

Component Identifiers (CID) ¹ Module Identifier (MID) ¹ Power Train ECM (MID No. 027)	
CID	Component
0061	Sensor Power Supply
0065	Fuel Level Sensor
0144	Rack Alarm Relay
0168	Electrical System Voltage
0177	Transmission Oil Temperature Sensor
0190	Engine Speed Sensor
0420	Secondary Steering Relay
0444	Start Relay
0585	Xmm Out Speed Sensor (A)
0590	Engine Control Module
0650	Harness Code
0672	Tongue Converter Output Speed Sensor
0673	Xmm Out Speed Sensor (B)
0681	Priming Brake Solenoid
0702	Shift Lever Sensor
0704	Service Brake Pressure Switch
0707	Solenoid Valve (Up)
0708	Solenoid Valve (Down)
0709	Lockup Clutch Solenoid
0724	Body Raiser Solenoid
0725	Body Lower Solenoid
0733	Heat Position Sensor
0628	T/C Temperature Sensor
0867	Machine Application
0874	Interlock Diff Lock Solenoid
1100	Crosshatch Diff Lock Solenoid
1227	Retarder Lever Switch
1248	Retarder Solenoid
1251	Alternator - (R-Terminal)
1252	Transmission Inlet Sw.
1401	Transmission Clutch Modulating Valve No. 1
1402	Transmission Clutch Modulating Valve No. 2
1403	Transmission Clutch Modulating Valve No. 3
1404	Transmission Clutch Modulating Valve No. 4
1405	Transmission Clutch Modulating Valve No. 5
1837	Clear Sw.
1838	Service Sw.

Engine Control ECM (MID No. 036)	
CID	Component
0001	Fuel Injector Solenoid #1
0002	Fuel Injector Solenoid #2
0003	Fuel Injector Solenoid #3
0004	Fuel Injector Solenoid #4
0005	Fuel Injector Solenoid #5
0006	Fuel Injector Solenoid #6
0061	ECM BV DC Supply
0081	Throttle Sensor
0094	Fuel Pressure Sensor
0100	Oil Pressure Sensor
0102	Boost Pressure Sensor
0110	Engine Coolant Temperature Sensor
0158	Electrical Power Supply
0172	Inlet Air Temperature Sensor
0174	Fuel Temperature Sensor
0190	Engine Speed Sensor
0261	Engine Timing Calibration
0262	5 Volt Sensor Supply
0267	Engine Shutdown Sw
0268	Check Programmable Parameters
0274	Atmospheric Pressure Sensor
0275	Right Turbo Inlet Pressure Sensor
0291	Engine Cooling Fan Solenoid
0296	Unable to communicate with Transmission ECM
0342	Cummins Position Sensor
0791	Jake Brake Low/High Solenoid
0792	Jake Brake Medium/High Solenoid
2417	Start Air Solenoid

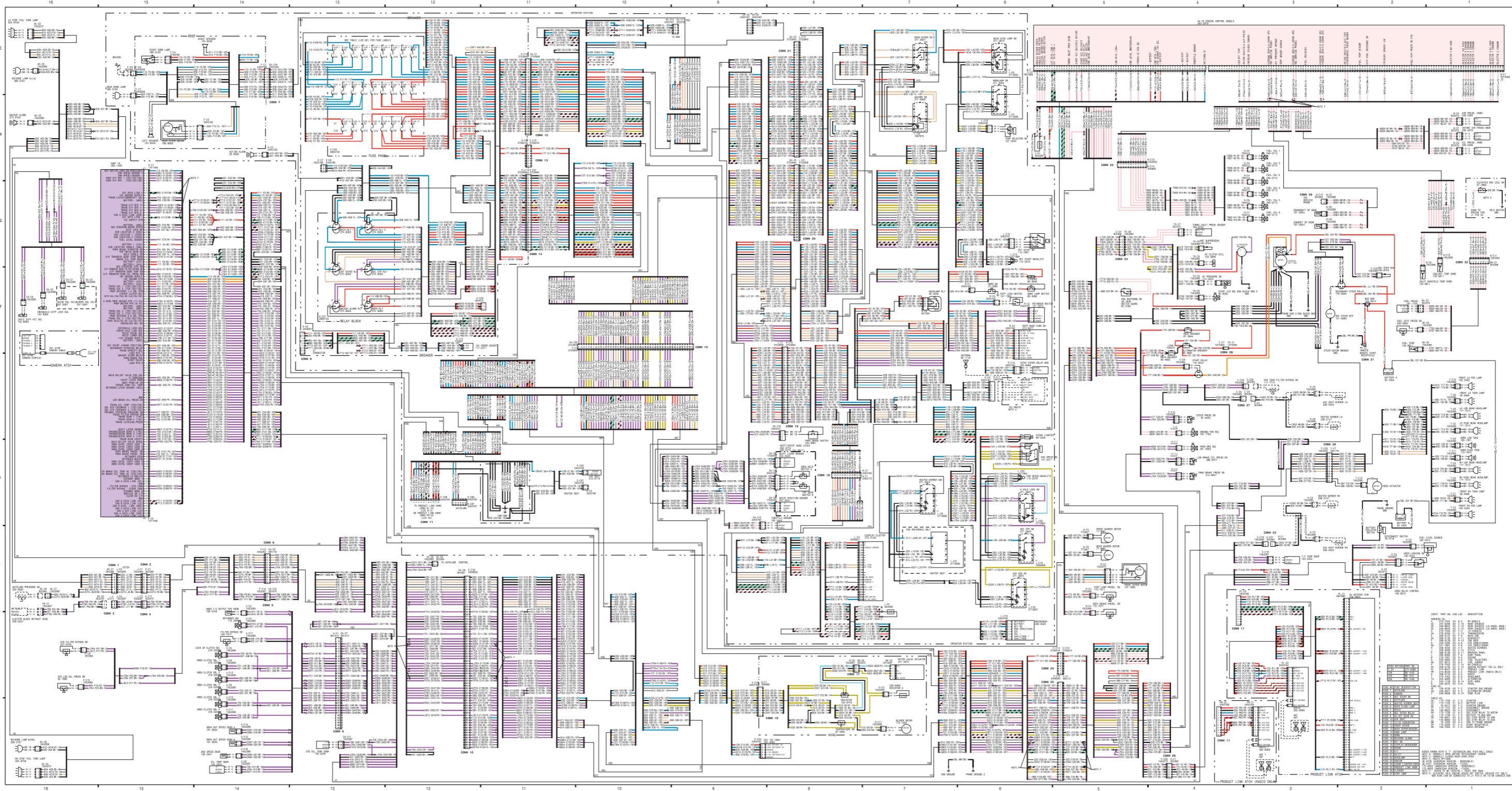
Failure Mode Identifiers (FMI) ¹	
FMI No.	Failure Description
0	Data valid but above normal operational range
1	Data valid but below normal operational range
2	Data erratic, intermittent, or inconsistent
3	Voltage above normal or shorted high
4	Voltage below normal or shorted low
5	Current below normal 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 Engine Control	
Event Code	Condition
E096	High Fuel Pressure
E172	High Air Filter Restriction
E360	Low Engine Oil Pressure Warning
E361	High Engine Coolant Temperature
E362	Engine Overheat
E363	High Fuel Temperature
E390	Fuel Filter Restriction
E539	High Intake Manifold Air Temperature

Wire Description				Wire Description				
Wire Number	Wire Color	Description	Wire Number	Wire Color	Description	Wire Number	Wire Color	Description
Power Circuits								
101	RD	Ign 1	703	BU	Control - Shift Lever	704	GY	Xmm Down Sol
102	RD	Hil Lmp	704	GY	Xmm Down Sol	705	PK	Xmm Lockup Clutch Sol Basic
105	RD	Key Sw	705	PK	Xmm Lockup Clutch Sol Basic	706	YL	Xmm High Sw
109	RD	Alt Output (+) Term.	709	OR	Sensor Power Supply	720	PU	Xmm Brake Sw
110	GN	Product Link / Rear Wiper	720	PU	Xmm Brake Sw	722	WH	Xmm Gear Code 2
111	RD	Transmission Control (ET COGN) Display Cluster	721	BR	Xmm Gear Code 1	723	OR	Xmm Gear Code 3
112	PU	Main Power By Output	722	WH	Xmm Gear Code 2	725	GN	Xmm Gear Code 5
113	OR	Opt Mon Panel Vms B- Switched	723	OR	Xmm Gear Code 3	726	BU	Xmm Gear Code 6
114	RD	Warning Horn (Forward)	724	YL	Xmm Gear Code 4	727	GN	Signal Ster Cont Sw
115	RD	Dome Lamp / Converter	725	GN	Xmm Gear Code 5	751	GN	Xmm Shift Sol No. 1 Or 3
116	BR	Bexcon / Rear Flood	726	BU	Xmm Gear Code 6	752	YL	Xmm Shift Sol No. 2
118	GY	Front Wiper	727	GN	Signal Ster Cont Sw	754	BU	Xmm Shift Sol No. 3 Or 1
121	RD	Back Alarm To Lamp	728	BU	Xmm Gear Code 6	755	OR	Xmm Shift Sol No. 4 Or 5
123	WH	Heated Seat	751	GN	Xmm Shift Sol No. 1 Or 3	759	WH	10V Sensor Supply
124	GN	AC Breaker	752	YL	Xmm Shift Sol No. 2	A791	YL	After Cooler Temp
125	OR	Product Link	754	BU	Xmm Shift Sol No. 3 Or 1	E748	BR	Start Air Solenoid Return
129	RD	Cigar Lighter / EEC	755	OR	Xmm Shift Sol No. 4 Or 5	E789	PU	Load Return
136	GN	Stop Ster	759	WH	10V Sensor Supply	E796	PK	Range Lower Solenoid Valve
139	OR	Camera	A791	YL	After Cooler Temp	F711	GN	Can Lnk
150	RD	Engine Breaker	E748	BR	Start Air Solenoid Return	F712	GY	Can Lnk
155	YL	Start Air / Converter	E789	PU	Load Return	F715	PU	Shutdown
173	RD	Stop Lamp	E796	PK	Range Lower Solenoid Valve	F716	WH	Shutdown
175	RD	Head Breaker	F711	GN	Can Lnk	F762	GY	Start Air Solenoid
192	GN	Secondary Steering Relay	F712	GY	Can Lnk	G174	YL	Body Slave Sol
A108	PK	120V Converter	F715	PU	Shutdown	G708	GN	Body Lower Sol
A109	PU	Flasher	F716	WH	Shutdown	G709	BR	Retarder Sol No. 1
A110	WH	After Cooler Temp	F762	GY	Start Air Solenoid	G710	OR	Retarder Sol No. 2
A111	GY	Heated Mirror and Seat	G174	YL	Body Slave Sol	G708	GN	Body Lower Sol
A112	OR	Display / Messenger	G708	GN	Body Lower Sol	G710	OR	Retarder Sol No. 2
200	BK	Main Chassis	G709	BR	Retarder Sol No. 1	G712	OR	Retarder Sol No. 3
201	BK	Operator Monitor Return	G710	OR	Retarder Sol No. 2	G714	OR	Retarder Sol No. 4
202	BK	Xmm Out	G712	OR	Retarder Sol No. 3	G716	OR	Retarder Sol No. 5
C215	BK	Autolube Pressure Switch Ground	G714	OR	Retarder Sol No. 4	H139	OR	After Cooler Temp
Base Machine Circuits								
304	WH	Starter Relay No. 1 Output	H139	OR	After Cooler Temp	H229	WH	Engine Control Pressure Sensor +5V
306	GN	Starter Relay Coil To Next Start Sw Or Key Sw	N277	PU	Hydraulic Tank Filter Bypass Switch	H269	OR	Engine Control Pressure Sensor Common
307	OR	Key Sw To Hyster Start Sw	N277	PU	Hydraulic Tank Filter Bypass Switch	G933	PK	Engine Temperature Sensor Common
308	GN	Starter Relay Coil	N278	BU	Hydraulic Tank Filter Bypass Switch	G834	PU	Engine Control Pressure Sensor Common
320	GY	Horn Relay Coil To Sw	N278	BU	Hydraulic Tank Filter Bypass Switch	G835	OR	Cooling Fan Speed -
322	OR	Warning Horn (Forward)	N279	PK	Ejector Brake/Retract Sensor	G857	YL	T/C Probe -
323	BU	Differential Lock Sol	N279	PK	Ejector Brake/Retract Sensor	H812	PK	Fan Drive Oil Filter Bypass Switch
331	OR	Backup Alarm Relay Coil	N280	OR	Hydraulic Tank Filter Bypass Switch	H816	PK	Autolube Cab Control
368	OR	Diff Lock (Horn)	N281	OR	Hydraulic Tank Filter Bypass Switch	H818	PK	Autolube Cab Control
369	PU	Diff Lock (Inlet)	N282	OR	Hydraulic Tank Filter Bypass Switch	H819	PK	Autolube Cab Control
374	PK	Neutral Start Sw To Park Brake Sw	N283	OR	Hydraulic Tank Filter Bypass Switch	H820	OR	Fuel Injector 1 & 2 High
397	OR	Hood Raise Motor	N284	OR	Hydraulic Tank Filter Bypass Switch	H821	OR	Fuel Injector 3 & 4 High
430	GN	Hood Raise Relay Coil	N285	OR	Hydraulic Tank Filter Bypass Switch	H822	OR	Fuel Injector 5 & 6 High
A301	WH	Hood Raise Motor	N286	OR	Hydraulic Tank Filter Bypass Switch	H823	OR	Fuel Injector 7
A323	GY	Interlock Diff Lock Solenoid	N287	OR	Hydraulic Tank Filter Bypass Switch	H824	OR	Fuel Injector 8
403	GN	Alternator (+) Term.	N288	OR	Hydraulic Tank Filter Bypass Switch	H825	OR	Fuel Injector 9
406	PU	Opt Mon Coolant Temp	N289	OR	Hydraulic Tank Filter Bypass Switch	H826	OR	Fuel Injector 10
407	WH	Autolube Cab Control	N290	OR	Hydraulic Tank Filter Bypass Switch	H827	OR	Fuel Injector 11
417	GY	Primary Star Sw	N291	OR	Hydraulic Tank Filter Bypass Switch	H828	OR	Fuel Injector 12
419	YL	Opt Mon Parking Brake	N292	OR	Hydraulic Tank Filter Bypass Switch	H829	OR	Fuel Injector 13
428	BR	Opt Mon Power Train Oil Filter	N293	OR	Hydraulic Tank Filter Bypass Switch	H830	OR	Fuel Injector 14
432	PK	Opt Mon Brake Press (adj)	N294	OR	Hydraulic Tank Filter Bypass Switch	H831	OR	Fuel Injector 15
447	PK	Fuel Level Gauge	N295	OR	Hydraulic Tank Filter Bypass Switch	H832	OR	Fuel Injector 16
C423	WH	Fuel Level Gauge	N296	OR	Hydraulic Tank Filter Bypass Switch	H833	OR	Fuel Injector 17
F400	GY	Low Oil Pressure	N297	OR	Hydraulic Tank Filter Bypass Switch	H834	OR	Fuel Injector 18
F478	GN	OTC Oil Temperature Sensor	N298	OR	Hydraulic Tank Filter Bypass Switch	H835	OR	Fuel Injector 19
G485	BU	Opt Mon Front Brake Temperature	N299	OR	Hydraulic Tank Filter Bypass Switch	H836	OR	Fuel Injector 20
G486	GN	Opt Mon Rear Brake Temperature	N300	OR	Hydraulic Tank Filter Bypass Switch	H837	OR	Fuel Injector 21
Accessory Circuits								
550	BR	Wiper - Front (low)	A958	WH	Park Brake Sol	C912	GN	Throttle Position
550	OR	Wiper - Front (hi)	A959	WH	Park Brake Sol	C913	GN	Throttle Position
550	BR	Wiper - Rear (joint)	A960	WH	Park Brake Sol	C914	GN	Throttle Position
504	YL	Wiper - Rear (low)	A961	WH	Park Brake Sol	C915	GN	Throttle Position
556	PU	Washer - Front	A962	WH	Park Brake Sol	C916	GN	Throttle Position
557	WH	Washer - Rear	A963	WH	Park Brake Sol	C917	GN	Throttle Position
508	PU	Radio Speaker - Left	A964	WH	Park Brake Sol	C918	GN	Throttle Position
509	WH	Radio Speaker - Left (common)	A965	WH	Park Brake Sol	C919	GN	Throttle Position
511	BR	Radio Speaker - Right	A966	WH	Park Brake Sol	C920	GN	Throttle Position
512	GN	Radio Speaker - Right (common)	A967	WH	Park Brake Sol	C921	GN	Throttle Position
513	OR	AC Compressor Pressure Sw	A968	WH	Park Brake Sol	C922	GN	Throttle Position
515	GY	Blower Motor (Hi)	A969	WH	Park Brake Sol	C923	GN	Throttle Position
516	GN	Blower Motor (medium)	A970	WH	Park Brake Sol	C924	GN	Throttle Position
517	BU	Blower Motor (low)	A971	WH	Park Brake Sol	C925	GN	Throttle Position
522	WH	AC Clutch to Throttle Sw	A972	WH	Park Brake Sol	C926	GN	Throttle Position
527	GN	Top Speed Sw To Flasher	A973	WH	Park Brake Sol	C927	GN	Throttle Position
578	YL	Wiper - Aux (joint)	A974	WH	Park Brake Sol	C928	GN	Throttle Position
590	GY	Wiper Sw To Intermittent Module	A975	WH	Park Brake Sol	C929	GN	Throttle Position
591	WH	Intermittent Module To Wiper Motor	A976	WH	Park Brake Sol	C930	GN	Throttle Position
592	BU	Dois Converter Power Output	A977	WH	Park Brake Sol	C931	GN	Throttle Position
A513	PK	Dois Converter Memory Output	A978	OR	Gateway RS-232 Port 1 (TXD)	C932	GN	Throttle Position
A523	PU	Temp Potentiometer Pas 1	A979	OR	Gateway RS-232 Port 1 (RXD)	C933	GN	Throttle Position
A524	BR	Temp Potentiometer Pas 2	A980	OR	Gateway RS-232 Port 1 (GND)	C934	GN	Throttle Position
A525	GN	Temp Potentiometer Pas 3	A981	OR	Gateway RS-232 Port 1 (GND)	C935	GN	Throttle Position
A528	PK	Electronic Water Valve Actuator	A982	OR	Gateway RS-232 Port 1 (GND)	C936	GN	Throttle Position
A537	PK	Heated Seat	A983	OR	Gateway RS-232 Port 1 (GND)	C937	GN	Throttle Position
C542	GN	Heated Mirror Power	A984	OR	Gateway RS-232 Port 1 (GND)	C938	GN	Throttle Position
C547	OR	Blower Motor (medium)	A985	OR	Gateway RS-232 Port 1 (GND)	C939	GN	Throttle Position
E529	PU	HVAC Control Sw To Blower Speed Sw And A/C Sw	A986	OR	Gateway RS-232 Port 1 (GND)	C940	GN	Throttle Position
Lighting Circuits								
603	WH	Dome Lamp	A987	OR	Gateway RS-232 Port 1 (GND)	C941	GN	Throttle Position
604	OR	Stop Lamp	A988	OR	Gateway RS-232 Port 1 (GND)	C942	GN	Throttle Position
605	YL	Tam Lamp - Left	A989	OR	Gateway RS-232 Port 1 (GND)	C943	GN	Throttle Position
606	GY	Tam Lamp - Right	A990	OR	Gateway RS-232 Port 1 (GND)	C944	GN	Throttle Position
610	OR	Head Lamp - Basic	A991	OR	Gateway RS-232 Port 1 (GND)	C945	GN	Throttle Position
611	PU	Head Lamp Hi	A992	OR	Gateway RS-232 Port 1 (GND)	C946	GN	Throttle Position
612	GY	Backup Lamp	A993	OR	Gateway RS-232 Port 1 (GND)	C947	GN	Throttle Position
614	PU	Park/ Tail / Dash Lamp	A994	OR	Gateway RS-232 Port 1 (GND)	C948	GN	Throttle Position
619	GN	Head Lamp Lo	A995	OR	Gateway RS-232 Port 1 (GND)	C949	GN	Throttle Position
624	YL	Flood Lamp Bow	A996	OR	Gateway RS-232 Port 1 (GND)	C950	GN	Throttle Position

Related Electrical Service Manuals		
Title	Form Number	
Alternator	300-2022 (Delco 34 B)	SEN7958
Electric Starting Motor	207-1556	SEN7959
Coilast	207-1557 (Delco 42M1)	SEN9361
Coilast	8V-5682 (Nippardone FL8)	SEN94975
Engine Control		REN92997
Powertrain Control		REN9835

Component Location					
Component	Schematic Location	Machine Location	Component	Schematic Location	Machine Location
Actuator - Water Valve	B-7	E	Sensor - Shift Lever	D-8	B
Alarm - Alarm	H-14	E	Sensor - TC Thrpp	D-8	B
Alarm - Backup	H-16	B	Sensor - Throttle	D-8	B
Alternator	G-4	27	Sensor - Turbo Inlet Pressure	G-4	12
Air Suppressor - A/C	G-4	6	Sensor - Xmm Out Speed A	A-14	22
Air Suppressor - Secondary Steering	F-2	9	Sensor - Xmm Out Speed B	A-14	22
Battery - A	E-2	3	Sensor - Xmm TC Output Speed	B-14	12
Battery - B	D-2	3	Socket - 12V Power	F-12	C
Breaker - Alternator	F-4	9	Solenoid - # 1 Xmm Clutch	B-14	45
Breaker - Hood	F-4	9	Solenoid - # 2 Xmm Clutch	B-14	45
Breaker - Main	F-4	9	Solenoid - # 3 Xmm Clutch	B-14	45
Camera	F-16	97	Solenoid - # 4 Xmm Clutch	B-14	45
Control - Powertrain	G-15	E	Solenoid - # 5 Xmm Clutch	B-14	45
Control - Engine	H-4	E	Solenoid - #1 Fuel Injector	H-3	21
Control - Gateway	C-2	E	Solenoid - #2 Fuel Injector	H-3	21
Control - Hood Relay	C-2	B	Solenoid - #3 Fuel Injector	H-3	21
Control - HV Wiper Delay Mod	E-6	B	Solenoid - #4 Fuel Injector	H-3	21
Converter - 24V to 12V	A-9	65	Solenoid - #5 Fuel Injector	H-3	21
Display Cluster	C-7	A	Solenoid - Crosshatch Diff Lock	F-16	42
Flasher	F-4	B	Solenoid - Demand Fan	E-4	42
Fuel Valve	H-13	C	Solenoid - Lower Valve	F-16	42
Horn - High Tone	D-1	17	Solenoid - Park Brake	D-4	45
Horn - Low Tone	D-1	18	Solenoid - Raise Valve	F-16	44
Level - Shift/Hold	D-8	D	Solenoid - Retarder	B-14	32
Messenger	B-7	A	Solenoid - Start Air	F-4	9
Motor - Blower	A-7	28	Solenoid - Stop	F-4	9
Motor - Front Wiper	C-5	30	Switch - A/C Select	C-6	A



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

SYMBOL	DESCRIPTION
+	CIRCUIT CONNECTED
-	CIRCUIT NOT CONNECTED
+	ELECTRICAL CONNECTION TO MACHINE STRUCTURE
+	TO TRAIL ELECTRICAL CONNECTION TO SERVICE OF COMPONENT
+	CONNECTION
WF	CIRCUIT GROUPING DESIGNATION
----	ATCH WIRE CABLE COMPONENT
---	CIRCUIT CONNECTED
+	BLADE, SPRING, RING OR SCREW TERMINAL
•	SPARK PLUG
⊕	TWISTED WIRES (NOTE F)

WIRE GROUP COLOR DESCRIPTIONS	
[Red line]	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS OFF
[Orange line]	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON
[Yellow line]	VOLTAGE CONVERTER OUTPUT CIRCUIT
[Green line]	STARTING CIRCUIT
[Blue line]	GROUND CIRCUIT
[Purple line]	STARTING AND CIRCUIT
[Pink line]	ENGINE CONTROL CIRCUIT
[Black line]	TRANSMISSION / ENGINE PUMP CONTROL CIRCUIT
[Gray line]	CAN DATA LINK CIRCUIT
[Brown line]	CAN DATA LINK CIRCUIT
[Light Blue line]	DELIVERY AND AIR CIRCUIT
[Light Green line]	HEATER AND AIR CONDITIONER CIRCUIT
[Light Orange line]	TURBO SIGNAL/WIPER/WASHER CIRCUIT

THIS SCHEMATIC IS FOR THE 725, 730, AND 730 EJ ARTICULATED TRUCK ELECTRICAL SYSTEM
MEDIA NUMBER: REN6736-02
SCHEMATIC PART NUMBER: 270-8931, CHANGE: 01, VERSION: -
 Components are shown installed on a fully operable machine with the key and engine off, transmission shifter in neutral and with parking brake set.
 Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.