

Component Identifiers (CID) ¹		
Module Identifier (MID) ²		
Engine Control (MID No. 036)		
CID	Component	
0001	Cylinder #1 Injector	
0002	Cylinder #2 Injector	
0003	Cylinder #3 Injector	
0004	Cylinder #4 Injector	
0005	Cylinder #5 Injector	
0006	Cylinder #6 Injector	
0041	8V DC Supply	
0091	Throttle Position Sensor	
0094	Fuel Delivery Pressure Sensor	
0095	Fuel Filter Differential Pressure Sensor	
0100	Engine Oil Pressure Sensor	
0110	Engine Coolant Temperature Sensor	
0168	Electrical System Voltage	
0172	Intake Manifold Air Temperature Sensor	
0174	Fuel Temperature Sensor	
0190	Engine Speed Sensor	
0253	Personality Module	
0262	5V Sensor DC Power Supply	
0268	Programmed Parameter Fault	
0342	Secondary Engine Speed Sensor	
0460	Fuel Pressure Sensor	
0617	Inlet Air Heater Relay	
0639	Machine Security System	
1779	Fuel Rail #1 Pressure Valve Solenoid	
1785	Intake Manifold Pressure Sensor	
1797	Fuel Rail Pressure Sensor	
1834	Ignition Key Switch	
Machine Control (MID No. 039)		
CID	Component	
0041	8V DC Supply	
0096	Fuel Level Sensor	
0110	Engine Coolant Temperature Sensor	
0167	Alternator Charging Voltage Sensor	
0168	Electrical System Voltage	
0171	Ambient Air Temperature Sensor	
0190	Engine Speed Sensor	
0246	Proprietary CAN Data Link	
0247	SAE J1939 Data Link	
0248	CAT Data Link	
0254	Electronic Control Module	
0262	5V DC Sensor Power Supply	
0271	Action Alarm	
0291	Engine Cooling Fan Solenoid	
0362	Engine Speed Fan Control Solenoid	
0374	Swing Brake Solenoid	
0485	Engine Fan Reversing Solenoid	
0544	Engine Cooling Fan Speed Sensor	
0551	Power Shift Solenoid	
0586	Engine Speed Dial Switch	
0588	Monitoring System Display	
0590	Engine Control Module	
0598	Travel Speed Solenoid	
0600	Hydraulic Oil Temperature Sensor	
0735	Heavy Lift Solenoid	
1129	Right Attachment Pallet Position Sensor	
1130	Left Attachment Pallet Position Sensor	
1160	Hydraulic Lock Solenoid	
1178	Machine Overload Warning Pressure Sensor	
1522	Relief Valve #1 Check Valve Solenoid	
1523	Relief Valve #1 Check Valve Solenoid	
1525	Straight Travel Solenoid	
1590	Main Pump Flow Limitation Pressure Solenoid	
1593	Attachment Valve #1 Extend Pressure Solenoid	
1594	Attachment Valve #2 Extend Pressure Solenoid	
1595	Attachment Valve #3 Extend Pressure Solenoid	
1596	Attachment Valve #1 Retract Pressure Solenoid	
1597	Attachment Valve #2 Retract Pressure Solenoid	
1598	Attachment Valve #3 Retract Pressure Solenoid	
1609	F2 Type Valve Load Sense Pressure Sensor	
1657	Left Joystick Thumbwheel	
1658	Right Joystick Thumbwheel	
1655	Variable Relief Valve #1 Pressure Solenoid	
1656	Variable Relief Valve #2 Pressure Solenoid	
1931	Auxiliary Circuit Flow Controlling Solenoid	
2265	Hydraulic Pump #1 Outlet Pressure Sensor	
2266	Hydraulic Pump #2 Outlet Pressure Sensor	
2275	Hammer Return to Tank Solenoid	
2280	Travel Alarm Relay	
2300	Switch Panel	
Product Link Control (MID No. 038)		
CID	Component	
0168	Electrical System	
0254	Electronic Control Module	
0269	Sensor Power Supply	
1290	Remote Communication Module	
1251	Alternator R Terminal	

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.	

Event Codes Machine Control		
Event Code	Condition	
E005	Fuel Filter Restriction Detected	
E015	High Engine Coolant Temperature Shutdown	
E016	High Engine Coolant Temperature Derate	
E017	High Engine Coolant Temperature Warning	
E023	High Hydraulic Oil Temperature Derate	
E025	High Inlet Air Temperature Derate	
E027	High Inlet Air Temperature Warning	
E039	Low Engine Oil Pressure Derate	
E043	Low System Voltage Warning	
E050	High System Voltage Warning	
E053	Low Fuel Pressure Warning	
E059	Low Engine Coolant Level Warning	
E095	Fuel Filter Restriction Warning	
E096	High Fuel Pressure	
E100	Low Engine Oil Pressure Warning	
E119	Low Fuel Level	
E171	Low Engine Oil Level	
E172	High Air Filter Restriction	
E179	Alternator Not Charging	
E190	Auto Lube Distribution Line Plugged	
E181	Limited Mobility Mode	
E182	Section Valve Off	
E190	Engine Overtemp Warning	
E232	High Fuel / Water Separator Water Level	
E234	Low Auto Lube Grease Level	
E235	Low Hydraulic Oil Level	
E236	Return Hydraulic Oil Filter Plugged	
E237	Machine Overloaded	
E265	User Defined Shutdown	
E272	Inlet Air Restriction Warning	
E273	Unauthorized Key	
E600	High Hydraulic Oil Temperature Warning	
E602	Attachment Hydraulic Oil Filter Plugged	
E603	Abnormal Machine Auto Lube System Operation	

Wire Description					
Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
Power Circuits			Accessory Circuits (Continued)		
101	RD	Battery +	C566	PK	Left Rear Speaker (Common)
103	RD	Service Meter / Radio / Dome Lamp	C567	YL	DC 12V Converter Power Output (2)
106	RD	Key Switch	E554	PK	AC Controller
108	RD	Heater Relay to Heater Breaker	E562	PU	Spare Relay #1
109	RD	Alternator	E563	PU	Spare Relay #2
110	RD	Timer Relay	E565	BU	Spare Relay #3
112	PU	Main Power Relay Output	Lighting Circuits		
113	OR	Operator Monitor Panel B+	603	603	Rayon Beacon
114	RD	Warning Horn (Forward)	607	607	DC 12V Converter Power Output
115	RD	Cab Lamp Relay	615	615	Cab Flood Lamp
118	GY	Wiper Control	616	616	Bucket Flood Lamp / Boom Flood Lamp
120	YL	12V / 7A Converter	638	638	Rayon Beacon
123	WH	Seat Heater Switch	645	645	Headlamp Relay #1
124	GN	AC	646	646	Light Switch to Front Flood Relay
127	OR	Air Suspension	684	684	Cab Flood Lamp
129	BU	Cigar Lighter	A623	A623	Right Cab Flood Lamp Switch to Relay
135	BU	12V / 7A Socket	Control Circuits		
139	OR	Radio Mute Switch	763	BU	Torque Converter Switch
141	RD	Auxiliary Circuit	779	WH	Coupler Engage/Solenoid
142	RD	Auxiliary Circuit	780	PU	Coupler Disengage Solenoid
143	BR	Boom Flow Disable Relay	789	YL	Engine Speed +
147	PU	Leveling Switch	789	RD	Control Lever Lock
149	RD	Boom Lamp Relay	A718	PU	Start Air Cooler Sensor Signal
152	BU	Under Window Limit Switch	A756	PK	Throttle Switch #1
154	RD	Neutral Start Relay to Neutral Start Limit Sw	A756	BU	Throttle Switch #2
160	PU	Chassis Lamp Relay	A757	GY	Throttle Switch #3
165	YL	Caution Lamp	A758	BR	Throttle Switch #4
168	PK	Power Relay Diode	A760	GY	Electronic Pump Control Throttle 45V
169	PK	Backup EPR Valve Switch	A762	PU	Electronic Pump Control Engine Speed Ground
172	RD	Product Link	A768	BU	Pump Control Valve 1 +
175	RD	AC Line	A769	GY	Pump Control Valve 2 -
177	RD	Main Breaker	A770	OR	Electronic Pump Control Bypass Switch
179	BU	12V / 7A Converter (2)	F773	OR	Governor Accel.
180	GN	Auxiliary Circuit	F774	WH	Governor Decel.
184	RD	Machine Control	G723	YL	Heavy Lift Solenoid Valve
189	RD	Neutral Start Limit Switch	H746	YL	Fan Control Solenoid Positive
199	OR	Beacon Switch	H747	BR	Fan Control Solenoid Return
Ground Circuits			H752	BR	Switch to Relay 2
200	BK	Main Chassis	K776	GN	Alternator / Terminal
210	BK	Converter Output (24 / 12V)	M730	BU	Governor Control
229	BK	Battery (-)	M737	WH	Front Flood Control Valve Solenoid
235	BK	Electronic Pump Control Ground	M738	YL	Solenoid Return 2
A209	BK	Machine Control Ground	M740	PK	Motor Straps Solenoid
Basic Machine Circuits			M743	GN	Engine Oxygen Sensor
304	WH	Starter Relay 1 Output	M745	BU	Engine Oxygen Sensor V+
306	GN	Starter Relay Coil	M746	YL	Engine Oxygen Sensor Heater +
307	OR	Key Switch to Sensor Module	M747	BU	Engine Oxygen Sensor Heater -
308	YL	Main Power Relay Coil	M748	OR	Engine Oxygen Sensor
309	GY	Alternator Regulator Terminal	M749	WH	Engine Oxygen Sensor
310	PU	Start Aid Switch	N789	BU	Ambient Temperature Sensor
320	RD	Horn Relay Coil	N793	GN	Flow Probe Switch
321	BR	Backup Alarm Lamp Travel Alarm	N794	GY	Auxiliary Potenti - LH
322	GY	Warning Horn (Forward)	N795	WH	Auxiliary Potenti - RH
323	WH	Fuel Pump Power	R725	WH	Fuel Filter Switch
325	PK	Fuel Pump Relay Cutout	T725	WH	Fuel Filter Switch
326	RD	Key Switch C Terminal	X739	PK	Return Filter Switch
329	YL	Fuel Pump to Switch	877	YL	Flow Plug Magnetic Switch
330	YL	Neutral Start Relay Coil	893	BR	ATCH Data Link -
331	OR	Backup Alarm Relay Coil	893	GN	ATCH Data Link -
365	YL	Fuel Pump Relay	F873	YL	Relay Control to Diode Assembly
Monitoring Circuits			F889	WH	Monitoring Feedback
251	YL	CAN Data Link 1 +	G834	PU	Warning Fan Speed Switch
252	YL	CAN Data Link 2 +	G843	GN	Stem 3 Extend Switch
261	GN	CAN Data Link 1 -	G844	GY	Stem 4 Extend Switch
282	GN	CAN Data Link 2 -	K847	PU	Stem 3 Retract Switch
403	OR	Alternator R Terminal	K848	WH	Stem 4 Retract Switch
405	GY	Operator Monitor Oil Pressure (Low Setting)	K849	YL	ATCH Stem 1
410	WH	Operator Monitor Fuel Alarm	K850	BR	ATCH Stem 2
412	BU	Operator Monitor Cool Flow	K851	BU	ATCH Stem 3
413	OR	Operator Monitor Air Filter	K852	GN	ATCH Stem 4
487	OR	Hydraulic Oil Flow Switch	K856	PU	Stem 1 Control Valve A
491	PK	Hyd Oil Temp Sensor	K857	WH	Stem 2 Control Valve A
492	GY	Coolant Temp Sensor Signal	K858	YL	Stem 3 Control Valve A
493	YL	Fuel Level Signal	K860	BU	Stem 1 Control Valve B
496	WH	Operator Monitor Hydraulic Oil Level	K861	GN	Stem 2 Control Valve B
C468	BU	Engine Oil Level	K862	GY	Stem 3 Control Valve B
E472	OR	ATCH 12V Sensor Supply	K864	PU	ATCH 1 Relief Valve #1
E473	OR	Stem 1 Modulation	K865	PU	ATCH 2 Relief Valve #1
E474	OR	Stem 2 Modulation	K866	WH	ATCH 1 & 2 / 1 & 2 / 2 Control Valve
E480	PK	Spare Analog Input #1	K868	BR	ATCH Solenoid Return 2
E483	PK	Travel Straight Pressure Switch	K869	GN	ATCH Solenoid Return 3
F475	BU	Travel Straight Pressure Switch	K876	BR	ATCH Solenoid Return
H475	BU	Travel Right Pressure Switch	K877	BU	ATCH Change Check Solenoid
H476	BU	Travel Left Pressure Switch	L885	BU	Switch Panel Option Switch
H476	WH	Pressure Switch	L886	BU	Switch Panel Option Switch
Accessory Circuits			998	B	Digital Sensor Return
501	GN	Wiper - Front / (Low)	E997	RD	Hydraulic Lock
506	PU	Washer - Front	G976	BU	Water Separator Sensor
508	PU	Radio Speaker - Left	G980	BU	Pump Discharge - Signal
509	WH	Radio Speaker - Left (Common)	K906	GN	Swing Brake Solenoid - Signal
511	BR	Radio Speaker - Right	K907	BU	Swing Brake Solenoid
512	GN	Radio Speaker - Right (Common)	L948	OR	Electronic Pump Control PS Valve +
516	WH	Washer - Right	L869	WH	Electronic Pump Control PS Valve -
535	BU	Switch to Wiper Switch	L972	BU	Low Idle Switch
575	YL	Wiper - Auxiliary (Park)	L973	GN	Fine Switch Control Relay
576	PU	Wiper - Auxiliary (Low)	L975	GN	Wiper Control Valve 1 - Output
578	PU	Wiper - Auxiliary	L976	GN	Exhaustor Fuel Pump Switch
590	GY	Switch to Intermittent Module	L978	GY	Level Finish Solenoid
A532	PK	DC/DC Converter Power Output	N957	PK	RXD - Common #1
A536	RD	DC/DC Converter Memory Output	N958	PK	RXD - Common #2
A577	OR	Stem Switch	N960	OR	RXD - Common #3
A579	OR	Wiper Motor +	N963	OR	TXD - Common #1
A580	OR	Wiper Motor -	N970	YL	TXD - Common #1
C481	OR	Wiper Motor (Rear)	N973	BR	TXD - Common #1
A582	PU	Wiper Motor (Stop)	N979	GN	Signal Ground - Comm #1
A584	BU	Front Window Limit Switch to Wiper Control	N981	GN	Signal Ground - Comm #3
A586	OR	Wiper Switch to Wiper Control	T901	YL	MSX Excite Coil In
C650	YL	Heavy Solenoid Relay to Solenoid	T901	YL	MSX Excite Coil Out
C650	OR	Left Rear Speaker	T967	YL	Pump Discharge Main Pressure

Connector Location			
Connector Number	Schematic Location	Machine Location	
CONN 28	E-8	D	D
CONN 30	D-8	D	D
CONN 31	D-8	D	D
CONN 35	E-8	D	D
CONN 36	E-8	D	D
CONN 37	E-8	D	D
CONN 38	F-8	D	D
CONN 39	C-7	D	D
CONN 40	D-7	D	D
CONN 41	D-6	C	C
CONN 42	D-6	C	C
CONN 43	D-6	C	C
CONN 44	C-6	D	D
CONN 45	C-6	D	D
CONN 46	D-6	D	D
CONN 47	D-6	D	D
CONN 48	A-5	E	E
CONN 49	D-5	E	E
CONN 50	D-5	C	C
CONN 51	D-5	C	C
CONN 52	F-4	A	A
CONN 53	F-4	A	A
CONN 54	E-4	B	B
CONN 55	E-4	B	B
CONN 56	E-4	B	B
CONN 57	E-4	B	B
CONN 58	D-4	B	B
CONN 59	D-4	B	B
CONN 60	D-4	B	B
CONN 61	D-4	C	C
CONN 62	D-4	C	C
CONN 63	A-4	E	E
CONN 64	A-4	E	E
CONN 65	C-3/D-3	22	22
CONN 66	C-3/D-3	22	22
CONN 67	C-3/D-3	23	23
CONN 68	D-3	D	D
CONN 69	E-2	B	B
CONN 70	A-2	E	E

Machine Harness Connector and Component Locations

Technical drawing of the rear view of a vehicle chassis, showing the rear axle, suspension, and various components labeled with letters A through F and numbers 1 through 23. The drawing includes a detailed view of the rear suspension assembly and a side view of the rear axle and wheel hub.

Resistor Specifications		
Part No.	Component Description	Resistance (Ohms) ¹
102-8016	Resistor: Backup	47 ± 5%
126-2941	Resistor: Backup ATCH	All Positions 25 ± 5%
174-3016	Resistor: CAN 1/2	120 ± 10%

Off-Machine Switch Specification				
Part No.	Function	Actuate	Deactuate	Contact Position
167-3466	Auxiliary Pump Pressure (Stem 4)			
	Stem 1 High Pressure			
	Stem 3 Medium Pressure	490 ± 49 kPa	290 MIN kPa	
	Travel Left Pressure	71.05 ± 7.105 psi	42.05 MIN psi	N/O
	Travel Right Pressure			
	Travel Straight Pressure			

