-1	81	Switch - Flood (Side)	E-10	A
Resistor - Blower	L-15	7	Switch - Horn	H-17	B
Resistor - Starter 1	K-3	25	Switch - Implement Lockout	J-18	B
Resistor - Starter 2	C-5	80	Switch - Intermittent Wiper (Front)	B-11	48
Sensor - Atmospheric Pressure	E-1	14	Switch - Intermittent Wiper (Left)	B-11	48
Sensor - Backup Speed Timing	F-1	F	Switch - Intermittent Wiper (Rear)	C-11	48
Sensor - Brake	I-8	31	Switch - Intermittent Wiper (Right)	B-11	48
Sensor - Decelerator Pedal	D-9	E	Switch - Key	E-10	A
Sensor - Direction	K-7	C	Switch - Park Brake	L-7	C
Sensor - Engine Coolant Temp	F-1	F	Switch - Prelube Oil Pressure	G-2	81
Sensor - Engine Oil Pressure	E-1	76	Switch - Powertrain Oil Filter	L-16	50
Sensor - Engine Oil Temperature	E-1	76	Switch - Refrigerant Thermostat	L-13	7
Sensor - Engine Speed	D-4	74	Switch - Reverse	J-7	C
Sensor - Fan Speed	H-3	86	Switch - Ripper Auto Stow	H-18	B
Sensor - Fuel Temperature	G-1	F	Switch - Ripper Pin Puller	H-17	B
Sensor - Hydraulic Oil Temp	A-16	72	Switch - Start Aid	D-10	A
Sensor - LH Steer Lever Position	K-7	C	Switch - Tank Return Filter Bypass	A-16	72
Sensor - Main Pump Pressure	C-13	66	Switch - Throttle	I-17	B
Sensor - Manifold Inlet Air Temperature	E-1	75	Switch - Upshift	L-7	C
Sensor - Powertrain Oil Temp	A-13	87	Terminator - Data Link 1	E-16	8
Sensor - Primary Speed Timing	F-1	74	Terminator - Data Link 2	E-17	8
Sensor - Powertrain Oil Filter	L-16	39	Timer - Prelube	G-5	81
Sensor - Rail Pressure	F-1	76	Valve - Water	L-14 , J-14	3
Sensor - RH Steer Lever Position	J-7	C	VIDS Message Center	D-11	A

Machine locations are repeated for components located close together.

- A = Located inside of dash.
- B = Located inside of right console.
- C = Located inside of left console.
- D = Located around relay panel.
- E = Located around hydraulic oil tank.
- F = Located around pilot manifold.
- G = Located under platform.

CONNECTOR LOCATION

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Connector Number	Schematic Location	Machine Location
CONN 1 Implement Code Plug	D-18	B
CONN 2	A-17	3
CONN 3	E-17	8
CONN 4	F-18	B
CONN 5	G-17	B
CONN 6	K-17	54
CONN 7	E-16	8
CONN 8	E-16	8
CONN 9	J-16	44
CONN 10	K-16	44
CONN 11	L-16	20
CONN 12	A-15	72
CONN 13 Cruise Control	B-15	71
CONN 14	C-15	71
CONN 15	C-15	71
CONN 16	C-15	71
CONN 17	H-15	52
CONN 18	A-14	8
CONN 19	B-14	8
CONN 20	J-14	D
CONN 21	K-14, L-14	7
CONN 22	D-13	7
CONN 23	D-13	63
CONN 24	D-13	63
CONN 25	G-13	63
CONN 26	I-13	D
CONN 27	L-13, K-13	56
CONN 28	L-13, K-13	56
CONN 29	G-12	G
CONN 30	G-12	G
CONN 31	I-12	G
CONN 32	J-12	G
CONN 33 CAES Power + Datalink	G-11	E
CONN 34 Datalink Serv. Conn	G-11	E
CONN 35 Monitor Serv. Conn	G-11	E
CONN 36	B-10	52
CONN 37	B-10	52
CONN 38	C-10	24
CONN 39	D-10	A
CONN 40	J-10	57
CONN 41	K-10	57
CONN 42 Drivetrain Code Plug	L-10	7

CONNECTOR LOCATION

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Connector Number	Schematic Location	Machine Location
CONN 43	B-9	26
CONN 44	C-8	A
CONN 45	D-8	A
CONN 46	D-8	A
CONN 47	E-8	A
CONN 48	G-8	A
CONN 49	I-8	A
CONN 50	A-7	32
CONN 51	A-7	32
CONN 52	B-7	32
CONN 53	D-7	32
CONN 54	F-7	73
CONN 55	G-7	58
CONN 56	I-7	58
CONN 57	I-7	58
CONN 58	C-5	80
CONN 59	C-5	80
CONN 60	D-5	14
CONN 61	J-5	10
CONN 62	D-4	29
CONN 63	D-4	29
CONN 64	E-4	29
CONN 65 Electrical Diag. Conn	G-4	10
CONN 66 Electrical Diag. Conn	H-4	10
CONN 67	H-4	2
CONN 68	C-4, B-4	84
CONN 69	H-3	2
CONN 70	H-2	81
CONN 71	H-2	81
CONN 72	G-1	29
CONN 73	L-1	85
CONN 74	A-4	10

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.



Component Identifiers (CID ¹) Module Identifier (MID ²) Engine ECM (MID No. 036)	
CID	Component
0001	Cylinder 1 Injector Solenoid
0002	Cylinder 2 Injector Solenoid
0003	Cylinder 3 Injector Solenoid
0004	Cylinder 4 Injector Solenoid
0005	Cylinder 5 Injector Solenoid
0006	Cylinder 6 Injector Solenoid
0007	Cylinder 7 Injector Solenoid
0008	Cylinder 8 Injector Solenoid
0009	Cylinder 9 Injector Solenoid
0010	Cylinder 10 Injector Solenoid
0011	Cylinder 11 Injector Solenoid
0012	Cylinder 12 Injector Solenoid
0042	Injector Actuation Valve
0091	Throttle Switch
0100	Engine Oil pressure Sensor
0110	Engine Coolant Temperature Sensor
0164	Injector Actuation Pressure Sensor
0168	System Voltage
0172	Intake Manifold Air Temperature
0174	Fuel Temperature sensor
0175	Engine Oil Temperature Sensor
0190	Engine Speed Sensor
0248	Cat Data Link
0253	Personality Module
0254	Engine ECM
0261	Speed/Timing Sensor
0262	5V Sensor DC Power Supply
0263	Digital Sensor
0264	Decel Throttle Position Sensor
0266	Crank W/O Inject Inputs
0268	Programmable Parameters
0273	Turbo Outlet Press Sensor
0274	Atmospheric Pressure Sensor
0275	Right Turbo Inlet Press Sensor
0277	Timing Calibration
0291	Engine Cooling Fan Solenoid
0342	Secondary Engine Speed Sensor
0544	Engine Cooling Fan Speed Sensor
0545	Ether Start Relay
0596	Implement ECM
1599	Engine Fan Pull Solenoid
1600	Engine Fan Push Solenoid
VIDS ECM (MID No. 051)	
CID	Component
0096	Fuel Level Sensor
0271	Action Alarm
0324	Front Action (Warning) Lamp
0296	Power Train ECM (ECB)
0590	Engine ECM
0596	Implement ECM (EIC)
0600	Hydraulic Oil Temperature Sensor
0809	Speedometer/tachometer
0811	Quad Gage Module
0815	Message Center
0820	Keypad Data Link
1045	Power Train Oil Temperature Sensor
Implement ECM (MID No. 082)	
CID	Component
0078	Blade Pitch Not Reset
0168	Electrical System Voltage
0296	Power Train ECM
0352	Blade Control Handle Raise / Lower Sensor
0353	Blade Control Handle Tilt Sensor
0490	Implement Lockout Switch
0497	Blade Tilt Right Solenoid Valve
0498	Blade Tilt Left Solenoid Valve
0590	Engine ECM
0596	Implement Control ECM
0597	Main Pump Pressure Sensor
0650	Harness Code
0672	Torque Converter Output Speed Sensor
0869	Right Lift Cylinder Position Sensor (CDO)

0870	Left Lift Cylinder Position Sensor (CDO)
0871	Inclination Sensor
0873	Blade Tilt Pressure Sensor
0874	Mode Select Switch
0875	Manual Select Switch
0876	Pitch Forward Trigger Switch
0877	Pitch Back Switch
0878	Position Sensor (Load Selector)
0879	Ripper Shank In/Out Sensor
0880	Ripper Raise/Lower Sensor
0881	Ripper Shank Auto Stow Switch
0882	Implement Lockout Solenoid Valve
0883	Pitch Regenerate Solenoid Valve
0884	Pitch Solenoid of Dual Tilt Solenoid Valve
0885	Pressure Compensation Override Solenoid Valve
0886	Ripper Shank In Solenoid Valve
0887	Ripper Shank Out Solenoid Valve
0888	Ripper Shank Lower Solenoid Valve
0889	Ripper Shank Raise Solenoid Valve
1034	Pitch Forward Switch
1047	Single Tilt Solenoid of Dual Tilt Solenoid Valve
1078	Blade Control Handle Raise/Lower Sensor
1079	Blade Control Handle Tilt Sensor
1180	(Towed Scraper Application) - Auxiliary Solenoid 1
1197	Blade Lower Solenoid Valve
1198	Blade Raise Solenoid Valve
1199	Vital Information Display System (VIDS)
1298	All Solenoids Out Of Calibration
1395	Engine Over Speed Signal
1448	Torque Converter Output Speed Signal
1709	Solenoid Valve (Hydraulic Oil Diverter)
Power Train ECM (MID No. 113)	
CID	Component
0070	Parking Brake Switch - ON/OFF Pole
0075	Steering System Oil Temperature Sensor
0168	Electrical System
0177	Transmission Oil Temperature Sensor
0190	Engine Speed Sensor
0248	Cat Data Link
0254	Electronic Control Module (ECM)
0269	Sensor Power Supply
0298	Service Brake Switch
0299	Transmission Direction Lever position Sensor
0368	Autoshift Switch
0468	Service Brake Pedal Position Sensor
0573	Inching Pedal Position Sensor
0618	Parking Brake Switch - Brake Backup Pole
0621	Downshift Switch
0622	Upshift Switch
0623	Direction Switch
0650	Harness Code
0668	Transmission Shift Lever
0671	Transmission Output Speed 1 Sensor
0672	Torque Converter Output Speed Sensor
0673	Transmission Output Speed 2 Sensor
0674	Transmission Intermediate Speed 1 Sensor
0675	Transmission Intermediate Speed 2 Sensor
0676	Left Steering Lever Position Sensor
0677	Right Steering Lever Position Sensor
0681	Parking Brake Solenoid
0689	Left Steering Brake Solenoid
0690	Right Steering Brake Solenoid
0691	Reverse Clutch Solenoid Valve 1
0692	Forward Clutch Solenoid Valve 2
0693	Speed 3 Clutch Solenoid Valve 3
0694	Speed 2 Clutch Solenoid Valve 4
0695	Speed 1 Clutch Solenoid Valve 5
0697	Priority Solenoid Valve
0698	Left Steering Clutch Solenoid Valve
0699	Right Steering Clutch Solenoid Valve
0722	Secondary Brake Solenoid Valve

¹ The CID is a diagnostic code that indicates which component is faulty.

²The MID is a diagnostic code that indicates which electronic component module diagnosed the fault.



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.

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

ECM Event Codes			
Event Code	Condition	Event Category	Logged Event Code
-	System Voltage Low #1	2	No
-	System Voltage low #5	1	No
004	Engine Over Speed	3	Yes
017	High Engine Coolant Temperature Warning	2	Yes
027	High Inlet Air Temperature Warning	2	Yes
030	Power Train Oil Temperature High #1	2	Yes
034	Engine Coolant Flow Low	3	Yes
042	System Voltage Low #4	3	Yes
043	System Voltage Low #3	2	Yes
050	System Voltage High #1	1	No
116	Power Train Filter Plugged	2	Yes
117	Main Hydraulic Pump Pressure High	2	Yes
118	Tilt Hydraulic Pump Pressure High	2	Yes
119	Fuel Level Low	1	No
164	Injector Actuation Pressure High	2	Yes
179	Alternator R Terminal Frequency Low	2	Yes
190	Engine Over Speed	2	Yes
236	Fan Return Filter Plugged	2	Yes
265	User Defined Shutdown	1	Yes
272	Inlet Air Restriction Warning	2	Yes
296	Implement Controls Active	1	Yes
359	Blade Overtilt	2	Yes
540	Oil Renewal System Oil Level Low	1	No
600	Hydraulic Oil Temperature High #1	2	Yes
627	Parking Brake On	1	No
875	System Voltage Low #2	1	Yes
876	System Voltage High #2	3	Yes
877	Power Train Oil Temperature High #2	2	Yes
878	Hydraulic Oil Temperature High #2	2	Yes
880	E/H Filter Plugged	2	Yes

SPECIFICATIONS AND RELATED MANUALS



Off Machine Switch Specification				
Part No.	Function	Actuate	Deactuate	Contact Position
3E-5464	Refrigerant Thermostat	-1.1 ± 0.8°C (30 ± 1.4°F)	2.2 ± 0.8°C (36 ± 1.4°F)	Normally Closed
100-4417	Coolant Flow	362 ± 29 mN (1.3 ± 0.1 oz) at point X	303 mN MIN (1.1 oz MIN) at point X	Normally Open
105-9152	Prelube Oil Pressure	30 ± 7 kPa (4.4 ± 1.02 psi)	30 ± 7 kPa (4.4 ± 1.02 psi)	Normally Closed
114-5333	A/C High Pressure	275 to 1750 kPa ¹ (39.9 to 253.8 psi)	-- --	Normally Closed ²
117-7773	Tank Return Filter Bypass Pressure	138 ± 28 kPa (20 ± 4 psi)	69 kPa MIN (10 psi MIN)	Normally Closed
149-6371	A/C Low Pressure	103.4 ± 13.8 kPa (15.0 ± 2.0 psi)	34.5 ± 7.0 kPa (5.0 ± 1.0 psi)	Normally Open
156-1382	Electro / Hydraulic Filter Bypass Pressure	276 ± 28 kPa (40 ± 4 psi)	179 kPa MIN (25.9 psi MIN)	Normally Closed

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
3E-6333	Solenoid: Start Aid	6.0
3E-7842	Resistor: Starter 1 Starter 2	150 ± 7.5
3E-8575	Solenoid: Ripper Pin	24.9 ± 0.4
3E-9205	Solenoid: Dual Tilt Valve	24.9 ± 0.4
106-5122	Solenoid: AC Compressor Clutch	17.6 ± 0.6
107-0677	Solenoid: Rail Pressure Control	10.1
125-9740	Resistor: Blower Motor	² A-C: 2.00 ± 0.10 B-C: 1.00 ± 0.05 C-D: 0.36 ± 0.02
152-6761	Solenoid: Implement Lockout	32.6 ± 1.6
152-8340	Solenoid: Over Pressure Comp	32.6 ± 1.6
160-8408	Solenoid: Reverse Clutch 1 Forward Clutch 2 Third Gear 3 Second Gear 4 First Gear 5	8.7 ± 0.4
172-2392	Solenoid: Serv Brake Dump Park Brake Dump	41.9 ± 2.1
174-4909	Solenoid: LH Steer Clutch LH Steer Brake RH Steer Brake RH Steer Clutch	8.7 ± 0.4
174-4916	Solenoid: Ripper Shank IN Ripper Shank Lower Blade Tilt Right Blade Raise Ripper Shank Out Ripper Shank Raise Blade Tilt Left Blade Lower	8.7 ± 0.4
176-5321	Solenoid: Demand Fan	2.2 ± 0.2
198-4607	Solenoid: Lube Control ECPC Priority Valve	31.1 ± 2.4

¹ At room temperature unless otherwise noted.

² Letters are stamped near resistor terminals.

Related Electrical Service Manuals	
Title	Form Number
HDB Alternator: 197-8820	SEN4130
50MT Starting Motor: 6V-0513 6V-0928	SEN3860
Drivetrain Control (ECB):	SEN8367
VIDS Electronic Control:	SEN9413
Implement Control:	SEN9457
Engine Control:	SEN1054
Starting and Charging System:	SEN2947

WIRE DESCRIPTION

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Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
Power Circuits			Control Circuits Continued		
101	RD	Bat (+)	A709	OR	HEUI ECM To Injector #9
102	RD	Front Floods	A710	GY	HEUI ECM To Injector #10
105	RD	Key Switch	A711	PU	HEUI ECM To Injector #11
108	BU	Wipers	A712	BR	HEUI ECM To Injector #12
109	RD	Alt Output (+) Term.	A746	PK	Turbo Outlet Pressure To HEUI ECM
112	PU	Main Power Relay Output	A747	GY	Atmospheric Pressure To HEUI ECM
113	OR	Opr Mon Panel VIDS ECM B+ Switched	A751	YL	Fuel Temp Sensor To HEUI ECM
114	RD	Warning Horn (Forward)	E707	GN	VIDS ECM To VIDS Keypad Display +V
116	BR	Rear Floods	E708	PK	VIDS ECM To Display Clock
122	BU	A/C Module To Compressor Solenoid	E710	BU	VIDS ECM To LCD Lamp Driver
124	GN	Blower	E735	PU	Monitor Service Conn To VIDS ECM OP SW
125	OR	Side Floods	E793	BU	HEUI ECM ATA Data Link -
130	GN	Spare 1 SWD	E794	YL	HEUI ECM ATA Data Link +
131	RD	CAES Power And Datalink	E795	YL	Engine Oil Temperature Sen To HEUI ECM
133	OR	High Capacity Converter 24V To 12V	E796	GN	Rail Pressure Sensor To HEUI ECM
134	YL	Spare 3 SWD	E797	WH	Rail Pressure Control Return To HEUI ECM
135	RD	VIDS Electronic Control Module	E798	PK	HEUI ECM To Rail Pressure Control Valve
139	OR	Spare 2 SWD	E799	BR	Solenoid Return To HEUI ECM
140	BU	ECB Power	F700	BU	HEUI ECM To Demand Fan Actuator
150	RD	Engine And HEUI ECM	F701	BR	Not Used
158	BR	Remote Condenser	F702	GN	Decelerator Pedal Sensor To HEUI ECM
174	PK	Accessories	F703	GY	Fan Speed Sensor To HEUI ECM
176	YL	Seat	F704	OR	Not Used
184	BU	Attachments	F707	WH	Flexxaire Fan SW1 To HEUI ECM
186	RD	Spare 4 SWD	F708	YL	HEUI ECM To Flexxaire Fan Relay Coil 1
197	GN	Implement ECM	F709	BU	HEUI ECM To Flexxaire Fan Relay Coil 2
198	RD	Secondary Brake	F710	BR	HEUI ECM To Start Aid Relay
Ground Circuits			F711	GN	HEUI ECM J1393 Datalink HI
200	BK	Main Chassis	F712	GY	HEUI ECM J1393 Datalink Low
201	BK	Operator Monitor Return	F714	PK	Turbo Inlet Sensor To HEUI ECM
202	BK	XMSN Ctrl	F715	PU	Throttle SW (1) To Low Idle HEUI ECM
203	BK	Chassis Diagnostic	F716	WH	Throttle SW (4) To L.I. Parity HEUI ECM
207	BK	Starter Diagnostic	F717	YL	Throttle SW (6) To High Idle HEUI ECM
210	BK	Converter Output (24/12 Volt)	F718	BU	Throttle SW (3) To H.I. Parity HEUI ECM
229	BK	Bat (-) HEUI-ADEM II	F719	BR	Crank W/O Inject (N.C.) HEUI ECM
270	BK	VIDS ECM Ident Code 0	F720	GN	Crank W/O Inject (N.O.) HEUI ECM
271	BK	VIDS ECM Ident Code 1	F721	GY	Start Aid Switch To HEUI ECM
272	BK	VIDS ECM Ident Code 2	F723	PK	Timing Calibration Sensor + To HEUI ECM
273	BK	VIDS ECM Ident Code 3	F724	PU	Timing Calibration Sensor - To HEUI ECM
274	BK	VIDS ECM Ident Code 4	F725	WH	Turbo Inlet Pressure Sensor To HEUI ECM
275	BK	VIDS ECM Ident Code 5	F726	YL	Injector Common 1 & 3 To HEUI ECM
276	BK	XMSN ECB Ctrl Ident Code 0	F727	BU	Injector Common 2 & 4 To HEUI ECM
277	BK	XMSN ECB Ctrl Ident Code 1	F728	BR	Injector Common 5 & 7 To HEUI ECM
278	BK	XMSN ECB Ctrl Ident Code 2	F729	GN	Injector Common 6 & 8 To HEUI ECM
279	BK	XMSN ECB Ctrl Ident Code 3	F730	GY	Injector Common 9 & 11 To HEUI ECM
280	BK	XMSN ECB Ctrl Ident Code 4	F731	OR	Injector Common 10 & 12 To HEUI ECM
290	BK	VIDS ECM Service Switch	F732	PK	Backup Camshaft Spd/Tmg To HEUI ECM
291	BK	VIDS ECM Clear Switch	F737	YL	Manifold Inlet Air Temp Sen To HEUI ECM
A210	BK	Implement ECM Harness Code 0	F780	PK	Parking Brake Switch (N.C.) To ECB Cont
A211	BK	Implement ECM Harness Code 1	F781	BR	Downshift Switch (N.O.) To ECB Cont

WIRE DESCRIPTION

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Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
A212	BK	Implement ECM Harness Code 2	F782	OR	Reverse Switch (N.O.) To ECB Cont
A213	BK	Implement ECM Harness Code 3	F783	GN	Upshift Switch (N.C.) To ECB Cont
Basic Machine Circuits			F784	YL	Downshift Switch (N.C.) To ECB Cont
301	BU	Starter 1 Sol To Resistor 1 & Prelube Timer	F785	WH	Upshift Switch (N.O.) To ECB Cont
302	OR	Starter 1 Resistor To Diagnostic	F786	GY	Reverse Switch (N.C.) To ECB Cont
304	WH	Starter Relay 1 Output To Starter 1	F788	PU	ECB Cont To Left Steer Clutch Solenoid
306	GN	Start Relay Coils 1 & 2 To Park Brake SW & Diagnostic Connector	F789	YL	ECB Cont To Right Steer Clutch Solenoid
307	OR	Key Switch To Prelube Timer Or Park Brake SW	F790	BR	Service Brake Pedal Sensor To ECB Cont
308	YL	Key SW To Main Power Relay Coil & Diagnostic Connector	F791	BU	ECB Cont To Right Steer Brake Solenoid
310	PU	Start Aid Relay To Start Aid Solenoid & Diagnostic Connector	F792	WH	ECB Cont To Left Steer Brake Solenoid
312	PK	Starter No. 2 Solenoid To Resistor 2	F797	BU	VIDS ECM Sensor Supply (+8V)
313	GY	Starter No. 2 Resistor To Diagnostic	F799	BU	Not Used
314	PU	Starter Relay 2 Output To Starter 2 & Diag	G730	PK	ECB Cont To Park Brake Dump Valve Sol
321	BR	ECB Control To Backup Travel Alarm	G731	GY	ECB Cont To Service Brake Dump Valve Sol
322	GY	Horn SW To Horn (Forward) Hi & Lo	H710	PK	Blade Raise / Lower Sen To Implement Cont
334	BU	ECB Control To Lube Control Solenoid	H711	GN	Blade Control Tilt Sensor To Implement Cont
337	WH	Prelube Timer To Key SW & Park Brake SW	H713	PK	Implement Cont To Blade Raise Solenoid
Monitoring Circuits			H714	OR	Implement Cont To Blade Lower Solenoid
403	GN	Alternator (R) Term To VIDS ECM	H721	OR	Implement Cont To Load Select Switches
410	WH	VIDS ECM To Action Alarm	H735	GY	Implement Cont To Cruise Control Conn
411	BU	VIDS ECM To Master Action Lamp	J764	BR	Implement Cont Switch/Sensor Return
412	BU	Coolant Flow Switch To HEUI ECM	828	WH	Left Steer Lever Sensor To ECB Control
419	YL	Parking Brake SW (N.O.) TO ECB Control	830	OR	Right Steer Lever Sensor To ECB Control
421	BU	VIDS ECM To Master Action Lamp	851	WH	Direction Sensor To ECB Control
426	BR	PTO Bypass Switch To VIDS ECM	892	BR	VIDS ECM CAT Data Link (-)
442	GY	Hydraulic Oil Temp Sensor To VIDS ECM	893	GN	VIDS ECM CAT Data Link (+)
443	YL	Power Train Oil Temp Sensor To VIDS ECM	F842	BU	Not Used
447	PK	Ultrasonic Fuel Level Sensor To VIDS ECM	F843	YL	Not Used
450	YL	Engine Speed Sensor To ECB Control	F846	PU	ECB Cont To Auto Downshift Indicator Lamp
499	GY	Tank Return Filter Bypass SW To VIDS ECM	F847	YL	ECB Control To 1F-2R Indicator Lamp
A447	PK	Prelube Oil Pressure SW To Prelube Timer	F848	OR	Bi Directional Mode SW (N.O.) To ECB Cont
C413	YL	VIDS ECM (SPI Data) To Dash Instruments	F849	WH	Bi Directional Mode SW (N.C.) To ECB Cont
C414	BU	VIDS ECM (SPI Load) To Dash Instruments	F850	PK	Not Used
C415	WH	VIDS Display Keydata To VIDS ECM	G848	GN	ECB Torque Converter Speed Output To Implement ECM
E455	BR	Hyd Oil Filter Bypass SW To VIDS ECM	H801	PU	Ripper Shank Out Sol & Dual Tilt Sol & Press Comp Over Sol To Implement ECM
Accessory Circuits			H802	GY	Ripper Shank IN / Raise / Lower Solenoids To Implement ECM
500	BR	Front Int Wiper SW (Park) To Front Int Relay	H803	BU	Blade Raise & Lower Sol To Impl ECM
501	GN	Front Int Wiper SW (Low) To Frt Wiper Motor	H804	GN	Blade Tilt LT & RT Sol To Implement ECM
502	OR	Front Int Wiper SW (HI) To Frt Wiper Motor	H805	BR	Implement Lockout Return To Impl ECM
503	BR	Rear Int Wiper SW (Park) To Rear Int Relay	H806	OR	Implement ECM To Cruise Control Conn
504	YL	Rear Int Wiper SW (Low) To Rear Wip Motor	900	PU	First Gear Clutch Solenoid 5 To ECB Cont
505	BU	Rear Int Wiper SW (HI) To Rear Wiper Mtr	918	OR	HEUI Eng Overspeed Signal To Impl Cont
506	PU	Front Int Wiper SW To Front Washer Motor	919	GN	HEUI Eng Overspd Parity Sig To Impl Cont
507	WH	Rear Int Wiper SW To Rear Washer Motor	973	BR	ECB Control To 2F-2R Indicator Lamp
508	PU	Radio To Speaker - Left	975	WH	CST Autoshift- Sol Return To ECB Control
509	WH	Radio To Speaker - Left (Commom)	977	YL	Auto Downshift Switch To ECB Control
511	BR	Radio To Speaker - Right	993	BR	HEUI ECM Analog Sensor Common
			994	GY	Eng Oil Press (Filtered) Sen To HEUI ECM

WIRE DESCRIPTION

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Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
512	GN	Radio To Speaker - Right (Common)	995	BU	Eng Coolant Temp Sensor To HEUI ECM
513	OR	A/C Mod 1 To A/C Low Pressure SW	996	GN	Engine Speed/Timing Sensor Power (+12V)
515	GY	Blower SW To Blower Motor 2 (HI) & Res	997	OR	HEUI ECM Analog Sensor Power (+ 5V)
516	GN	Blower SW To Blower Motor 2 (Med) & Res	998	BR	HEUI ECM Digital Sensor Return
517	BU	Blower SW To Blower Motor 2 (Low) & Res	999	WH	Primary Cam Spd/Timing Sen To HEUI ECM
519	PK	A/C Low Press SW To A/C High Press SW	C913	BU	Implement ECM To Cruise Control Conn
521	YL	A/C On SW To Condenser Rly & A/C Mod 1	E900	WH	Trans Output SPD + Sensor To ECB Cont
522	WH	A/C High Pressure SW To Thermostat SW	E901	GN	Trans Output SPD - Sensor To ECB Cont
523	BR	Left Int Wiper SW (Park) To Left Int Relay	E902	PU	Trans Interm SPD + Sensor To ECB Cont
524	BU	Left Int Wiper SW (Low) To Left Wiper Motor	E903	YL	Trans Interm SPD - Sensor To ECB Cont
525	GY	Left Int Wiper SW (HI) To Left Wiper Motor	E904	BR	Trans Interm SPD Q+ Sensor To ECB Cont
526	YL	Right Int Wiper SW (Park) To Right Int Relay	E905	BU	Trans Interm SPD Q- Sensor To ECB Cont
527	GN	Right Int Wiper SW (Low) To Rt Wiper Motor	E906	OR	Trans Output SPD Q+ Sensor To ECB Cont
528	PK	Right Int Wiper SW (HI) To Rt Wiper Motor	E907	GY	Trans Output SPD Q- Sensor To ECB Cont
529	WH	Left Int Wiper SW To Left Washer Motor	E908	BR	Trans Input SPD + Sensor To ECB Cont
530	OR	Right Int Wiper SW To Right Washer Motor	E909	WH	Trans Input SPD - Sensor To ECB Cont
567	WH	A/C On Switch To Blower Switch	E917	WH	Implement Lockout Switch To Impl Cont
592	BU	DC/DC Converter Power Output (+12V)	E918	GN	Impl Cont To Implement Lockout (E1) Valve
593	GN	Condenser Fan Relay To Condenser Motors	G939	PK	ECB Control Switch Return Common
A513	PK	DC/DC Converter Memory Output (+12V)	J910	OR	Implement ECM To Single Tilt Solenoid
A523	PU	Temperature Control Power	J913	GN	Implement ECM To Ripper Shank IN Sol
A524	BR	Temp Potent Pos 2 To Temp Control	J914	PU	Implement ECM To Ripper Shank Lower Sol
A525	GN	Temp Potent Pos 3 To Main Chassis Ground	J921	PK	Implement ECM To Ripper Shank Raise Sol
C568	GY	Blower Resistor To Blower Switch	J922	GY	Implement ECM To Ripper Shank Out Sol
C569	YL	DC/DC Converter (20A) Power Out (+12V)	J929	YL	Ripper Auto-Lift SW (N.C.) To Impl ECM
E508	PK	Front Wiper SW To Frt Int. Module (Pulse)	J930	PK	Ripper Auto-Lift SW (N.O.) To Impl ECM
E509	PU	Front Int. Wiper Mod To Frt Wiper Rly Coil	J943	GN	Blade Control Mode Select SW (N.O.) To Implement ECM
E510	GN	Rear Wiper SW To Rear Int. Mod (Pulse)	J944	BU	Blade Control Mode Select SW (N.C.) To Implement ECM
E511	WH	Rear Int. Wiper Mod To Rear Wiper Rly Coil	J945	WH	Blade Control Manual Select SW (N.O.) To Implement ECM
E512	OR	Right Wiper SW To Right Int. Mod (Pulse)	J946	OR	Blade Control Manual Select SW (N.C.) To Implement ECM
E513	BR	Right Int. Wiper Mod To Rt Wiper Relay Coil	J947	YL	CTL Shank IN/OUT Sensor To Impl ECM
E514	YL	Left Wiper SW To Left Int. Module (Pulse)	J948	PK	CTL Raise/Lower Sensor To Impl ECM
E515	PK	Left Int. Wiper Mod To Lt Wiper Relay Coil	J949	GY	Right Lift Cylinder Posit Sen To Impl ECM
E516	YL	Front Int. Relay To Front Wiper Motor Park	J950	PU	Left Lift Cylinder Posit Sen To Impl ECM
E517	PU	Rear Int. Relay To Rear Wiper Motor Park	J991	OR	Blade Control Pitch FWD Trigger SW (N.O.) To Implement ECM
E518	BU	Right Int. Relay To Right Wiper Motor Park	J996	BR	Blade Control Pitch FWD Trigger SW (N.C.) To Implement ECM
E519	GN	Left Int. Relay To Left Wiper Motor Park	J997	GN	Impl ECM Op Function Stat Ind LED driver 3
Lighting Circuits			J998	BU	Impl ECM Op Function Stat Ind LED driver 2
600	BR	Dash Lamp Basic	J999	WH	Impl ECM Op Function Stat Ind LED driver 1
608	GN	Rear Flood SW To Rear Floods	K977	PK	PTO Temperature Sensor To ECB Control
609	YL	Side Flood SW To Side Floods	K978	BU	ECPC Pump Solenoid To ECB Control
610	OR	Front Flood SW To Front Floods	M916	OR	Pressure Comp Over Solenoid
630	GY	Rear Flood SW To Ripper Floods Attach	M919	BU	Main Hydraulic Pump Oil Pressure Sensor
633	BU	Accessory SW To Accessory Connector	M921	BR	Tilt Hydraulic Pump Oil Pressure Sensor
661	GN	Dimmer To Tachometer Lamp	M927	GN	Implement Lockout Solenoid To Impl ECM
662	YL	Dimmer To Speedometer Lamp			
663	GY	Dimmer To Gage Lamps			
Control Circuits					
709	OR	ECB Control Sensor Power Supply (+8V)			
751	GN	ECB To XMSN Reverse Clutch Solenoid 1			
752	YL	ECB To XMSN Forward Clutch Solenoid 2			

WIRE DESCRIPTION

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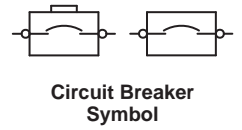
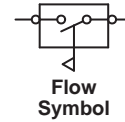
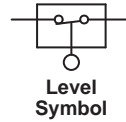
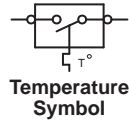
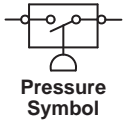
Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
754	BU	ECB To XMSN Third Gear Clutch Solenoid 3	M928	BU	Blade Tilt Right Solenoid To Implement ECM
755	OR	ECB To XMSN Sec Gear Clutch Solenoid 4	M929	WH	Blade Tilt Left Solenoid To Implement ECM
779	WH	Ripper Pin SW To Ripper Pin Coupler Engage Solenoid	M930	PK	Pitch Solenoid To Implement ECM
780	PU	Ripper Pin SW To Ripper Pin Coupler Disengage Solenoid	M931	YL	Implement ECM Sensor Supply (+8V)
A700	OR	HEUI ECM Digital Sensor Power (+8V)	N932	PU	Impl ECM Op Function Stat Ind LED Driver 4
A701	GY	HEUI ECM To Injector #1	N935	OR	Blade Control Pitch Back (N.O. Left Switch) To Implement Control
A702	PU	HEUI ECM To Injector #2	N936	YL	Blade Control Pitch Back (N.C. Left Switch) To Implement Control
A703	BR	HEUI ECM To Injector #3	N937	PU	Blade Control Dump (N.O. Right Switch) To Implement Control
A704	GN	HEUI ECM To Injector #4	N938	BU	Blade Control Dump (N.C. Right Switch) To Implement Control
A705	BU	HEUI ECM To Injector #5	T970	GY	Flexxaire Relay 1 To Flexxaire Fan Solenoid
A706	GY	HEUI ECM To Injector #6	T975	PK	Flexxaire Relay 2 To Flexxaire Fan Solenoid
A707	PU	HEUI ECM To Injector #7			
A708	BR	HEUI ECM To Injector #8			

HARNESS and WIRE

Electrical Schematic Symbols



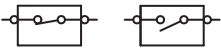
Symbols



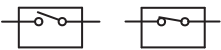
Symbols and Definitions



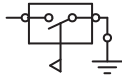
Fuse: A component in an electrical circuit that will open the circuit if too much current flows through it.



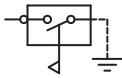
Switch (Normally Open): A switch that will close at a specified point (temp, press, etc.). The circle indicates that the component has screw terminals and a wire can be disconnected from it.



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.



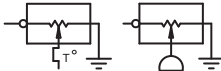
Ground (Wired): This indicates that the component is connected to a grounded wire. The grounded wire is fastened to the machine.



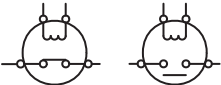
Ground (Case): This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.



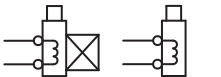
Reed Switch: A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch; it opens the contacts of a normally closed reed switch.



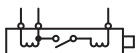
Sender: A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.



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.



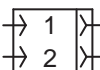
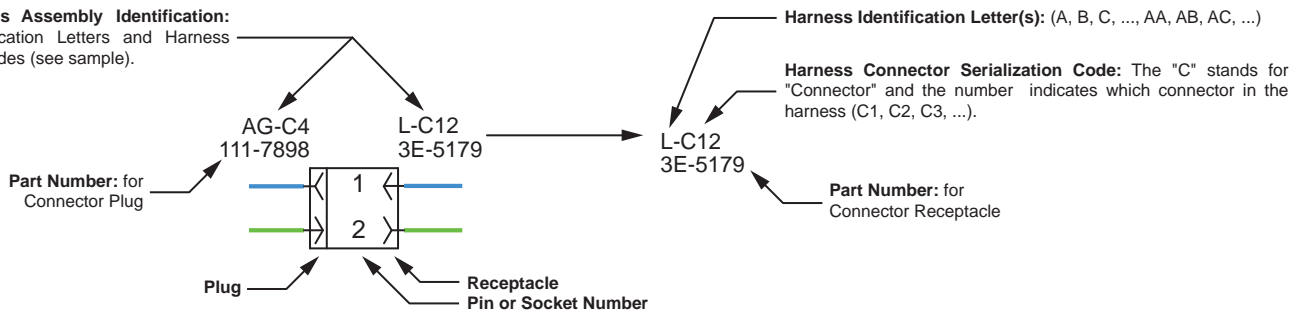
Solenoid: A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a piece of metal that can do work.



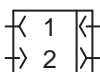
Magnetic Latch Solenoid: A magnetic latch solenoid is an electrical component that is activated by electricity and held latched by a permanent magnet. It has two coils (latch and unlatch) that make electromagnet when current flows through them. It also has an internal switch that places the latch coil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

Harness and Wire Symbols

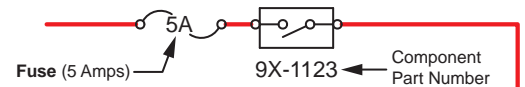
Wire, Cable, or Harness Assembly Identification: Includes Harness Identification Letters and Harness Connector Serialization Codes (see sample).



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



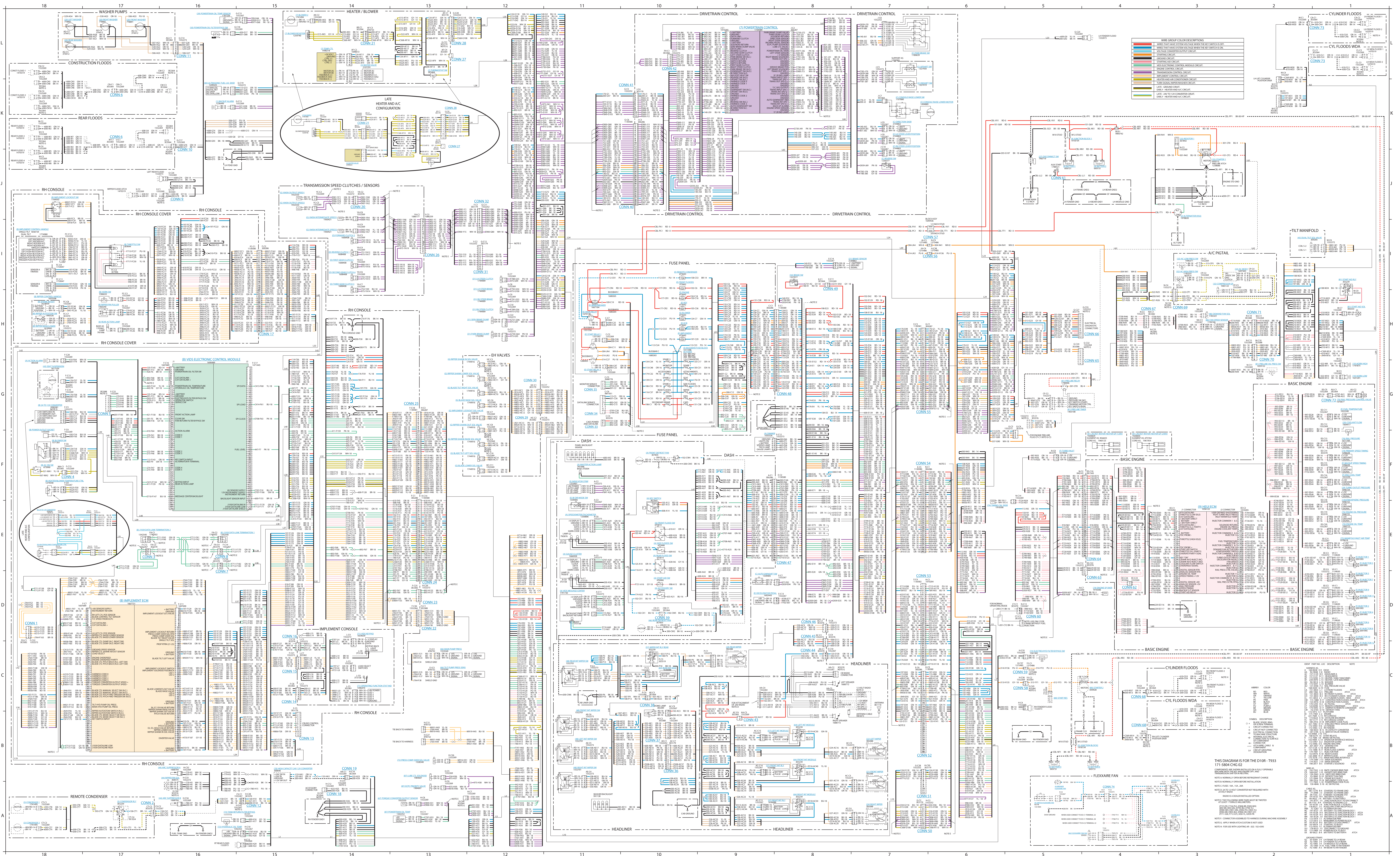
Sure-Seal connector: Typical representation of a Sure-Seal connector. The plug and receptacle contain both pins and sockets.



Harness identification code: This example indicates wire group 325, wire 135 in harness "AG".

325-AG135 **PK-14**

Wire Gauge
Wire Color



MACHINE HARNESS CONNECTOR AND COMPONENT LOCATIONS

