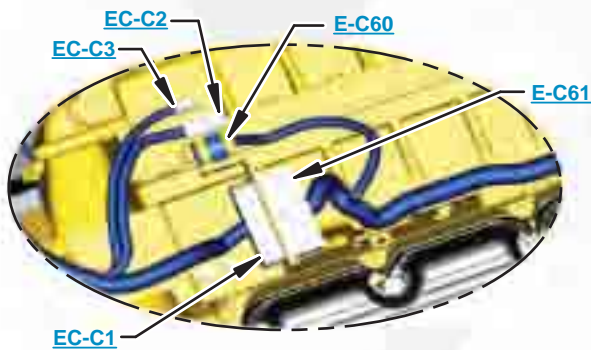


This document is best viewed at a screen resolution of 1024 X 768.

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

992G Wheel Loader
854G Wheel Tractor
Electrical System

992G:
ADZ1-UP

854G:
AMP1-UP

COMPONENT LOCATION

Page 1 of 3



Component	Schematic Location	Machine Location
A/C Heater Control Board	K-12	1
Actuator - A/C Water Valve	L-12	1
Alarm - Action	J-2	2
Alarm - Backup	H-15	3
Alternator	G-14	4E
Antenna - CB	L-2	5
Antenna - Radio	L-2	6
Batteries - 12 Volt	C-13	7
Block Assembly	A-6	8A
Breaker - Alternator (105 Amp)	A-11	9A
Breaker - Adem II ECM	A-11	10A
Breaker - Key (10 Amp)	B-11	10A
Breaker - Main (105 Amp)	B-11	9A
Breaker - Running Lamps (15 Amp)	B-11	10A
Buffer - Fuel Level	G-12	11
Bus Bar	C-13	12
Bus Bar	D-13	13
Cluster- Gauge	L-2	G
Cluster - Message Center	K-2	G
Cluster - Speed/Tachometer	L-2	G
Control - Adem II ECM	A-15	16C
Control - Implement ECM	A-3	29A
Control - Powertrain ECM	A-6	43A
Control - Stick	H-4	14
Converter - Voltage	L-5	15
Fuse - 10 Ampere	B-6	17A
Fuse - 15 Ampere	A-7, B-6	17A
Fuse - 20 Ampere	B-6	17A
Ground - Alternator to Engine	G-14	4E
Ground - Engine ECM to Engine	A-13	18C
Ground - Starter Motor to Engine	E-13	18C
Ground - Strap As (E-Bay to Stud #3)	C-3	19A
Ground - Strap As (Platform to Eng Frame)	I-8	20
Ground Stud #1	D-13	21
Ground Stud #2	D-13	22
Ground Stud #3	C-3	23A
Ground Stud #4 - Electronics Bay (E-Box)	C-3	24A
Ground Stud #5 - E-Box	C-4	25A
Ground Stud #6 - E-Box	C-8	25A
Ground Stud #7 - E-Box	C-10	26A
Ground Stud #8 - Engine End Frame	I-8	20
Ground Stud #9 - Cab Platform	I-8	20
Ground Stud #10 - Cab Platform	E-3	27
Horn - Forward (High Tone)	B-1, G-1, L-1	28
Horn - Forward (Low Tone)	B-1, H-1, L-1	28

Component	Schematic Location	Machine Location
Sensor - Lift Lever Position	J-5	E
Sensor - Lift Linkage Position	J-1	68
Sensor - Rear Axle Brake Pressure	D-1	58
Sensor - Rear Axle Oil Temperature	C-12	69
Sensor - Right Turbo Exhaust Temperature	C-14	70E
Sensor - Right Turbo Inlet Pressure	C-14	71D
Sensor - Steering Main Pump Pressure	F-13	72
Sensor - Steering Oil Temperature	G-11	73
Sensor - Steering Pilot Oil Pressure	G-11	74
Sensor - Throttle Pedal Position	J-2	75
Sensor - Tilt Cylinder Rod End Pressure	F-1	76
Sensor - Tilt Lever Position	J-5	E
Sensor - Tilt Linkage Position	K-1	77
Sensor - Torque Converter Oil Temperature	E-12	78
Sensor - Torque Converter Output Speed	E-12	78
Sensor - Torque Converter P4 Pressure	E-12	78
Sensor - Transmission Output Speed	E-11	79
Sensor - Transmission Pump P1 Pressure	E-11	80
Sensor - Turbo Outlet Pressure	C-14	81D
Socket - Auxiliary 12 Volt Supply	L-7	82B
Solenoid - Air Conditioner Clutch	F-15	83E
Solenoid - Dual Tilt	G-1	152
Solenoid - Dump Pilot Control Valve #1	D-1	61
Solenoid - Dump Pilot Control Valve #2	D-1	61
Solenoid - Fan Pump	F-12	57
Solenoid - Impeller Clutch	E-12	84
Solenoid - Lift Lever-Lift Kickout Detent	J-5	E
Solenoid - Lift Lever-Lower Kickout Detent	J-5	E
Solenoid - Lift Pilot Control Valve #1	C-2	61
Solenoid - Lift Pilot Control Valve #2	C-2	61
Solenoid - Lockup Clutch	E-12	84
Solenoid - Lower Pilot Control Valve #1	C-1	61
Solenoid - Lower Pilot Control Valve #2	C-1	61
Solenoid - Pilot Supply On/Off	B-1	61
Solenoid - Rackback Pilot Control Valve #1	D-2	61
Solenoid - Rackback Pilot Control Valve #2	D-2	61
Solenoid - Ride Control	D-1	85
Solenoid - Ether Start Aid	D-12	86
Solenoid - Tilt Lever-Bucket Kickout Detent	J-5	E
Solenoid - Variable Pump Prop	G-14	87
Solenoids - Transmission	F-11	88
Solenoids - Unit Injector	D-14, E-14	E
Strap - Alternator Breaker to Main Breaker	A-11	9
Strip - Copper	A-10	47
Suppressor - Arc (A/C)	F-14	89E

COMPONENT LOCATION

Page 2 of 3



Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Junction Block #1	C-7	30A	Suppressor - Arc (Flood Lamp Relay)	A-6	90A
Junction Block #2	B-7	30A	Suppressor - Arc (Main Relay)	B-10	91A
Keypad - VIDS/VIMS	K-11	31B	Switch - A/C Thermostat	K-12	1
Lamp - Action	L-2	G	Switch - A/C High/Low Pressure	F-14	92E
Lamp - Auto Ride Control Indicator	J-2	G	Switch - Blower	L-7	93B
Lamp - Quickshift Indicator	L-2	G	Switch - Brake Case Filter	H-9	84
Lamp - Reduced Rimpull Indicator	L-2	G	Switch - Coolant Flow	C-14	94E
Lamp - Throttle Lock Indicator	J-2	G	Switch - Disconnect	C-13	95
Lamp - Torque Converter Lockup Indicator	L-2	G	Switch - Dual Wiper	J-7	96B
Lamp - VIDS/VIMS Service	I-13	32	Switch - Engine Oil Level	E-15	97E
Lighter - Cigar	I-5	33	Switch - Fan Motorcase Filter	G-11	120
Module 1 - VIDS/VIMS Interface	B-9	34A	Switch - Fan Pump Case Filter	H-9	120
Module 2 - VIDS/VIMS Interface	C-9	35A	Switch - Flood Lamp	K-7	98B
Module - VIDS/VIMS Main	B-7	36A	Switch - Front Brake Accumulator Pressure	E-1	58
Motor - Blower	J-12	1	Switch - Front Intermittent Wiper	L-8	99B
Motor - Front Washer	J-12	37	Switch - Fuel Filter Pressure	E-15	100C
Motor - Front Wiper	H-2	38	Switch - Ground Level Shutdown	I-14	101
Motor - Left Hand Wiper	J-2	39	Switch - Horn	I-5	E
Motor - Left Washer	J-12	37	Switch - Implement Lockout	J-4	E
Motor - Rear Washer	J-12	37	Switch - Implement Oil Filter Bypass	C-13	102
Motor - Rear Wiper	L-13	40	Switch - Implement Pump Case Drain Filter	H-9	69
Motor - Right Hand Wiper	H-2	41	Switch - Implement Tank Oil Level	D-12	62
Motor - Right Washer	J-12	37	Switch - Implement Var Pump Case Drain Filter	H-9	78
Motor - Starter #1	E-13	42C	Switch - Key Start	L-10	103B
Motor - Starter #2	D-13	42C	Switch - Lift/Lower/Bucket Kickout Set	L-11	104B
Receptacle - Auxiliary Start	H-15	44	Switch - Park Brake Position	F-11	105
Relay - Flood Lamp	A-7	45A	Switch - Park Brake Pressure	F-11	105
Relay - Horn	I-5	E	Switch - Payload Store	J-4	E
Relay - Main	B-10	46A	Switch - Pitch Control	J-6	117
Relay - Start #1	A-10	47A	Switch - Primary Steering Pressure	F-11	106
Relay - Start #2	A-10	47A	Switch - Quickshift	K-8	107B
Relay - Start Aid Current Level (Ether)	B-10	48A	Switch - Rear Brake Accumulator Pressure	E-1	58
Relay - Start Aid On (Ether)	B-10	48A	Switch - Rear Wiper	L-7	108B
Resistor - Blower Motor	K-12	1	Switch - Reduced Rimpull On/Off	J-4	E
Resistor - Start Motor #1	F-13	42C	Switch - Reduced Rimpull Selector	L-6	109B
Resistor - Start Motor #2	E-13	42C	Switch - Ride Control	J-10	110B
Resistor/Diode As - Start Aid(Ether)Current Level	B-10	49	Switch - Right Hand Dash Lamp	L-4	149
Selector - Water Valve Temperature	H-7	50B	Switch - Right Service Brake Pedal	B-2	111
Sensor - After Cooler Temperature	D-14	200E	Switch - Running Lamp	K-7	112B
Sensor - Atmospheric Pressure	B-14	51C	Switch - Ground Level Stairway Lamp	H-14	101
Sensor - Coolant Temperature	C-14	52C	Switch - Single/Dual Tilt	J-6	117
Sensor - Crankcase Pressure	B-14	53C	Switch - Stairway Access Lamp	K-7	113B
Sensor - Engine Oil Pressure	B-14	54E	Switch - Start Aid (Ether)	K-10	114B
Sensor - Engine Speed	A-13	55E	Switch - Steercase Filter	H-9	115
Sensor - Engine Speed/Timing	C-14	56C	Switch - Steering Oil Filter Bypass	E-10	115

COMPONENT LOCATION

Page 3 of 3



Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Sensor - Fan Pump Pressure	F-12	57	Switch - Steering Tank Oil Level	F-11	116
Sensor - Front Axle Brake Pressure	E-1	58	Switch - Steering/Transmission Lock	H-4	117
Sensor - Front Axle Oil Temperature	G-1, J-1	59	Switch - Stop Lamp	B-2	64
Sensor - Fuel Level	G-12	60	Switch - Throttle Lock On/Off	K-5	118B
Sensor - Implement Fixed Pump Pressure	C-12	61	Switch - Throttle Lock Resume	I-4	F
Sensor - Implement Oil Temperature	D-12	62	Switch - Throttle Lock Set	I-4	F
Sensor - Implement Pilot Pressure	D-12	63	Switch - Torque Converter Lockup	K-9	119B
Sensor - Left Brake Pedal Position	B-2	64	Switch - VIMS Service Key	H-13	101
Sensor - Left Turbo Exhaust Temperature	C-14	65C	Switches - Transmission Oil Filter Bypass	G-12	120
Sensor - Left Turbo Inlet Pressure	C-14	66D			
Sensor - Lift Cylinder Head End Pressure	J-1	67			

Machine locations are repeated for components located close together.

A = Located in the Electronic Box.

B = Located in the right cab panel.

C = Located in left engine.

D = Located in front engine.

E = Located in right engine.

F = Located in the Implement Control Panel

G = Located in the dash.

CONNECTOR LOCATION



Connector Number	Schematic Location	Machine Location	Connector Number	Schematic Location	Machine Location
CONN 1	K-13	1	CONN 38	G-6	145
CONN 2	A-12	121	CONN 39	G-6	145
CONN 3	B-12	121	CONN 40	H-6	146
CONN 4	C-12	122	CONN 41	H-6	146
CONN 5	D-12	123	CONN 42	I-6	146
CONN 6	E-12	124	CONN 43	I-6	146
CONN 7	F-12	125	CONN 44	I-6	146
CONN 8	I-12	126	CONN 45	K-6	147
CONN 9 VIMS Serial Port	I-12	126	CONN 46	K-6	G
CONN 10	J-12	127	CONN 47 Upper Cab	L-5	148
CONN 11	K-12	1	CONN 48	H-5	146
CONN 12	L-11	G	CONN 49	E-5	143
CONN 13 ECAP	L-11	128	CONN 50	E-4	144
CONN 14	H-11	129	CONN 51	C-4	142
CONN 15	H-11	129	CONN 52	C-5	138
CONN 16	H-11	130	CONN 53	G-4	145
CONN 17	H-11	130	CONN 54	K-4	G
CONN 18	G-11	201	CONN 55 VIMS Serial Port	K-4	G
CONN 19	F-11	131	CONN 56	J-3	G
CONN 20	E-11	134	CONN 57	J-3	G
CONN 21	E-11	133	CONN 58	G-3	145
CONN 22	D-11	134	CONN 59	F-3	154
CONN 23	C-11	135	CONN 60	D-3	154
CONN 24 Service Tool	A-11	137	CONN 61	D-3	154
CONN 25 Diagnostic	A-11	137	CONN 62	B-2	150
CONN 26	C-10	136	CONN 63	B-2	151
CONN 27	F-10	133	CONN 64	B-2	160
CONN 28	F-10	132	CONN 65	C-2	159
CONN 29	G-9	115	CONN 66	D-2	158
CONN 30	F-9	144	CONN 67	E-2	155
CONN 31	C-8	139	CONN 68	L-2	150
CONN 32	C-7	140	CONN 69	L-1	151
CONN 33	G-7	145	CONN 70	K-1	152
CONN 34	E-7	143	CONN 71	J-1	153
CONN 35	B-7	138	CONN 77	E-1	156
CONN 36	C-6	146	CONN 78 Payload Display	K-2	G
CONN 37	E-6	143			

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 (CID¹) For VIMS (Only For MID No.'s 49, 57, and 58)

CID	Component	CID	Component
0041	8 Volt Sensor Power Supply	0658	Pressure Sensor (Trailer) (Right Suspension Cylinder)
0075	Steering Oil Temperature Sensor	0659	Pressure Sensor (Trailer) (Left Suspension Cylinder)
0096	Fuel Level Sensor	0672	Torque Converter Output Speed Sensor
0100	Engine Oil Pressure Sensor	0767	Fixed Displacement Pump Oil Pressure Sensor
0110	Engine Coolant Temperature Sensor	0800	VIMS Main Module
0127	Transmission Oil Pressure Sensor	0801	VIMS Interface Module (No. 1)
0171	Ambient Air Temperature Sensor	0802	VIMS Interface Module (No. 2)
0177	Transmission Oil Temperature Sensor	0803	VIMS Interface Module (No. 3)
0190	Engine Speed Sensor	0804	VIMS Interface Module (No. 4)
0248	CAT Data Link	0805	VIMS Interface Module (No. 5)
0262	5 Volt Sensor Power Supply	0806	VIMS Interface Module (No. 6)
0263	Sensor Power (8 or 12 Volt)	0807	VIMS Interface Module (No. 7)
0267	Switch (Remote Engine Shutdown)	0808	VIMS Interface Module (No. 8)
0271	Action Alarm	0809	Speedometer/Tachometer Display (No. 1)
0272	Turbocharger Outlet Overboost Pressure Sensor (High)	0810	Speedometer/Tachometer Display (No. 2)
0279	Aftercooler Coolant Temperature Sensor	0811	Gauge (Quad Cluster) (No. 1)
0280	Gear Box Temperature Sensor	0812	Gauge (Quad Cluster) (No. 2)
0295	HEX Electronic Control Module	0813	Gauge (Quad Cluster)(No. 3)
0296	Transmission Electronic Control Module	0814	Gauge (Quad Cluster) (No. 4)
0324	Action Lamp (Warning)	0815	Message Center (No. 1)
0341	Solenoid (Hydraulic Control Valve Warm Up) (No. 4)	0816	Message Center (No. 2)
0350	Lift Linkage Position Sensor	0817	ECM Internal Backup Battery
0364	Pressure Sensor (Lift Cylinder Head)	0819	Display Data Link
0371	Horn Solenoid (Forward)	0820	Keypad Data Link
0379	Machine Autolube Pressure Sensor	0821	Display Power Supply (9 Volt)
0425	Pressure Sensor (Front Brake Oil)	0822	Power Supply (Display Lighting)
0426	Pressure Sensor (Rear Brake Oil)	0823	Lamp (VIMS Service)
0427	Front Axle Oil Temperature Sensor	0824	Green Truck Payload Lamp (No. 1)
0428	Rear Axle Oil Temperature Sensor	0825	Red Truck Payload Lamp (No. 2)
0429	Pressure Sensor (Steering Pump Oil)	0826	Torque Converter Oil Temperature Sensor
0430	Pressure Sensor (Steering Pilot)	0827	Temperature Sensor (Bank) (Left Exhaust)
0434	Hydraulic Pilot Oil Pressure Sensor	0828	Temperature Sensor (Bank) (Right Exhaust)
0436	Torque Converter Oil Pressure Sensor	0829	Rear Aftercooler Coolant Temperature Sensor
0438	Solenoid (Hydraulic Control Valve Warm Up) (No. 1)	0830	Front Brake Oil Temperature Sensor
0439	Solenoid (Hydraulic Control Valve Warm Up) (No. 2)	0833	Rear Brake Oil Temperature Sensor
0440	Solenoid (Hydraulic Control Valve Warm Up) (No. 3)	0835	Temperature Sensor (Differential Oil) (Axle)
0533	Auto Retarder Control (ARC)	0838	Left Front Suspension Cylinder Pressure Sensor
0541	Pressure Sensor (Differential Oil)(Axle)	0839	Right Front Suspension Cylinder Pressure Sensor
0558	Autolube Relay	0840	Left Rear Suspension Cylinder Pressure Sensor
0562	Caterpillar Monitoring System	0841	Right Rear Suspension Cylinder Pressure Sensor
0590	Engine Electronic Control Module	0849	System Air Pressure Sensor
0596	Implement Electronic Control Module	0851	Gear Box Pressure Sensor
0600	Hydraulic Oil Temperature Sensor	0852	Brake Oil Temperature Sensor (Right Front)
0650	Harness Code	0853	Brake Oil Temperature Sensor (Left Front)
0654	Trailer Right Brake Oil Temperature Sensor	0854	Brake Oil Temperature Sensor (Right Rear)
0655	Trailer Left Brake Oil Temperature Sensor	0855	Brake Oil Temperature Sensor (Left Rear)
0656	Temperature Sensor (Trailer Brake Oil Cooler Inlet)	0890	Broadcast Port (Data Link)
0657	Temperature Sensor (Trailer Brake Oil Cooler)	1089	Road Analysis Control (RAC) Module

¹ The CID is a diagnostic code that indicates which circuit has faulted.

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



Component Identifiers (CID¹) for VIDS (only for MID No.'s 49 and 57)

CID	Component
0041	ECM (Electronic Control Module) 8 Volt DC Supply
0075	Steering Oil Temperature Sensor
0096	Fuel Level Sensor
0100	Engine Oil Pressure Sensor
0110	Engine Coolant Temperature Sensor
0190	Engine Speed Sensor
0248	CAT Data Link
0262	5 Volt Sensor Power Supply
0267	Remote Shutdown Input
0271	Action Alarm
0279	Aftercooler Coolant Temperature Sensor
0296	Transmission Electronic Control
0324	Warning Lamp (Action)
0350	Lift Linkage Position Sensor
0371	Operator Horn Solenoid
0427	Front Axle Oil Temperature Sensor
0428	Rear Axle Oil Temperature Sensor
0590	Engine Control Module
0596	Implement Electronic Control
0600	Hydraulic Oil Temperature Sensor
0650	Harness Code
0672	Torque Converter Output Speed Sensor
0800	VIDS Main Module
0801	VIDS Interface Module #1
0809	Speedometer/Tachometer #1
0810	Speedometer/Tachometer #2
0811	Gauge (Quad) Cluster #1
0812	Gauge (Quad) Cluster #2
0813	Gauge (Quad) Cluster #3
0814	Gauge (Quad) Cluster #4
0815	Message Center #1
0817	ECM Internal Backup Battery
0819	Display Data Link
0820	Keypad Data Link
0821	Display Power Supply (9 volt)
0822	LCD (Liquid Crystal Display) Back Light Power Supply
0826	Torque Converter Oil Temperature Sensor
0827	Left Exhaust Temperature Sensor
0828	Right Exhaust Temperature Sensor
0890	Broadcast Port (Data Link)

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

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

Component Identifiers (CID¹) for Engine Control Module MID No. 36

CID	Component
0001	Injector Cylinder #1
0002	Injector Cylinder #2
0003	Injector Cylinder #3
0004	Injector Cylinder #4
0005	Injector Cylinder #5
0006	Injector Cylinder #6
0007	Injector Cylinder #7
0008	Injector Cylinder #8
0091	Throttle Position Sensor
0100	Engine Oil Pressure Sensor
0101	Crankcase Air Pressure Sensor
0110	Engine Coolant Temperature Sensor
0168	Electrical System Voltage
0190	Engine Speed Sensor
0253	Personality Module
0254	Electronic Control Module
0261	Engine Timing Calibration
0262	5 Volt Sensor Power Supply
0263	Digital Sensor Power Supply (8V or 12V)
0267	Remote Shutdown Input
0268	Programmable Parameters
0273	Turbocharger Outlet Pressure Sensor
0274	Atmospheric Pressure Sensor
0275	Right Turbocharger Inlet Pressure Sensor
0276	Left Turbocharger Inlet Pressure Sensor
0277	Timing Calibration Sensor
0279	After Cooler Temperature Sensor
0290	Engine Cooling Fan Pump Pressure Sensor
0291	Engine Cooling Fan Solenoid
0296	Transmission Electronic Control
0298	Service Brake Pedal Switch
0545	Ether Start Aid START Relay
0546	Ether Start Aid HOLD Relay
0548	Throttle Lock Lamp
0650	Harness Code
0799	Service Tool
0800	VIMS/VIDS Main Module
0827	Left Exhaust Temperature Sensor
0828	Right Exhaust Temperature Sensor

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

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

Component Identifiers (CID¹) for Powertrain Control Module MID No. 81	
CID	Component
0041	ECM (Electronic Control Module) 8 Volt DC Supply
0070	Parking Brake Switch
0168	Electrical System Voltage
0190	Engine Speed Sensor
0191	Transmission Output Speed Sensor
0248	CAT Data Link
0254	Electronic Control Module
0298	Service Brake Pedal Switch
0350	Lift Linkage Position Sensor
0363	Ride Control Solenoid
0367	Ride Control Switch
0444	Start Relay
0590	Engine Control Module
0596	Implement Electronic Control
0623	Directional Switch
0626	Steering/Transmission Lock Switch
0627	Parking Brake Pressure Switch
0628	Quickshift Switch
0641	Transmission Clutch 1 (Reverse)
0642	Transmission Clutch 2 (Forward)
0643	Transmission Clutch 3 (Speed 3)
0644	Transmission Clutch 4 (Speed 2)
0645	Transmission Clutch 5 (Speed 1)
0650	Harness Code
0670	Torque Converter Pedal Position Sensor
0672	Torque Converter Output Speed Sensor
0678	Torque Converter Impeller Clutch Solenoid
0679	Torque Converter Lockup Clutch Solenoid
0801	VIMS/VIDS Interface Module #1
0826	Torque Converter Oil Temperature Sensor

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

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

Component Identifiers (CID¹) Module Identifier (MID²) Electronic Implement Control (MID No. 082)	
CID	Component
0168	Battery Voltage Above or Below Normal
0296	Module
0350	Lift Linkage Position Sensor
0351	Tilt Linkage Position Sensor
0352	Lift Lever Position Sensor
0353	Tilt Lever Position Sensor
0354	Lift Pilot Control Valve Solenoid 1
0355	Lower Pilot Control Valve Solenoid 1
0356	Dump Pilot Control Valve Solenoid 1
0357	Tilt Back Pilot Control Valve Solenoid 1
0358	Pilot On/Off Control Valve Solenoid
0359	Lift Kickout Detent Solenoid
0360	Lower Kickout Detent Control Valve Solenoid
0361	Bucket Kickout Detent Control Valve Solenoid
0365	Lift, Lower and Bucket Kickout Set Switch
0490	Lift, Lower and Bucket Kickout Set Switch
0499	Variable Torque Pump Control Valve Solenoid
0590	Cat data link Communication with Engine EC
0592	Variable Torque Pump Control Valve Solenoid
0593	Lower Control Valve Solenoid 2
0594	Tilt Back Control Valve Solenoid 2
0595	Dump Control Valve Solenoid 2
0650	Harness Code
0800	VIMS (Vital Information Management System) Main Module
1393	Pilot On/Off Control Valve Solenoid

¹ The CID is a diagnostic code that indicates which circuit has faulted.

² The MID is a diagnostic code that indicates which electronic control 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.

992G Applications and Codes	
Applicat ons	Codes
Standard Lift W/LUC & Ride Control	10
Standard Lift W/LUC Only	64
Standard Lift W/Ride Control Only	65
Standard Lift W/No Power Train Options	66
High Lift W/ LUC & Ride Control	26
High Lift W/ LUC Only	80
High Lift W/Ride Control Only	81
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SPECIFICATIONS AND RELATED MANUALS



Off Machine Switch Specification				
Part No.	Function	Actuate	Deactuate	Contact Position
3E-6450	Primary Steering Oil Pressure (EMS)	1200 kPa MAX (175 psi MAX)	700 ± 100 kPa (100 ± 15 psi)	A-C, Normally Closed A-B, Normally Open
3E-6452	Park Brake Oil Pressure (CMS)	8270 kPa MAX (1200 psi MAX)	6890 ± 345 kPa (1000 ± 50 psi)	A-C, Normally Closed A-B, Normally Open
3E-7693	Front Brake Accumulator Press Rear Brake Accumulator Press	10700 kPa MAX (1500 psi MAX)	8960 ± 537 kPa (1300 ± 78 psi)	A-B, Normally Open A-C, Normally Closed
114-5333	Air Conditioning High/Low Pressure	275 to 1750 kpa ¹ (40 to 255 psi)	--	Normally Open ²
116-9933	Fuel Filter Pressure (VIMS)	138 ± 14 kPa (20.0 ± 2.0 psi)	83 kPa MIN (12.0 psi MIN)	Normally Closed
117-7773	Brake Case Filter Fan Motorcase Filter Fan Pump Case Filter Implement Pump Case Drain Filter Implement Var Pump Case Drain Filter Steer Case Filter	138 ± 28 kPa (20.0 ± 4.0 psi)	69 kPa MIN (10.0 psi MIN)	Normally Closed
138-3672	Coolant Flow	362 ± 29 mN at point "X" (1.3 ± 0.1 oz)	303 mN MIN (1.1 oz MIN)	Normally Open

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 (25 psi).

² Contact position at the contacts of the harness connector.

Resistor, Sender and Solenoid Specifications		
Part No.	Component Description	Resistance (Ohms) ¹
3E-3748	Solenoid: First Gear Clutch Forward Clutch Reverse Clutch Second Gear Clutch Third Gear Clutch	8.5
3E-7842	Resistor: Starter	150 ± 7.5
3E-9205	Solenoid: Dual Tilt	24.9 ± 0.4
9G-1950	Resistor: A/C, Heater Blower Motor	Overall 2.0 ± .1 Tap 1.0 ± .05
100-4512	Solenoid: A/C Clutch	14.4 ± 0.6
104-7015	Solenoid: Ride Control	34.3 ± 1.7
112-5874	Solenoid: Dump Lift Lower Rackback	6.5 ± 0.4
112-8210	Solenoid: Pilot Supply	20.1 ± 1.0
121-4298	Solenoid: Lockup Clutch	7.75 ± 1.0
122-4973	Solenoid: Variable Pump	7.75 ± 1.0
124-6704	Resistor: Resistor/Diode Assembly	20 ± 0.2
125-3716	Solenoid: Fan Pump	3
129-6303	Solenoid: Impeller Clutch	7.75 ± 1.0
147-2577	Solenoid: Tilt Lever - Bucket Lift Lever - Lower Lift Lever - Lift	71.2 ± 4.0

¹ At room temperature unless otherwise noted.

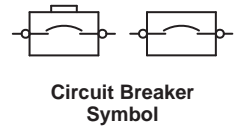
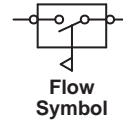
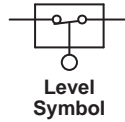
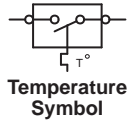
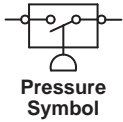
Related Electrical Service Manuals	
Title	Form Number
3508B Engine Electronic Troubleshooting	REN1310
Alternator: 9X-7803 (30SI)	SEN17508
Electronic Systems	SEN1398
Implement System	SEN1367
Power Train Electronic Control	SEN1372
Starting and Charging Systems	SEN2947
Starting Motor: 6V-0889 (50-MT)	SEN3860
Vital Information Display System (VIDS)	SEN1371
Vital Information Management System (VIMS)	SEN6059

HARNESS and WIRE

Electrical Schematic Symbols



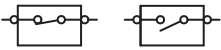
Symbols



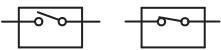
Symbols and Definitions



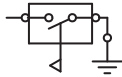
Fuse: A component in an electrical circuit that will open the circuit if too much current flows through it.



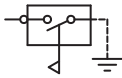
Switch (Normally Open): A switch that will close at a specified point (temp, press, etc.). The circle indicates that the component has screw terminals and a wire can be disconnected from it.



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.



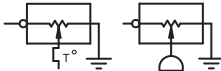
Ground (Wired): This indicates that the component is connected to a grounded wire. The grounded wire is fastened to the machine.



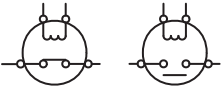
Ground (Case): This indicates that the component does not have a wire connected to ground. It is grounded by being fastened to the machine.



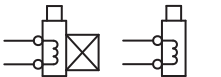
Reed Switch: A switch whose contacts are controlled by a magnet. A magnet closes the contacts of a normally open reed switch; it opens the contacts of a normally closed reed switch.



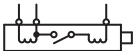
Sender: A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.



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.



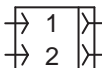
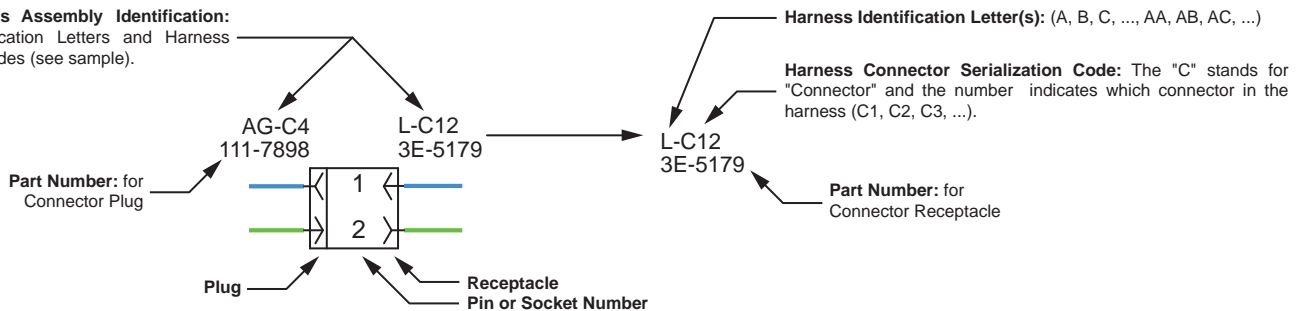
Solenoid: A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or move a piece of metal that can do work.



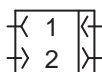
Magnetic Latch Solenoid: A magnetic latch solenoid is an electrical component that is activated by electricity and held latched by a permanent magnet. It has two coils (latch and unlatch) that make electromagnet when current flows through them. It also has an internal switch that places the latch coil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

Harness and Wire Symbols

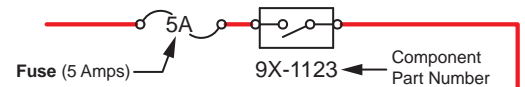
Wire, Cable, or Harness Assembly Identification: Includes Harness Identification Letters and Harness Connector Serialization Codes (see sample).



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



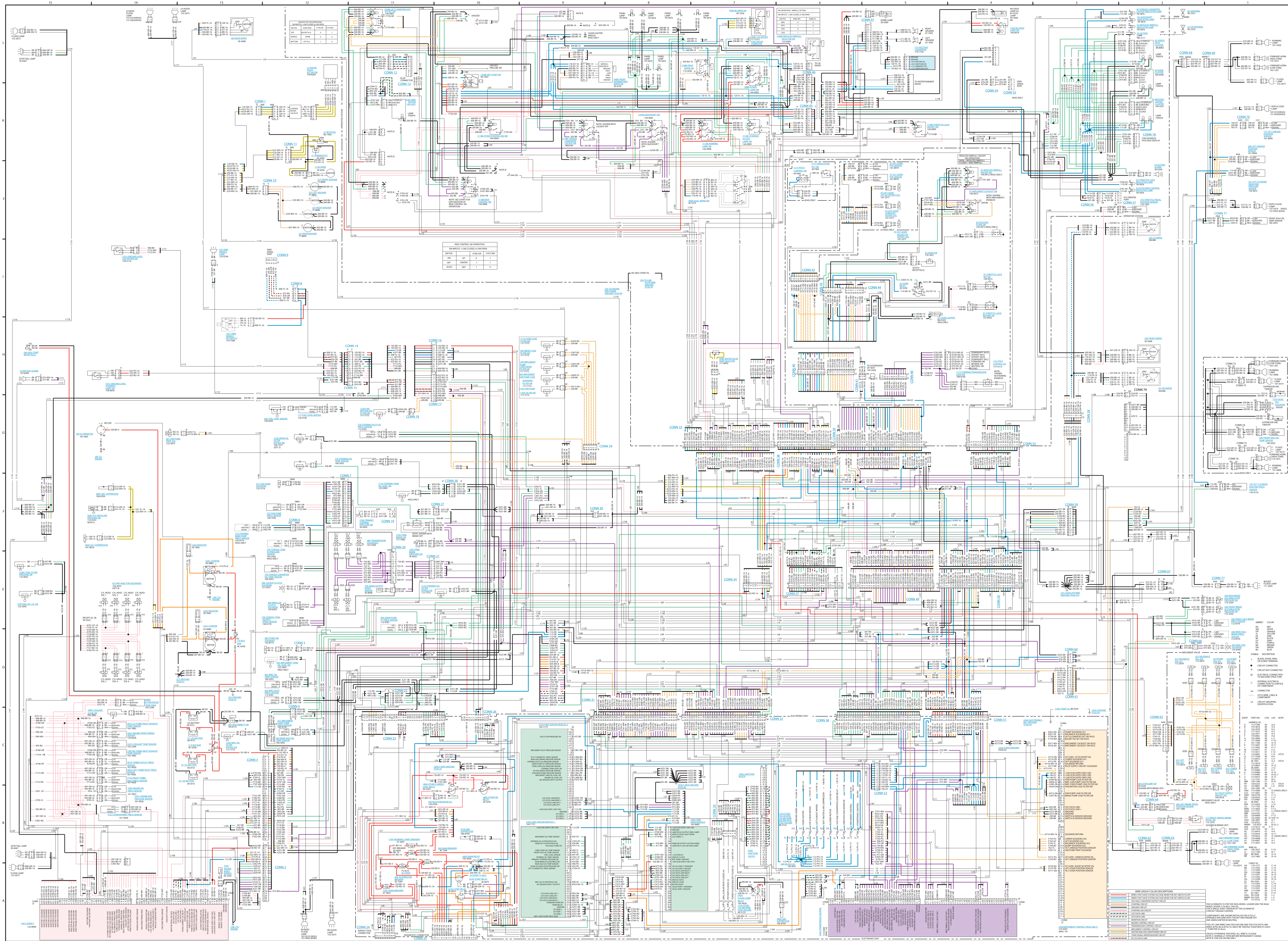
Sure-Seal connector: Typical representation of a Sure-Seal connector. The plug and receptacle contain both pins and sockets.



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

325-AG135 **PK-14**

Wire Gauge
Wire Color



WIRE CONTROL DISPOSITION			
WIRE NO.	CONTROL	CONTROL	CONTROL
1-10	1	1	1
11-20	2	1	1
21-30	3	1	1
31-40	4	1	1

ABBREVIATIONS

SYMBOL	DESCRIPTION
(Symbol)	POWER SOURCE
(Symbol)	POWER DISTRIBUTION
(Symbol)	GROUND
(Symbol)	GROUND NOT CONNECTED
(Symbol)	GROUND CONNECTED
(Symbol)	GROUNDING SYSTEM
(Symbol)	GROUNDING SYSTEM (TYPICAL)
(Symbol)	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND)
(Symbol)	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND) (W/OUT GROUND)
(Symbol)	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND) (W/OUT GROUND) (W/OUT GROUND)
(Symbol)	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND) (W/OUT GROUND) (W/OUT GROUND) (W/OUT GROUND)

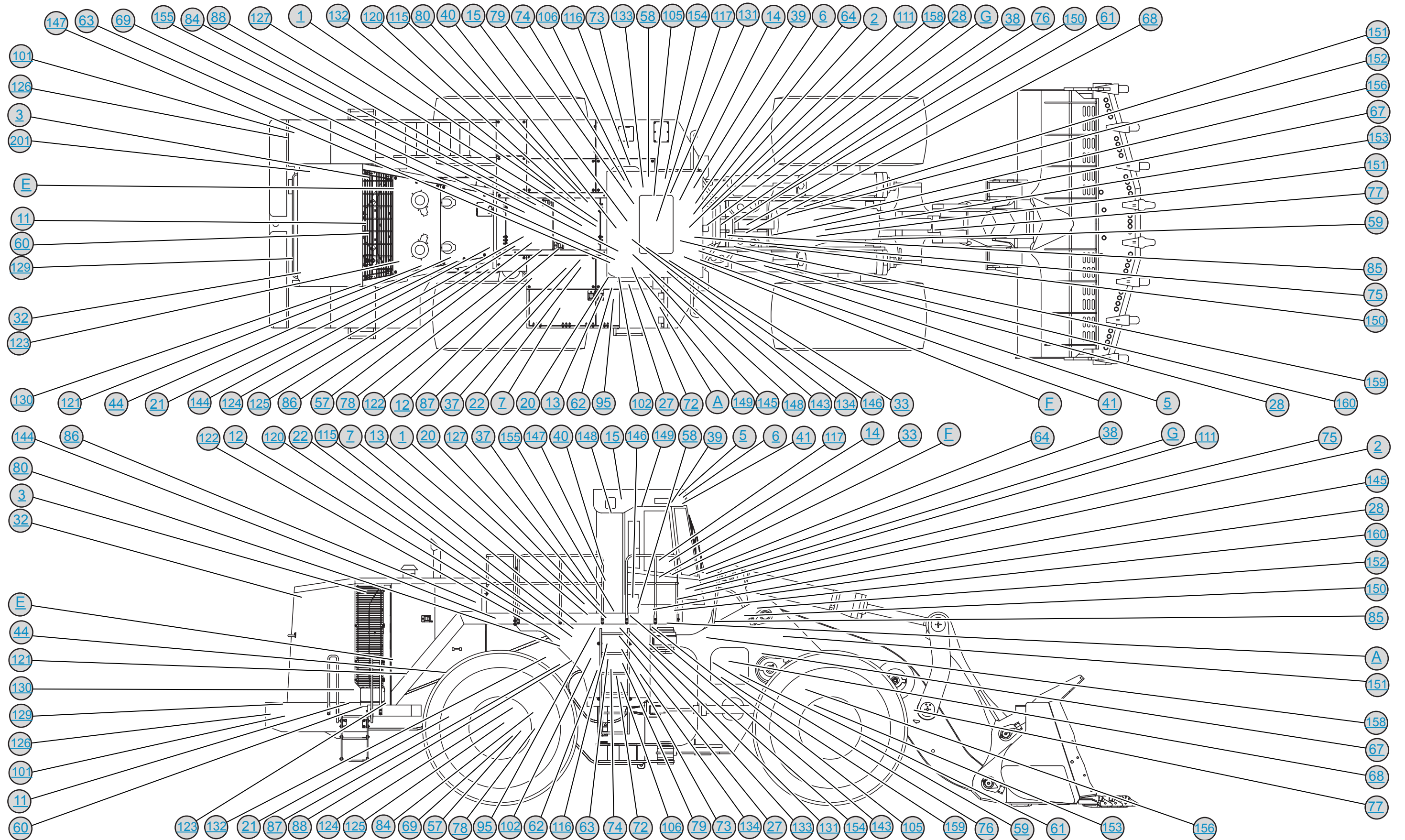
WIRE GROUPS

WIRE NO.	GROUP	DESCRIPTION
1-10	1	POWER SOURCE
11-20	2	POWER DISTRIBUTION
21-30	3	GROUND
31-40	4	GROUND NOT CONNECTED
41-50	5	GROUND CONNECTED
51-60	6	GROUNDING SYSTEM
61-70	7	GROUNDING SYSTEM (TYPICAL)
71-80	8	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND)
81-90	9	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND) (W/OUT GROUND)
91-100	10	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND) (W/OUT GROUND) (W/OUT GROUND)

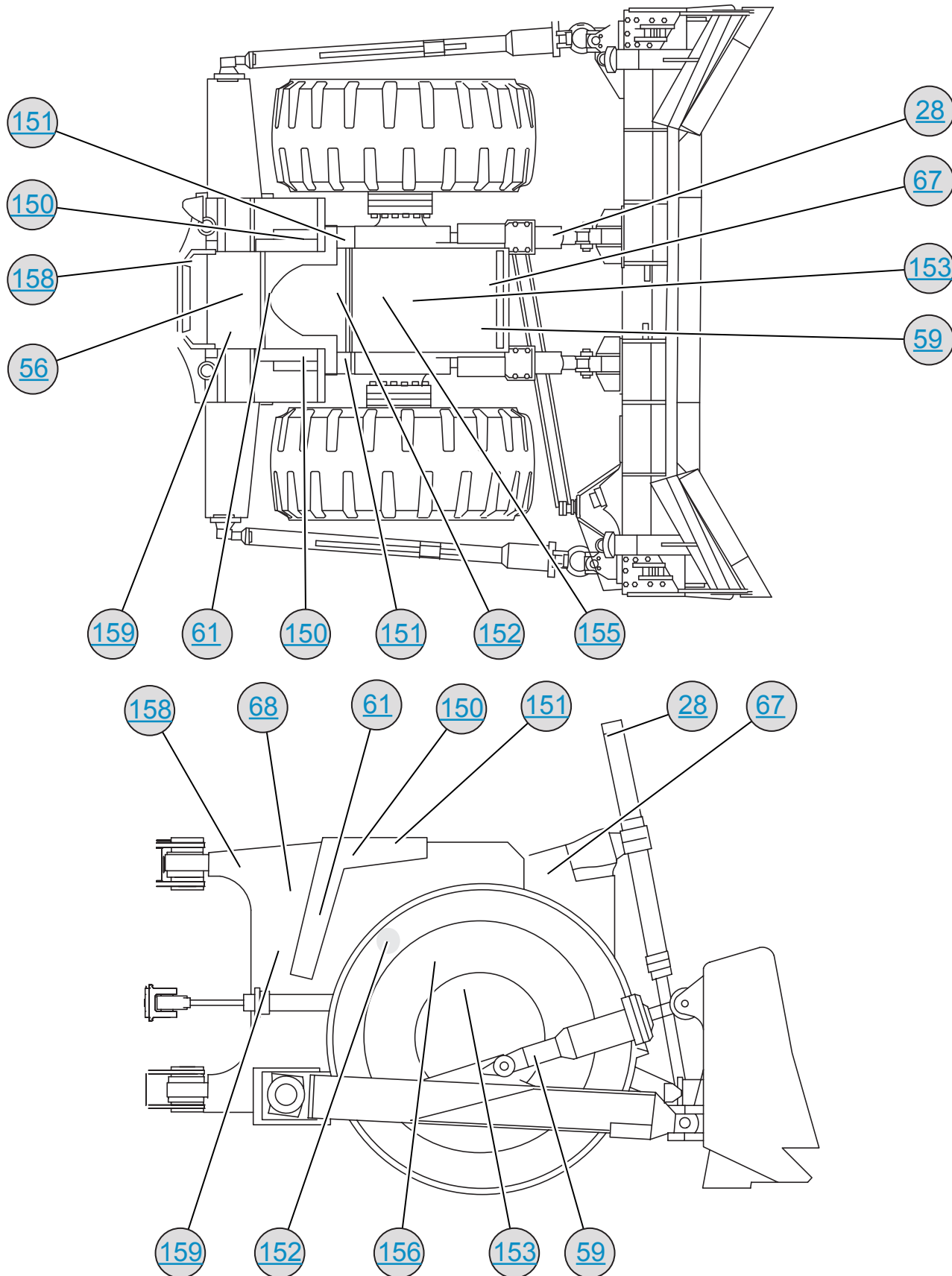
WIRE PAIRING

WIRE NO.	PAIRING	DESCRIPTION
1-2	1	POWER SOURCE
3-4	2	POWER DISTRIBUTION
5-6	3	GROUND
7-8	4	GROUND NOT CONNECTED
9-10	5	GROUND CONNECTED
11-12	6	GROUNDING SYSTEM
13-14	7	GROUNDING SYSTEM (TYPICAL)
15-16	8	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND)
17-18	9	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND) (W/OUT GROUND)
19-20	10	GROUNDING SYSTEM (TYPICAL) (W/OUT GROUND) (W/OUT GROUND) (W/OUT GROUND)

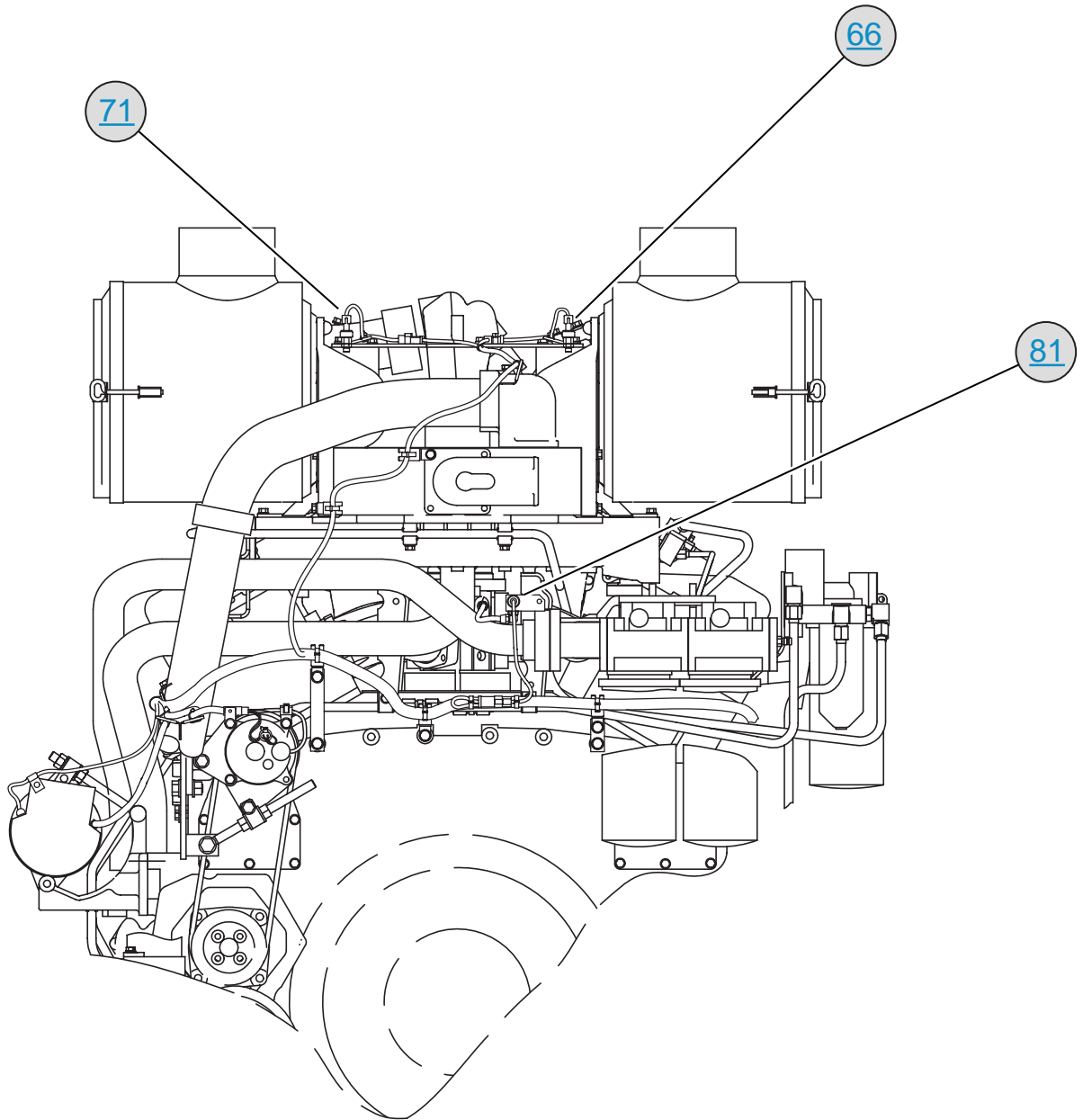
MACHINE HARNESS CONNECTORS AND COMPONENT LOCATIONS



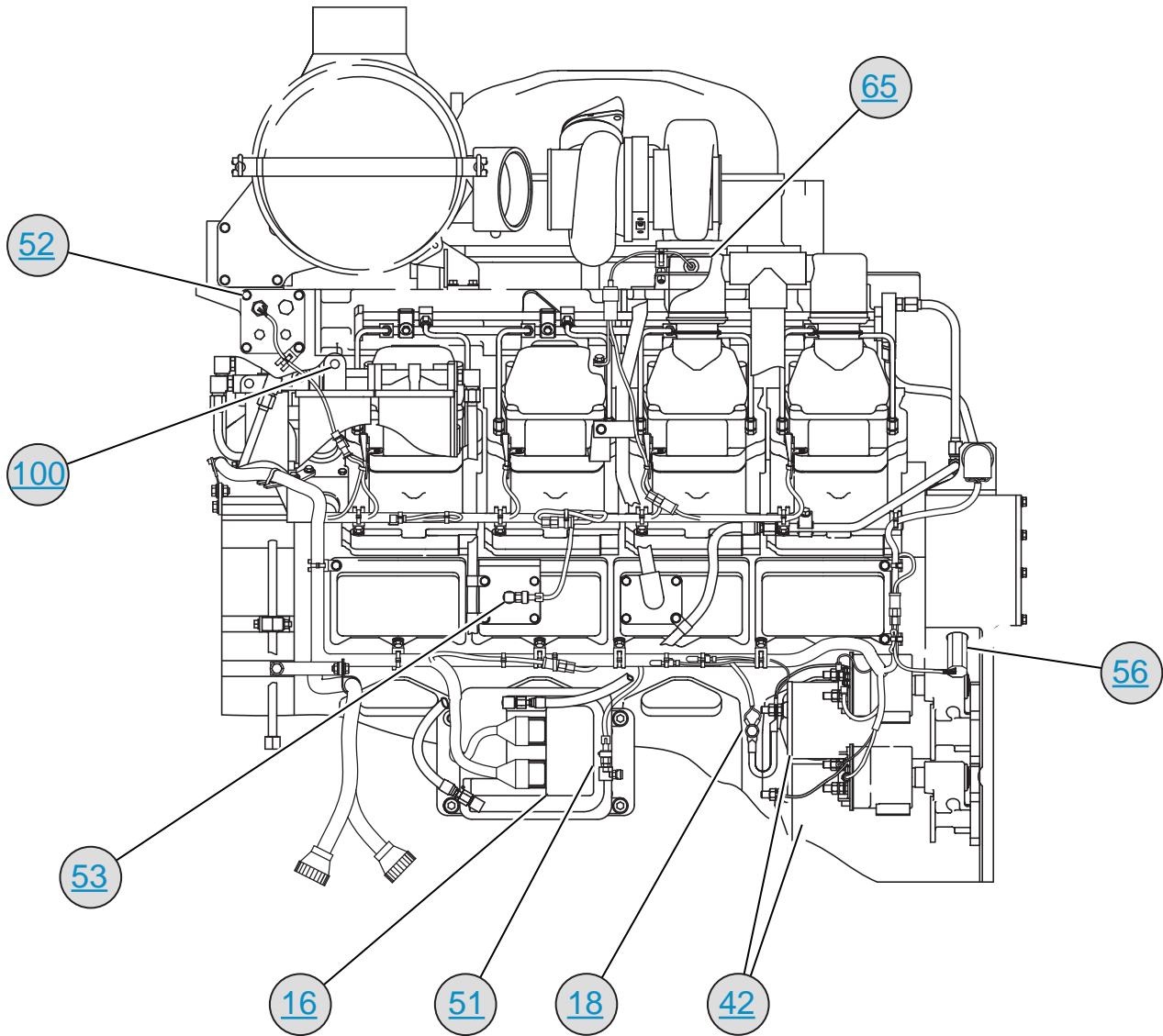
MACHINE HARNESS CONNECTOR AND COMPONENT LOCATIONS (FRONT 854G ONLY)



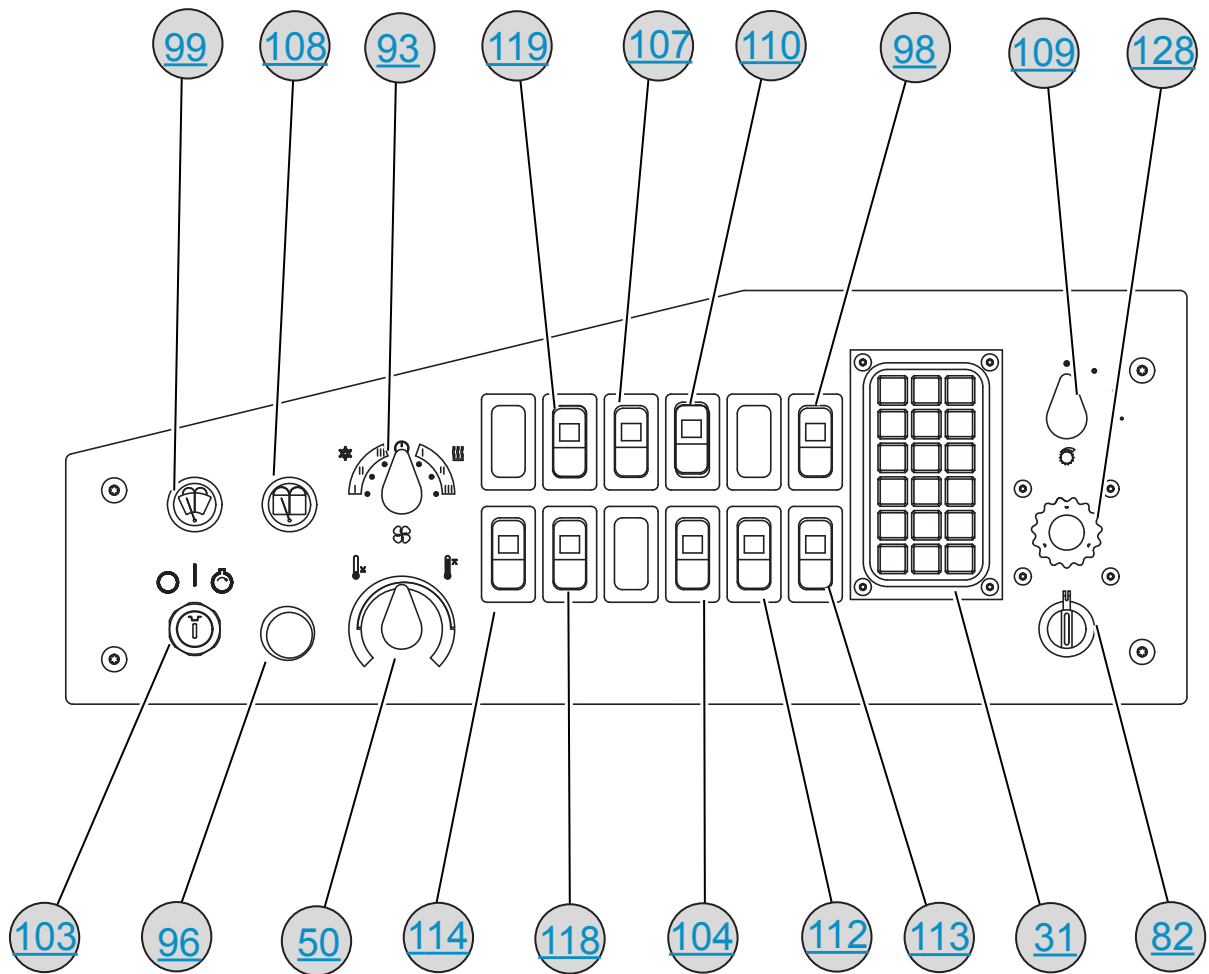
FRONT ENGINE



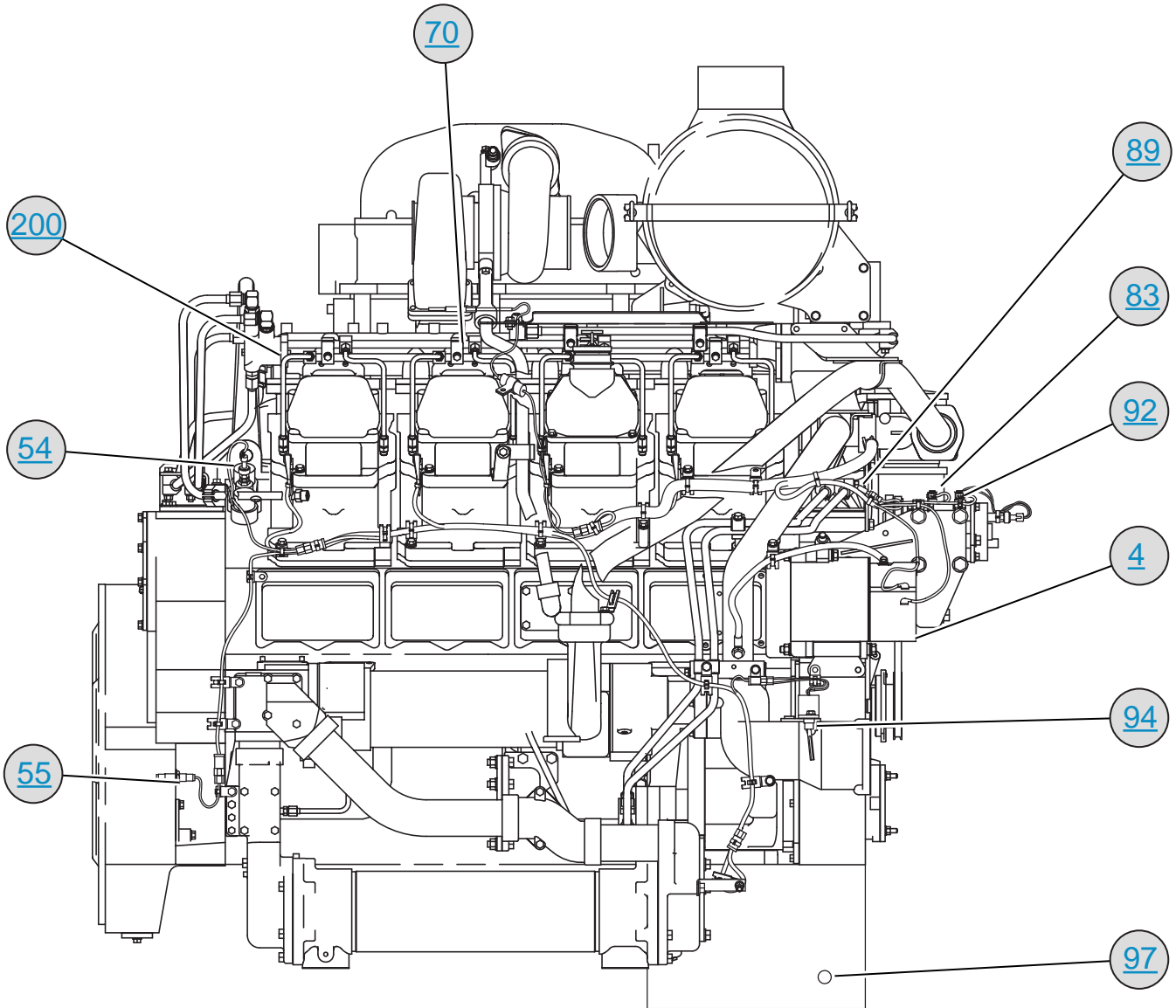
LEFT ENGINE



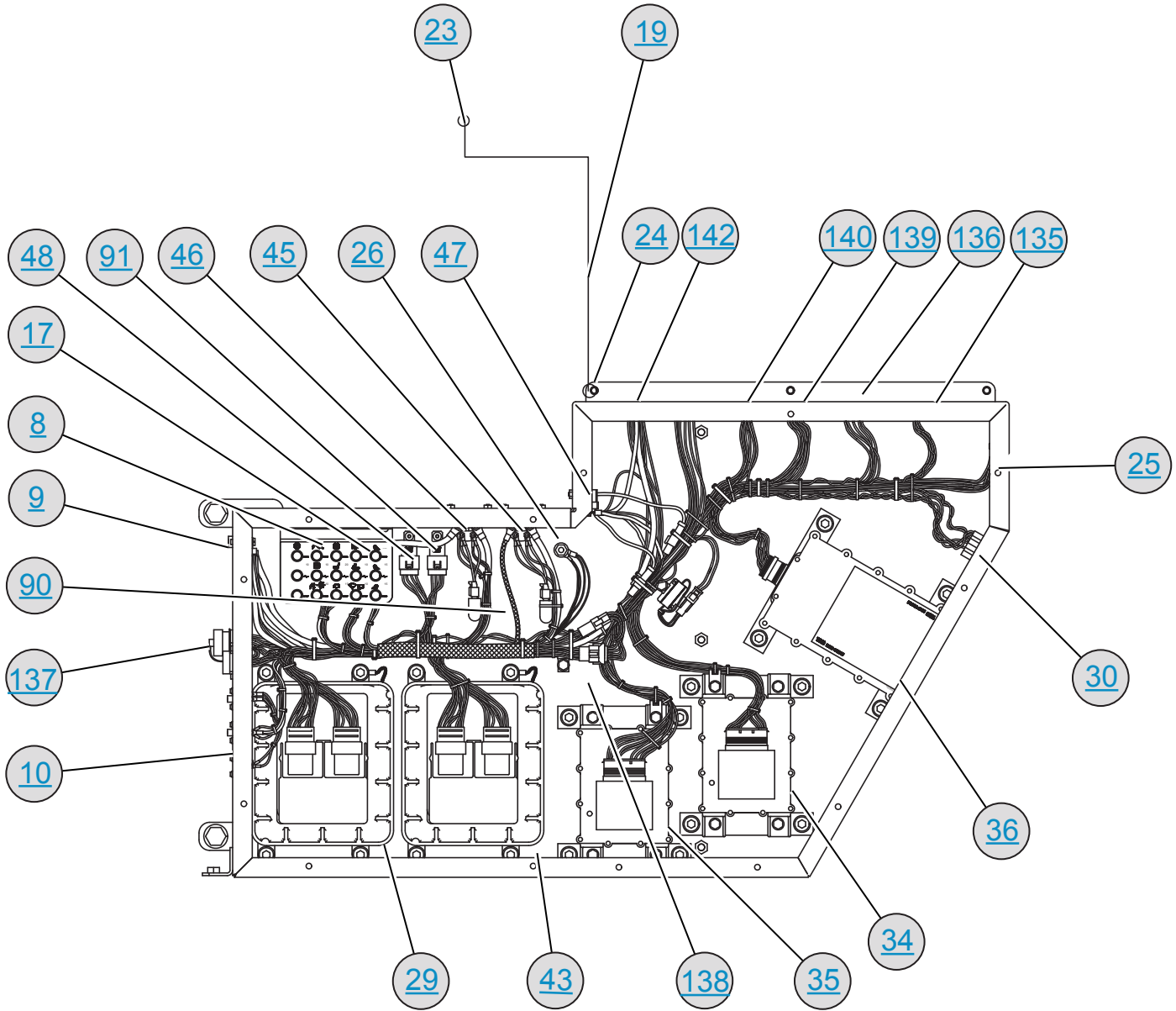
RIGHT CAB PANEL



RIGHT ENGINE



ELECTRONIC BOX



FILM ON FUSE PANEL

