J1939 Fault Codes

for

2010
Saf-T-Liner HDX
Saf-T-Liner EF

Table of Contents

* Cannot be viewed in dash

Diagnostic Codes

- Retrieving codes from the Dash

- The parking brake must be set
- Press and hold the right arrow for 3 seconds
- This will access the auxiliary screens

C
U
M
M
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FAULT CODES

Cummins

SPN	FMI	Item	Cause	ISB	ISC	ISL
27	4	EGR valve	Voltage below normal or shorted low	y	y	y
81	16	DPF intake pressure	Data valid but above normal range	y	y	y
84	2	Wheel based Vehicle speed	data erratic or intermittent	y	y	y
84	9	Wheel based Vehicle speed	Abnormal update rate	y	y	y
84	10	Wheel based Vehicle speed	Tampering has been detected	y	y	y
91	2	Accelerator Pedal position 1	data erratic or intermittent	y	y	y
91	3	Accelerator Pedal	Voltage above normal or shorted high	y	y	y
91	4	Accelerator Pedal	Voltage below normal or shorted low	y	y	y
91	9	Accelerator Pedal position 1	Abnormal update rate	y	y	y
91	19	Accelerator Pedal position 1	Received Network Data in error	y	y	y
95	16	Fuel filter differential pressure	Data valid but above normal range	y	y	y
97	3	Water in fuel	Voltage above normal or shorted high	y	y	y
97	4	Water in fuel	Voltage below normal or shorted low	y	y	y
97	15	Water in fuel	data valid but above normal range, least severe	y	y	y
97	16	Water in fuel	Data valid but above normal range	y	y	y
98	0	Engine Oil Level	data valid but above normal range, most severe	y	y	y
98	1	Engine Oil Level	Data valid but below normal range, most severe	y	y	y
98	2	Engine Oil Level	data erratic or intermittent	y	y	y
98	3	Engine Oil Level	Voltage above normal or shorted high	y	y	y
98	4	Engine Oil Level	Voltage below normal or shorted low	y	y	y
98	17	Engine Oil Level	Data valid but below normal, least severe	y	y	y
100	1	Engine Oil Pressure Sensor	Data valid but below normal range, most severe	y	y	y
100	2	Engine Oil Pressure Sensor	data erratic or intermittent	n	y	y
100	3	Engine Oil Pressure Sensor	Voltage above normal or shorted high	n	y	y
100	4	Engine Oil Pressure Sensor	Voltage below normal or shorted low	n	y	y
100	18	Engine Oil Pressure Sensor	Data valid but below normal range	n	y	y
101	0	Crankcase Pressure	data valid but above normal range, most severe	y	y	y
101	2	Crankcase Pressure	data erratic or intermittent	y	y	y
101	3	Crankcase Pressure	Voltage above normal or shorted high	y	y	y
101	4	Crankcase Pressure	Voltage below normal or shorted low	y	y	y
101	15	Crankcase Pressure	data valid but above normal range, least severe	y	y	y
101	16	Crankcase Pressure	Data valid but above normal range	y	y	y
102	3	Intake Manifold #1 Pressure Sensor	Voltage above normal or shorted high	y	y	y
102	4	Intake Manifold #1 Pressure Sensor	Voltage below normal or shorted low	y	y	y
103	2	Turbocharger speed	data erratic or intermittent	y	y	y
103	10	Turbocharger speed	abnormal rate change	y	y	y
103	15	Turbocharger speed	data valid but above normal range, least severe	y	y	y
103	16	Turbocharger speed	Data valid but above normal range	y	y	y
103	18	Turbocharger speed	Data valid but below normal range	y	y	y
105	0	Intake Manifold tempature	data valid but above normal range, most severe	y	y	y
105	2	Engine Oil Pressure Sensor	data erratic or intermittent	y	y	y
105	3	Intake Manifold tempature	Voltage above normal or shorted high	y	y	y
105	4	Intake Manifold tempature	Voltage below normal or shorted low	y	y	y
105	15	Engine intake manifold temperature	data valid but above normal range, least severe	y	y	y
110	0	Engine Coolant Tempature Sensor	data valid but above normal range, most severe	y	y	y
110	3	Engine Coolant Tempature Sensor	Voltage above normal or shorted high	y	y	y
110	4	Engine Coolant Tempature Sensor	Voltage below normal or shorted low	y	y	y
110	15	Engine Coolant Tempature Sensor	data valid but above normal range, least severe	y	y	y
110	16	Engine Coolant Tempature Sensor	Data valid but above normal range	y	y	y
110	31	Engine Coolant Tempature Sensor	condition exists	y	y	y
111	3	Engine Coolant Level	Voltage above normal or shorted high	y	y	y
111	4	Engine Coolant Level	Voltage below normal or shorted low	y	y	y
111	17	Engine Coolant Level	Data valid but below normal, least severe	y	y	y
111	18	Engine Coolant Level	Data valid but below normal range	y	y	y
157	0	Engine Injector metering rail 1	data valid but above normal range, most severe	y	y	y
157	3	Engine Injector metering rail 1	Voltage above normal or shorted high	y	y	y

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SPN	FMI	Item	Cause	ISB	ISC	ISL
157	4	Engine Injector metering rail 1	Voltage below normal or shorted low	y	y	y
157	16	Engine Injector metering rail 1	Data valid but above normal range	y	y	y
167	1	Charging system	Data valid but below normal range, most severe	y	y	y
167	16	Charging system	Data valid but above normal range	y	y	y
167	18	Charging system	Data valid but below normal range	y	y	y
168	16	Batt power input 1	Data valid but above normal range	y	y	y
168	18	Batt power input 1	Data valid but below normal range	y	y	y
190	0	Engine Speed Sensor	data valid but above normal range, most severe	y	y	y
190	2	Engine Speed Sensor	data erratic or intermittent	y	y	y
190	2	Engine speed	data erratic or intermittent	y	y	y
191	9	Transmission Output shaft speed	Abnormal update rate	n	y	y
251	10	Time abnormal rate of change	abnormal rate change	y	y	y
411	2	EGR Differential Pressure	data erratic or intermittent	y	y	y
411	3	EGR Differential Pressure	Voltage above normal or shorted high	y	y	y
411	4	EGR Differential Pressure	Voltage below normal or shorted low	y	y	y
411	18	EGR Differential Pressure	Data valid but below normal range	y	y	y
412	2	EGR Temperature	data erratic or intermittent	y	y	y
412	3	EGR Temperature	Voltage above normal or shorted high	y	y	y
412	4	EGR Temperature	Voltage below normal or shorted low	y	y	y
412	15	EGR Temperature	data valid but above normal range, least severe	y	y	y
412	16	EGR Temperature	Data valid but above normal range	y	y	y
444	16	Batt power input 2	Data valid but above normal range	y	y	y
444	18	Batt power input 2	Data valid but below normal range	y	y	y
558	9	Accelerator Pedal 1	Abnormal update rate	y	y	y
558	19	Accelerator Pedal 1	Received Network Data in error	y	y	y
612	2	Engine Speed Sensor	lost both signals/connected backwards	y	y	y
627	2	Power Supply	data erratic or intermittent	y	y	y
627	12	Power Supply	Bad device	y	y	y
629	12	Engine Control Module	Bad device	y	y	y
630	12	Calibration Memory	Bad device	y	y	y
633	31	Engine fuel actuator 1 control	condition exists	y	y	y
639	2	J1939 Network	data erratic or intermittent	y	y	y
639	9	J1939 Network	Abnormal update rate	y	y	y
639	9	J1939 Network	Abnormal update rate	y	y	y
639	13	J1939 Network	Out of calibration	y	y	y
641	7	VG Turbo actuator 1	mechanical system not responding	y	y	y
641	9	VG Turbo actuator 1	Abnormal update rate	y	y	y
641	11	VG Turbo actuator 1	root cause unknown	y	y	y
641	12	VG Turbo actuator 1	Bad device	y	y	y
641	13	VG Turbo actuator 1	Out of calibration	y	y	y
641	15	VG Turbo actuator 1	data valid but above normal range, least severe	y	y	y
641	31	VG Turbo actuator 1	condition exists	y	y	y
647	3	Engine fan Clutch	Voltage above normal or shorted high	y	y	y
647	4	Engine fan Clutch	Voltage below normal or shorted low	y	y	y
651	5	Injector cylinder #1	Current below normal or open circuit	y	y	y
652	5	Injector cylinder #2	Current below normal or open circuit	y	y	y
653	5	Injector cylinder #3	Current below normal or open circuit	y	y	y
654	5	Injector cylinder #4	Current below normal or open circuit	y	y	y
655	5	Injector cylinder #5	Current below normal or open circuit	y	y	y
656	5	Injector cylinder #6	Current below normal or open circuit	y	y	y
677	3	Starter motor relay	Voltage above normal or shorted high	y	y	y
677	4	Starter motor relay	Voltage below normal or shorted low	y	y	y
703	11	Auxiliary I/O #3	root cause unknown	y	y	y
703	14	Auxiliary I/O #3	Special instructions	y	y	y
723	2	Engine speed 2	data erratic or intermittent	y	y	y
723	2	Engine speed 2	data erratic or intermittent	y	y	y

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SPN	FMI	Item	Cause	ISB	ISC	ISL
729	3	Engine intake heater	Voltage above normal or shorted high	y	y	y
729	4	Engine intake heater	Voltage below normal or shorted low	y	y	y
974	3	Remote Accelerator Pedal	Voltage above normal or shorted high	y	y	y
974	4	Remote Accelerator Pedal	Voltage below normal or shorted low	y	y	y
974	19	Remote Accelerator Pedal	Received Network Data in error	y	y	y
1136	2	Engine ECU tempature	data erratic or intermittent	y	y	y
1136	3	Engine ECU tempature	Voltage above normal or shorted high	y	y	y
1136	4	Engine ECU tempature	Voltage below normal or shorted low	y	y	y
1172	2	Turbocharger intake tempature	data erratic or intermittent	y	y	y
1172	3	Turbocharger intake tempature	Voltage above normal or shorted high	y	y	y
1172	4	Turbocharger intake tempature	Voltage below normal or shorted low	y	y	y
1176	2	Turbocharge intake pressure	data erratic or intermittent	y	y	y
1176	3	Turbocharge intake pressure	Voltage above normal or shorted high	y	y	y
1176	4	Turbocharge intake pressure	Voltage below normal or shorted low	y	y	y
1209	2	Exhuast gas pressure	data erratic or intermittent	y	y	y
1209	3	Exhuast gas pressure	Voltage above normal or shorted high	y	y	y
1209	4	Exhuast gas pressure	Voltage below normal or shorted low	y	y	y
1231	2	J1939 Network 2	data erratic or intermittent	y	y	y
1235	2	J1939 Network 3	data erratic or intermittent	y	y	y
1347	3	Engine Fule Pump Pressurizing Assm	Voltage above normal or shorted high	y	y	y
1347	4	Engine Fule Pump Pressurizing Assm	Voltage below normal or shorted low	y	y	y
1378	31	Engine oil change interval	condition exists	y	y	y
1569	31	Engine protection Torque derate	condition exists	y	y	y
1590	2	Adaptive Cruise Control Mode	data erratic or intermittent	y	y	y
1761	1	SCR Tank level	Data valid but below normal range, most severe	y	y	y
1761	3	SCR Tank level	Voltage above normal or shorted high	y	y	y
1761	4	SCR Tank level	Voltage below normal or shorted low	y	y	y
1761	17	SCR Tank level	Data valid but below normal, least severe	y	y	y
1761	18	SCR Tank level	Data valid but below normal range	y	y	y
2623	3	Accelerator Pedal channel 2	Voltage above normal or shorted high	y	y	y
2623	4	Accelerator Pedal channel 2	Voltage below normal or shorted low	y	y	y
2791	4	EGR valve control	Voltage below normal or shorted low	y	y	y
2797	13	Engine Injector group 1	Out of calibration	n	y	y
3031	2	SCR Tank Temperature	data erratic or intermittent	y	y	y
3031	3	SCR Tank Temperature	Voltage above normal or shorted high	y	y	y
3031	4	SCR Tank Temperature	Voltage below normal or shorted low	y	y	y
3031	18	SCR Tank Temperature	Data valid but below normal range	y	y	y
3216	4	Aftertreatment intake NOX	Voltage below normal or shorted low	y	y	y
3226	2	Aftertreatment outlet NOX	data erratic or intermittent	y	y	y
3226	4	Aftertreatment outlet NOX	Voltage below normal or shorted low	y	y	y
3226	9	Aftertreatment outlet NOX	Abnormal update rate	y	y	y
3226	10	Aftertreatment outlet NOX	abnormal rate change	y	y	y
3228	2	Aftertreatment outlet gas sensor	data erratic or intermittent	y	y	y
3242	2	DPF intake gas temperature	data erratic or intermittent	y	y	y
3242	3	DPF intake gas temperature	Voltage above normal or shorted high	y	y	y
3242	4	DPF intake gas temperature	Voltage below normal or shorted low	y	y	y
3242	15	DPF intake gas temperature	data valid but above normal range, least severe	y	y	y
3242	16	DPF intake gas temperature	Data valid but above normal range	y	y	y
3246	2	DPF outlet gas temperature	data erratic or intermittent	y	y	y
3246	3	DPF outlet gas temperature	Voltage above normal or shorted high	y	y	y
3246	4	DPF outlet gas temperature	Voltage below normal or shorted low	y	y	y
3246	15	DPF outlet gas temperature	data valid but above normal range, least severe	y	y	y
3246	16	DPF outlet gas temperature	Data valid but above normal range	y	y	y
3251	0	DPF differential pressure	data valid but above normal range, most severe	y	y	y
3251	2	DPF differential pressure	data erratic or intermittent	y	y	y
3251	3	DPF differential pressure	Voltage above normal or shorted high	y	y	y

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SPN	FMI	Item	Cause	ISB	ISC	ISL
3251	4	DPF differential pressure	Voltage below normal or shorted low	y	y	y
3251	15	DPF differential pressure	data valid but above normal range, least severe	y	y	y
3251	16	DPF differential pressure	Data valid but above normal range	y	y	y
3360	2	DEF Controller	data erratic or intermittent	y	y	y
3360	9	DEF Controller	Abnormal update rate	y	y	y
3360	12	DEF Controller	Bad device	y	y	y
3360	19	DEF Controller	Data in error	y	y	y
3361	2	DEF Dosing Unit	data erratic or intermittent	y	y	y
3361	3	DEF Dosing unit	Voltage above normal or shorted high	y	y	y
3361	4	DEF Dosing unit	Voltage below normal or shorted low	y	y	y
3361	5	DEF Dosing unit	Current below normal or open circuit	y	y	y
3361	7	DEF Dosing unit	mechanical system not responding	y	y	y
3361	9	DEF Dosing Unit	Abnormal update rate	y	y	y
3361	11	DEF dosing unit	root cause unknown	y	y	y
3361	12	DEF Dosing Unit	Bad device	y	y	y
3362	7	DEF dosing unit input	mechanical system not responding	y	y	y
3363	3	SCR Tank Heater	Voltage above normal or shorted high	y	y	y
3363	4	SCR Tank Heater	Voltage below normal or shorted low	y	y	y
3363	5	SCR Tank Heater	Current below normal or open circuit	y	y	y
3363	16	SCR Tank Heater	Data valid but above normal range	y	y	y
3363	18	SCR Tank Heater	Data valid but below normal range	y	y	y
3489	3	Aftertreatment Air Enable Actuator	Voltage above normal or shorted high	y	y	y
3489	4	Aftertreatment Air Enable Actuator	Voltage below normal or shorted low	y	y	y
3511	3	Sensor Supply Voltage	Voltage above normal or shorted high	y	y	y
3511	4	Sensor Supply Voltage	Voltage below normal or shorted low	y	y	y
3512	3	Sensor supply voltage 4	Voltage above normal or shorted high	y	y	y
3512	4	Sensor supply voltage 4	Voltage below normal or shorted low	y	y	y
3514	3	Sensor Supply Voltage 6	Voltage above normal or shorted high	y	y	y
3514	4	Sensor Supply Voltage 6	Voltage below normal or shorted low	y	y	y
3555	17	Ambient Air Density	Data valid but below normal, least severe	y	y	y
3597	18	ECU Power Output	Data valid but below normal range	y	y	y
3610	2	DPF outlet pressure	data erratic or intermittent	y	y	y
3610	3	DPF outlet pressure	Voltage above normal or shorted high	y	y	y
3610	4	DPF outlet pressure	Voltage below normal or shorted low	y	y	y
3610	16	DPF outlet pressure	Data valid but above normal range	y	y	y
3667	3	Engine Air shutoff status	Voltage above normal or shorted high	y	y	y
3667	4	Engine Air shutoff status	Voltage below normal or shorted low	y	y	y
3703	31	DPF active regen inhibited by sw	condition exists	y	y	y
3936	7	DPF system	mechanical system not responding	y	y	y
3936	15	DPF system	data valid but above normal range, least severe	y	y	y
4094	31	DEF poor quality	condition exists	y	y	y
4096	31	DEF empty	condition exists	y	y	y
4334	2	SCR dosing reagent pressure	data erratic or intermittent	y	y	y
4334	3	SCR dosing reagent pressure	Voltage above normal or shorted high	y	y	y
4334	4	SCR dosing reagent pressure	Voltage below normal or shorted low	y	y	y
4334	16	SCR dosing reagent pressure	Data valid but above normal range	y	y	y
4334	18	SCR dosing reagent pressure	Data valid but below normal range	y	y	y
4340	3	SCR reagent line heater	Voltage above normal or shorted high	y	y	y
4340	4	SCR reagent line heater	Voltage below normal or shorted low	y	y	y
4340	5	SCR reagent line heater	Current below normal or open circuit	y	y	y
4342	3	SCR reagent line heater 2	Voltage above normal or shorted high	y	y	y
4342	4	SCR reagent line heater 2	Voltage below normal or shorted low	y	y	y
4342	5	SCR reagent line heater 2	Current below normal or open circuit	y	y	y
4344	3	SCR Reagent heater 3	Voltage above normal or shorted high	y	y	y
4344	4	SCR Reagent heater 3	Voltage below normal or shorted low	y	y	y
4344	5	SCR Reagent heater 3	Current below normal or open circuit	y	y	y

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SPN	FMI	Item	Cause	ISB	ISC	ISL
4346	3	SCR Reagent heater 4	Voltage above normal or shorted high	y	y	y
4346	4	SCR Reagent heater 4	Voltage below normal or shorted low	y	y	y
4346	5	SCR Reagent heater 4	Current below normal or open circuit	y	y	y
4360	0	SCR intake gas temperature	data valid but above normal range, most severe	y	y	y
4360	2	SCR intake gas temperature	data erratic or intermittent	y	y	y
4360	3	SCR intake gas temperature	Voltage above normal or shorted high	y	y	y
4360	4	SCR intake gas temperature	Voltage below normal or shorted low	y	y	y
4360	10	SCR intake gas temperature	abnormal rate change	y	y	y
4360	15	SCR intake gas temperature	data valid but above normal range, least severe	y	y	y
4363	0	SCR outlet gas temperature	data valid but above normal range, most severe	y	y	y
4363	2	SCR outlet gas temperature	data erratic or intermittent	y	y	y
4363	3	SCR outlet gas temperature	Voltage above normal or shorted high	y	y	y
4363	4	SCR outlet gas temperature	Voltage below normal or shorted low	y	y	y
4363	10	SCR outlet gas temperature	abnormal rate change	y	y	y
4363	15	SCR outlet gas temperature	data valid but above normal range, least severe	y	y	y
4363	16	SCR outlet gas temperature	Data valid but above normal range	y	y	y
4364	18	SCR conversion Efficiency	Data valid but below normal range	y	y	y
4376	3	SCR reagent return valve	Voltage above normal or shorted high	y	y	y
4376	4	SCR reagent return valve	Voltage below normal or shorted low	y	y	y
4376	5	SCR reagent return valve	Current below normal or open circuit	y	y	y
4765	0	DOC intake gas temperature	data valid but above normal range, most severe	y	y	y
4765	2	DOC intake gas temperature	data erratic or intermittent	y	y	y
4765	3	DOC intake gas temperature	Voltage above normal or shorted high	y	y	y
4765	4	DOC intake gas temperature	Voltage below normal or shorted low	y	y	y
4765	15	DOC intake gas temperature	data valid but above normal range, least severe	y	y	y
4765	16	DOC intake gas temperature	Data valid but above normal range	y	y	y
4794	31	SCR catalyst system missing	condition exists	y	y	y
4795	31	DPF Missing	condition exists	y	y	y
4796	31	Aftertreatment Catalyst Missing	condition exists	y	y	y
5024	10	Aftertreatment intake NOX	abnormal rate change	y	y	y
5031	10	Aftertreatment outlet NOX	abnormal rate change	y	y	y
5246	0	SCR operator inducement	data valid but above normal range, most severe	y	y	y
5392	31	DEF dosing unit lost prime	condition exists	y	y	y
5394	3	DEF dosing valve	Voltage above normal or shorted high	y	y	y
5394	4	DEF dosing valve	Voltage below normal or shorted low	y	y	y
5394	5	DEF dosing valve	Current below normal or open circuit	y	y	y
5394	7	DEF dosing valve	mechanical system not responding	y	y	y
5480	16	Crankcase breather oil seperator	Data valid but above normal range	y	y	y
5491	3	Crankcase breather oil seperator	Voltage above normal or shorted high	y	y	y
5491	4	Crankcase breather oil seperator	Voltage below normal or shorted low	y	y	y
5491	5	Crankcase breather oil seperator	Current below normal or open circuit	y	y	y
5491	7	Crankcase breather oil seperator	mechanical system not responding	y	y	y

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FAULT CODES

1000 TRANSMISSIONS

2000 TRANSMISSIONS

DIAGNOSTIC TROUBLE COPDES (DTC)

5-5. DIAGNOSTIC TROUBLE CODES (DTCs)

DTC LIST AND DESCRIPTIONS INDEX

DIAGNOSTIC TROUBLE COPDES (DTC)

DTC LIST AND DESCRIPTIONS INDEX (*cont'd*)

DTC	Description	CHECK TRANS LIGHT	Page
P0842	Transmission Pressure Switch Solenoid C Circuit Stuck Closed	Yes	5-151
P0843	Transmission Pressure Switch Solenoid C Circuit High	Yes	5-155
P0845	Transmission Pressure Switch Solenoid D Circuit	Yes	5-159
P0846	Transmission Pressure Switch Solenoid D Circuit	Yes	5-163
P0847	Transmission Pressure Swtich Solenoid D Circuit	Yes	5-167
P0848	Transmission Pressure Switch Solenoid D Circuit	Yes	5-171
P1688	Unmanaged Engine Torque Delivered to TCM	Yes	5-175
P1709	Transmission Pressure Switch Solenoid E Circuit	Yes	5-177
P1710	Transmission Pressure Switch Solenoid E Circuit Stuck Open	Yes	5-181
P1711	Transmission Pressure Switch Solenoid E Circuit Stuck Closed	Yes	5-185
P1712	Transmission Pressure Switch Solenoid E Circuit High	Yes	5-189
P1713	Transmission Pressure Switch Reverse Circuit	Yes	5-193
P1714	Transmission Pressure Switch Reverse Circuit Stuck On	Yes	5-197
P1716	Transmission Pressure Switch Reverse Circuit High	no	5-201
P1718	Incorrect Neutral Gear Ration	No	5-205
P1720	Solenoid A Controlled Clutch Not Engaged	Yes	5-209
P1721	Solenoid B Controlled Clutch Not Engaged	Yes	5-213
P1723	Solenoid A Controlled Clutch Engaged	Yes	5-217
P1724	Solenoid B Controlled Clutch Engaged	Yes	5-221
P1726	Shift Solenoid D Controlled Clutch Engaged	No	5-225
P1727	Shift Controlled E Clutch Engaged	No	5-229
P1760	TCM Supply Voltage	No	5-233
P1779	Engine Torque Delivered To ECM	Yes	5-236
P1835	Kickdown Circuit	Yes	5-238
P1860	Torque Converter Clutch PWM Solenoid Circuit --Electrical	Yes	5-241
P1875	4WD Low Switch Circuit	Yes	5-245
P1891	Throttle Postion Sensor Pulse Width Modulation (PWM) Signal Low Input	No	5-249
P1892	Throttle Postion Sensor Pulse Width Modulation (PWM) Signal High Input	No	5-252
U1000	Serial Data Communication Link Malfunction (Class2)	No*	5-255
U1016	Class 2 Powertrain Controller State of Health Failure	No*	5-258
U1041	Class 2 ABS Controller State of Health Failure	No*	5-261
U1064	Class 2 TBC Controller State of Health Failure	No*	5-264
U1096	Class 2 IPC Controller State of Health Failure	No*	5-267
U1300	Serial Data Communication Link Low (Class2)	No	5-270
U1301	Serial Data Communication Link High (Class2)	No	5-273
U2104	Can Bus Rest Counter Overrun	Yes	5-276
U2105	Can Bus Error ECM	Yes	5-279

A
L
L
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S
O
N

FAULT CODES

3000 MH
TRANSMISSIONS

Code Listings And Procedures

CODES		QUICK CHECKS
MAIN CODE	SUB CODE	
13	12	Check: a. Battery direct ground and power connections are tight and clean. b. Vehicle batteries are charged. c. Vehicle charging system is not over- or under-charging. d. VIM fuse is good. e. VIM connections are tight, clean, and undamaged. f. Vehicle manufacturer supplied wiring is correct. g. ECU connectors are tight, clean, and undamaged.
ECU Input Voltage Low		
13	13	
ECU Input Voltage Medium Low		
13	23	
ECU Input Voltage High		
14	12, 23	Check: a. Is transmission equipped with oil level sensor? b. Engine speed sensor, output speed sensor, temperature sensor, and oil level sensor are working correctly. c. Wiring harness has no opens, shorts to ground, or shorts to battery.
Oil Level Sensor		
21	12, 23	Check: a. TPS connector is properly connected. b. End of TPS cable is pulled out properly. c. Engine fuel lever is in idle position. d. Engine fuel lever provides proper amount of stroke on TPS cable. e. Wiring harness to TPS has no opens, shorts between wires, or shorts to ground. f. TPS for proper operation and resistance readings.
Throttle Position Sensor		

Code Listings And Procedures *(cont'd)*

CODES		QUICK CHECKS
MAIN CODE	SUB CODE	
22	14, 15, 16	Check: a. Speed sensors and connectors are tight, clean, and undamaged. b. Wiring harness to sensors has no opens, shorts between wires, or shorts to ground.
Speed Sensors		
23	12, 13, 14, 15, 16	Check: a. ECU connectors are tight, clean, and undamaged. b. Shift selector connector is tight, clean, and undamaged. c. Wiring harness has no opens, shorts between wires, or shorts to ground. d. Shift selector(s) for proper operation.
Shift Selectors		
24	12	Check: a. Air temperature is below –32°C (–25°F) • If yes, this is a correct response for temperature. • If no, check that main transmission connector is tight, clean, and undamaged. b. ECU connectors are tight, clean, and undamaged.
Sump Fluid Temperature Cold		
24	23	Verify the overheat situation. Check: a. Correct dipstick is installed. b. Fluid level is correct. Refer to CARE AND MAINTENANCE section. • If fluid level is incorrect—correct fluid level. • If fluid level is correct—check for cause of overheating. c. Check if ECU and transmission connectors are tight, clean, and undamaged.
Sump Fluid Temperature Hot		

Code Listings And Procedures *(cont'd)*

CODES		QUICK CHECKS
MAIN CODE	**SUB CODE**	
25	00, 11, 22, 33, 44, 55, 66, 77	Check: a. Speed sensor connector is tight, clean, and undamaged. b. ECU connectors are tight, clean, and undamaged. c. Fluid level is correct. Refer to CARE AND MAINTENANCE section. d. Wiring harness to sensor has no opens, shorts between wires, or shorts to ground.
Output Speed Sensor		
26	00, 11	Check: a. TPS for proper operation, related harness for opens and shorts. b. Serial connection to engine is tight, clean, and undamaged. c. SCI wiring harness has no opens or shorts.
Throttle/Engine Coolant Source Not Detected		
32	00, 33, 55, 77	Check: a. Correct dipstick is installed. b. Fluid level is correct. Refer to CARE AND MAINTENANCE section. c. Main transmission connector is tight, clean, and undamaged. d. ECU connectors are tight, clean, and undamaged. e. Wiring harness has no opens, shorts between wires, or shorts to ground.
C3 Pressure Switch Open		
33	12, 23	Check: a. Main transmission connector is tight, clean, and undamaged. b. ECU connectors are tight, clean, and undamaged. c. Wiring harness has no opens, shorts between wires, or shorts to ground.
Sump Oil Temperature Sensor Failure		

Code Listings And Procedures *(cont'd)*

CODES		QUICK CHECKS
MAIN CODE	**SUB CODE**	
34	12, 13, 14, 15, 16, 17	a. Recalibrate ECU, if possible. b. Replace ECU if not possible to recalibrate.
EEPROM		
35	00, 16	Check: a. ECU connectors are tight, clean, and undamaged. b. VIM connectors are tight, clean, and undamaged. c. Vehicle manufacturer supplied wiring has correct power and ground connections. d. Power connections are battery direct. e. Ground connections are battery direct. f. Ignition switch connections are correct.
Power Interruption Real Time Write Interruption		
36	00, 01, 02	a. If able, recalibrate ECU; if not, replace ECU. b. Check that ECU is compatible with TransID level (36 01). c. Troubleshoot TransID wire and circuit for short to battery (36 02).
Hardware/Software Not Compatible		
42	12, 13, 14, 15, 16, 21 22, 23, 24, 26	Check: a. Main transmission connector is tight, clean, and undamaged. b. ECU connectors are tight, clean, and undamaged. c. Wiring harness is not pulled too tight, and there is no damage, chafing, or screws through harness. d. Wiring harness has no opens, shorts between wires, or shorts to ground. e. Unauthorized repairs have not been made. f. Change harness (optional).
Short to Battery in Solenoid Circuit		

Code Listings And Procedures *(cont'd)*

CODES		QUICK CHECKS
MAIN CODE	**SUB CODE**	
44	12, 13, 14, 15, 16, 21, 22, 23, 24, 26	Check: a. Main transmission connector is tight, clean, and undamaged. b. ECU connectors are tight, clean, and undamaged. c. Wiring harness has no opens, shorts between wires, or shorts to ground.
Solenoid Circuit Short to Ground		
45	12, 13, 14, 15, 16, 21, 22, 23, 24, 26	Check: a. b. c. a. Main transmission connector is tight, clean, and undamaged. b. ECU connectors are tight, clean, and undamaged. c. Wiring harness has no opens or shorts.
Solenoid Circuit Open		
46	21, 26, 27	Check: a. Main transmission connector is tight, clean, and undamaged. b. ECU connectors are tight, clean, and undamaged. c. Wiring harness has no opens, shorts between wires, or shorts to ground. d. Replace ECU.
Solenoid Overcurrent		
51	01, 10, 12, 21, 23, 24, 35, 42, 43, 45, 46, 53, 64, 65, XY*	Check: a. Output and turbine speed sensor connectors are tight, clean, and undamaged. b. Speed sensor wiring harness has no opens, shorts between wires, or shorts to ground. c. Correct dipstick is installed. d. Fluid level is correct. Refer to CARE AND MAINTENANCE section.
Offgoing Ratio Test (During Shift)		

Code Listings And Procedures *(cont'd)*

CODES		QUICK CHECKS
MAIN CODE	**SUB CODE**	
52	01, 08, 32, 34, 54, 56, 71, 72, 78, 79, 99, XY*	Check: a. Output and turbine speed sensor connectors are tight, clean, and undamaged. b. Speed sensor wiring harness has no opens, shorts between wires, or shorts to ground. c. Main wiring harness to transmission has no shorts between wires or shorts to ground. d. Correct dipstick is installed. e. Fluid level is correct. Refer to CARE AND MAINTENANCE section.
Offgoing C3 Pressure Switch Test (During Shift)		
53	08, 09, 18, 19, 28, 29, 38, 39, 48, 49, 58, 59, 68, 69, 78, 99, XY*	Check: a. Turbine and engine speed sensor connectors are tight, clean, and undamaged. b. Speed sensor wiring harness has no opens, shorts between wires, or shorts to ground. c. Correct dipstick is installed. d. Fluid level is correct. Refer to CARE AND MAINTENANCE section.
Offgoing Speed Test (During Shift)		
54	01, 07, 10, 12, 17, 21, 23, 24, 27, 32, 34, 35, 42, 43, 45, 46, 53, 54, 56, 64, 65, 70, 71, 72, 80, 81, 82, 83, 85, 86, 87, 92, 93, 95, 96, XY*	Check: a. Turbine and output speed sensor connectors are tight, clean, and undamaged. b. Speed sensor wiring harness has no opens, shorts between wires, or shorts to ground. c. Correct dipstick is installed. d. Fluid level is correct. Refer to CARE AND MAINTENANCE section. e. EEPROM calibration is correct for the transmission.
Oncoming Ratio Test (After Shift)		

Code Listings And Procedures *(cont'd)*

CODES		QUICK CHECKS
MAIN CODE	**SUB CODE**	
55	07, 17, 27, 87, 97, XY*	Check: a. Correct dipstick is installed. b. Fluid level is correct. Refer to CARE AND MAINTENANCE section. c. Output and turbine speed sensor connectors are tight, clean, and undamaged. d. Speed sensor wiring harness has no opens, shorts between wires, or shorts to ground. e. Transmission connector is tight, clean, and undamaged. f. ECU connectors are tight, clean, and undamaged. g. C3 pressure switch wiring has no opens, shorts between wires, or shorts to ground.
Oncoming C3 Pressure Switch Test (After Shift)		
56	00, 11, 22, 33, 44, 55, 66, 77	Check: a. Turbine and output speed sensor connectors are tight, clean, and undamaged. b. Speed sensor wiring harness has no opens, shorts between wires, or shorts to ground. c. Transmission connector is tight, clean, and undamaged. d. ECU connectors are tight, clean, and undamaged. e. Correct dipstick is installed. f. Fluid level is correct. Refer to CARE AND MAINTENANCE section.
Range Verification Ratio Test		

Code Listings And Procedures *(cont'd)*

CODES		QUICK CHECKS
MAIN CODE	**SUB CODE**	
57	11, 22, 44, 66, 88, 99	Check: a. Correct dipstick is installed. b. Fluid level is correct. Refer to CARE AND MAINTENANCE section. c. Output and turbine speed sensor connectors are tight, clean, and undamaged. d. Speed sensor wiring harness has no opens, shorts between wires, or shorts to ground. e. Transmission connector is tight, clean, and undamaged. f. ECU connectors are tight, clean, and undamaged. g. C3 pressure switch wiring has no opens, shorts between wires, or shorts to ground.
Range Verification C3 Pressure Switch Test		
61	00	Check: a. Fluid level is correct. Refer to CARE AND MAINTENANCE section. b. Retarder apply system is not allowing retarder and throttle to be applied at the same time. c. Fluid cooler is adequately sized for load.
Retarder Over Temperature		

Code Listings And Procedures *(cont'd)*

CODES		QUICK CHECKS
MAIN CODE	**SUB CODE**	
62	12, 23, 32, 33	Check: a. Retarder temperature measured with diagnostic tool is consistent with code: or determine if code is active using shift selector. b. Sensor connector is tight, clean and undamaged. c. ECU connectors are tight, clean, and undamaged. d. Temperature sensor circuit has no opens, shorts between wires, or shorts to ground. e. Serial connection to engine computer is tight, clean, and undamaged. f. SCI wiring harness has no opens or shorts.
Retarder Temperature Sensor, Engine Coolant Sensor		
63	00, 26, 40, 41, 47	Check input wiring, switches, and connectors to determine why input states are different.
Input Function Fault		
64	12, 23	Use diagnostic tool to read retarder counts and identify problem wires. Check wiring for short to battery, ground wire open, or short to ground.
Retarder Modulation Request Device Fault		
66	00, 11, 22	Check: a. b. c. a. Serial connection to engine computer is tight, clean, and undamaged. b. SCI wiring harness has no opens, shorts, or shorts to ground. c. If diagnostic tool is not available, also be sure that transmission ECU connections are tight, clean, and undamaged. d. Problem with CAN link or engine controls.
Serial Communications Interface Fault		
69	27, 28, 29, 33, 34, 35, 36, 39, 41, 42, 43	a. Clear diagnostic code and retry vehicle start. b. If code recurs, reprogram or replace ECU.
ECU Malfunction		

CODES		QUICK CHECKS
MAIN CODE	**SUB CODE**	
70	12, 13, 14	Reset ECU
Software Problem		
* Additional codes could be logged for other shifts where X indicates range shifted from and Y indicates range shifted to.		

W

A

B

C

O

ABS

FAULT CODES

		ABS136	WABCO
PID/SID	FMI		
0	1	LF wheel sensor	air gap exceeding normal limits, wheel bearing
1	2	LF tone ring	missing or incorrect number of teeth
1	3	LF wheel sensor	dc voltage detected, voltage shorted to battery
1	4	LF wheel sensor	circuit shorted to ground
1	5	LF wheel sensor	circuit open
1	6	LF wheel sensor	sensor wires shorted together
1	7	LF tone ring	missing or incorrect number of teeth
1	8	LF slip	16 sec slip detected, check air gap and modulators
1`	9	LF harness	mismatch of harness or sensor pars
1	10	LF wheel sensor	loss of wheel sensor signal
1	11	LF abnormal speed	check tone ring, air gap and sensor wiring
1	12	LF frequency too high	incorrect frequency to ecm from sensor
2	1	RF wheel sensor	air gap exceeding normal limits, wheel bearing
2	2	RF tone ring	missing or incorrect number of teeth
2	3	RF wheel sensor	dc voltage detected, voltage shorted to battery
2	4	RF wheel sensor	circuit shorted to ground
2	5	RF wheel sensor	circuit open
2	6	RF wheel sensor	sensor wires shorted together
2	7	RF tone ring	missing or incorrect number of teeth
2	8	RF slip	16 sec slip detected, check air gap and modulators
2	9	RF harness	mismatch of harness or sensor pars
2	10	RF wheel sensor	loss of wheel sensor signal
2	11	RF abnormal speed	check tone ring, air gap and sensor wiring
2	12	RF frequency too high	incorrect frequency to ecm from sensor
3	1	LR wheel sensor	air gap exceeding normal limits, wheel bearing
3	2	LR tone ring	missing or incorrect number of teeth
3	3	LR wheel sensor	dc voltage detected, voltage shorted to battery
3	4	LR wheel sensor	circuit shorted to ground
3	5	LR wheel sensor	circuit open
3	6	LR wheel sensor	sensor wires shorted together
3	7	LR tone ring	missing or incorrect number of teeth
3	8	LR slip	16 sec slip detected, check air gap and modulators
3	9	LR harness	mismatch of harness or sensor pars
3	10	LR wheel sensor	loss of wheel sensor signal
3	11	LR abnormal speed	check tone ring, air gap and sensor wiring
3	12	LR frequency too high	incorrect frequency to ecm from sensor
4	1	RR wheel sensor	air gap exceeding normal limits, wheel bearing
4	2	RR tone ring	missing or incorrect number of teeth
4	3	RR wheel sensor	dc voltage detected, voltage shorted to battery
4	4	RR wheel sensor	circuit shorted to ground
4	5	RR wheel sensor	circuit open
4	6	RR wheel sensor	sensor wires shorted together
4	7	RR tone ring	missing or incorrect number of teeth
4	8	RR slip	16 sec slip detected, check air gap and modulators
4	9	RR harness	mismatch of harness or sensor pars
4	10	RR wheel sensor	loss of wheel sensor signal
4	11	RR abnormal speed	check tone ring, air gap and sensor wiring
4	12	RR frequency too high	incorrect frequency to ecm from sensor

PID/SID	FMI	ABS136	WABCO
7	3	LF modulator valve	inlet and outlet shorted or crcuit shorted to another modulator
7	5	LF modulator valve	inlet or outlet circuit is open
7	6	LF modulator valve	inlet or outlet circuit is shorted to ground
8	3	RF modulator valve	inlet and outlet shorted or crcuit shorted to another modulator
8	5	RF modulator valve	inlet or outlet circuit is open
8	6	RF modulator valve	inlet or outlet circuit is shorted to ground
9	3	LR modulator valve	inlet and outlet shorted or crcuit shorted to another modulator
9	5	LR modulator valve	inlet or outlet circuit is open
9	6	LR modulator valve	inlet or outlet circuit is shorted to ground
10	3	RR modulator valve	inlet and outlet shorted or crcuit shorted to another modulator
10	5	RR modulator valve	inlet or outlet circuit is open
10	6	RR modulator valve	inlet or outlet circuit is shorted to ground
13	3	DBR retarder	output is shorted to battery supply
13	5	DBR retarder	output is open
13	6	DBR retarder	output is shorted to ground
14	4	ECU	low or loss of supply voltage to ECU
14	5	ECU	Loss of ground to ECU
14	7	ECU	ECU internal failure
231	2	ECU	J1939 data invalid
231	5	ECU	J1939 circuit open
231	6	ECU	J1939 circuit open
231	7	ECU	incorrect message from driveline retarder
231	8	ECU	incorrect message from engine retarder
231	9	ECU	incorrect torque message from engine
231	10	ECU	incorrect message from exhaust retarder
231	12	ECU	internal J1939 failure
251	3	ECU	supply voltage to ecm too high
253	2	ecu	parameters are incorrect; internal ecu failure
253	12	ECU	parameters are incorrect; internal ecu failure
254	5	ECU	loss of modulator/sensor harness connections
254	8	sensors	slipping, check air gap, one axle faster than other
254	12	ECU	internal ecu failure
254	13	ECU	internal ecu failure
254	14	ECU	internal ecu failure