DASH RETRIEVED FAULT CODES

CONVENTIONAL FS65

SAF-T-LINER C2, C2E HYBRID

SAF-T-LINER HDX, HD, ER

SAF-T-LINER EF, EFX

ALL YEARS

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Early Products: J1587/J1708 Fault Codes

EPA 2010 Products: J1939 Fault Codes

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Locating the LCD and Mode Button:

Your ICU dash will display the MID numbers for the modules that have an active fault.

The complete SAE formatted Fault Code can be retrieved via the dash. Example: MID, PID or SID, FMI.

All ICU model dashes will display J1587 formatted Fault Codes; some models are connected to J1939 as well.

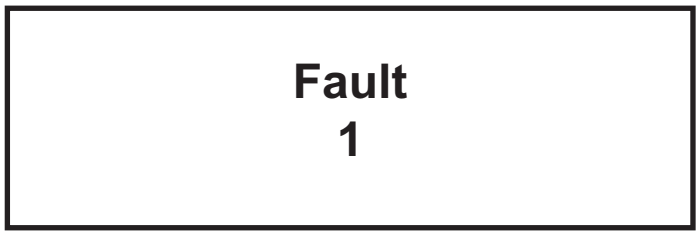
ICU dashes cannot be used to clear historic Fault Codes.

Locate the LCD display in the center of the dash and the reset'mode button to the right.

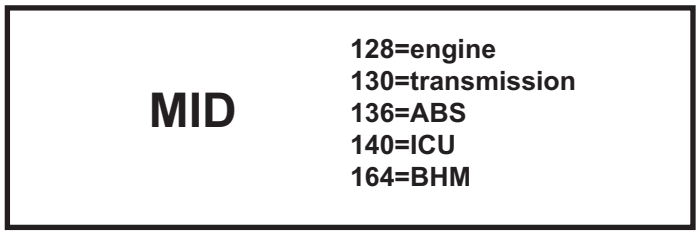
Retrieving J1587 Codes: (ICU3 ad ICU4 Dash Models)

1. Set parking brake
2. Ignition key to “ON” position
3. Push and release Mode Button

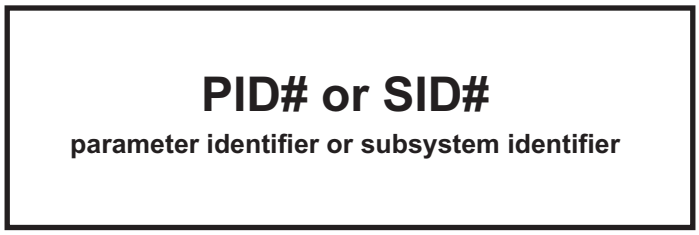
4. Push and hold Mode Button



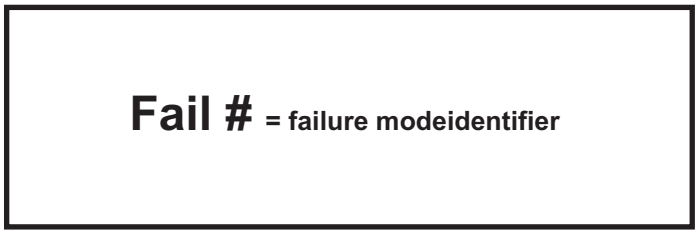
5. Push and release Mode Button



6. Push and release Mode Button

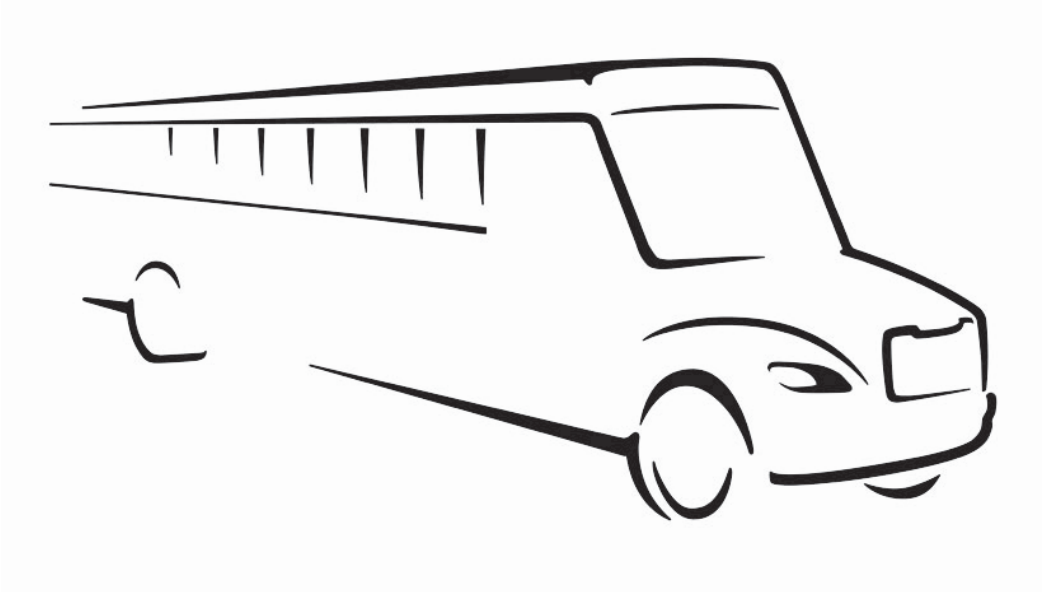


7. Push and release Mode Button



8. For multiple codes repeat steps 4-7

SAF-T-LINER C2
FAULT CODES



		BH164	Bulkhead Module
PID/SID	FMI		
0	7	backlighting/dimmer	switch not responding
1	7	clutch switch	switch not responding
3	7	head light switch	disagreement between park and on, both closed
4	2	stalk switch	high beam input switch failure
5	7	ignition switch	switch not responding
6	7	marker switch	switch not responding
7	2	wiper switch	disagreement between high and low; both on
8	2	wiper switch	disagreement between wiper off and high/low on
9	7	wiper switch	park function not responding
10	2	ICU3	hazard switch CAN error
11	2	stalk switch	left turn input failure
12	2	stalk switch	right turn input failure
13	2	stalk switch	washer switch input failure
14	2	stalk switch	wiper switch on/off input failure
15	2	stalk switch	wiper switch low input failure
16	2	stalk switch	wiper switch high input failure
17	2	J1939	wheel speed error message
18	7	wake-up	modules are kept awake
19	7	wake-up	modules are kept awake
20	7	smart switch	extra smart switch
21	7	smart switch	duplicate smart switch
22	7	smart switch	missing smart switch
25	7	CHM	unexpected air pressure feedback
26	7	CHM	no air pressure feedback
31	7	CHM	suspension proportioning valve feedback
32	7	CHM	no feedback from suspension proportioning valve
33	7	cigar lighter	output failure to lightler
34	7	ignition switch	mismatch between ICU and BHM on key position
35	2	hazard switch	mismatch between ICU & BHM on hazard switch position
36	2	wiper switch	mismatch between ICU & BHM on wiper switch position
37	9	J1939	missing J1939 from Transmission
38	9	J1939	missing J1939 from chassis hub module
39	7	remote switch	remote switch stuck
42	7	PTO	PTO not responding
43	7	PTO	PTO not responding
50	3	BHM B1.A	voltage above normal or shorted to high
50	4	BHM B1.A	voltage below normal or shorted low
51	5	BHM B1.F, B1.P, B2.K, B2.L, B6.A8	current below normal or open circuit
51	6	BHM B1.F, B1.P, B2.K, B2.L, B6.A8	current above normal or shorted to ground
52	3	BHM B1.J	voltage above normal or shorted to high
52	4	BHM B1.J	voltage below normal or shorted low
53	5	BHM B1.K, B5.C	current below normal or open circuit
53	6	BHM B1.K, B5.C	current above normal or shorted to ground
54	5	BHM B1.L	current below normal or open circuit
54	6	BHM B1.L	current above normal or shorted to ground
55	3	BHM B1.N	voltage above normal or shorted to high
55	4	BHM B1.N	voltage below normal or shorted low
56	5	BHM B1.R	current below normal or open circuit
56	6	BHM B1.R	current above normal or shorted to ground

		BH164	Bulkhead Module
PID/SID	FMI		
57	5	BHM B2.M	current below normal or open circuit
57	6	BHM B2.M	current above normal or shorted to ground
58	3	BHM B3.D	voltage above normal or shorted to high
58	4	BHM B3.D	voltage below normal or shorted low
59	3	BHM B3.E	voltage above normal or shorted to high
59	4	BHM B3.E	voltage below normal or shorted low
59	5	BHM B3.E	current below normal or open circuit
59	6	BHM B3.E	current above normal or shorted to ground
60	5	BHM B3.F	current below normal or open circuit
60	6	BHM B3.F	current above normal or shorted to ground
61	5	BHM B3.G	current below normal or open circuit
61	6	BHM B3.G	current above normal or shorted to ground
62	5	BHM B3.H	current below normal or open circuit
62	6	BHM B3.H	current above normal or shorted to ground
63	5	BHM B4.B	current below normal or open circuit
63	6	BHM B4.B	current above normal or shorted to ground
64	3	BHM B4.E, B4.F	voltage above normal or shorted to high
64	4	BHM B4.E, B4.F	voltage below normal or shorted low
64	5	BHM B4.E, B4.F	current below normal or open circuit
64	6	BHM B4.E, B4.F	current above normal or shorted to ground
65	3	BHM B4.G	voltage above normal or shorted to high
65	4	BHM B4.G	voltage below normal or shorted low
66	3	BHM B4.K	voltage above normal or shorted to high
66	4	BHM B4.K	voltage below normal or shorted low
67	3	BHM B4.M, B5.E	voltage above normal or shorted to high
67	4	BHM B4.M, B5.E	voltage below normal or shorted low
67	5	BHM B4.M, B5.E	current below normal or open circuit
67	6	BHM B4.M, B5.E	current above normal or shorted to ground
68	5	BHM B5.A, B7.A12	current below normal or open circuit
68	6	BHM B5.A, B7.A12	current above normal or shorted to ground
69	5	BHM B6.A9, B6.A10	current below normal or open circuit
69	6	BHM B6.A9, B6.A10	current above normal or shorted to ground
70	5	BHM B5.B	current below normal or open circuit
70	6	BHM B5.B	current above normal or shorted to ground
71	5	BHM B5.D	current below normal or open circuit
71	6	BHM B5.D	current above normal or shorted to ground
72	5	BHM B5.F	current below normal or open circuit
72	6	BHM B5.F	current above normal or shorted to ground
72	3	BHM B5.F	voltage above normal or shorted to high
72	4	BHM B5.F	voltage below normal or shorted low
73	3	BHM B5.G	voltage above normal or shorted to high
73	4	BHM B5.G	voltage below normal or shorted low
73	5	BHM B5.G	current below normal or open circuit
73	6	BHM B5.G	current above normal or shorted to ground
74	3	BHM B5.H, B7.A1	voltage above normal or shorted to high
74	4	BHM B5.H, B7.A1	voltage below normal or shorted low
74	5	BHM B5.H, B7.A1	current below normal or open circuit
74	6	BHM B5.H, B7.A1	current above normal or shorted to ground
75	5	CHM C1.A, C1.H, C1.J	current below normal or open circuit

		BH164	Bulkhead Module
PID/SID	FMI		
75	6	CHM C1.A, C1.H, C1.J	current above normal or shorted to ground
76	5	CHM C1.G, C2.H, C3.N	current below normal or open circuit
76	6	CHM C1.G, C2.H, C3.N	current above normal or shorted to ground
77	5	CHM C1.L	current below normal or open circuit
77	6	CHM C1.L	current above normal or shorted to ground
78	5	CHM C1.N	current below normal or open circuit
78	6	CHM C1.N	current above normal or shorted to ground
79	5	CHM C1.P, C2.E, C3.R	current below normal or open circuit
79	6	CHM C1.P, C2.E, C3.R	current above normal or shorted to ground
80	3	CHM C2.A	voltage above normal or shorted to high
80	4	CHM C2.A	voltage below normal or shorted low
81	3	CHM C2.F, C4.C, C4.D, C4.L, C4.M	voltage above normal or shorted to high
81	4	CHM C2.F, C4.C, C4.D, C4.L, C4.M	voltage below normal or shorted low
81	5	CHM C2.F, C4.C, C4.D, C4.L, C4.M	current below normal or open circuit
81	6	CHM C2.F, C4.C, C4.D, C4.L, C4.M	current above normal or shorted to ground
82	3	CHM C3.A	voltage above normal or shorted to high
82	4	CHM C3.A	voltage below normal or shorted low
82	5	CHM C3.A	current below normal or open circuit
82	6	CHM C3.A	current above normal or shorted to ground
83	5	CHM C3.C, C3.D	current below normal or open circuit
83	6	CHM C3.C, C3.D	current above normal or shorted to ground
84	3	CHM C3.E	voltage above normal or shorted to high
84	4	CHM C3.E	voltage below normal or shorted low
85	3	CHM C3.F	voltage above normal or shorted to high
85	4	CHM C3.F	voltage below normal or shorted low
86	3	CHM C3.J	voltage above normal or shorted to high
86	4	CHM C3.J	voltage below normal or shorted low
87	5	CHM C3.K	current below normal or open circuit
87	6	CHM C3.K	current above normal or shorted to ground
88	5	CHM C3.L	current below normal or open circuit
88	6	CHM C3.L	current above normal or shorted to ground
89	5	CHM C4.F	current below normal or open circuit
89	6	CHM C4.F	current above normal or shorted to ground
90	3	CHM C4.J	voltage above normal or shorted to high
90	4	CHM C4.J	voltage below normal or shorted low
91	5	CHM C4.K	current below normal or open circuit
91	6	CHM C4.K	current above normal or shorted to ground
92	3	CHM C4.P	voltage above normal or shorted to high
92	4	CHM C4.P	voltage below normal or shorted low
93	3	CHM C5.A	voltage above normal or shorted to high
93	4	CHM C5.A	voltage below normal or shorted low
94	3	CHM C5.B	voltage above normal or shorted to high
94	4	CHM C5.B	voltage below normal or shorted low
95	3	CHM C5.F	voltage above normal or shorted to high
95	4	CHM C5.F	voltage below normal or shorted low
96	3	CHM C5.G	voltage above normal or shorted to high
96	4	CHM C5.G	voltage below normal or shorted low
97	3	CHM C5.H	voltage above normal or shorted to high
97	4	CHM C5.H	voltage below normal or shorted low

		BH164	Bulkhead Module
PID/SID	FMI		
98	3	CHM C5.J	voltage above normal or shorted to high
98	4	CHM C5.J	voltage below normal or shorted low
99	3	CHM C5.L	voltage above normal or shorted to high
99	4	CHM C5.L	voltage below normal or shorted low
100	3	CHM C5.M	voltage above normal or shorted to high
100	4	CHM C5.M	voltage below normal or shorted low
101	5	EXM1 C1.A, C1.H, C1.C, C1.N, C1.L, C1.G, C1.P	current below normal or open circuit
101	6	EXM1 C1.A, C1.H, C1.C, C1.N, C1.L, C1.G, C1.P	current above normal or shorted to ground
101	5	EXM1 C2.F, C2.E, C2.H	current below normal or open circuit
101	6	EXM1 C2.F, C2.E, C2.H	current above normal or shorted to ground
101	3	EXM1 C2.A, C2.F	voltage above normal or shorted to high
101	4	EXM1 C2.A, C2.F	voltage below normal or shorted low
101	5	EXM1 C3.A, C3.C, C3.D,C3.K, C3.L, C3.R, C3.N	current below normal or open circuit
101	6	EXM1 C3.A, C3.C, C3.D,C3.K, C3.L, C3.R, C3.N	current above normal or shorted to ground
101	3	EXM1 C3.A, C3.C, C3.E, C3.F	voltage above normal or shorted to high
101	4	EXM1 C3.A, C3.C, C3.E, C3.F	voltage below normal or shorted low
101	3	EXM1 C4.C, C4.D, C4.L, C4.M, C4.P	voltage above normal or shorted to high
101	4	EXM1 C4.C, C4.D, C4.L, C4.M, C4.P	voltage below normal or shorted low
101	5	EXM1 C4.C, C4.D, C4.F, C4.K, C4.L, C4.M	current below normal or open circuit
101	6	EXM1 C4.C, C4.D, C4.F, C4.K, C4.L, C4.M	current above normal or shorted to ground
101	3	EXM1 C5.A, C5,B,C5.C, C5.F, C5.G, C5.H, C5.L, C5.M	voltage above normal or shorted to high
101	4	EXM1 C5.A, C5,B,C5.C, C5.F, C5.G, C5.H, C5.L, C5.M	voltage below normal or shorted low
101	5	EXM2 C1.A, C1.H, C1.C, C1.N, C1.L, C1.G, C1.P	current below normal or open circuit
102	6	EXM2 C1.A, C1.H, C1.C, C1.N, C1.L, C1.G, C1.P	current above normal or shorted to ground
102	5	EXM2 C2.F, C2.E, C2.H	current below normal or open circuit
102	6	EXM2 C2.F, C2.E, C2.H	current above normal or shorted to ground
102	3	EXM2 C2.A, C2.F	voltage above normal or shorted to high
102	4	EXM2 C2.A, C2.F	voltage below normal or shorted low
102	5	EXM2 C3.A, C3.C, C3.D,C3.K, C3.L, C3.R, C3.N	current below normal or open circuit
102	6	EXM2 C3.A, C3.C, C3.D,C3.K, C3.L, C3.R, C3.N	current above normal or shorted to ground
102	3	EXM2 C3.A, C3.C, C3.E, C3.F	voltage above normal or shorted to high
102	4	EXM2 C3.A, C3.C, C3.E, C3.F	voltage below normal or shorted low
102	3	EXM2 C4.C, C4.D, C4.L, C4.M, C4.P	voltage above normal or shorted to high
102	4	EXM2 C4.C, C4.D, C4.L, C4.M, C4.P	voltage below normal or shorted low
102	5	EXM2 C4.C, C4.D, C4.F, C4.K, C4.L, C4.M	current below normal or open circuit
102	6	EXM2 C4.C, C4.D, C4.F, C4.K, C4.L, C4.M	current above normal or shorted to ground
102	3	EXM2 C5.A, C5,B,C5.C, C5.F, C5.G, C5.H, C5.L, C5.M	voltage above normal or shorted to high
102	4	EXM2 C5.A, C5,B,C5.C, C5.F, C5.G, C5.H, C5.L, C5.M	voltage below normal or shorted low
107	6	SHM J1.A, J1.E	current above normal or shorted to ground
108	6	SHM J3.G	current above normal or shorted to ground
109	6	SHM J3.M	current above normal or shorted to ground
110	5	SHM J3.F	current below normal or open circuit
110	6	SHM J3.F	current above normal or shorted to ground
111	5	SHM J3.K	current below normal or open circuit
111	6	SHM J3.K	current above normal or shorted to ground

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W

A

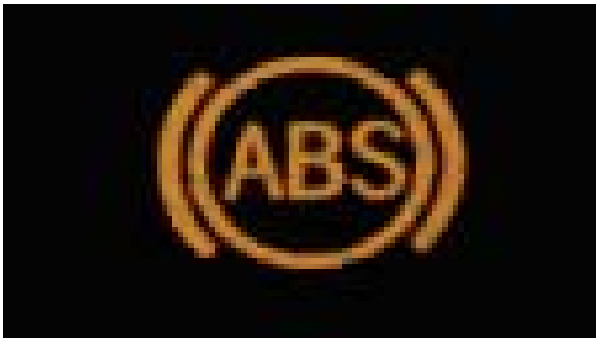
B

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

		ABS136	WABCO
PID/SID	FMI		
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

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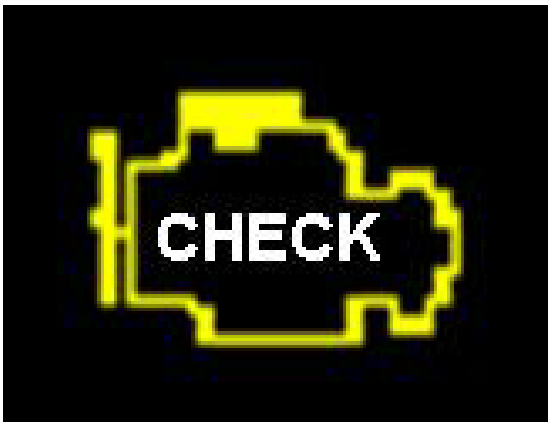
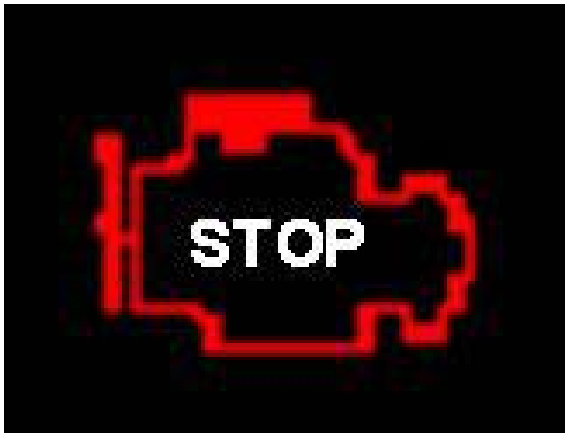


Mercedes Engine



ECU128 Mercedes

PID/SID	J1587	FMI	
SID	1	5	Injector Cylinder 1; Nozzle Control Valve or Spill Control Valve; Jammed Closed
SID	1	6	Injector Cylinder #1 Needle Control Valve; Valve Shorted Circuit
SID	1	7	Injector Cylinder 1; Nozzle Control Valve or Spill Control Valve; Jammed Open or Leakage
SID	1	10	Injector Cylinder #1 Needle Control Valve Abnormal Rate of Change
SID	1	14	Injector Cylinder #1 Needle Control Valve Abnormal Operation
SID	1	31	Engine Smoothness Control / Cylinder #1 Value Out of Range
SID	1	31	Cylinder 1 Misfire detected
SID	2	5	Injector Cylinder 2; Nozzle Control Valve or Spill Control Valve; Jammed Closed
SID	2	6	Injector Cylinder #2 Needle Control Valve; Valve Shorted Circuit
SID	2	7	Injector Cylinder 2; Nozzle Control Valve or Spill Control Valve; Jammed Open or Leakage
SID	2	10	Injector Cylinder #2 Needle Control Valve Abnormal Rate of Change
SID	2	14	Injector Cylinder #2 Needle Control Valve Abnormal Operation
SID	2	31	Engine Smoothness Control / Cylinder #2 Value Out of Range
SID	2	31	Cylinder 2 Misfire detected
SID	3	5	Injector Cylinder 3; Nozzle Control Valve or Spill Control Valve; Jammed Closed
SID	3	6	Injector Cylinder #3 Needle Control Valve; Valve Shorted Circuit
SID	3	7	Injector Cylinder 3; Nozzle Control Valve or Spill Control Valve; Jammed Open or Leakage
SID	3	10	Injector Cylinder #3 Needle Control Valve Abnormal Rate of Change
SID	3	14	Injector Cylinder #3 Needle Control Valve Abnormal Operation
SID	3	31	Engine Smoothness Control / Cylinder #3 Value Out of Range
SID	3	31	Cylinder 3 Misfire detected
SID	4	5	Injector Cylinder 4; Nozzle Control Valve or Spill Control Valve; Jammed Closed
SID	4	6	Injector Cylinder #4 Needle Control Valve; Valve Shorted Circuit
SID	4	7	Injector Cylinder 4; Nozzle Control Valve or Spill Control Valve; Jammed Open or Leakage
SID	4	10	Injector Cylinder #4 Needle Control Valve Abnormal Rate of Change
SID	4	14	Injector Cylinder #4 Needle Control Valve Abnormal Operation
SID	4	31	Engine Smoothness Control / Cylinder #4 Value Out of Range
SID	4	31	Cylinder 4 Misfire detected
SID	5	5	Injector Cylinder 5; Nozzle Control Valve or Spill Control Valve; Jammed Closed
SID	5	6	Injector Cylinder #5 Needle Control Valve; Valve Shorted Circuit
SID	5	7	Injector Cylinder 5; Nozzle Control Valve or Spill Control Valve; Jammed Open or Leakage
SID	5	10	Injector Cylinder #5 Needle Control Valve Abnormal Rate of Change
SID	5	14	Injector Cylinder #5 Needle Control Valve Abnormal Operation
SID	5	31	Engine Smoothness Control / Cylinder #5 Value Out of Range
SID	5	31	Cylinder 5 Misfire detected
SID	6	5	Injector Cylinder 6; Nozzle Control Valve or Spill Control Valve; Jammed Closed
SID	6	6	Injector Cylinder #6 Needle Control Valve; Valve Shorted Circuit
SID	6	7	Injector Cylinder 6; Nozzle Control Valve or Spill Control Valve; Jammed Open or Leakage
SID	6	10	Injector Cylinder #6 Needle Control Valve Abnormal Rate of Change
SID	6	14	Injector Cylinder #6 Needle Control Valve Abnormal Operation
SID	6	31	Engine Smoothness Control / Cylinder #6 Value Out of Range
SID	7	6	Injector Cylinder #7 Needle Control Valve; Valve Shorted Circuit
SID	7	10	Injector Cylinder #7 Needle Control Valve Abnormal Rate of Change
SID	7	14	Injector Cylinder #7 Needle Control Valve Abnormal Operation
SID	7	31	Engine Smoothness Control / Cylinder #7 Value Out of Range
SID	8	6	Injector Cylinder #8 Needle Control Valve; Valve Shorted Circuit
SID	8	10	Injector Cylinder #8 Needle Control Valve Abnormal Rate of Change
SID	8	14	Injector Cylinder #8 Needle Control Valve Abnormal Operation
SID	8	31	Engine Smoothness Control / Cylinder #8 Value Out of Range
SID	21	1	Crankshaft Position Sensor Signal Voltage Too Low
SID	21	2	No Match of Camshaft and Crankshaft Signals
SID	21	3	Crankshaft Position Sensor Open Circuit
SID	21	4	Crankshaft Position Sensor Short to Ground
SID	21	8	Crankshaft Position Sensor Time Out
SID	21	14	Crankshaft Position Sensor Pins Swapped

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PID/SID	J1587	FMI	
SID	26	3	Digital Output 4 09 Circuit Failed High
SID	26	4	Digital Output 4 09 Circuit Failed Low
PID	27	3	EGR Valve Position Circuit Failed High
SID	27	3	Turbo Control Circuit Failed High
PID	27	4	EGR Valve Position Circuit Failed Low
SID	27	4	Turbo Control Circuit Failed Low
SID	27	5	Turbo Control Circuit Open
PID	27	7	EGR Valve Stuck Open
SID	32	3	Waste Gate Circuit Failed High
SID	32	4	Waste Gate Circuit Failed Low
SID	32	5	Waste Gate Circuit Failed Open
SID	32	7	Smart Remote Actuator 1 (Wastegate); Failsafe Mode; Motor On
SID	32	8	Smart Remote Actuator 1 (Wastegate); Internal Test Running
SID	32	9	Smart Remote Actuator 1 (Wastegate); Failsafe Mode; Motor Off
SID	32	11	Smart Remote Actuator 1 (Wastegate); Restricted Operability
SID	32	14	Smart Remote Actuator 1 (Wastegate); No Failsafe Mode; Motor Off
SID	32	15	Smart Remote Actuator 1 (Wastegate); Temperature Warning
SID	32	16	Smart Remote Actuator 1 (Wastegate); Temperature Fault
SID	32	31	Smart Remote Actuator 1 (Wastegate); Unknown Error Code
SID	33	3	Fan Stage 1 Circuit Failed High
SID	33	4	Fan Stage 1 Circuit Failed Low
SID	33	5	Fan Stage 1 Circuit Failed Open
SID	39	2	Starter Switch Inconsistent
SID	39	3	Engine Starter Relay Shorted to High Source
SID	39	4	Engine Starter Relay Open Load Failure
SID	39	5	Engine Starter Relay Open Circuit
SID	39	7	Engine Starter Relay - Starter Does Not Engage
SID	39	7	Engine Starter Relay Jammed
SID	39	14	Starter Electronic Fault / ECU internal (Main)
SID	39	14	Starter Jammed (Tooth to Tooth Jam)
SID	39	31	Starter Electronic Fault / ECU internal (Res)
SID	40	3	Constant Throttle Valve Circuit Failed High
SID	40	4	Constant Throttle Valve Circuit Failed Low
SID	40	5	Constant Throttle Valve Circuit Failed Open
SID	40	3	Digital Output 3 17 Circuit Failed High
SID	40	4	Digital Output 3 17 Circuit Failed Low
PID	43	2	Ignition Switch Not Plausible
PID	45	0	Grid Heater Permanently On
PID	45	3	Grid Heater Circuit Failed High
PID	45	4	Grid Heater Circuit Failed Low
PID	45	7	Grid Heater Defect
PID	45	14	Grid Heater Special Instructions
PID	51	0	Intake Air Throttle Position Low
PID	51	1	Intake Air Throttle Position High
PID	51	2	Intake Throttle Position Deviation Error
PID	51	2	Intake Throttle Valve; Spring Response Time Not Plausible
SID	51	3	Intake Air Throttle Circuit Failed High
SID	51	3	Water Pump 1 Circuit Failed High
SID	51	4	Intake Air Throttle Circuit Failed Low
SID	51	4	Water Pump 1 Circuit Failed Low
SID	51	5	Water Pump 1 Circuit Failed Open
PID	51	7	Intake Throttle Auto Calibration Error

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PID/SID	J1587	FMI	
PID	51	7	Intake Throttle Valve; Stuck
PID	51	8	Intake Throttle Valve; Current Deviation Too High
PID	51	14	Intake Throttle Valve; Integrated Absolute Error Plausibility
SID	51	3	Digital Output 3 09 Circuit Failed High
SID	51	4	Digital Output 3 09 Circuit Failed Low
SID	52	3	Digital Output 4 07 Circuit Failed High
SID	52	4	Digital Output 4 07 Circuit Failed Low
SID	53	3	Electrostatic Oil Separator Circuit Failed High
SID	53	4	Electrostatic Oil Separator Circuit Failed Low
SID	53	5	Electrostatic Oil Separator Circuit Failed Open
SID	53	3	Digital Output 1 13 Circuit Failed High
SID	53	4	Digital Output 1 13 Circuit Failed Low
SID	54	3	Digital Output 3 10 Circuit Failed High
SID	54	4	Digital Output 3 10 Circuit Failed Low
SID	55	3	Turbo Compound Valve Circuit Failed High
SID	55	4	Turbo Compound Valve Circuit Failed Low
SID	55	5	Turbo Compound Valve Circuit Failed Open
SID	55	3	Digital Output 2 10 Circuit Failed High (CEL / AWL Lamp)
SID	55	4	Digital Output 2 10 Circuit Failed Low (CEL / AWL Lamp)
SID	56	3	Digital Output 3 12 Circuit Failed High
SID	56	4	Digital Output 3 12 Circuit Failed Low
SID	57	3	Actuator Turbo Compound Bypass Circuit Failed High
SID	57	4	Actuator Turbo Compound Bypass Circuit Failed Low
SID	57	5	Actuator Turbo Compound Bypass Circuit Failed Open
SID	59	3	Intake Throttle Valve Circuit Failed High
SID	59	4	Intake Throttle Valve Circuit Failed Low
SID	59	5	Intake Throttle Valve Circuit Failed Open
SID	59	14	Intake Air Throttle Control Electrical Fault
SID	60	3	Fan Stage 2 Circuit Failed High
SID	60	4	Fan Stage 2 Circuit Failed Low
SID	60	5	Fan Stage 2 Circuit Failed Open
SID	64	1	Camshaft Position Sensor Signal Voltage Too Low
SID	64	3	Camshaft Position Sensor Open Circuit
SID	64	4	Camshaft Position Sensor Short to Ground
SID	64	8	Camshaft Position Sensor Time Out
SID	64	14	Camshaft Position Sensor Pins Swapped
SID	70	3	Gridheater Circuit Failed High
SID	70	4	Gridheater Circuit Failed Low
SID	70	5	Gridheater Circuit Failed Open
PID	70	2	Park Brake Status Not Plausible (Vehicle Moving)
SID	79	3	Jake Brake Stage 1 Circuit Failed High
SID	79	4	Jake Brake Stage 1 Circuit Failed Low
SID	79	5	Jake Brake Stage 1 Circuit Failed Open
SID	80	3	Jake Brake Stage 2 Circuit Failed High
SID	80	4	Jake Brake Stage 2 Circuit Failed Low
SID	80	5	Jake Brake Stage 2 Circuit Failed Open
SID	81	3	Exhaust Brake Circuit Failed High
SID	81	4	Exhaust Brake Circuit Failed Low
SID	81	5	Exhaust Brake Circuit Failed Open
PID	84	0	Vehicle Speed Above Programmable Threshold1 While Driving
PID	84	2	VSS Anti Tamper Detection via Virtual Gear Ratio
PID	84	3	Vehicle Speed Sensor Circuit Failed High
PID	84	4	Vehicle Speed Sensor Circuit Failed Low
PID	84	6	VSS Anti-Tamper Detection via ABS Vehicle Speed Comparison
PID	84	8	VSS Anti Tamper Detection via Fixed Frequency Device
PID	84	11	Vehicle Speed Above Programmable Threshold2 While Driving

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PID/SID	J1587	FMI	
PID	84	13	J1939 Wheel-Based Vehicle Speed Signal from Source#1 is missing
PID	84	13	J1939 Wheel-Based Vehicle Speed Signal from Source#2 is missing
PID	84	13	J1939 Wheel-Based Vehicle Speed Signal from Source#3 is missing
PID	84	19	J1939 Wheel-Based Vehicle Speed Signal from Source#1 is erratic
SID	84	19	J1939 Wheel-Based Vehicle Speed Signal from Source#2 is erratic
PID	84	19	J1939 Wheel-Based Vehicle Speed Signal from Source#3 is erratic
PID	84	20	Vehicle Speed Sensor Drifted High Error (VSS signal not plausible)
PID	84	21	Vehicle Speed Failure
PID	91	3	Accelerator Pedal Circuit Failed High
PID	91	3	Accelerator Pedal Signal Circuit Failed High
PID	91	4	Accelerator Pedal Circuit Failed Low
PID	91	7	Pwm Accelerator Pedal Idle Not Recognized
PID	91	8	Pwm Accelerator Pedal Signal 1 Frequency Out Of Range
PID	91	13	Accelerator Pedal Learn Error
PID	91	14	Pwm Accelerator Pedal Not Learned
PID	91	31	Pwm Accelerator Pedal Learned Range to Large
PID	91	8	Pwm Accelerator Pedal Signal 2 Frequency Out Of Range
PID	91	14	Pwm Accelerator Pedal GAS1 and GAS2 Signal Missing
PID	94	3	Fuel Compensation Pressure Sensor Circuit Failed High
PID	94	4	Fuel Compensation Pressure Sensor Circuit Failed Low
PID	94	31	Fuel Cut Off Valve Pressure Not Plausible
PID	97	3	Water in Fuel Circuit Failed High
PID	97	4	Water in Fuel Circuit Failed Low
PID	98	3	Oil Level Circuit Failed High
PID	98	4	Oil Level Circuit Failed Low
PID	98	13	Oil Level Mesaurement; Configuration Error
PID	98	14	Oil Level Mesaurement; Oil Level Too Low or Too High
PID	98	0	Oil Level High
PID	98	1	Oil Level Very Low
PID	98	18	Oil Level Low
PID	100	1	Engine Oil Pressure Low
PID	100	2	Oil Pressure Plausibility - Engine Running
PID	100	3	Engine Oil Pressure Circuit Failed High
PID	100	4	Engine Oil Pressure Circuit Failed Low
PID	100	20	Oil Pressure Plausibility - Stop
PID	100	1	Oil Pressure Very Low
PID	100	18	Oil Pressure Low
PID	103	0	Turbo Charger Speed Above Threshold (Low Box)
PID	103	1	Turbo Charger Speed Below Threshold (High Box)
PID	103	2	Turbocharger Speed Not Plausible
PID	103	3	Turbo Charger Speed Sensor Circuit Failed High
PID	103	4	Turbo Charger Speed Sensor Circuit Failed Low
PID	105	2	Intake Manifold Temperature Plausibility Error
PID	105	3	Intake Manifold Temperature Circuit Failed High
PID	105	4	Intake Manifold Temperature Circuit Failed Low
PID	105	14	Difference Intake Manifold Temperature and EGR Temp. Less Than Threshold (Low Box)
PID	105	14	Difference Intake Manifold and I Cooler Temperature Out Less Than Threshold (Low Box)
PID	105	20	Intake Manifold Temperature Drift (Low Box)
PID	105	21	Intake Manifold Temperature Drift (High Box)
PID	105	31	Difference Intake Manifold and I Cooler Temperature Out Less Than Threshold (High Box)
PID	106	0	Inlet Manifold Pressure Failed High
PID	106	1	Inlet Manifold Pressure Failed Low
PID	106	3	Intake Manifold Pressure Circuit Failed High
PID	106	3	Inlet Manifold Pressure Sampling Range Failed
PID	106	4	Intake Manifold Pressure Circuit Failed Low
PID	106	20	Ambient and Inlet Manifold Pressure Difference (Low Box)

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PID/SID	J1587	FMI	
PID	106	20	Intake Manifold Pressure Plausibility (Low Box)
PID	106	21	Ambient and Inlet Manifold Pressure Difference (High Box)
PID	106	21	Intake Manifold Pressure Plausibility Error; Pressure Too Low (High Box)
PID	107	0	Air Filter Restriction High
PID	107	9	J1939 PROP11 message is missing
PID	108	2	Ambient Pressure Plausibility Fault (High Box) 1
PID	108	3	Barometric Pressure Circuit Failed High
PID	108	4	Barometric Pressure Circuit Failed Low
PID	108	20	Ambient Pressure Plausibility Fault (High Box) 2
PID	110	0	Coolant Temperature High
PID	110	2	Engine Coolant Sensor (OUT); General Temp. Plausibility Error
PID	110	3	Engine Coolant Outlet Temperature Circuit Failed High
PID	110	3	Engine Coolant Inlet Temperature Circuit Failed High
PID	110	4	Engine Coolant Outlet Temperature Circuit Failed Low
PID	110	4	Engine Coolant Inlet Temperature Circuit Failed Low
PID	110	14	Coolant Temperature / Engine Oil Temperature Plausibility Fault
PID	110	0	Coolant Temperature Very High
PID	110	16	Coolant Temperature High
PID	111	1	Coolant Level Very Low
PID	111	3	Coolant Level Circuit Failed High
PID	111	4	Coolant Level Circuit Failed Low
PID	111	18	Coolant Level Low
SID	123	3	Digital Output 4 10 Circuit Failed Open
SID	123	4	Digital Output 4 10 Circuit Failed Low
SID	123	7	Optimized Idle Safety Loop Faulted
PID	132	1	Air Mass Flow Too Low
PID	132	7	Intake Air Throttle Valve Closure Detection- Positive Torque
PID	132	14	Intake Air Throttle Valve Closure Detection -Braking Condition
SID	146	0	EGR Valve Position Feedback Failed (High Box)
SID	146	1	EGR Valve Position Feedback Failed (Low Box)
SID	146	2	EGR Valve Position Feedback Failed
PID	146	3	EGR Valve Circuit Failed High
PID	146	4	EGR Valve Circuit Failed Low
PID	146	5	EGR Valve Circuit Failed Open
SID	146	7	EGR Valve Position Incorrect
SID	146	7	Smart Remote Actuator 3 (EGR); Failsafe Mode; Motor On
SID	146	8	Smart Remote Actuator 3 (EGR); Internal Test Running
SID	146	9	Smart Remote Actuator 3 (EGR); Failsafe Mode; Motor Off
SID	146	11	Smart Remote Actuator 3 (EGR); Restricted Operability
SID	146	14	EGR Valve Position Positive Torque Error
SID	146	14	Smart Remote Actuator 3 (EGR); No Failsafe Mode; Motor Off
SID	146	15	Smart Remote Actuator 3 (EGR); Temperature Warning
SID	146	16	Smart Remote Actuator 3 (EGR); Temperature Fault
SID	146	31	Smart Remote Actuator 3 (EGR); Unknown Error Code
SID	147	7	Turbo Actuator; Failsafe Mode; Motor On
SID	147	8	Turbo Actuator; Internal Test Running
SID	147	9	Turbo Actuator; Failsafe Mode; Motor Off
SID	147	11	Turbo Actuator; Restricted Operability
SID	147	14	Turbo Actuator; No Failsafe Mode; Motor Off
SID	147	15	Turbo Actuator; Temperature Warning
SID	147	16	Turbo Actuator; Temperature Fault
SID	147	31	Turbo Actuator; Unknown Error Code
SID	155	0	Engine Air Flow Out of Range Low
SID	155	0	Soot Level Very High
SID	155	0	Turbocharger Compressor Inlet Differential Pressure Too High (Low Box)
SID	155	1	EDV Failed Self Test

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PID/SID	J1587	FMI	
SID	155	1	Turbocharger Compressor Inlet Differential Pressure Too Low (High Box)
SID	155	2	Engine Coolant Sensor (IN); General Temp. Plausibility Error
SID	155	3	Service Push Button Circuit Failed High
SID	155	3	Compressor Differential Pressure Outlet Failed High
SID	155	3	Flap In Front of EGR Cooler Circuit Failed High
SID	155	3	Water Pump 2 Circuit Failed High
SID	155	3	Switchable Air Compressor Circuit Failed High
SID	155	3	EGR Pressure Failed High
SID	155	3	Proportional Valve Bank 1 Circuit Failed High
SID	155	3	Proportional Valve Bank 2 Circuit Failed High
SID	155	3	Compressor Differential Pressure Inlet Failed High
SID	155	3	Oil Separator Circuit Failed High
SID	155	4	Compressor Differential Pressure Outlet Failed Low
SID	155	4	Flap In Front of EGR Cooler Circuit Failed Low
SID	155	4	Water Pump 2 Circuit Failed Low
SID	155	4	Switchable Air Compressor Circuit Failed Low
SID	155	4	EGR Pressure Failed Low
SID	155	4	Proportional Valve Bank 2 Circuit Failed Low
SID	155	4	Compressor Differential Pressure Inlet Failed Low
SID	155	4	Oil Separator Circuit Failed Low
SID	155	5	Flap In Front of EGR Cooler Circuit Failed Open
SID	155	5	Switchable Air Compressor Circuit Failed Open
SID	155	5	Turbocharger Compressor Inlet Differential Pressure Sampling Range Failure
SID	155	6	Rail Pressure Governor Error; Current Too High
SID	155	6	Current Flow on HS1 IM1 Too High
SID	155	7	Smart Remote Actuator 2; Failsafe Mode; Motor On
SID	155	7	FCV Failed Self Test
SID	155	7	Oil Separator; Max. Duration Time Reached
SID	155	8	Smart Remote Actuator 2; Internal Test Running
SID	155	9	Smart Remote Actuator 2; Failsafe Mode; Motor Off
SID	155	11	Smart Remote Actuator 2; Restricted Operability
SID	155	13	Turbocharger Compressor Outlet Differential Pressure Sensor Out Of Calibration 1
SID	155	13	Turbocharger Compressor Outlet Differential Pressure Sensor Out Of Calibration 2
SID	155	13	Turbocharger Compressor Inlet Differential Pressure Sensor Out Of Calibration 1
SID	155	13	Turbocharger Compressor Inlet Differential Pressure Sensor Out Of Calibration 2
SID	155	14	Fuel Pressure Too High/Too Low
SID	155	14	Smart Remote Actuator 2; No Failsafe Mode; Motor Off
SID	155	14	Rail Pressure Governor; Valve Stays Open
SID	155	14	Rail Pressure Governor; Leakage in High Pressure Too High
SID	155	14	Rail Pressure Governor Sensor; Signal Drift
SID	155	14	Rail Pressure Governor Sensor; Sensor Supply Line Broken
SID	155	14	High Pressure Pump; Leakage or TDC Position Wrong
SID	155	15	Smart Remote Actuator 2; Temperature Warning
SID	155	15	DPF Zone 3 Condition
SID	155	15	DPF Ash Clean Request
SID	155	16	Smart Remote Actuator 2; Temperature Fault
SID	155	16	Soot Level High
SID	155	16	DPF Ash Derate Request
SID	155	31	Smart Remote Actuator 2; Unknown Error Code
SID	155	31	Cylinder 6 Misfire Detected
SID	155	31	Cylinder 7 Misfire Detected
SID	155	31	Cylinder 8 Misfire Detected
SID	155	31	DPF Zone 2 Condition
SID	155	13	20ms ECU OS Task Locked in an Endless Loop
SID	155	13	20ms ECU OS Task Timed out Prior to Completion
SID	155	13	1000ms ECU OS Task Locked in an Endless Loop

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PID/SID	J1587	FMI	
SID	155	13	1000ms ECU OS Task Timed out Prior to Completion
SID	155	14	MCM Fault Codes Unavailable via J1939 and J1587
SID	155	14	MCM Fault Code Table Inconsistant - Upgrade MCM Software
SID	155	14	Insufficient Static Fault Code Storrage Memory - Upgrade CPC Software
SID	155	14	MCM Fault Code Table Inconsistant - Upgrade MCM Software
SID	155	19	Adaptive Cruise Control Message Not Received
SID	155	9	DPF Regen Inhibit MUX Switch Message Stopped Arriving
SID	155	13	DPF Regen Inhibit MUX Switch Message Contains SNV Indicator
SID	155	14	DPF Regen Inhibit MUX Switch Message Not Received this Ign Cycle
SID	155	19	DPF Regen Inhibit MUX Switch Message Contains Data Error Indicator
SID	155	9	DPF Regen Force MUX Switch Message Stopped Arriving
SID	155	13	DPF Regen Force MUX Switch Message Contains SNV Indicator
SID	155	14	DPF Regen Force MUX Switch Message Not Received this Ign Cycle
SID	155	19	DPF Regen Force MUX Switch Message Contains Data Error Indicator
SID	156	4	Ether Start; Shorted to Ground
SID	156	5	Water Pump 2 Circuit Failed Open
SID	156	14	Misfire Detected
SID	157	3	Ether Start; Shorted to Battery
SID	157	4	RCP Test Function 1 Circuit Failed Low
SID	158	3	RCP Test Function 1 Circuit Failed High
SID	158	5	Ether Start; Open Load
SID	159	5	RCP Test Function 1 Circuit Failed Open
SID	160	4	RCP Test Function 2 Circuit Failed Low
SID	161	3	RCP Test Function 2 Circuit Failed High
SID	162	5	RCP Test Function 2 Circuit Failed Open
SID	163	4	Volute Control Valve; Shorted to Ground
PID	163	13	J1939 Transmission Current Gear Signal is missing
PID	163	19	J1939 Transmission Current Gear Signal is erratic
PID	164	3	Rail Pressure Governor Sensor Circuit Failed High
PID	164	3	Rail Pressure Governor (High Side) Error
SID	164	3	Volute Control Valve; Shorted to Battery
PID	164	4	Rail Pressure Governor Sensor Circuit Failed Low
PID	164	4	Rail Pressure Governor (Low Side) Error
PID	164	5	Rail Pressure Governor Error; Current Governor; Current Too Low
PID	164	7	Rail Pressure Governor Error; Pressure Governor; Pressure Not Plausible
PID	164	14	Rail Pressure Governor Error; Open Loop Error
SID	165	5	Volute Control Valve; Open Load
SID	166	4	Volute Shut Off Valve; Shorted to Ground
SID	167	3	Volute Shut Off Valve; Shorted to Battery
PID	168	0	Battery Voltage High
PID	168	1	Battery Voltage Low
SID	168	5	Volute Shut Off Valve; Open Load
PID	168	0	Battery Voltage Very Low
PID	168	0	Battery Voltage High
PID	168	14	Opt Idle Detected Charging System or Battery Failure
PID	168	14	ECU powerdown not completed (Main Battery Terminal Possibly Floating)
PID	168	18	Battery Voltage Low
SID	169	4	Function 30 Circuit Failed Low
SID	170	3	Function 30 Circuit Failed High
PID	171	3	Ambient Temperature Circuit Failed High
PID	171	4	Ambient Temperature Circuit Failed Low
SID	171	5	Function 30 Circuit Failed Open
PID	171	2	Ambient Temperature Sensor Data Erratic
PID	171	9	J1587 Ambient Air Temp Sensor Data Message Stopped Arriving
PID	171	14	J1587 Ambient Air Temp Sensor Data Not Received This Ign Cycle
SID	172	4	Function 31 Circuit Failed Low

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PID/SID	J1587	FMI	
SID	173	3	Function 31 Circuit Failed High
PID	174	0	Fuel Temperature Too High
PID	174	2	Fuel Temperature Sensor; General Temp. Plausibility
PID	174	3	Fuel Temperature Circuit Failed High
PID	174	4	Fuel Temperature Circuit Failed Low
SID	174	5	Function 31 Circuit Failed Open
PID	175	2	Engine Oil Temperature Sensor; General Temp. Plausibility
PID	175	3	Engine Oil Temperature Circuit Failed High
PID	175	4	Engine Oil Temperature Circuit Failed Low
PID	175	14	Engine Oil Temperature Sensor Plausibility Fault
PID	187	3	Idle Volume Sensor Shorted to Battery
PID	187	4	Idle Volume Sensor Shorted to Ground
PID	190	0	Engine Speed High
SID	203	2	Throttle inhibit switch signal not plausible due to excess vehicle speed
SID	211	3	Multiplexer 2 Channel 1; Shorted High
SID	211	3	Multiplexer 2 Channel 2; Shorted High
SID	211	3	3V Sensor Supply Bank 1 Circuit Failed High
SID	211	3	Multiplexer 3 Channel 1; Shorted High
SID	211	3	Multiplexer 3 Channel 2; Shorted High
SID	211	3	3V Sensor Supply Bank 2 Circuit Failed High
SID	211	4	3V Sensor Supply Bank 1 Circuit Failed Low
SID	211	4	3V Sensor Supply Bank 2 Circuit Failed Low
SID	211	3	Accelerator Pedal Supply Voltage Circuit Failed High
SID	211	3	Accelerator Pedal Supply Voltage Circuit Failed High
SID	211	4	Accelerator Pedal Supply Voltage Circuit Failed Low
SID	211	4	Pwm Accelerator Pedal Supply Voltage Missing
SID	212	3	5V Sensor Supply Bank 1 Circuit Failed High
SID	212	3	Multiplexer 1 Channel 1; Shorted High
SID	212	3	Multiplexer 1 Channel 2; Shorted High
SID	212	3	5V Sensor Supply Bank 2 Circuit Failed High
SID	212	4	5V Sensor Supply Bank 1 Circuit Failed Low
SID	212	4	5V Sensor Supply Bank 2 Circuit Failed Low
SID	230	2	Idle Validation Switch Inputs Reversed
SID	230	3	Idle Validation Switch 1 Circuit Failed High
SID	230	4	Idle Validation Switch 1 Circuit Failed Low
SID	230	5	Idle Validation Switch 2 Circuit Failed Low
SID	230	6	Idle Validation Switch 2 Circuit Failed High
SID	231	9	J1939 Retarder Fluid Message is missing
SID	231	9	J1939 EEC2 Message is missing
SID	231	9	J1939 ETC1 Message is missing
SID	231	13	J1939 Transmission Output Shaft Speed Signal is missing
SID	231	19	J1939 Transmission Output Shaft Speed Signal is erratic
SID	231	9	J1939 ETC2 Message is missing
SID	231	9	J1939 CCVS Message from Source #1 is missing
SID	231	9	J1939 CCVS Message from Source #2 is missing
SID	231	9	J1939 CCVS Message from Source #3 is missing
SID	231	14	J1939 Data Link Failure
SID	231	9	J1939 EBC2 Message from ABS is missing
SID	231	13	J1939 Front Axle Speed Signal is missing
SID	231	19	J1939 Front Axle Speed Signal is erratic
SID	231	9	J1939 EBC1 Message is missing
SID	231	13	J1939 Engine Retarder Selection Signal Missing
SID	231	19	J1939 Engine Retarder Selection Signal Erratic
SID	231	9	J1939 PTO Message Not Received This Ignition Cycle
SID	231	9	J1939 CM1 Message is missing
SID	231	9	Adaptive Cruise Control Device Reporting Error

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PID/SID	J1587	FMI	
SID	231	9	J1939 TCO1 Message is missing
SID	231	13	J1939 Tachograph Vehicle Speed Signal is missing
SID	231	19	J1939 Tachograph Vehicle Speed Signal is erratic
SID	231	9	J1939 ERC1 Message is missing
SID	231	9	J1939 TCFG2 Message is missing
SID	231	9	J1939 ETC7 Message is missing
SID	231	9	J1939 ESS Message is missing
SID	233	12	CPC2 Hardware Failure
SID	234	13	J1939 Park Brake Switch Signal from Source #1 is missing
SID	234	13	J1939 Park Brake Switch Signal from Source #2 is missing
SID	234	13	J1939 Park Brake Switch Signal from Source #3 is missing
SID	234	19	J1939 Park Brake Switch Signal from Source #1 is erratic
SID	234	19	J1939 Park Brake Switch Signal from Source #2 is erratic
SID	234	19	J1939 Park Brake Switch Signal from Source #3 is erratic
SID	242	13	J1939 Cruise Control Accelerate Switch Signal from Source #1 is missing
SID	242	13	J1939 Cruise Control Accelerate Switch Signal from Source #2 is missing
SID	242	13	J1939 Cruise Control Accelerate Switch Signal from Source #3 is missing
SID	242	19	J1939 Cruise Control Accelerate Switch Signal from Source #1 is erratic
SID	242	19	J1939 Cruise Control Accelerate Switch Signal from Source #2 is erratic
SID	242	19	J1939 Cruise Control Accelerate Switch Signal from Source #3 is erratic
SID	243	4	Cruise Control SET and RESUME Circuits Failed Low
SID	243	13	J1939 Cruise Control Coast Switch Signal from Source #1 is missing
SID	243	13	J1939 Cruise Control Coast Switch Signal from Source #2 is missing
SID	243	13	J1939 Cruise Control Coast Switch Signal from Source #3 is missing
SID	243	19	J1939 Cruise Control Coast Switch Signal from Source #1 is erratic
SID	243	19	J1939 Cruise Control Coast Switch Signal from Source #2 is erratic
SID	243	19	J1939 Cruise Control Coast Switch Signal from Source #3 is erratic
SID	244	13	J1939 Cruise Control Enable Switch Signal from Source #1 is missing
SID	244	13	J1939 Cruise Control Enable Switch Signal from Source #2 is missing
SID	244	13	J1939 Cruise Control Enable Switch Signal from Source #3 is missing
SID	244	19	J1939 Cruise Control Enable Switch Signal from Source #1 is erratic
SID	244	19	J1939 Cruise Control Enable Switch Signal from Source #2 is erratic
SID	244	19	J1939 Cruise Control Enable Switch Signal from Source #3 is erratic
SID	246	2	Service Brake Status Not Plausible
SID	246	13	J1939 Service Brake Switch Signal from Source #1 is missing
SID	246	13	J1939 Service Brake Switch Signal from Source #2 is missing
SID	246	13	J1939 Service Brake Switch Signal from Source #3 is missing
SID	246	19	J1939 Service Brake Switch Signal from Source #1 is erratic
SID	246	19	J1939 Service Brake Switch Signal from Source #2 is erratic
SID	246	19	J1939 Service Brake Switch Signal from Source #3 is erratic
PID	247	0	MCM Engine Hours Data higher than expected
PID	247	1	MCM Engine Hours Data lower than expected
PID	247	9	MCM Engine Hours Data not received or stopped arriving
PID	247	10	MCM Engine Hours Data increasing at an implausible rate
PID	247	14	MCM Reported Ash Mileage is Lower then the CPC Stored Value
SID	248	2	Invalid Data on Engine CAN Link
SID	248	9	No Data Received from Engine CAN Link
SID	248	9	Engine CAN Low Wire Defect - (wire 1)
SID	248	9	Engine CAN High Wire Defect - (wire 2)
SID	248	2	ECAN ID_1629 Diagnostic Message Reporting Data Not Available
SID	248	4	ECAN Link Circuit Failure
SID	248	9	ECAN ID_1629 Diagnostic Message No Longer Being Received
SID	248	9	Incorrect MCM System ID Received
SID	248	9	MCM System ID Not Received or Stopped Arriving
SID	248	10	ECAN ID_1629 Reporting Inconsistent Number of Frames
SID	248	13	ECAN ID_1629 Diagnostic Message Not Received This Ignition Cycle

ECU128 Mercedes

PID/SID	J1587	FMI	
SID	248	14	ECAN ID_1629 Diagnostic Message Reporting an Unknown MUID
SID	250	14	J1708 Data Link Failure
SID	251	4	Proportional Valve Bank 1 Circuit Failed Low
SID	253	12	EEPROM Read / Write Operation Failed
SID	253	13	Calibration Data Not Plausible
SID	253	13	Calibration Data Not Plausible (CPLD)
SID	253	2	EEPROM Checksum Failure
SID	253	2	EEPROM Checksum Failure for the SCR Block
SID	253	13	SCR Number Out of Range
SID	254	14	XFLASH Static Fault Code Memory Page Read Write Failure
SID	254	2	CPC Hardware/Software Mismatch
SID	254	12	DDEC Data Xflash Write Error. Replace CPC2.
SID	257	3	MIL Lamp Circuit Failed High
SID	257	4	MIL Lamp Circuit Failed Low
SID	257	5	MIL Lamp Circuit Failed Open
SID	257	3	Digital Output 3 16 Circuit Failed High
SID	257	4	Digital Output 3 16 Circuit Failed Low
SID	258	3	Digital Output 4 06 Circuit Failed High
SID	258	4	Digital Output 4 06 Circuit Failed Low
SID	259	3	Turbo Brake Sleeve Circuit Failed High
SID	259	4	Turbo Brake Sleeve Circuit Failed Low
SID	259	5	Turbo Brake Sleeve Circuit Failed Open
SID	259	3	Digital Output 1 05 Circuit Failed High
SID	259	4	Digital Output 1 05 Circuit Failed Low
SID	260	3	Digital Output 1 04 Circuit Failed High
SID	260	4	Digital Output 1 04 Circuit Failed Low
SID	261	3	Function 20 Circuit Failed High
SID	261	4	Function 20 Circuit Failed Low
SID	261	5	Function 20 Circuit Failed Open
SID	261	3	Digital Output 3 07 Circuit Failed High
SID	261	4	Digital Output 3 07 Circuit Failed Low
SID	261	5	Digital Output 3 07 Open Circuit
SID	261	7	TOP2 Shift Failure
SID	262	3	EGR Water Cooling Regulator Circuit Failed High
SID	262	4	EGR Water Cooling Regulator Circuit Failed Low
SID	262	5	EGR Water Cooling Regulator Circuit Failed Open
SID	262	3	Digital Output 3 08 Circuit Failed High
SID	262	4	Digital Output 3 08 Circuit Failed Low
SID	262	5	Digital Output 3 08 Open Circuit
SID	263	3	High Side Digital Output # 1 Circuit Failed High
SID	263	3	High Side Digital Output # 2 Circuit Failed Open
SID	263	4	High Side Digital Output # 1 Circuit Failed Low
SID	263	3	Digital Output 4 10 Circuit Failed High
SID	264	4	High Side Digital Output # 2 Circuit Failed Low
SID	269	0	VNT Valve Position Feedback; Position Too Low (High Box)
SID	269	1	VNT Valve Position Feedback; Position Too High (Low Box)
SID	269	2	VNT Valve Position Feedback Failed
SID	269	3	Position Waste Gate (VNT) Failed High
SID	269	4	Position Waste Gate (VNT) Failed Low
SID	269	9	Turbo Actuator (CAN3) Communication Error
SID	272	2	Charge Air Cooler Outlet Temperature Sensor Plausibility Error
SID	272	3	Charge Air Cooler Outlet Temperature Circuit Failed High
SID	272	4	Charge Air Cooler Outlet Temperature Circuit Failed Low
SID	272	20	Charge Air Outlet Temperature Drift (Low box)
SID	272	21	Charge Air Outlet Temperature Drift (High box)

ECU128 Mercedes

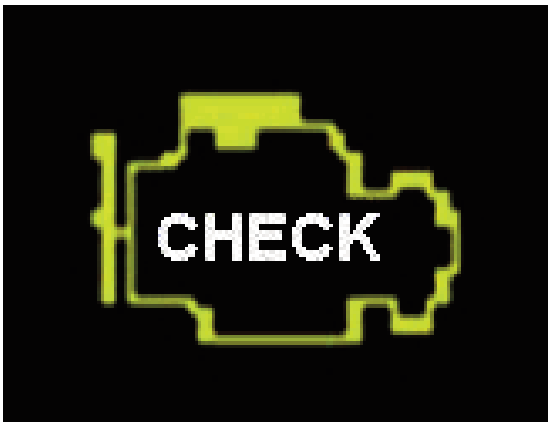
PID/SID	J1587	FMI	
SID	273	2	Turbocharger/Supercharger Boost System Performance
SID	273	3	Turbocharger Compressor Outlet Pressure Circuit Failed High
SID	273	3	Charge Air Cooler Outlet Pressure Circuit Failed High
SID	273	4	Turbocharger Compressor Outlet Pressure Circuit Failed Low
SID	273	4	Charge Air Cooler Outlet Pressure Circuit Failed Low
SID	277	0	EGR Flow Target Error Diagnostic - High Flow
SID	277	1	EGR Flow Target Error Diagnostic - Low Flow
PID	314	2	Compressor Pressure Plausibility Fault (High Box)
SID	314	3	Turbocharger Compressor Inlet Pressure Circuit Failed High
SID	314	4	Turbocharger Compressor Inlet Pressure Circuit Failed Low
PID	314	5	Compressor Inlet Pressure Plausibility Fault (Delta)
SID	314	20	Compressor Inlet Pressure Plausibility Error; Pressure Too High (High Box)
SID	317	3	Injector Needle Control Valve Cylinder 1;2;3 Shorted to Battery
SID	317	3	Injector Needle Control Valve Cylinder 4;5;6 Shorted to Battery
SID	317	3	Switching Power Supply Voltage Failed High
SID	317	3	Injector Needle Control Valve Bank 3; Shorted to Battery
SID	317	3	Injector Spill Control Valve Cylinder 1;2;3 Shorted to Battery
SID	317	3	Injector Spill Control Valve Cylinder 4;5;6 Shorted to Battery
SID	317	3	Injector Spill Control Valve ("Amplifier") Bank 6; Shorted to Battery
SID	317	4	Injector Needle Control Valve Cylinder 1; 2; 3 Shorted to Ground
SID	317	4	Injector Needle Control Valve Cylinder 4; 5; 6 Shorted to Ground
SID	317	4	Switching Power Supply Voltage Failed Low
SID	317	4	Injector Needle Control Valve Bank 3; Shorted to Ground
SID	317	4	Injector Spill Control Valve Cylinder 1; 2; 3 Shorted to Ground
SID	317	4	Injector Spill Control Valve Cylinder 4; 5; 6 Shorted to Ground
SID	317	4	Injector Spill Control Valve ("Amplifier") Bank 6; Shorted to Ground
SID	318	2	DOC Inlet Temperature Sensor - Plausibility Error
PID	318	3	DOC Inlet Temperature Circuit Failed High
PID	318	4	DOC Inlet Temperature Circuit Failed Low
SID	318	10	DOC Inlet Temperature Sensor Stuck
SID	320	0	DPF Outlet Temperature High
SID	320	2	DPF Outlet Temperature Sensor - Plausibility Error
SID	320	3	DPF Oulet Temperature Circuit Failed High
SID	320	4	DPF Oulet Temperature Circuit Failed Low
SID	320	10	DPF Outlet Temperature Sensor Stuck
SID	320	14	Abnormal DPF Temperature Rise 2
SID	322	0	DOC Outlet Temperature Too High
SID	322	2	DOC Outlet Temperature Sensor - Plausibility Error
PID	322	3	DOC Outlet Temperature Circuit Failed High
PID	322	4	DOC Outlet Temperature Circuit Failed Low
SID	322	10	DOC Outlet Temperature Sensor Stuck
PID	322	14	Abnormal DOC Temperature Rise 2
SID	322	31	Abnormal DOC Temperature Rise 1
SID	323	31	Abnormal DPF Temperature Rise 1
SID	324	0	DPF Pressure Out of Range High
SID	324	1	Active Regen Temp Out of Range Low
SID	324	1	DPF Pressure Out of Range Low
SID	324	9	Abnormal Soot Rate
SID	324	16	DPF Pressure - Out of Range High
SID	332	1	Doser Fuel Supply Pressure Abnormal
SID	332	2	Doser Fuel Line Pressure Abnormal
SID	332	2	HC-Doser Fuel Pressure Not Plausible
SID	332	3	Doser Fuel Line Pressure Sensor Circuit Failed High
SID	332	4	Doser Fuel Line Pressure Sensor Circuit Failed Low
SID	332	14	Doser FLP Sensors Failed Self Test
SID	332	14	Doser Fuel Line Pressure Failed Self Test

ECU128 Mercedes

PID/SID	J1587	FMI	
SID	333	3	HC Doser Circuit Failed High
SID	333	4	HC Doser Circuit Failed Low
SID	333	5	HC Doser Circuit Failed Open
SID	333	14	Doser Metering and Safety Unit Valve Seals Check
SID	334	3	Fuel Cut Off Valve Circuit Failed High
SID	334	4	Fuel Cut Off Valve Circuit Failed Low
SID	334	5	Fuel Cut Off Valve Circuit Failed Open
PID	351	2	Coolant Temp/Compressor Inlet Temp Plausibility Error
PID	351	2	Turbocharger Compressor Inlet Temp. Sensor; General Temp. Plausibility Error
PID	351	3	Turbocharger Compressor Inlet Temperature Circuit Failed High
PID	351	4	Turbocharger Compressor Inlet Temperature Circuit Failed Low
PID	354	3	Relative Humidity Circuit Failed High
PID	354	4	Relative Humidity Circuit Failed Low
SID	362	6	Injector Cylinder #1 Spill Control Valve ("Amplifier"); Valve Shorted Circuit
SID	362	10	Injector Cylinder #1 Spill Control Valve ("Amplifier") Abnormal Rate of Change
SID	362	14	Injector Cylinder #1 Spill Control Valve Abnormal Operation
SID	363	6	Injector Cylinder #2 Spill Control Valve ("Amplifier"); Valve Shorted Circuit
SID	363	10	Injector Cylinder #2 Spill Control Valve ("Amplifier") Abnormal Rate of Change
SID	363	14	Injector Cylinder #2 Spill Control Valve Abnormal Operation
SID	364	6	Injector Cylinder #3 Spill Control Valve ("Amplifier"); Valve Shorted Circuit
SID	364	10	Injector Cylinder #3 Spill Control Valve ("Amplifier") Abnormal Rate of Change
SID	364	14	Injector Cylinder #3 Spill Control Valve Abnormal Operation
SID	365	6	Injector Cylinder #4 Spill Control Valve ("Amplifier"); Valve Shorted Circuit
SID	365	10	Injector Cylinder #4 Spill Control Valve ("Amplifier") Abnormal Rate of Change
SID	365	14	Injector Cylinder #4 Spill Control Valve Abnormal Operation
SID	366	6	Injector Cylinder #5 Spill Control Valve ("Amplifier"); Valve Shorted Circuit
SID	366	10	Injector Cylinder #5 Spill Control Valve ("Amplifier") Abnormal Rate of Change
SID	366	14	Injector Cylinder #5 Spill Control Valve Abnormal Operation
SID	367	6	Injector Cylinder #6 Spill Control Valve ("Amplifier"); Valve Shorted Circuit
SID	367	10	Injector Cylinder #6 Spill Control Valve ("Amplifier") Abnormal Rate of Change
SID	367	14	Injector Cylinder #6 Spill Control Valve Abnormal Operation
SID	370	2	DPF Inlet Pressure Sensor Drifted High In Range Fault (High Box)
PID	370	3	DPF Inlet Pressure Circuit Failed High
PID	370	4	DPF Inlet Pressure Circuit Failed Low
SID	370	10	DPF Inlet Pressure Sensor Stuck
SID	370	20	DPF Inlet Pressure Sensor Drifted High In Range Fault (Low Box)
SID	370	21	DPF Inlet Pressure Sensor Drifted Low In Range Fault (Low Box)
SID	370	21	DPF Inlet Pressure Sensor Drifted Low In Range Fault (High Box)
SID	371	0	DPF System Back Pressure Too High
SID	371	2	DPF Outlet Pressure Sensor Plausibility Error
SID	371	2	DPF Outlet Pressure Sensor Drifted Low In Range Fault (High Box)
SID	371	3	DPF Outlet Pressure Circuit Failed High
SID	371	4	DPF Outlet Pressure Circuit Failed Low
SID	371	10	DPF Outlet Pressure Sensor Stuck
SID	371	14	DPF Outlet Pressure Sensor Drifted High In Range Fault (High Box)
SID	371	20	DPF Outlet Pressure Sensor Drifted High In Range Fault (Low Box)
SID	371	21	DPF Outlet Pressure Sensor Drifted Low In Range Fault (Low Box)
PID	372	2	Remote Accelerator Pedal Supply Voltage Out of Range
PID	372	3	Remote Accelerator Pedal Circuit Failed High
PID	372	4	Remote Accelerator Pedal Circuit Failed Low
SID	382	0	Regen Temperature - Out of Range High
SID	382	1	Regen Temperature - Out of Range Low
PID	404	2	Turbocharger Compressor Outlet Temp. Sensor; General Temp. Plausibility Error
PID	404	3	Turbocharger Compressor Outlet Temperature Circuit Failed High
PID	404	4	Turbocharger Compressor Outlet Temperature Circuit Failed Low

ECU128 Mercedes

PID/SID	J1587	FMI	
PID	404	20	Turbocharger Out Temperature; Temperature Too High (Low Box)
PID	404	21	Turbocharger Out Temperature; Temperature Too Low (High Box)
PID	411	0	EGR Differential Pressure Failed (High Box)
PID	411	1	EGR Differential Pressure Failed (Low Box)
PID	411	3	EGR Delta Pressure Sensor Circuit High
PID	411	4	EGR Delta Pressure Sensor Circuit Low
PID	411	5	EGR Sampling Range Failed
PID	411	13	EGR Delta Pressure Sensor Out Of Calibration 1
PID	411	13	EGR Delta Pressure Sensor Out Of Calibration 2
PID	412	0	EGR Temperature Very High
PID	412	2	EGR Temperature Sensor; General Temp. Plausibility Error
PID	412	3	EGR Temperature Sensor Circuit Failed High
PID	412	4	EGR Temperature Sensor Circuit Failed Low
PID	412	16	EGR Temperature Sensor / Temperature Too High
PID	412	20	EGR Temperature Drift (High Box)
PID	412	21	EGR Temperature Drift (Low Box)



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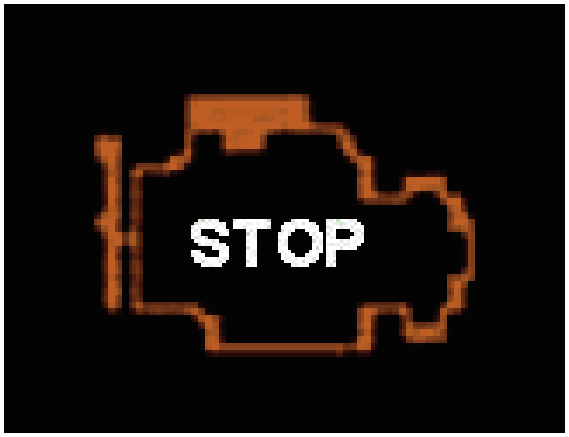
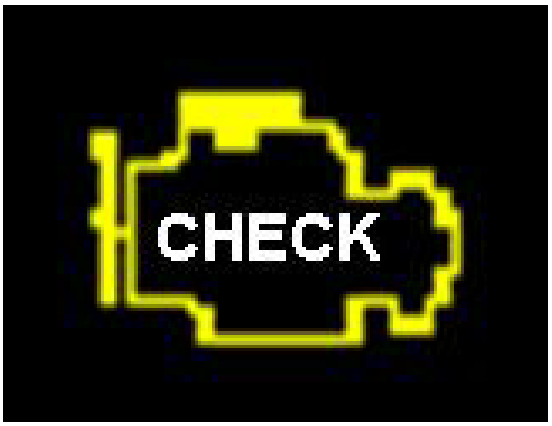
FAULT CODES



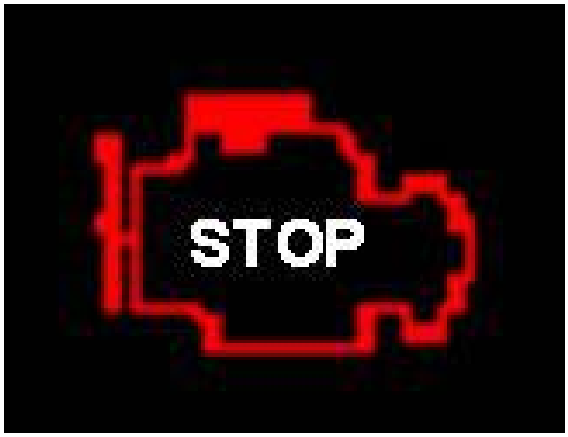
		ECU128	Cummins
PID/SID	**FMI**		
1	5	injector solenoid cyl#1	current below normal or open
2	5	injector solenoid cyl#2	current below normal or open
3	5	injector solenoid cyl#3	current below normal or open
4	5	injector solenoid cyl#4	current below normal or open
5	5	injector solenoid cyl#5	current below normal or open
6	5	injector solenoid cyl#6	current below normal or open
18	11	fuel injection control	error on fuel injection control valve
21	3	ECM failure	ecm internal temp above normal
21	4	ECM failure	ecm internal temp below normal
27	0	VGT actuator	data above normal range
27	11	VGT actuator	VGT not interpreting J1939 from ECM
27	4	EGR	EGR valve voltage below normal
27	7	VGT actuator	VGT unable to close
27	13	VGT actuator	out of calibration
27	12	VGT actuator	internal VGT failure
27	11	VGT actuator	mismatch between VGT and ECM calibration
27	9	VGT actuator	J1939 failure between VGT and ECM
33	4	fan control circuit	voltage below nornal or shorted low
33	3	fan control circuit	voltage above normal or open circuit
39	3	starter relay	voltage above normal or shorted high
39	4	starter relay	voltage below normal or shorted low
51	11	auxiliary sensor	input failure
51	14	auxiliary sensor	engine protection sensor input
64	7	speed sensor	misalignment between crank and cam speed
64	2	speed sensor	erratic/incorrect data signal from crank and cam
64	2	camshaft speed/position	erratic data signal
70	3	intake heater	voltage above normal or shorted high
70	4	intake heater	voltage below normal or shorted low
79	3	engine brake	voltage above normal or shorted high
79	4	engine brake	voltage below normal or shorted low
80	4	engine brake	voltage below normal or shorted low
80	3	engine brake	voltage above normal or shorted high
81	0	particulate trap inlet	excessive black smoke detected
84	2	wheel speed sensor	erratic/incorrect data signal
84	10	wheel speed sensor	abnornal rate of change
91	3	throttle position	voltage above normal or shorted high
91	4	throttle position	voltage below normal or open circuit
91	2	accelerator pedal	oem transmitted pedal fault
91	2	accelerator pedal	erratic data signal
97		water in fuel	data above normal range
97	3	water in fuel	voltage above normal or shorted high
97	4	water in fuel	voltage below normal or shorted low
98	2	engine oil level	erratic/incorrect data signal
98	1	engine oil level	level below normal range
98	1	engine oil level	level below normal range
98	4	engine oil level	voltage below normal or shorted low
98	0	engine oil level	level above normal range
100	3	oil pressure sensor	voltage above normal or shorted high
100	4	oil pressure sensor	voltage below normal or open circuit
100	1	oil pressure sensor	pressure below normal range
100	1	oil pressure sensor	oil pressure below protection limits
100	2	oil pressure sensor	erratic/incorrect data signal
101	0	crankcase pressure	pressure above normal range
101	0	crankcase pressure	pressure above normal range
101	3	crankcase pressure	voltage above normal or shorted high

		ECU128	Cummins
PID/SID	**FMI**		
101	4	crankcase pressure	voltage below normal or shorted low
101	2	crankcase pressure	erratic data signal
101	0	crankcase pressure	change crankcase breather
102	3	intake mfld pres sensor	voltage above normal or shorted high
102	4	intake mfld pres sensor	voltage below normal or open circuit
102	2	intake mfld pres sensor	data does not match current conditions
103	2	turbo speed	erratic/incorrect data signal
103	1	turbo speed	speed below normal range
103	0	turbo 1	turbo1 speed above normal range
103	10	turbo 1	turbo 1 speed abnormal rate of change
105	3	intake mfld tem sensor	voltage above normal or shorted high
105	4	intake mfld tem sensor	voltage below normal or open circuit
105	0	intake mfld tem sensor	temperature above protection limit
108	3	barometric pres sensor	voltage above normal or shorted high
108	4	barometric pres sensor	voltage below normal or shorted low
108	2	barometric pres sensor	erratic/incorrect data signal
110	3	coolant temp sensor	voltage above normal or shorted high
110	4	coolant temp sensor	voltage below normal or open circuit
110	0	coolant temp sensor	temperature above normal range
110	0	coolant temp sensor	temperature above protection limit
110	11	coolant temp sensor	EGR closed to reduce coolant temperature
111	3	coolant level sensor	voltage above normal or shorted high
111	4	coolant level sensor	voltage below normal or open circuit
111	1	coolant level sensor	level below normal range
111	1	coolant level sensor	level below normal range
115	11	oil change interval	change interval condition
126	4	fuel pump pressure	voltage below normal or shorted low
126	3	fuel pump pressure	voltage above normal or shorted high
126	7	fuel pump pressure	pumping imbalance or out of adjustment
126	3	electric lift pump	supply voltage high
126	4	electric lift pump	supply voltage low
131	3	Exhaust Gas Pressure	voltage above normal or shorted high
131	4	Exhaust Gas Pressure	voltage belwo normal or shorted low
131	2	Exhaust Gas Pressure	erratic data signal
145	2	cruise	erratic data signal
146	5	EGR	EGR control current below normal
146	4	EGR	EGR control current below normal
146	7	EGR	EGR control not responding,valve stuck
157	3	injector rail pressure	voltage above normal or shorted high
157	4	injector rail pressure	voltage beloe normal or shorted low
157	0	injector rail pressure	pressure above normal range
157	0	injector rail pressure	pressure above normal range
157	2	injector rail pressure	erratic/incorrect data signal
157	1	injector rail pressure	pressure below normal range
157	0	injector rail pressure	pressure above normal range
167	0	charging voltage	voltage above normal
167	1	charging voltage	voltage below normal
167	1	charging voltage	voltage below normal
168	1	ECM failure	supply voltage low
168	0	ECM failure	suply voltage high
171	3	ambient air tem sensor	voltage below normal or shorted low
171	4	ambient air tem sensor	voltage below normal or shorted low
190	2	position/speed signals	position/speed signals are incorrect/intermittent
190	0	crankshaft speed	engine speed above protection limits
190	2	crankshaft speed/position	loss of data signal
190	2	crankshaft speed	erratic data signal

		ECU128	Cummins
PID/SID	FMI		
212	4	sensor supply	voltage below normal or shorted low
212	3	sensor supply	voltage above normal or shorted high
231	9	J1939 data	not receiving J1939 data
231	13	J1939 data	J1939 configuration
231	9	J1939 data	loss of data signal
232	4	speed sensor	voltage below normal or shorted low
232	3	speed sensor	voltage above normal or shorted high
232	3	sensor supply	voltage above normal or shorted high
232	4	sensor supply	voltage below normal or shorted low
232	3	sensor supply	voltage above normal or shorted high
232	4	sensor supply	voltage below normal or shorted low
251	12	injector power supply	low voltage for injector power supply
251	2	ECM failure	igniton power lost to ecm
254	12	ECM failure	check ECM supply voltage; replace ECM
254	12	ECM failure	check ECM supply voltage; replace ECM
324	3	ATD	ATD differential pressure voltage above normal
324	4	ATD	ATD differential pressure voltage below normal
324	2	ATD	ATD differential pressure signal erratic
324	0	ATD	ATD differential pressure above limits
324	0	ATD	ATD differential pressure above limits, derate
324	0	ATD	ATD differential pressure above normal range
324	0	ATD	ATD soot load above limits
326	11	ATD	ATD temp and pressure sensors reversed
326	4	ATD	ATD temp voltage below normal or shorted low
326	3	ATD	ATD temp voltage above normal or shorted high
326	2	ATD	ATD temp erratic data
327	4	ATD	ATD temp voltage below normal or shorted low
327	3	ATD	ATD temp voltage above normal or shorted high
327	2	ATD	ATD temp erratic data
327	0	ATD	ATD temp data above normal range
327	0	ATD	ATD temp data above normal range
327	1	ATD	ATD temp does not reach limit for parked regen
327	1	ATD	ATD temp does not reach limit for parked regen
328	3	ATD	ATD temp voltage above normal or shorted high
328	4	ATD	ATD temp voltage below normal or shorted low
328	2	ATD	ATD temp data erratic
328	0	ATD	ATD temp data above normal range
328	0	ATD	ATD temp data above normal range
351	3	turbo inlet temp	voltage above normal or shorted high
351	4	turbo inlet temp	volltage below normal or shorted low
372	2	accelerator pedal	oem transmitted pedal fault
372	1	ambient air density	data below normal range
411	2	EGR	EGR delta pressure data erratic
411	1	EGR	EGR delta pressure below normal range
411	3	EGR	EGR delta pressure sensor voltage above normal
411	4	EGR	EGR delta pressure sensor voltage below normal
411	0	EGR	EGR delta pressure above normal
412	3	EGR	EGR temp sensor voltage above normal
412	4	EGR	EGR temp sensor voltage below normal
412	0	EGR	EGR temp above normal range



CATERPILLAR



		ECU128	Caterpillar
PID/SID	**FMI**		
1	11	injector solenoid cyl#1	current below normal or open
2	11	injector solenoid cyl#2	current below normal or open
3	11	injector solenoid cyl#3	current below normal or open
4	11	injector solenoid cyl#4	current below normal or open
5	11	injector solenoid cyl#5	current below normal or open
6	11	injector solenoid cyl#6	current below normal or open
22	13	ECU	speed signal calibration not performed
30	8	PTO	PTO throttle signal invalid
30	13	PTO	PTO throttle signal out of calibration
32	5	turbo wastegate solenoid	current below normal
32	6	turbo wastegate solenoid	current above normal or shorted to ground
32	11	turbo wastegate solenoid	current mismatch
41	3	8 volt supply	voltage above normal or shorted high
41	4	8 volt supply	voltage below normal or shorted low
42	11	Injection Actuation Pump	output failure
43	2	ECU	key switch
64	2	speed sensor	loss of signal
64	11	speed sensor	erratic data signal
70	5	intake heater	current beow normal
70	6	intake heater	current above normal or shorted to ground
71	1	idle	idle shutdown
71	14	PTO	PTO shutdown
84	0	vehicle speed sensor	over speed warning
84	1	vehicle speed sensor	loss of signal
84	2	vehicle speed sensor	erratic/incorrect data signal
84	8	vehicle speed sensor	signal out of normal range
84	10	vehicle speed sensor	abnornal rate of change
84	14	vehicle speed sensor	quick stop occurance
91	8	throttle position	invalid signal
91	13	throttle position	out of calibration
94	1	fuel pressure	low fuel pressure
94	3	fuel pressure	voltage above normal
94	4	fuel pressure	voltage below normal
94	11	fuel pressure	low cranking fuel pressure
96	3	fuel level	voltage above normal
96	4	fuel level	voltage below normal
100	1	oil pressure sensor	low pressure warning
100	3	oil pressure sensor	voltage above normal
100	4	oil pressure sensor	voltage below normal
100	11	oil pressure sensor	very low oil pressure
102	1	intake mfld pres sensor	low boost pressure
102	3	intake mfld pres sensor	voltage above normal or shorted high
102	4	intake mfld pres sensor	voltage below normal or open circuit
102	2	intake mfld pres sensor	data does not match current conditions
102	7	intake mfld pres sensor	not responding
105	3	intake mfld tem sensor	voltage above normal or shorted high
105	4	intake mfld tem sensor	voltage below normal or open circuit
105	0	intake mfld tem sensor	temperature above protection limit
105	11	intake mfld tem sensor	very high intake air temperature

		ECU128	Caterpillar
PID/SID	FMI		
108	3	barometric pres sensor	voltage above normal or shorted high
108	4	barometric pres sensor	voltage below normal or shorted low
108	2	barometric pres sensor	erratic/incorrect data signal
110	3	coolant temp sensor	voltage above normal or shorted high
110	4	coolant temp sensor	voltage below normal or open circuit
110	0	coolant temp sensor	temperature above normal range
110	11	coolant temp sensor	very high coolant temperature
111	2	coolant level sensor	invalid signal
111	3	coolant level sensor	voltage above normal or shorted high
111	4	coolant level sensor	voltage below normal or open circuit
111	1	coolant level sensor	level below normal range
111	11	coolant level sensor	very low coolant level
128	3	sec fuel level	voltage below normal or shorted low
128	4	sec fuel level	voltage above normal or shorted high
164	2	injection actuation pressure	erratic signal
164	3	injection actuation pressure	voltage above normal
164	4	injection actuation pressure	voltage below normal
164	0	injection actuation pressure	excessive pressure
164	11	injection actuation pressure	system failure
168	2	ECM failure	supply voltage intermittent
168	1	ECM failure	supply voltage low
168	0	ECM failure	supply voltage high
173	0	exhaust temperature	derate for high exhaust temperature
173	11	exhaust temperature	derate for very high exhaust temperature
186	4	PTO	PTO shutdown switch v oltage low
186	14	PTO	PTO shutdown switch occurance
190	0	engine speed	overspeed warning
190	2	engine speed	loos of data signal
190	11	engine speed	erratic signal
224	11	theft deterent	active signal
224	14	theft deterent	active signal when cranking
231	2	J1939 data	incorrect data fron J1939
231	11	J1939 data	J1939 configuration
231	12	J1939 data	loss of data signal
231	14	J1939 data	transmission data link derate
232	3	5 volt supply	voltage above normal
232	4	5 volt supply	voltage below normal
232	3	sensor supply	voltage above normal or shorted high
232	4	sensor supply	voltage below normal or shorted low
246	11	brake pedal switch1	switch not responding
247	11	brake pedal switch2	switch not responding
251	12	injector power supply	low voltage for injector power supply
251	2	ECM failure	igniton power lost to ecm
252	11	ECU	incorrect engine software
253	2	ECU	customer or system parameters
253	14	ECU	OEM parameter not programmed
311	14	ATD	active regeneration inhibited due to low exhaust temperature
314	3	clean gas induction	CGI pressure sensor voltage above normal
314	4	clean gas induction	CGI pressure sensor voltage below normal

		ECU128	Caterpillar
PID/SID	**FMI**		
315	2	clean gas induction	CGI temp high
315	3	clean gas induction	CGI temp sensor voltage above normal
315	4	clean gas induction	CGI temp sensor voltage below normal
316	0	clean gas induction	CGI flow rate high
316	3	clean gas induction	CGI temp sensor voltage above normal
316	4	clean gas induction	CGI temp sensor voltage below normal
316	11	clean gas induction	CGI flow rate high
316	14	clean gas induction	CGI flow rate low
317	5	clean gas induction	CGI actuator shaft current below normal
317	6	clean gas induction	CGI actuator shaft current above normal
324	0	ATD	ATD differential pressure above limits
320	0	ATD	ATD filter temperature high
320	1	ATD	ATD filter temperature high
320	11	ATD	ATD filter temperature very high
320	3	ATD	ATD filter temperature sensor voltage above normal
320	4	ATD	ATD filter temperature sensor voltage below normal
324	11	ATD	ATD differntial pressure, high filter restriction
324	3	ATD	ATD differential pressure voltage above normal
324	4	ATD	ATD differential pressure voltage below normal
324	2	ATD	ATD differential pressure signal erratic
324	1	ATD	ATD differential pressure , filter restricted
324	0	ATD	ATD differential pressure above limits
327	2	ATD	ATD exhaust gas temperature 2 data drifted high
327	3	ATD	ATD exhaust gas temperature 2 voltage above normal
327	4	ATD	ATD exhaust gas temperature 2 voltage below normal
332	3	aftertreatment fuel pressure control	aftertreatment fuel pressure sensor voltage above normal
332	4	aftertreatment fuel pressure control	aftertreatment fuel pressure sensor voltage below normal
332	11	aftertreatment fuel pressure control	aftertreatment fuel presuure high
333	5	aftertreatment fuel pressure control	ARD solenoid current abovenormal
333	6	aftertreatment fuel pressure control	ARD solenoid current above normal
334	5	aftertreatment fuel actuator	ARD solenoid current below normal
334	6	aftertreatment fuel actuator	ARD solenoid current above normal
335	5	aftertreatment ignition	ARD ignition current below normal
335	6	aftertreatment ignition	ARD ignition current above normal
336	3	aftertreatment 2 fuel pressure	sensor voltage above normal
336	4	aftertreatment 2 fuel pressure	sensor voltage below normal
336	11	aftertreatment 2 fuel pressure	fuel pressure high
341	5	aftertreatment purge air actuator	ARD purge air current below normal
341	6	aftertreatment purge air actuator	ARD purge air current above normal
349	1	aftertreatment purge air actuator	ARD purge air pressure low
349	7	aftertreatment purge air actuator	ARD purge pressure not responding
350	5	aftertreatment air pressure control	ARD solenoid current below normal
350	6	aftertreatment air pressure control	ARD solenoid current above normal
350	7	aftertreatment air pressure control	ARD solenoid not responding
356	11	ATD	ARD failed to ignite
357	11	ATD	ARD loss of ignition
360	11	aftertreatment	parked regen manually disabled
373	3	ATD secondary differntial pressure	sensor voltage above normal
373	4	ATD secondary differntial pressure	sensor voltage below normal

J1939 Fault Codes

for

EPA2010 & newer models
Saf-T-Liner HDX
Saf-T-Liner EFX
Saf-T-Liner C2

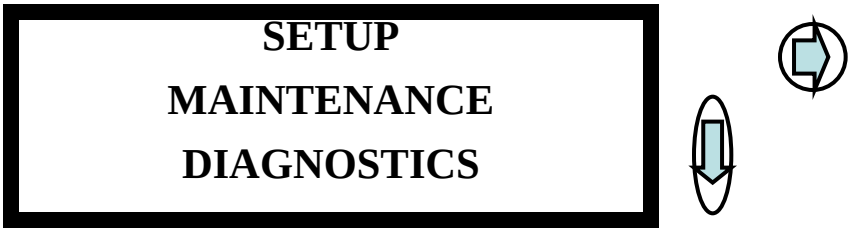
Retrieving codes HDX/EFX

- 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

Auxiliary Screens

- Diagnostics

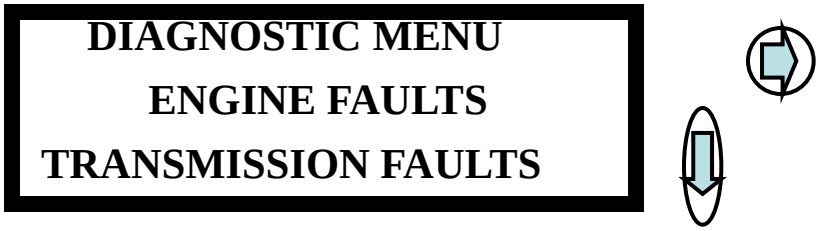


To view the DIAGNOSTICS menu, Scroll down using the down arrow to diagnostics and then press the **Right arrow**.

Once in the menu use the down arrow to scroll down and the right arrow to enter that item.

Auxiliary Screens

- Diagnostics Available



The following options are available under the DIAGNOSTICS menu.

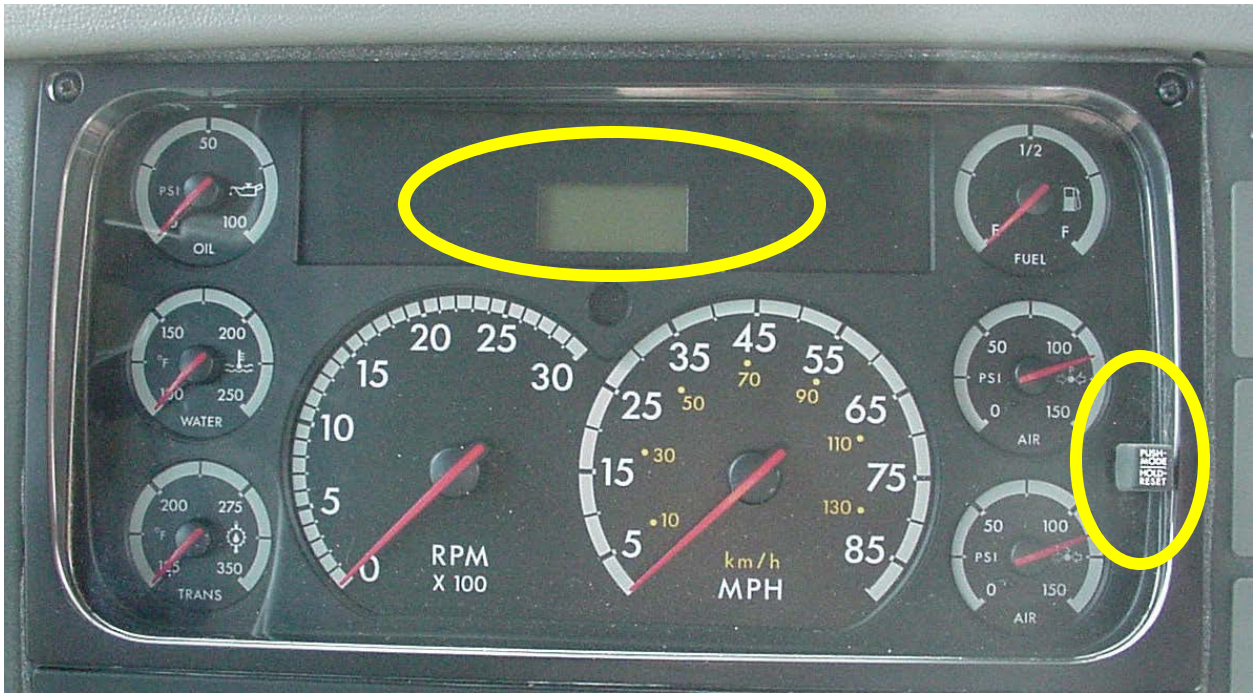
- ENGINE FAULTS
- TRANSMISSION FAULTS
- ABS FAULTS
- CHECK OUTPUTS
- CHECK DATA INPUTS
- ODOMETER DIAGNOSTICS
- CHECK GAUGES
- CHECK WARNING LAMPS
- CHECK LCD
- CHECK BINARY INPUTS
- CHECK ANALOG INPUTS
- CHECK DATA LINK
- VERSION INFORMATION
- EXIT

Retrieving codes 2010 C2

Your ICU dash will display the numbers for the modules that have an active fault.

The complete SAE fault code can be retrieved.

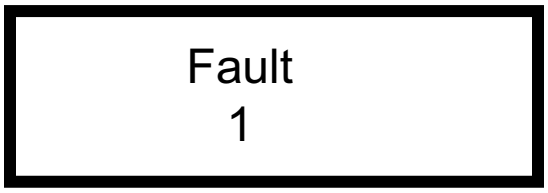
ICU dashes can not be used to clear historic fault codes.



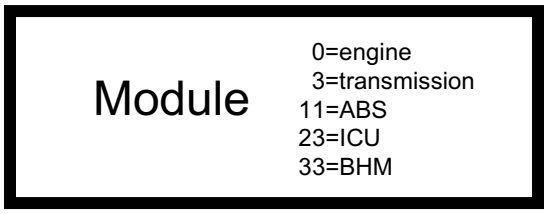
How to retrieve active fault codes
(*ICU3 and ICU4 dash models)*

1. Set parking brake
2. Ignition key to “on” position
3. Push and release mode button

4. Push and hold mode button

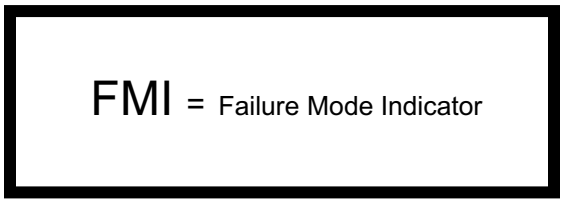


5. Push and release mode button

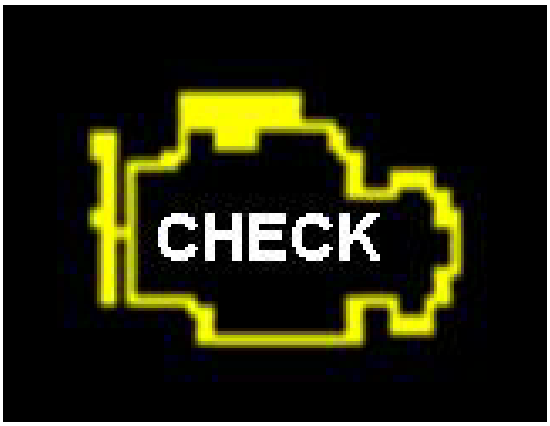


6. Push and release mode button

7. Push and release mode button



8. For multiple codes repeat steps 4-7



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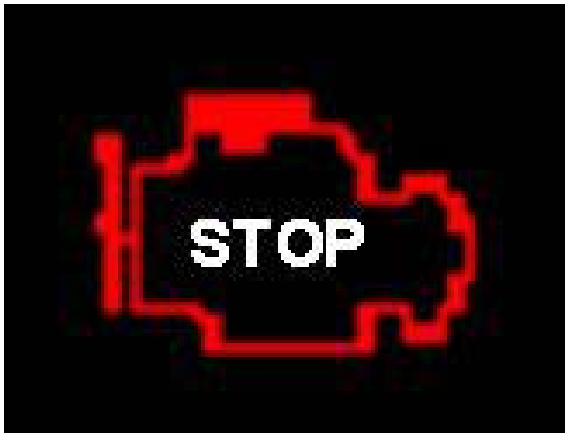
FAULT CODES



SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
27	2	Amber	Solid	Engine Exhaust Gas Recirculation 1 Valve Position Data Erratic, Intermittent Or Incorrect	1228	EGR Valve Position - Data erratic, intermittent or incorrect	X	X	X	X
27	4	Amber	Solid	Engine Exhaust Gas Recirculation 1 Valve Position Voltage Below Normal, Or Shorted To Low Source	2272	EGR Valve Position Circuit - Voltage below normal, or shorted to low source	X	X	X	X
51	2	Amber	Solid	Engine Throttle Valve 1 Position Data Erratic, Intermittent Or Incorrect	3542	Engine Intake Throttle Actuator Position Sensor - Data erratic, intermittent or incorrect			X	X
51	3	Amber	Solid	Engine Throttle Valve 1 Position Voltage Above Normal, Or Shorted To High Source	3539	Engine Intake Throttle Actuator Position Sensor Circuit - Voltage above normal, or shorted to high source			X	X
51	4	Amber	Solid	Engine Throttle Valve 1 Position Voltage Below Normal, Or Shorted To Low Source	3541	Engine Intake Throttle Actuator Position Sensor Circuit - Voltage below normal, or shorted to low source			X	X
81	16	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Intake Pressure (use SPN 3609) Data Valid But Above Normal Operating Range - Moderately Severe Level	2754	Engine Diesel Particulate Filter Intake Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level				X
84	2	None	Solid	Wheel-Based Vehicle Speed Data Erratic, Intermittent Or Incorrect	241	Wheel-Based Vehicle Speed - Data erratic, intermittent or incorrect	X	X	X	X
84	9	Amber	Solid	Wheel-Based Vehicle Speed Abnormal Update Rate	3526	Wheel-Based Vehicle Speed - Abnormal update rate	X	X	X	X
84	10	Amber	None	Wheel-Based Vehicle Speed Abnormal Rate Of Change	242	Wheel-Based Vehicle Speed Sensor Circuit tampering has been detected - Abnormal rate of change	X	X	X	X
84	19	Amber	Solid	Wheel-Based Vehicle Speed Received Network Data In Error	3525	Wheel-Based Vehicle Speed - Received Network Data In Error	X	X	X	X
91	2	Red	Solid	Accelerator Pedal Position 1 Data Erratic, Intermittent Or Incorrect	1242	Accelerator Pedal or Lever Position Sensor 1 - Data erratic, intermittent or incorrect	X	X	X	X
91	3	Red	Solid	Accelerator Pedal Position 1 Voltage Above Normal, Or Shorted To High Source	131	Accelerator Pedal or Lever Position Sensor 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
91	4	Red	Solid	Accelerator Pedal Position 1 Voltage Below Normal, Or Shorted To Low Source	132	Accelerator Pedal or Lever Position Sensor 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	X

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
91	8	Red	Solid	Accelerator Pedal Position 1 Abnormal Frequency Or Pulse Width Or Period	4289	Accelerator Pedal or Lever Position Sensor 1 Circuit Frequency - Abnormal frequency or pulse width or period	X	X	X	X
91	9	Red	Solid	Accelerator Pedal Position 1 Abnormal Update Rate	3326	SAE J1939 Multiplexed Accelerator Pedal or Lever Sensor System - Abnormal update rate	X	X	X	X
91	19	Amber	None	Accelerator Pedal Position 1 Received Network Data In Error	287	SAE J1939 Multiplexed Accelerator Pedal or Lever Sensor System - Received Network Data In Error	X	X		
91	19	Red	Solid	Accelerator Pedal Position 1 Received Network Data In Error	1515	SAE J1939 Multiplexed Accelerator Pedal or Lever Sensor System - Received Network Data In Error	X	X	X	X
95	16	Amber	None	Engine Fuel Filter Differential Pressure Data Valid But Above Normal Operating Range - Moderately Severe Level	2372	Fuel Filter Differential Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
97	3	Amber	None	Water In Fuel Indicator Voltage Above Normal, Or Shorted To High Source	428	Water in Fuel Indicator Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
97	4	Amber	None	Water In Fuel Indicator Voltage Below Normal, Or Shorted To Low Source	429	Water in Fuel Indicator Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
97	15	Maintenance	None	Water In Fuel Indicator Data Valid But Above Normal Operating Range - Least Severe Level	418	Water in Fuel Indicator - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
97	16	Amber	None	Water In Fuel Indicator Data Valid But Above Normal Operating Range - Moderately Severe Level	1852	Water in Fuel Indicator - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X		
100	1	Red	None	Engine Oil Pressure Data Valid But Below Normal Operational Range - Most Severe Level	415	Engine Oil Rifle Pressure - Data valid but below normal operational range - Most Severe Level	X	X	X	X
100	2	None	Solid	Engine Oil Pressure Data Erratic, Intermittent Or Incorrect	435	Engine Oil Rifle Pressure - Data erratic, intermittent or incorrect	X	X	X	
100	3	None	Solid	Engine Oil Pressure Voltage Above Normal, Or Shorted To High Source	135	Engine Oil Rifle Pressure 1 Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	
100	4	None	Solid	Engine Oil Pressure Voltage Below Normal, Or Shorted To Low Source	141	Engine Oil Rifle Pressure 1 Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
100	18	Amber	None	Engine Oil Pressure Data Valid But Below Normal Operating Range - Moderately Severe Level	143	Engine Oil Rifle Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	
101	0	Red	None	Engine Crankcase Pressure Data Valid But Above Normal Operational Range - Most Severe Level	556	Crankcase Pressure - Data valid but above normal operational range - Most Severe Level	X	X	X	X
101	2	None	Solid	Engine Crankcase Pressure Data Erratic, Intermittent Or Incorrect	1942	Crankcase Pressure - Data erratic, intermittent or incorrect	X	X	X	X
101	3	None	Solid	Engine Crankcase Pressure Voltage Above Normal, Or Shorted To High Source	1843	Crankcase Pressure Circuit - Voltage above normal, or shorted to high source	X	X	X	X
101	4	None	Solid	Engine Crankcase Pressure Voltage Below Normal, Or Shorted To Low Source	1844	Crankcase Pressure Circuit - Voltage below normal, or shorted to low source	X	X	X	X
101	15	Maintenance	None	Engine Crankcase Pressure Data Valid But Above Normal Operating Range - Least Severe Level	1974	Crankcase Pressure - Data Valid But Above Normal Operating Range - Least Severe Level			X	X
101	16	Amber	None	Engine Crankcase Pressure Data Valid But Above Normal Operating Range - Moderately Severe Level	555	Crankcase Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
102	2	None	Solid	Engine Intake Manifold #1 Pressure Data Erratic, Intermittent Or Incorrect	2973	Intake Manifold 1 Pressure - Data erratic, intermittent or incorrect	X	X	X	X
102	3	None	Solid	Engine Intake Manifold #1 Pressure Voltage Above Normal, Or Shorted To High Source	122	Intake Manifold 1 Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
102	4	None	Solid	Engine Intake Manifold #1 Pressure Voltage Below Normal, Or Shorted To Low Source	123	Intake Manifold 1 Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
102	10	Amber	Solid	Engine Intake Manifold #1 Pressure Abnormal Rate Of Change	3361	Intake Manifold 1 Pressure - Abnormal rate of change	X	X	X	X
102	16	None	Solid	Engine Intake Manifold #1 Pressure Data Valid But Above Normal Operating Range - Moderately Severe Level	124	Intake Manifold 1 Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X		
102	17	Amber	Solid	Engine Intake Manifold #1 Pressure Data Valid But Below Normal Operating Range - Least Severe Level	4616	Intake Manifold 1 Pressure - Data Valid But Below Normal Operating Range - Least Severe Level	X	X		

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
102	18	Amber	Solid	Engine Intake Manifold #1 Pressure Data Valid But Below Normal Operating Range - Moderately Severe Level	125	Intake Manifold 1 Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X		
103	2	Amber	None	Engine Turbocharger 1 Speed Data Erratic, Intermittent Or Incorrect	686	Turbocharger 1 Speed - Data erratic, intermittent or incorrect	X	X		
103	15	None	None	Engine Turbocharger 1 Speed Data Valid But Above Normal Operating Range - Least Severe Level	2288	Turbocharger 1 Speed - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
103	16	Amber	Solid	Engine Turbocharger 1 Speed Data Valid But Above Normal Operating Range - Moderately Severe Level	595	Turbocharger 1 Speed - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
103	18	Amber	Solid	Engine Turbocharger 1 Speed Data Valid But Below Normal Operating Range - Moderately Severe Level	687	Turbocharger 1 Speed - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
105	0	Red	None	Engine Intake Manifold 1 Temperature Data Valid But Above Normal Operational Range-Most Severe Level	155	Intake Manifold 1 Temperature - Data valid but above normal operational range - Most Severe Level	X	X	X	X
105	2	None	Solid	Engine Intake Manifold 1 Temperature Data Erratic, Intermittent Or Incorrect	436	Intake Manifold 1 Temperature - Data erratic, intermittent or incorrect	X	X	X	X
105	3	None	Solid	Engine Intake Manifold 1 Temperature Voltage Above Normal, Or Shorted To High Source	153	Intake Manifold 1 Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
105	4	None	Solid	Engine Intake Manifold 1 Temperature Voltage Below Normal, Or Shorted To Low Source	154	Intake Manifold 1 Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
105	15	None	None	Engine Intake Manifold 1 Temperature Data Valid But Above Normal Operating Range - Least Severe Level	2964	Intake Manifold 1 Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
105	18	Amber	Solid	Engine Intake Manifold 1 Temperature Data Valid But Below Normal Operating Range - Moderately Severe Level	3385	Intake Manifold 1 Temperature - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X		X
108	2	None	Solid	Barometric Pressure Data Erratic, Intermittent Or Incorrect	295	Barometric Pressure - Data erratic, intermittent or incorrect	X	X	X	X
108	3	None	Solid	Barometric Pressure Voltage Above Normal, Or Shorted To High Source	221	Barometric Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
108	4	None	Solid	Barometric Pressure Voltage Below Normal, Or Shorted To Low Source	222	Barometric Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
110	0	Red	None	Engine Coolant Temperature Data Valid But Above Normal Operational Range - Most Severe Level	151	Engine Coolant Temperature - Data valid but above normal operational range - Most Severe Level	X	X	X	X
110	2	None	Solid	Engine Coolant Temperature Data Erratic, Intermittent Or Incorrect	334	Engine Coolant Temperature - Data erratic, intermittent or incorrect	X	X	X	X
110	3	None	Solid	Engine Coolant Temperature Voltage Above Normal, Or Shorted To High Source	144	Engine Coolant Temperature 1 Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
110	4	None	Solid	Engine Coolant Temperature Voltage Below Normal, Or Shorted To Low Source	145	Engine Coolant Temperature 1 Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
110	15	None	None	Engine Coolant Temperature Data Valid But Above Normal Operating Range - Least Severe Level	2963	Engine Coolant Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
110	16	Amber	None	Engine Coolant Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	146	Engine Coolant Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
110	18	None	None	Engine Coolant Temperature Data Valid But Below Normal Operating Range - Moderately Severe Level	2789	Engine Coolant Temperature - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X		
110	31	Amber	None	Engine Coolant Temperature Condition Exists	2646	Engine Coolant Temperature - Condition Exists	X	X	X	X
110	31	None	None	Engine Coolant Temperature Condition Exists	2659	Engine Coolant Temperature - Condition Exists	X	X		
111	1	Red	None	Engine Coolant Level 1 Data Valid But Below Normal Operational Range - Most Severe Level	235	Coolant Level - Data valid but below normal operational range - Most Severe Level	X	X		
111	3	None	Solid	Engine Coolant Level Voltage Above Normal, Or Shorted To High Source	195	Coolant Level Sensor 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
111	4	None	Solid	Engine Coolant Level Voltage Below Normal, Or Shorted To Low Source	196	Coolant Level Sensor 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	X

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
111	17	Maintenance	None	Engine Coolant Level Data Valid But Below Normal Operating Range - Least Severe Level	2448	Coolant Level - Data Valid But Below Normal Operating Range - Least Severe Level	X	X	X	X
111	18	Amber	None	Engine Coolant Level Data Valid But Below Normal Operating Range - Moderately Severe Level	197	Coolant Level - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
111	18	None	Solid	Engine Coolant Level 1 Data Valid But Below Normal Operating Range - Moderately Severe Level	3366	Coolant Level - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
157	0	Red	None	Engine Injector Metering Rail 1 Pressure Data Valid But Above Normal Operational Range - Most Severe Level	449	Injector Metering Rail 1 Pressure - Data valid but above normal operational range - Most Severe Level			X	X
157	2	Amber	None	Engine Injector Metering Rail 1Pressure Data Erratic, Intermittent Or Incorrect	554	Injector Metering Rail 1 Pressure - Data erratic, intermittent or incorrect	X	X	X	X
157	3	Amber	Solid	Engine Injector Metering Rail 1 Pressure Voltage Above Normal, Or Shorted To High Source	451	Injector Metering Rail 1 Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
157	4	Amber	Solid	Engine Injector Metering Rail 1 Pressure Voltage Below Normal, Or Shorted To Low Source	452	Injector Metering Rail 1 Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
157	7	Amber	Solid	Engine Injector Metering Rail 1 Pressure Mechanical System Not Responding Or Out Of Adjustment	755	Injector Metering Rail 1 Pressure - Mechanical system not responding or out of adjustment	X	X	X	X
157	15	Amber	Solid	Engine Injector Metering Rail 1 Pressure Data Valid But Above Normal Operating Range - Least Severe Level	4727	Injector Metering Rail 1 Pressure - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
157	16	Amber	Solid	Engine Injector Metering Rail 1 Pressure Data Valid But Above Normal Operating Range - Moderately Severe Level	553	Injector Metering Rail 1 Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
157	18	Amber	Solid	Engine Injector Metering Rail 1 Pressure Data Valid But Below Normal Operating Range - Moderately Severe Level	559	Injector Metering Rail 1 Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
167	1	Red	None	Charging System Potential (Voltage) Data Valid But Below Normal Operational Range - Most Severe Level	598	Electrical Charging System Voltage - Data valid but below normal operational range - Most Severe Level	X	X	X	X
167	16	Amber	None	Charging System Potential (Voltage) Data Valid But Above Normal Operating Range - Moderately Severe Level	596	Electrical Charging System Voltage - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
167	18	Amber	None	Charging System Potential (Voltage) Data Valid But Below Normal Operating Range - Moderately Severe Level	597	Electrical Charging System Voltage - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
168	16	Amber	None	Battery Potential / Power Input 1 Data Valid But Above Normal Operating Range - Moderately Severe Level	442	Battery 1 Voltage - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
168	17	Amber	Solid	Battery Potential / Power Input 1 Data Valid But Below Normal Operating Range - Least Severe Level	3724	Battery 1 Voltage - Data Valid But Below Normal Operating Range - Least Severe Level	X	X		
168	18	Amber	None	Battery Potential / Power Input 1 Data Valid But Below Normal Operating Range - Moderately Severe Level	441	Battery 1 Voltage - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
171	2	None	Solid	Ambient Air Temperature Data Erratic, Intermittent Or Incorrect	2398	Ambient Air Temperature - Data erratic, intermittent or incorrect	X	X	X	X
171	3	None	Solid	Ambient Air Temperature Voltage Above Normal, Or Shorted To High Source	249	Ambient Air Temperature Sensor 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
171	4	None	Solid	Ambient Air Temperature Voltage Below Normal, Or Shorted To Low Source	256	Ambient Air Temperature Sensor 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
171	9	Amber	Solid	Ambient Air Temperature Abnormal Update Rate	3531	Ambient Air Temperature - Abnormal update rate			X	X
171	19	Amber	None	Ambient Air Temperature Received Network Data In Error	3532	Ambient Air Temperature - Received Network Data In Error			X	X
173	18	Amber	Solid	Engine Exhaust Gas Temperature Data Valid But Below Normal Operating Range - Moderately Severe Level	4611	Engine Exhaust Gas Temperature - Data Valid But Below Normal Operating Range - Moderately Severe Level				X
174	2	Amber	Solid	Engine Fuel Temperature 1 Data Erratic, Intermittent Or Incorrect	535	Engine Fuel Temperature - Data erratic, intermittent or incorrect	X	X		
175	0	Red	None	Engine Oil Temperature 1 Data Valid But Above Normal Operational Range - Most Severe Level	214	Engine Oil Temperature - Data valid but above normal operational range - Most Severe Level	X	X		
175	2	None	Solid	Engine Oil Temperature 1 Data Erratic, Intermittent Or Incorrect	425	Engine Oil Temperature - Data erratic, intermittent or incorrect	X	X		

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
175	3	None	Solid	Engine Oil Temperature 1 Voltage Above Normal, Or Shorted To High Source	212	Engine Oil Temperature Sensor 1 Circuit - Voltage above normal, or shorted to high source	X	X		
175	4	None	Solid	Engine Oil Temperature 1 Voltage Below Normal, Or Shorted To Low Source	213	Engine Oil Temperature Sensor 1 Circuit - Voltage below normal, or shorted to low source	X	X		
175	16	Amber	None	Engine Oil Temperature 1 Data Valid But Above Normal Operating Range - Moderately Severe Level	421	Engine Oil Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X		
188	16	Amber	Solid	Engine Speed At Idle, Point 1 (Engine Configuration) Data Valid But Above Normal Operating Range - Moderately Severe Level	3715	Engine Speed At Idle - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
188	18	Amber	Solid	Engine Speed At Idle, Point 1 (Engine Configuration) Data Valid But Below Normal Operating Range - Moderately Severe Level	3716	Engine Speed At Idle - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
190	0	Red	None	Engine Speed Data Valid But Above Normal Operational Range - Most Severe Level	234	Engine Crankshaft Speed/Position - Data valid but above normal operational range - Most Severe Level	X	X	X	X
190	2	None	Solid	Engine Speed Data Erratic, Intermittent Or Incorrect	689	Engine Crankshaft Speed/Position - Data erratic, intermittent or incorrect	X	X	X	X
190	2	None	Solid	Engine Speed Data Erratic, Intermittent Or Incorrect	2321	Engine Crankshaft Speed/Position - Data erratic, intermittent or incorrect	X	X	X	X
190	16	Amber	None	Engine Speed Data Valid But Above Normal Operating Range - Moderately Severe Level	2468	Engine Crankshaft Speed/Position - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
191	9	None	Solid	Transmission Output Shaft Speed Abnormal Update Rate	3328	Transmission Output Shaft Speed - Abnormal update rate	X	X	X	X
191	19	None	Solid	Transmission Output Shaft Speed Received Network Data In Error	3418	Transmission Output Shaft Speed - Received Network Data In Error	X	X	X	X
237	13	Amber	Solid	Vehicle Identification Number Out Of Calibration	4517	Vehicle Identification Number - Out of Calibration	X	X	X	X
251	2	Maintenance	Solid	Time Data Erratic, Intermittent Or Incorrect	319	Real Time Clock - Data erratic, intermittent or incorrect				X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
251	10	Amber	Solid	Time Abnormal Rate Of Change	3492	Real Time Clock - Abnormal rate of change	X	X	X	X
411	2	None	Solid	Engine Exhaust Gas Recirculation 1 Differential Pressure Data Erratic, Intermittent Or Incorrect	1866	Exhaust Gas Recirculation Differential Pressure - Data erratic, intermittent or incorrect	X	X	X	X
411	3	Amber	Solid	Engine Exhaust Gas Recirculation 1 Differential Pressure Voltage Above Normal, Or Shorted To High Source	2273	Exhaust Gas Recirculation Differential Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
411	4	Amber	Solid	Engine Exhaust Gas Recirculation 1 Differential Pressure Voltage Below Normal, Or Shorted To Low Source	2274	Exhaust Gas Recirculation Differential Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
412	2	None	Solid	Engine Exhaust Gas Recirculation 1 Temperature Data Erratic, Intermittent Or Incorrect	1867	Exhaust Gas Recirculation Temperature - Data erratic, intermittent or incorrect	X	X	X	X
412	3	None	Solid	Engine Exhaust Gas Recirculation 1 Temperature Voltage Above Normal, Or Shorted To High Source	2375	Exhaust Gas Recirculation Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
412	4	None	Solid	Engine Exhaust Gas Recirculation 1 Temperature Voltage Below Normal, Or Shorted To Low Source	2376	Exhaust Gas Recirculation Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
412	15	None	None	Engine Exhaust Gas Recirculation 1 Temperature Data Valid But Above Normal Operating Range - Least Severe Level	2961	Exhaust Gas Recirculation Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
412	16	Amber	None	Engine Exhaust Gas Recirculation 1 Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	2962	Exhaust Gas Recirculation Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
521	12	Amber	None	Brake Pedal Position Data erratic, intermittent, or incorrect	4526	Brake Pedal Position Data erratic, intermittent, or incorrect	X	X	X	X
558	9	Red	Solid	Accelerator Pedal 1 Low Idle Switch Abnormal Update Rate	3528	Accelerator Pedal or Lever Idle Validation Switch - Abnormal update rate	X	X	X	X
558	19	Red	Solid	Accelerator Pedal 1 Low Idle Switch Received Network Data In Error	3527	Accelerator Pedal or Lever Idle Validation Switch - Received Network Data In Error	X	X	X	X
563	9	Amber	None	Anti-Lock Braking (ABS) Active Abnormal Update Rate	3488	Anti-Lock Braking (ABS) Controller - Abnormal update rate	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
563	31	None	None	Anti-Lock Braking (ABS) Active Condition Exists	4215	Anti-Lock Braking (ABS) Active - Condition Exists	X	X	X	X
597	9	Amber		Brake Switch Abnormal Update Rate	3327	Brake Switch Circuit - Abnormal update rate	X	X		
612	2	Red	Solid	System Diagnostic Code #2 Data Erratic, Intermittent Or Incorrect	115	Engine Magnetic Speed/Position Lost Both of Two Signals - Data erratic, intermittent or incorrect	X	X	X	X
626	3	Amber	None	Engine Start Enable Device 1 Voltage Above Normal, Or Shorted To High Source	2738	Start Enable Device 1 Circuit (Ether Injection) - Voltage above normal, or shorted to high source	X	X		
626	4	Amber	None	Engine Start Enable Device 1 Voltage Below Normal, Or Shorted To Low Source	2739	Start Enable Device 1 Circuit (Ether Injection) - Voltage below normal, or shorted to low source	X	X		
629	12	Red	Solid	Controller #1 Bad Intelligent Device Or Component	111	Engine Control Module Critical Internal Failure - Bad intelligent device or component	X	X	X	X
629	12	None	Solid	Controller #1 Bad Intelligent Device Or Component	343	Engine Control Module Warning Internal Hardware Failure - Bad intelligent device or component	X	X	X	X
630	12	Amber	None	Calibration Memory Bad Intelligent Device Or Component	346	Engine Control Module Calibration Memory Software - Bad intelligent device or component	X	X	X	X
630	12	Red	Solid	Calibration Memory Bad Intelligent Device Or Component	3697	Engine Control Module Calibration Memory - Bad intelligent device or component	X	X	X	X
633	31	Amber	Solid	Engine Fuel Actuator 1 Control Command Condition Exists	2311	Electronic Fuel Injection Control Valve Circuit - Condition Exists	X	X	X	X
639	9	Amber	None	J1939 Network #1, Primary Vehicle Network (previously SAE J1939 Data Link) Abnormal Update Rate	285	SAE J1939 Multiplexing PGN Timeout Error - Abnormal update rate	X	X	X	X
639	9	None	None	J1939 Network #1, Primary Vehicle Network (previously SAE J1939 Data Link) Abnormal Update Rate	427	SAE J1939 Datalink - Abnormal update rate	X	X	X	X
639	13	Amber	None	J1939 Network #1, Primary Vehicle Network (previously SAE J1939 Data Link) Out Of Calibration	286	SAE J1939 Multiplexing Configuration Error - Out of Calibration	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
641	7	Amber	Solid	Engine Variable Geometry Turbocharger Actuator #1 Mechanical System Not Responding Or Out Of Adjustment	2387	VGT Actuator Driver Circuit (Motor) - Mechanical system not responding or out of adjustment	X	X	X	X
641	9	Red	Solid	Engine Variable Geometry Turbocharger Actuator #1 Abnormal Update Rate	2636	VGT Actuator Driver Circuit - Abnormal update rate	X	X	X	X
641	11	Amber	Solid	Engine Variable Geometry Turbocharger Actuator #1 Root Cause Not Known	2198	VGT Actuator Driver Circuit - Root Cause Not Known	X	X	X	X
641	12	Red	Solid	Engine Variable Geometry Turbocharger Actuator #1 Bad Intelligent Device Or Component	2634	VGT Actuator Controller - Bad intelligent device or component	X	X	X	X
641	13	Amber	Solid	Engine Variable Geometry Turbocharger Actuator #1 Out Of Calibration	1898	VGT Actuator Controller - Out of Calibration	X	X	X	X
641	13	Red	Solid	Engine Variable Geometry Turbocharger Actuator #1 Out Of Calibration	2449	VGT Actuator Controller - Out of Calibration	X	X	X	X
641	15	Amber	None	Engine Variable Geometry Turbocharger Actuator #1 Data Valid But Above Normal Operating Range - Least Severe Level	1962	VGT Actuator Driver Over Temperature (Calculated) - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
641	31	Red	Solid	Engine Variable Geometry Turbocharger Actuator #1 Condition Exists	2635	VGT Actuator Driver Circuit - Condition Exists	X	X	X	X
647	3	None	None	Engine Fan Clutch 1 Output Device Driver Voltage Above Normal, Or Shorted To High Source	2377	Fan Control Circuit - Voltage above normal, or shorted to high source	X	X	X	X
647	4	None	None	Engine Fan Clutch 1 Output Device Driver Voltage Below Normal, Or Shorted To Low Source	245	Fan Control Circuit - Voltage below normal, or shorted to low source	X	X	X	X
651	5	None	Solid	Engine Injector Cylinder #01 Current Below Normal Or Open Circuit	322	Injector Solenoid Driver Cylinder 1 Circuit - Current below normal or open circuit	X	X	X	X
651	7	Amber	Solid	Engine Injector Cylinder #01 Mechanical System Not Responding Or Out Of Adjustment	1139	Injector Solenoid Driver Cylinder 1 - Mechanical system not responding or out of adjustment	X	X	X	X
652	5	None	Solid	Engine Injector Cylinder #02 Current Below Normal Or Open Circuit	331	Injector Solenoid Driver Cylinder 2 Circuit - Current below normal or open circuit	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
652	7	Amber	Solid	Engine Injector Cylinder #02 Mechanical System Not Responding Or Out Of Adjustment	1141	Injector Solenoid Driver Cylinder 2 - Mechanical system not responding or out of adjustment	X	X	X	X
653	5	None	Solid	Engine Injector Cylinder #03 Current Below Normal Or Open Circuit	324	Injector Solenoid Driver Cylinder 3 Circuit - Current below normal or open circuit	X	X	X	X
653	7	Amber	Solid	Engine Injector Cylinder #03 Mechanical System Not Responding Or Out Of Adjustment	1142	Injector Solenoid Driver Cylinder 3 - Mechanical system not responding or out of adjustment	X	X	X	X
654	5	None	Solid	Engine Injector Cylinder #04 Current Below Normal Or Open Circuit	332	Injector Solenoid Driver Cylinder 4 Circuit - Current below normal or open circuit	X	X	X	X
654	7	Amber	Solid	Engine Injector Cylinder #04 Mechanical System Not Responding Or Out Of Adjustment	1143	Injector Solenoid Driver Cylinder 4 - Mechanical system not responding or out of adjustment	X	X	X	X
655	5	None	Solid	Engine Injector Cylinder #05 Current Below Normal Or Open Circuit	323	Injector Solenoid Driver Cylinder 5 Circuit - Current below normal or open circuit	X	X	X	X
655	7	Amber	Solid	Engine Injector Cylinder #05 Mechanical System Not Responding Or Out Of Adjustment	1144	Injector Solenoid Driver Cylinder 5 - Mechanical system not responding or out of adjustment	X	X	X	X
656	5	None	Solid	Engine Injector Cylinder #06 Current Below Normal Or Open Circuit	325	Injector Solenoid Driver Cylinder 6 Circuit - Current below normal or open circuit	X	X	X	X
656	7	Amber	Solid	Engine Injector Cylinder #06 Mechanical System Not Responding Or Out Of Adjustment	1145	Injector Solenoid Driver Cylinder 6 - Mechanical system not responding or out of adjustment	X	X	X	X
677	3	Amber	None	Engine Starter Motor Relay Voltage Above Normal, Or Shorted To High Source	584	Starter Relay Driver Circuit - Voltage above normal, or shorted to high source	X	X	X	X
677	4	Amber	None	Engine Starter Motor Relay Voltage Below Normal, Or Shorted To Low Source	585	Starter Relay Driver Circuit - Voltage below normal, or shorted to low source	X	X	X	X
723	2	None	Solid	Engine Speed 2 Data Erratic, Intermittent Or Incorrect	778	Engine Camshaft Speed / Position Sensor - Data erratic, intermittent or incorrect	X	X	X	X
723	2	None	Solid	Engine Speed 2 Data Erratic, Intermittent Or Incorrect	2322	Engine Camshaft Speed / Position Sensor - Data erratic, intermittent or incorrect	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
723	7	Amber	Solid	Engine Speed 2 Mechanical System Not Responding Or Out Of Adjustment	731	Engine Speed / Position Camshaft and Crankshaft Misalignment - Mechanical system not responding or out of adjustment	X	X	X	X
729	3	Amber	Solid	Engine Intake Air Heater Driver #1 Voltage Above Normal, Or Shorted To High Source	2555	Engine Intake Air Heater 1 Circuit - Voltage above normal, or shorted to high source			X	X
729	4	Amber	Solid	Engine Intake Air Heater Driver #1 Voltage Below Normal, Or Shorted To Low Source	2556	Engine Intake Air Heater 1 Circuit - Voltage below normal, or shorted to low source			X	X
729	5	Amber	Solid	Engine Intake Air Heater Driver #1 Current Below Normal Or Open Circuit	383	Engine Intake Air Heater 1 Circuit - Current below normal or open circuit			X	X
748	9	Amber	None	Transmission Output Retarder Abnormal Update Rate	3641	Transmission Output Retarder - Abnormal update rate				X
862	3	Amber	None	Heater Circuit #09 Voltage Above Normal, Or Shorted To High Source	3733	Crankcase Breather Filter Heater Circuit - Voltage above normal, or shorted to high source	X	X		
862	4	Amber	None	Heater Circuit #09 Voltage Below Normal, Or Shorted To Low Source	3734	Crankcase Breather Filter Heater Circuit - Voltage below normal, or shorted to low source	X	X		
974	3	Red	None	Remote Accelerator Pedal Position Voltage Above Normal, Or Shorted To High Source	133	Remote Accelerator Pedal or Lever Position Sensor 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
974	4	Red	None	Remote Accelerator Pedal Position Voltage Below Normal, Or Shorted To Low Source	134	Remote Accelerator Pedal or Lever Position Sensor 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
974	19	Red	None	Remote Accelerator Pedal Position Received Network Data In Error	288	SAE J1939 Multiplexing Remote Accelerator Pedal or Lever Position Sensor System - Received Network Data In Error	X	X		
1072	3	Amber	None	Engine (Compression) Brake Output #1 Voltage Above Normal, Or Shorted To High Source	2182	Engine Brake Actuator Driver 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	
1072	4	Amber	None	Engine (Compression) Brake Output #1 Voltage Below Normal, Or Shorted To Low Source	2183	Engine Brake Actuator Driver 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	
1073	3	Amber	None	Engine (Compression) Brake Output #2 Voltage Above Normal, Or Shorted To High Source	2367	Engine Brake Actuator Driver Output 2 Circuit - Voltage above normal, or shorted to high source	X	X	X	

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
1073	4	Amber	None	Engine (Compression) Brake Output #2 Voltage Below Normal, Or Shorted To Low Source	2363	Engine Brake Actuator Driver Output 2 Circuit - Voltage below normal, or shorted to low source	X	X	X	
1075	3	Amber	None	Engine Electric Lift Pump for Engine Fuel Supply Voltage Above Normal, Or Shorted To High Source	2265	Electric Lift Pump for Engine Fuel Supply Circuit - Voltage above normal, or shorted to high source	X	X	X	
1075	4	Amber	None	Engine Electric Lift Pump for Engine Fuel Supply Voltage Below Normal, Or Shorted To Low Source	2266	Electric Lift Pump for Engine Fuel Supply Circuit - Voltage below normal, or shorted to low source	X	X	X	
1081	7	Amber	Solid	Engine Wait to Start Lamp Mechanical System Not Responding Or Out Of Adjustment	3494	Engine Wait to Start Lamp - Mechanical system not responding or out of adjustment			X	X
1081	9	Amber	Solid	Engine Wait to Start Lamp Abnormal Update Rate	3555	Engine Wait to Start Lamp - Abnormal update rate			X	X
1081	19	Amber	Solid	Engine Wait to Start Lamp Received Network Data In Error	3556	Engine Wait to Start Lamp - Received Network Data In Error			X	X
1081	31	Amber	Solid	Engine Wait to Start Lamp Condition Exists	4252	Engine Wait to Start Lamp - Condition Exists			X	X
1136	2	None	None	Engine ECU Temperature Data Erratic, Intermittent Or Incorrect	699	Engine ECU Temperature - Data erratic, intermittent or incorrect	X	X		
1136	3	None	None	Engine ECU Temperature Voltage Above Normal, Or Shorted To High Source	697	Engine ECU Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X		
1136	4	None	None	Engine ECU Temperature Voltage Below Normal, Or Shorted To Low Source	698	Engine ECU Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X		
1172	2	None	Solid	Engine Turbocharger 1 Compressor Intake Temperature Data Erratic, Intermittent Or Incorrect	693	Turbocharger 1 Compressor Intake Temperature - Data erratic, intermittent or incorrect	X	X		
1172	3	None	Solid	Engine Turbocharger 1 Compressor Intake Temperature Voltage Above Normal, Or Shorted To High Source	691	Turbocharger 1 Compressor Intake Temperature Circuit - Voltage above normal, or shorted to high source	X	X		
1172	4	None	Solid	Engine Turbocharger 1 Compressor Intake Temperature Voltage Below Normal, Or Shorted To Low Source	692	Turbocharger 1 Compressor Intake Temperature Circuit - Voltage below normal, or shorted to low source	X	X		

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
1176	1	Red	Solid	Engine Turbocharger 1 Compressor Intake Pressure Data Valid But Below Normal Operational Range - Most Severe Level	3348	Turbocharger 1 Compressor Intake Pressure - Data valid but below normal operational range - Most Severe Level	X	X		X
1176	18	Amber	None	Engine Turbocharger 1 Compressor Intake Pressure Data Valid But Below Normal Operating Range - Moderately Severe Level	629	Turbocharger 1 Compressor Intake Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X		
1209	2	None	Solid	Engine Exhaust Gas Pressure Data Erratic, Intermittent Or Incorrect	2554	Exhaust Gas Pressure 1 - Data erratic, intermittent or incorrect	X	X	X	X
1209	3	None	Solid	Engine Exhaust Gas Pressure Voltage Above Normal, Or Shorted To High Source	2373	Exhaust Gas Pressure Sensor 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
1209	4	None	Solid	Engine Exhaust Gas Pressure Voltage Below Normal, Or Shorted To Low Source	2374	Exhaust Gas Pressure Sensor 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
1209	16	Amber	None	Engine Exhaust Gas Pressure Data Valid But Above Normal Operating Range - Moderately Severe Level	2764	Exhaust Gas Pressure 1 - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X		
1209	18	Amber	Solid	Engine Exhaust Gas Pressure 1 Data Valid But Below Normal Operating Range - Moderately Severe Level	4728	Exhaust Gas Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
1213	9	Amber	None	Malfunction Indicator Lamp Abnormal Update Rate	3535	Malfunction Indicator Lamp - Abnormal update rate				X
1239	16	Amber	Solid	Engine Fuel Leakage 1 Data Valid But Above Normal Operating Range - Moderately Severe Level	4726	Engine Fuel Leakage - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
1267	3	Amber	None	Idle Shutdown Vehicle Accessories Relay Driver Circuit Voltage Above Normal, Or Shorted To High Source	338	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage above normal, or shorted to high source	X	X	X	X
1267	4	Amber	None	Idle Shutdown Vehicle Accessories Relay Driver Circuit Voltage Below Normal, Or Shorted To Low Source	339	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage below normal, or shorted to low source	X	X	X	X
1322	31	Amber	Solid	Engine Misfire for Multiple Cylinders Condition Exists	1718	Engine Misfire for Multiple Cylinders - Condition Exists	X	X	X	X
1323	31	Amber	Solid	Engine Misfire Cylinder #1 Condition Exists	1654	Engine Misfire Cylinder 1 - Condition Exists	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
1324	31	Amber	Solid	Engine Misfire Cylinder #2 Condition Exists	1655	Engine Misfire Cylinder 2 - Condition Exists	X	X	X	X
1325	31	Amber	Solid	Engine Misfire Cylinder #3 Condition Exists	1656	Engine Misfire Cylinder 3 - Condition Exists	X	X	X	X
1326	31	Amber	Solid	Engine Misfire Cylinder #4 Condition Exists	1657	Engine Misfire Cylinder 4 - Condition Exists	X	X	X	X
1327	31	Amber	Solid	Engine Misfire Cylinder #5 Condition Exists	1658	Engine Misfire Cylinder 5 - Condition Exists	X	X	X	X
1328	31	Amber	Solid	Engine Misfire Cylinder #6 Condition Exists	1659	Engine Misfire Cylinder 6 - Condition Exists	X	X	X	X
1347	3	None	Solid	Engine Fuel Pump Pressurizing Assembly #1 Voltage Above Normal, Or Shorted To High Source	272	Engine Fuel Pump Pressurizing Assembly 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
1347	4	None	Solid	Engine Fuel Pump Pressurizing Assembly #1 Voltage Below Normal, Or Shorted To Low Source	271	Engine Fuel Pump Pressurizing Assembly 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
1347	7	Amber	None	Engine Fuel Pump Pressurizing Assembly #1 Mechanical System Not Responding Or Out Of Adjustment	281	Engine Fuel Pump Pressurizing Assembly 1 - Mechanical system not responding or out of adjustment	X	X	X	X
1349	3	Amber	Solid	Engine Injector Metering Rail 2 Pressure Voltage Above Normal, Or Shorted To High Source	483	Injector Metering Rail 2 Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
1349	4	Amber	Solid	Engine Injector Metering Rail 2 Pressure Voltage Below Normal, Or Shorted To Low Source	484	Injector Metering Rail 2 Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
1378	31	Maintenance	None	Engine Oil Change Interval Condition Exists	649	Engine Oil Change Interval - Condition Exists	X	X	X	X
1569	31	Amber	None	Engine Protection Torque Derate Condition Exists	3714	Engine Protection Torque Derate - Condition Exists	X	X	X	X
1590	2	None	None	Adaptive Cruise Control Mode Data Erratic, Intermittent Or Incorrect	784	Adaptive Cruise Control Mode - Data erratic, intermittent or incorrect	X	X	X	X

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
1623	9	None	None	Tachograph output shaft speed Abnormal Update Rate	3186	Tachograph Output Shaft Speed - Abnormal update rate	X	X	X	X
1623	19	None	None	Tachograph output shaft speed Received Network Data In Error	3213	Tachograph Output Shaft Speed - Received Network Data In Error	X	X	X	X
1632	14	Amber	Solid	Engine Torque Limit Feature Special Instructions	2998	Engine Torque Limit Feature - Special Instructions				X
1634	13	Amber	None	Calibration Verification Number Out Of Calibration	2416	Engine Control Module Calibration Memory Checksum - Out of Calibration	X	X		
1675	31	None	None	Engine Starter Mode Condition Exists	3737	Engine Starter Mode Overcrank Protection - Condition Exists	X	X	X	X
1761	1	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Data Valid But Below Normal Operational Range - Most Severe Level	1673	Aftertreatment 1 Diesel Exhaust Fluid Tank Level - Data valid but below normal operational range - Most Severe Level	X	X	X	X
1761	3	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Voltage Above Normal, Or Shorted To High Source	1669	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
1761	4	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Voltage Below Normal, Or Shorted To Low Source	1668	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
1761	5	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Current Below Normal Or Open Circuit	4679	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor Circuit - Current below normal or open circuit	X	X		X
1761	6	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Current Above Normal Or Grounded Circuit	4738	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor Circuit - Current above normal or grounded circuit	X	X	X	X
1761	10	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Abnormal Rate Of Change	4769	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor - Abnormal Rate of Change	X	X		
1761	11	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Root Cause Not Known	4739	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor - Root Cause Not Known	X	X	X	X
1761	13	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Out Of Calibration	4732	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor - Out of Calibration	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
1761	17	Maintenance	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Data Valid But Below Normal Operating Range - Least Severe Level	3497	Aftertreatment 1 Diesel Exhaust Fluid Tank Level - Data Valid But Below Normal Operating Range - Least Severe Level	X	X	X	X
1761	18	Maintenance	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Data Valid But Below Normal Operating Range - Moderately Severe Level	3498	Aftertreatment 1 Diesel Exhaust Fluid Tank Level - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
1818	31	None	None	ROP Brake Control active Condition Exists	3374	Roll Over Protection Brake Control Active - Condition Exists	X	X	X	X
2623	3	Amber	Solid	Accelerator Pedal #1 Channel 2 Voltage Above Normal, Or Shorted To High Source	1239	Accelerator Pedal or Lever Position Sensor 2 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
2623	4	Amber	Solid	Accelerator Pedal #1 Channel 2 Voltage Below Normal, Or Shorted To Low Source	1241	Accelerator Pedal or Lever Position Sensor 2 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
2623	8	Amber	Solid	Accelerator Pedal #1 Channel 2 Abnormal Frequency Or Pulse Width Or Period	4149	Accelerator Pedal or Lever Position Sensor 2 Circuit Frequency - Abnormal frequency or pulse width or period	X	X	X	X
2629	15	None	None	Engine Turbocharger 1 Compressor Outlet Temperature Data Valid But Above Normal Operating Range - Least Severe Level	2347	Turbocharger Compressor Outlet Temperature (Calculated) - Data Valid But Above Normal Operating Range - Least Severe Level	X	X		
2633	7	None	None	Engine Variable Geometry Turbocharger (VGT) 1 Nozzle Position Mechanical System Not Responding Or Out Of Adjustment	3616	Engine VGT Nozzle Position - Mechanical system not responding or out of adjustment	X	X	X	X
2634	3	Amber	Solid	Power Relay Voltage Above Normal, Or Shorted To High Source	1776	Power Relay Driver Circuit - Voltage above normal, or shorted to high source				X
2634	4	Amber	Solid	Power Relay Voltage Below Normal, Or Shorted To Low Source	1777	Power Relay Driver Circuit - Voltage below normal, or shorted to low source				X
2789	15	None	None	Engine Turbocharger 1 Calculated Turbine Intake Temperature Data Valid But Above Normal Operating Range - Least Severe Level	2346	Turbocharger Turbine Intake Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X		
2789	16	None	None	Engine Turbocharger 1 Calculated Turbine Intake Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	2451	Turbocharger Turbine Intake Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X		
2791	5	Amber	Solid	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control Current Below Normal Or Open Circuit	2349	EGR Valve Control Circuit - Current below normal or open circuit	X	X	X	X

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2791	6	Amber	Solid	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control Current Above Normal Or Grounded Circuit	2353	EGR Valve Control Circuit - Current above normal or grounded circuit	X	X	X	X
2791	7	Amber	None	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control Mechanical System Not Responding Or Out Of Adjustment	2357	EGR Valve Control Circuit - Mechanical system not responding or out of adjustment			X	X
2791	13	Amber	Solid	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control Out Of Calibration	1896	EGR Valve Controller - Out of Calibration	X	X	X	X
2791	15	Amber	Solid	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control Data Valid But Above Normal Operating Range - Least Severe Level	1961	EGR Valve Control Circuit Over Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
2797	13	None	None	Engine Injector Group 1 Out Of Calibration	2765	Engine Injector Bank 1 Barcodes - Out of Calibration	X	X	X	
2978	9	Amber	None	Estimated Engine Parasitic Losses - Percent Torque Abnormal Update Rate	3838	Estimated Engine Parasitic Losses - Percent Torque - Abnormal update rate			X	X
3031	2	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Data Erratic, Intermittent Or Incorrect	1679	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature - Data erratic, intermittent or incorrect	X	X	X	X
3031	3	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Voltage Above Normal, Or Shorted To High Source	1678	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor - Voltage above normal, or shorted to high source	X	X	X	X
3031	4	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Voltage Below Normal, Or Shorted To Low Source	1677	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor - Voltage below normal, or shorted to low source	X	X	X	X
3031	5	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Current Below Normal Or Open Circuit	4682	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor Circuit - Current below normal or open circuit	X	X		X
3031	6	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Current Above Normal Or Grounded Circuit	4736	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor Circuit - Current above normal or grounded circuit	X	X	X	X
3031	9	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Abnormal Update Rate	4572	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature - Abnormal Update Rate	X	X	X	X
3031	11	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Root Cause Not Known	4737	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature - Root Cause Not Known	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
3031	13	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Out Of Calibration	4731	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor - Out of Calibration	X	X	X	X
3058	10	Amber	Solid	EGR System Monitor Abnormal Rate Of Change	3389	Engine Exhaust Gas Recirculation (EGR) System - Abnormal rate of change				X
3058	16	Amber	Solid	EGR System Monitor Data Valid But Above Normal Operating Range - Moderately Severe Level	3383	Engine Exhaust Gas Recirculation (EGR) System - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
3058	18	Amber	Solid	EGR System Monitor Data Valid But Below Normal Operating Range - Moderately Severe Level	3382	Engine Exhaust Gas Recirculation (EGR) System - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
3060	18	None	Solid	Engine Cooling System Monitor Data Valid But Below Normal Operating Range - Moderately Severe Level	3243	Engine Cooling System Monitor - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
3216	2	None	Solid	Aftertreatment 1 Intake NOx Data Erratic, Intermittent Or Incorrect	3228	Aftertreatment 1 Intake NOx Sensor - Data erratic, intermittent or incorrect	X	X	X	X
3216	4	None	Solid	Aftertreatment 1 Intake NOx Voltage Below Normal, Or Shorted To Low Source	1885	Aftertreatment 1 Intake NOx Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3216	9	Amber	Solid	Aftertreatment 1 Intake NOx Abnormal Update Rate	3232	Aftertreatment 1 Intake NOx Sensor - Abnormal update rate	X	X	X	X
3216	10	Amber	Solid	Aftertreatment 1 Intake NOx Abnormal Rate Of Change	3725	Aftertreatment 1 Intake NOx Sensor - Abnormal rate of change	X	X	X	X
3216	13	Amber	None	Aftertreatment 1 Intake NOx Out Of Calibration	3718	Aftertreatment 1 Intake NOx - Out of Calibration	X	X	X	X
3216	16	Amber	Solid	Aftertreatment 1 Selective Catalytic Reduction Intake NOx Data Valid But Above Normal Operating Range - Moderately Severe Level	3726	Aftertreatment 1 Intake NOx - Data Valid But Above Normal Operating Range - Moderately Severe Level				X
3216	20	Amber	Solid	Aftertreatment 1 Intake NOx Data Drifted High	3748	Aftertreatment 1 Intake NOx Sensor - Data not Rational - Drifted High	X	X	X	X
3218	2	None	Solid	Aftertreatment 1 Intake Gas Sensor Power Status Data Erratic, Intermittent Or Incorrect	3682	Aftertreatment 1 Intake NOx Sensor Power Supply - Data erratic, intermittent or incorrect	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
3226	2	None	Solid	Aftertreatment 1 Outlet NOx Data Erratic, Intermittent Or Incorrect	1694	Aftertreatment 1 Outlet NOx Sensor - Data erratic, intermittent or incorrect	X	X	X	X
3226	4	None	Solid	Aftertreatment 1 Outlet NOx Voltage Below Normal, Or Shorted To Low Source	1887	Aftertreatment 1 Outlet NOx Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3226	9	None	Solid	Aftertreatment 1 Outlet NOx Abnormal Update Rate	2771	Aftertreatment 1 Outlet NOx Sensor - Abnormal update rate	X	X	X	X
3226	10	Amber	Solid	Aftertreatment 1 Outlet NOx Abnormal Rate Of Change	3545	Aftertreatment 1 Outlet NOx Sensor - Abnormal rate of change	X	X	X	X
3226	13	Amber	None	Aftertreatment 1 Outlet NOx Out Of Calibration	3717	Aftertreatment 1 Outlet NOx Sensor - Out of Calibration	X	X	X	X
3226	20	Amber		Aftertreatment 1 Outlet NOx Data Drifted High	3749	Aftertreatment 1 Outlet NOx Sensor - Data not Rational - Drifted High	X	X	X	X
3228	2	None	Solid	Aftertreatment 1 Outlet Gas Sensor Power Status Data Erratic, Intermittent Or Incorrect	3681	Aftertreatment 1 Outlet NOx Sensor Power Supply - Data erratic, intermittent or incorrect	X	X	X	X
3242	0	Red	None	Aftertreatment 1 Diesel Particulate Filter Intake Gas Temperature Data Valid But Above Normal Operational Range - Most Severe Level	3311	Aftertreatment 1 Diesel Particulate Filter Intake Temperature - Data valid but above normal operational range - Most Severe Level	X	X	X	X
3242	2	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Intake Gas Temperature Data Erratic, Intermittent Or Incorrect	3318	Aftertreatment 1 Diesel Particulate Filter Intake Temperature - Data erratic, intermittent or incorrect	X	X	X	X
3242	3	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Intake Gas Temperature Voltage Above Normal, Or Shorted To High Source	3317	Aftertreatment 1 Diesel Particulate Filter Intake Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3242	4	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Intake Gas Temperature Voltage Below Normal, Or Shorted To Low Source	3316	Aftertreatment 1 Diesel Particulate Filter Intake Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3242	15	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Intake Gas Temperature Data Valid But Above Normal Operating Range - Least Severe Level	3254	Aftertreatment 1 Diesel Particulate Filter Intake Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
3242	16	Red	None	Aftertreatment 1 Diesel Particulate Filter Intake Gas Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	3253	Aftertreatment 1 Diesel Particulate Filter Intake Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
3246	0	Red	None	Aftertreatment 1 Diesel Particulate Filter Outlet Gas Temperature Data Valid But Above Normal Operational Range - Most Severe Level	3312	Aftertreatment 1 Diesel Particulate Filter Outlet Temperature - Data valid but above normal operational range - Most Severe Level	X	X	X	X
3246	2	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Outlet Gas Temperature Data Erratic, Intermittent Or Incorrect	3322	Aftertreatment 1 Diesel Particulate Filter Outlet Temperature - Data erratic, intermittent or incorrect	X	X	X	X
3246	3	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Outlet Gas Temperature Voltage Above Normal, Or Shorted To High Source	3319	Aftertreatment 1 Diesel Particulate Filter Outlet Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3246	4	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Outlet Gas Temperature Voltage Below Normal, Or Shorted To Low Source	3321	Aftertreatment 1 Diesel Particulate Filter Outlet Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3246	15	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Outlet Gas Temperature Data Valid But Above Normal Operating Range - Least Severe Level	3256	Aftertreatment 1 Diesel Particulate Filter Outlet Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
3246	16	Red	None	Aftertreatment 1 Diesel Particulate Filter Outlet Gas Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	3255	Aftertreatment 1 Diesel Particulate Filter Outlet Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
3251	0	Red	None	Aftertreatment 1 Diesel Particulate Filter Differential Pressure Data Valid But Above Normal Operational Range - Most Severe Level	1922	Aftertreatment Diesel Particulate Filter Differential Pressure - Data valid but above normal operational range - Most Severe Level	X	X	X	X
3251	2	None	Solid	Aftertreatment 1 Diesel Particulate Filter Differential Pressure Data Erratic, Intermittent Or Incorrect	1883	Aftertreatment Diesel Particulate Filter Differential Pressure Sensor - Data erratic, intermittent or incorrect	X	X	X	X
3251	3	None	Solid	Aftertreatment 1 Diesel Particulate Filter Differential Pressure Voltage Above Normal, Or Shorted To High Source	1879	Aftertreatment Diesel Particulate Filter Differential Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3251	4	None	Solid	Aftertreatment 1 Diesel Particulate Filter Differential Pressure Voltage Below Normal, Or Shorted To Low Source	1881	Aftertreatment Diesel Particulate Filter Differential Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3251	15	None	None	Aftertreatment 1 Diesel Particulate Filter Differential Pressure Data Valid But Above Normal Operating Range - Least Severe Level	2639	Aftertreatment Diesel Particulate Filter Differential Pressure - Data Valid But Above Normal Operating Range - Least Severe Level	X	X	X	X
3251	16	Amber	None	Aftertreatment 1 Diesel Particulate Filter Differential Pressure Data Valid But Above Normal Operating Range - Moderately Severe Level	1921	Aftertreatment Diesel Particulate Filter Differential Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
3361	2	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Data Erratic, Intermittent Or Incorrect	2976	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Temperature - Data erratic, intermittent or incorrect	X	X	X	X

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3361	3	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Voltage Above Normal, Or Shorted To High Source	3558	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit - Voltage above normal, or shorted to high source	X	X	X	X
3361	4	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Voltage Below Normal, Or Shorted To Low Source	3559	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit - Voltage below normal, or shorted to low source	X	X	X	X
3361	12	None		Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Bad Intelligent Device Or Component	1681	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit - Bad intelligent device or component	X	X		
3362	31	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Input Lines Condition Exists	1682	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Input Lines - Condition Exists	X	X	X	X
3363	3	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater Voltage Above Normal, Or Shorted To High Source	1683	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Voltage above normal, or shorted to high source	X	X	X	X
3363	4	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater Voltage Below Normal, Or Shorted To Low Source	1684	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Voltage below normal, or shorted to low source	X	X	X	X
3363	7	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater Mechanical System Not Responding Or Out Of Adjustment	3242	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Mechanical system not responding or out of adjustment	X	X	X	X
3363	16	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater Data Valid But Above Normal Operating Range - Moderately Severe Level	1713	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
3363	18	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater Data Valid But Below Normal Operating Range - Moderately Severe Level	1712	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
3364	0	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Data Valid But Above Normal Operational Range - Most Severe Level	3879	Aftertreatment Diesel Exhaust Fluid Quality - Data valid but above normal operational range - Most Severe Level	X	X	X	X
3364	1	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Data Valid But Below Normal Operational Range - Most Severe Level	3866	Aftertreatment Diesel Exhaust Fluid Quality - Data valid but below normal operational range - Most Severe Level	X	X	X	X
3364	2	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Data Erratic, Intermittent Or Incorrect	3878	Aftertreatment Diesel Exhaust Fluid Quality - Data erratic, intermittent or incorrect	X	X	X	X
3364	3	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Voltage Above Normal, Or Shorted To High Source	1686	Aftertreatment Diesel Exhaust Fluid Quality Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X

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3364	4	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Voltage Below Normal, Or Shorted To Low Source	1685	Aftertreatment Diesel Exhaust Fluid Quality Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3364	5	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Current Below Normal Or Open Circuit	4741	Aftertreatment Diesel Exhaust Fluid Quality Sensor Circuit - Current below normal or open circuit	X	X	X	X
3364	6	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Current Above Normal Or Grounded Circuit	4742	Aftertreatment Diesel Exhaust Fluid Quality Sensor Circuit - Current above normal or grounded circuit	X	X	X	X
3364	7	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Mechanical System Not Responding Or Out Of Adjustment	3876	Aftertreatment Diesel Exhaust Fluid Quality Sensor - Mechanical system not responding or out of adjustment	X	X	X	X
3364	9	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Abnormal Update Rate	3868	Aftertreatment Diesel Exhaust Fluid Quality - Abnormal update rate	X	X	X	X
3364	10	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Abnormal Rate Of Change	4277	Aftertreatment Diesel Exhaust Fluid Quality - Abnormal Rate of Change	X	X		
3364	11	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Root Cause Not Known	1715	Aftertreatment Diesel Exhaust Fluid Quality - Root Cause Not Known	X	X		
3364	12	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Bad Intelligent Device Or Component	3877	Aftertreatment Diesel Exhaust Fluid Quality Sensor - Bad intelligent device or component	X	X	X	X
3364	13	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Out Of Calibration	1714	Aftertreatment Diesel Exhaust Fluid Quality - Out of Calibration	X	X	X	X
3364	18	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Data Valid But Below Normal Operating Range - Moderately Severe Level	3867	Aftertreatment Diesel Exhaust Fluid Quality - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
3364	19	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Tank Quality Received Network Data In Error	4241	Aftertreatment Diesel Exhaust Fluid Quality - Received Network Data In Error	X	X	X	X
3464	3	Red	Solid	Engine Throttle Actuator 1 Control Command Voltage Above Normal, Or Shorted To High Source	175	Electronic Throttle Control Actuator Driver Circuit - Voltage above normal, or shorted to high source	X		X	X
3464	4	Red	Solid	Engine Throttle Actuator 1 Control Command Voltage Below Normal, Or Shorted To Low Source	176	Electronic Throttle Control Actuator Driver Circuit - Voltage below normal, or shorted to low source	X		X	X

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3464	7	Red	Solid	Engine Throttle Actuator 1 Control Command Mechanical System Not Responding Or Out Of Adjustment	177	Electronic Throttle Control Actuator - Mechanical system not responding or out of adjustment	X		X	X
3480	2	Amber	Solid	Aftertreatment 1 Fuel Pressure 1 Data Erratic, Intermittent Or Incorrect	1926	Aftertreatment Fuel Pressure Sensor - Data erratic, intermittent or incorrect	X	X		
3480	3	None	Solid	Aftertreatment 1 Fuel Pressure 1 Voltage Above Normal, Or Shorted To High Source	1927	Aftertreatment Fuel Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X		
3480	4	None	Solid	Aftertreatment 1 Fuel Pressure 1 Voltage Below Normal, Or Shorted To Low Source	1928	Aftertreatment Fuel Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X		
3480	17	None	Solid	Aftertreatment 1 Fuel Pressure 1 Data Valid But Below Normal Operating Range - Least Severe Level	2881	Aftertreatment Fuel Pressure Sensor - Data Valid But Below Normal Operating Range - Least Severe Level	X	X		
3481	16	Amber	None	Aftertreatment 1 Fuel Rate Data Valid But Above Normal Operating Range - Moderately Severe Level	2778	Aftertreatment Fuel Rate - Data Valid But Above Normal Operating Range - Moderately Severe Level				X
3482	2	None	Solid	Aftertreatment 1 Fuel Enable Actuator Data Erratic, Intermittent Or Incorrect	1925	Aftertreatment Fuel Shutoff Valve 1 - Data erratic, intermittent or incorrect	X	X		
3482	3	None	Solid	Aftertreatment 1 Fuel Enable Actuator Voltage Above Normal, Or Shorted To High Source	1923	Aftertreatment Fuel Shutoff Valve 1 Circuit - Voltage above normal, or shorted to high source	X	X		
3482	4	None	Solid	Aftertreatment 1 Fuel Enable Actuator Voltage Below Normal, Or Shorted To Low Source	1924	Aftertreatment Fuel Shutoff Valve 1 Circuit - Voltage below normal, or shorted to low source	X	X		
3482	7	Amber	Solid	Aftertreatment 1 Fuel Enable Actuator Mechanical System Not Responding Or Out Of Adjustment	1963	Aftertreatment Fuel Shutoff Valve 1 - Mechanical system not responding or out of adjustment	X	X		
3482	16	Amber	Solid	Aftertreatment 1 Fuel Enable Actuator Data Valid But Above Normal Operating Range - Moderately Severe Level	4568	Aftertreatment Fuel Shutoff Valve - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X		
3490	3	Amber	Solid	Aftertreatment 1 Purge Air Actuator Voltage Above Normal, Or Shorted To High Source	3224	Aftertreatment Purge Air Actuator Circuit - Voltage above normal, or shorted to high source	X	X		
3490	4	Amber	Solid	Aftertreatment 1 Purge Air Actuator Voltage Below Normal, Or Shorted To Low Source	3223	Aftertreatment Purge Air Actuator Circuit - Voltage below normal, or shorted to low source	X	X		

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
3490	7	Amber	Solid	Aftertreatment 1 Purge Air Actuator Mechanical System Not Responding Or Out Of Adjustment	3225	Aftertreatment Purge Air Actuator - Mechanical system not responding or out of adjustment	X	X		
3509	3	None	Solid	Sensor supply voltage 1 Voltage Above Normal, Or Shorted To High Source	386	Sensor Supply 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3509	4	None	Solid	Sensor supply voltage 1 Voltage Below Normal, Or Shorted To Low Source	352	Sensor Supply 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3510	3	None	Solid	Sensor supply voltage 2 Voltage Above Normal, Or Shorted To High Source	227	Sensor Supply 2 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3510	4	None	Solid	Sensor supply voltage 2 Voltage Below Normal, Or Shorted To Low Source	187	Sensor Supply 2 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3511	3	None	Solid	Sensor supply voltage 3 Voltage Above Normal, Or Shorted To High Source	239	Sensor Supply 3 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3511	4	None	Solid	Sensor supply voltage 3 Voltage Below Normal, Or Shorted To Low Source	238	Sensor Supply 3 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3512	3	None	Solid	Sensor supply voltage 4 Voltage Above Normal, Or Shorted To High Source	2185	Sensor Supply 4 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3512	4	None	Solid	Sensor supply voltage 4 Voltage Below Normal, Or Shorted To Low Source	2186	Sensor Supply 4 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3513	3	None	Solid	Sensor supply voltage 5 Voltage Above Normal, Or Shorted To High Source	1695	Sensor Supply 5 - Voltage above normal, or shorted to high source	X	X	X	X
3513	4	None	Solid	Sensor supply voltage 5 Voltage Below Normal, Or Shorted To Low Source	1696	Sensor Supply 5 - Voltage below normal, or shorted to low source	X	X	X	X
3514	3	None	Solid	Sensor supply voltage 6 Voltage Above Normal, Or Shorted To High Source	515	Sensor Supply 6 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3514	4	None	Solid	Sensor supply voltage 6 Voltage Below Normal, Or Shorted To Low Source	516	Sensor Supply 6 Circuit - Voltage below normal, or shorted to low source	X	X	X	X

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
3515	2	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Data Erratic, Intermittent Or Incorrect	4242	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 - Data erratic, intermittent or incorrect				X
3515	3	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Voltage Above Normal, Or Shorted To High Source	4233	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 - Voltage above normal, or shorted to high source	X	X	X	X
3515	4	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Voltage Below Normal, Or Shorted To Low Source	4234	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 - Voltage below normal, or shorted to low source	X	X	X	X
3515	5	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Current Below Normal Or Open Circuit	4743	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Sensor Circuit - Current below normal or open circuit	X	X	X	X
3515	6	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Current Above Normal Or Grounded Circuit	4744	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Sensor Circuit - Current above normal or grounded circuit	X	X	X	X
3515	10	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Abnormal Rate Of Change	4243	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 - Abnormal Rate of Change	X	X	X	X
3515	11	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Root Cause Not Known	4745	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 - Root Cause Not Known	X	X	X	X
3521	11	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Property Root Cause Not Known	4768	Aftertreatment 1 Diesel Exhaust Fluid Property - Root Cause Not Known	X	X		
3521	31	Red	None	Aftertreatment 1 Diesel Exhaust Fluid Property Condition Exists	4235	Aftertreatment 1 Diesel Exhaust Fluid Type - Condition Exists	X	X	X	X
3555	17	None	None	Ambient Air Density Data Valid But Below Normal Operating Range - Least Severe Level	1943	Ambient Air Density - Data Valid But Below Normal Operating Range - Least Severe Level	X	X		
3556	2	Amber	Solid	Aftertreatment 1 Hydrocarbon Doser Data Erratic, Intermittent Or Incorrect	1932	Aftertreatment Doser - Data erratic, intermittent or incorrect	X	X		
3556	5	None	Solid	Aftertreatment 1 Hydrocarbon Doser Current Below Normal Or Open Circuit	1977	Aftertreatment Doser Circuit - Current below normal or open circuit.	X	X		
3556	18	Amber	Solid	Aftertreatment 1 Hydrocarbon Doser Data Valid But Below Normal Operating Range - Moderately Severe Level	3167	Aftertreatment Doser - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X		

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
3597	2	None	None	ECU Power Output Supply Voltage #1 Data Erratic, Intermittent Or Incorrect	1117	Power Supply Lost With Ignition On - Data erratic, intermittent or incorrect	X	X	X	X
3597	3	Amber	Solid	ECU Power Output Supply Voltage #1 Voltage Above Normal, Or Shorted To High Source	1939	ECU Power Output Supply Voltage 1 - Voltage above normal, or shorted to high source	X	X		
3597	4	Amber	Solid	ECU Power Output Supply Voltage #1 Voltage Below Normal, Or Shorted To Low Source	1941	ECU Power Output Supply Voltage 1 - Voltage below normal, or shorted to low source	X	X	X	X
3597	12	Amber	Solid	ECU Power Output Supply Voltage #1 Bad Intelligent Device Or Component	351	Injector Power Supply - Bad intelligent device or component	X	X	X	X
3597	18	None	Solid	ECU Power Output Supply Voltage #1 Data Valid But Below Normal Operating Range - Moderately Severe Level	1938	ECU Power Output Supply Voltage 1 - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
3610	2	None	Solid	Diesel Particulate Filter Outlet Pressure 1 Data Erratic, Intermittent Or Incorrect	3135	Aftertreatment 1 Diesel Particulate Filter Outlet Pressure - Data erratic, intermittent or incorrect	X	X	X	X
3610	3	Amber	Solid	Diesel Particulate Filter Outlet Pressure 1 Voltage Above Normal, Or Shorted To High Source	3133	Aftertreatment 1 Diesel Particulate Filter Outlet Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3610	4	Amber	Solid	Diesel Particulate Filter Outlet Pressure 1 Voltage Below Normal, Or Shorted To Low Source	3134	Aftertreatment 1 Diesel Particulate Filter Outlet Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3667	3	Amber	None	Engine Air Shutoff Status Voltage Above Normal, Or Shorted To High Source	3139	Engine Air Shutoff Circuit - Voltage above normal, or shorted to high source	X	X	X	X
3667	4	Amber	None	Engine Air Shutoff Status Voltage Below Normal, Or Shorted To Low Source	3141	Engine Air Shutoff Circuit - Voltage below normal, or shorted to low source	X	X	X	X
3695	2	Amber	None	Diesel Particulate Filter Regeneration Inhibit Switch Data Erratic, Intermittent Or Incorrect	4213	Aftertreatment Diesel Particulate Filter Regeneration Inhibit Switch - Data erratic, intermittent or incorrect	X	X	X	X
3703	31	Maintenance	None	Diesel Particulate Filter Active Regeneration Inhibited Due to Inhibit Switch Condition Exists	2777	Particulate Trap Active Regeneration Inhibited Due to Inhibit Switch - Condition Exists	X	X	X	X
3711	31	None	Solid	Diesel Particulate Filter Active Regeneration Inhibited Due to Low Exhaust Gas Temperature Condition Exists	3495	Diesel Particulate Filter Active Regeneration Inhibited Due to Low Exhaust Gas Temperature - Condition Exists	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
3713	31	None	None	Diesel Particulate Filter Active Regeneration Inhibited Due to System Timeout Condition Exists	3753	Diesel Particulate Filter Active Regeneration Inhibited Due to System Timeout - Condition Exists	X	X	X	X
3750	31	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Conditions Not Met for Active Regeneration Condition Exists	3396	Diesel Particulate Filter 1 Conditions Not Met for Active Regeneration - Condition Exists	X	X		X
3826	18	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Average Consumption Data Valid But Below Normal Operating Range - Moderately Severe Level	4573	Aftertreatment 1 Diesel Exhaust Fluid Average Consumption - Data Valid But Below Normal Operating Range - Moderately Severe Level				X
3936	2	Amber	Solid	Aftertreatment Diesel Particulate Filter System Data Erratic, Intermittent Or Incorrect	2692	Aftertreatment 1 Diesel Particulate Filter System - Data erratic, intermittent or incorrect			X	X
3936	7	Amber	None	Aftertreatment Diesel Particulate Filter System Mechanical System Not Responding Or Out Of Adjustment	3245	Aftertreatment 1 Diesel Particulate Filter System - Mechanical system not responding or out of adjustment	X	X		
3936	14	Red	Solid	Aftertreatment Diesel Particulate Filter System Special Instructions	4584	Aftertreatment Diesel Particulate Filter System - Special Instructions	X	X	X	X
3936	15	Amber	Solid	Aftertreatment Diesel Particulate Filter System Data Valid But Above Normal Operating Range - Least Severe Level	1981	Aftertreatment 1 Diesel Particulate Filter System - Data Valid But Above Normal Operating Range - Least Severe Level	X	X		
3936	16	Amber	Solid	Aftertreatment Diesel Particulate Filter System Data Valid But Above Normal Operating Range - Moderately Severe Level	3168	Aftertreatment 1 Diesel Particulate Filter System - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
4094	31	Amber	None	NOx limits exceeded due to Insufficient Diesel Exhaust Fluid Quality Condition Exists	3543	NOx limits exceeded due to Insufficient Reagent Quality - Condition Exists	X	X	X	X
4096	31	None	None	NOx limits exceeded due to Empty Diesel Exhaust Fluid Tank Condition Exists	3547	Aftertreatment Diesel Exhaust Fluid Tank Empty - Condition Exists	X	X	X	X
4331	18	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Actual Dosing Quantity Data Valid But Below Normal Operating Range - Moderately Severe Level	4658	Aftertreatment SCR Actual Dosing Reagent Quantity - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
4334	2	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure Data Erratic, Intermittent Or Incorrect	3596	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Data erratic, intermittent or incorrect	X	X	X	X
4334	3	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure Voltage Above Normal, Or Shorted To High Source	3571	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Voltage above normal, or shorted to high source	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
4334	4	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure Voltage Below Normal, Or Shorted To Low Source	3572	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Voltage below normal, or shorted to low source	X	X	X	X
4334	16	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure Data Valid But Above Normal Operating Range - Moderately Severe Level	3575	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
4334	18	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure Data Valid But Below Normal Operating Range - Moderately Severe Level	3574	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
4337	2	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Temperature Data Erratic, Intermittent Or Incorrect	4244	Aftertreatment 1 Diesel Exhaust Fluid Dosing Temperature - Data erratic, intermittent or incorrect	X	X	X	X
4337	10	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Temperature Abnormal Rate Of Change	4249	Aftertreatment 1 Diesel Exhaust Fluid Dosing Temperature - Abnormal Rate of Change	X	X	X	X
4340	3	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 State Voltage Above Normal, Or Shorted To High Source	3237	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
4340	4	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 State Voltage Below Normal, Or Shorted To Low Source	3238	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
4340	5	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 State Current Below Normal Or Open Circuit	3258	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 Circuit - Current below normal or open circuit	X	X	X	X
4342	3	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 State Voltage Above Normal, Or Shorted To High Source	3239	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
4342	4	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 State Voltage Below Normal, Or Shorted To Low Source	3241	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 Circuit - Voltage below normal, or shorted to low source	X	X	X	X
4342	5	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 State Current Below Normal Or Open Circuit	3261	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 Circuit - Current below normal or open circuit	X	X	X	X
4344	3	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 3 State Voltage Above Normal, Or Shorted To High Source	3422	Aftertreatment Diesel Exhaust Fluid Line Heater 3 Circuit - Voltage above normal, or shorted to high source	X	X	X	X
4344	4	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 3 State Voltage Below Normal, Or Shorted To Low Source	3423	Aftertreatment Diesel Exhaust Fluid Line Heater 3 Circuit - Voltage below normal, or shorted to low source	X	X	X	X

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
4344	5	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 3 State Current Below Normal Or Open Circuit	3425	Aftertreatment Diesel Exhaust Fluid Line Heater 3 Circuit - Current below normal or open circuit	X	X	X	X
4360	0	Red	None	Aftertreatment 1 SCR Catalyst Intake Gas Temperature Data Valid But Above Normal Operational Range - Most Severe Level	3229	Aftertreatment 1 SCR Intake Temperature - Data valid but above normal operational range - Most Severe Level	X	X	X	X
4360	2	None	Solid	Aftertreatment 1 SCR Catalyst Intake Gas Temperature Data Erratic, Intermittent Or Incorrect	3144	Aftertreatment 1 SCR Intake Temperature Sensor - Data erratic, intermittent or incorrect	X	X	X	X
4360	3	None	Solid	Aftertreatment 1 SCR Catalyst Intake Gas Temperature Voltage Above Normal, Or Shorted To High Source	3142	Aftertreatment 1 SCR Intake Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
4360	4	None	Solid	Aftertreatment 1 SCR Catalyst Intake Gas Temperature Voltage Below Normal, Or Shorted To Low Source	3143	Aftertreatment 1 SCR Intake Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
4360	10	Amber		Aftertreatment 1 SCR Catalyst Intake Gas Temperature Abnormal Rate Of Change	3145	Aftertreatment 1 SCR Intake Temperature Sensor - Abnormal rate of change	X	X		
4360	15	None	None	Aftertreatment 1 SCR Catalyst Intake Gas Temperature Data Valid But Above Normal Operating Range - Least Severe Level	3164	Aftertreatment 1 SCR Intake Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X		
4360	16	Red	None	Aftertreatment 1 SCR Catalyst Intake Gas Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	3231	Aftertreatment 1 SCR Intake Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
4363	0	Red	None	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature Data Valid But Above Normal Operational Range - Most Severe Level	3165	Aftertreatment 1 SCR Outlet Temperature - Data valid but above normal operational range - Most Severe Level	X	X	X	X
4363	2	Amber	Solid	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature Data Erratic, Intermittent Or Incorrect	3148	Aftertreatment 1 SCR Outlet Temperature Sensor - Data erratic, intermittent or incorrect	X	X	X	X
4363	3	Amber	Solid	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature Voltage Above Normal, Or Shorted To High Source	3146	Aftertreatment 1 SCR Outlet Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
4363	4	Amber	Solid	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature Voltage Below Normal, Or Shorted To Low Source	3147	Aftertreatment 1 SCR Outlet Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
4363	10	Amber		Aftertreatment 1 SCR Catalyst Outlet Gas Temperature Abnormal Rate Of Change	3149	Aftertreatment 1 SCR Outlet Temperature Sensor - Abnormal rate of change	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
4363	15	Amber		Aftertreatment 1 SCR Catalyst Outlet Gas Temperature Data Valid But Above Normal Operating Range - Least Severe Level	3236	Aftertreatment 1 SCR Outlet Temperature - Data Valid But Above Normal Operating Range - Least Severe Level	X	X		
4363	16	Red	None	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	3235	Aftertreatment 1 SCR Outlet Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
4364	18	None	Solid	Aftertreatment 1 SCR Conversion Efficiency Data Valid But Below Normal Operating Range - Moderately Severe Level	3582	Aftertreatment SCR Catalyst Conversion Efficiency - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
4376	3	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Return Valve Voltage Above Normal, Or Shorted To High Source	3577	Aftertreatment Diesel Exhaust Fluid Return Valve - Voltage above normal, or shorted to high source	X	X	X	X
4376	4	None	Solid	Aftertreatment 1 Diesel Exhaust Fluid Return Valve Voltage Below Normal, Or Shorted To Low Source	3578	Aftertreatment Diesel Exhaust Fluid Return Valve - Voltage below normal, or shorted to low source	X	X	X	X
4376	7	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Return Valve Mechanical System Not Responding Or Out Of Adjustment	4157	Aftertreatment Diesel Exhaust Fluid Return Valve - Mechanical system not responding or out of adjustment	X	X	X	X
4377	4	Amber	Solid	Aftertreatment 1 Outlet NH3 Voltage Below Normal, Or Shorted To Low Source	3899	Aftertreatment 1 Outlet NH3 Sensor - Voltage below normal, or shorted to low source	X	X	X	X
4377	10	Amber	Solid	Aftertreatment 1 Outlet NH3 Abnormal Rate Of Change	3937	Aftertreatment 1 Outlet NH3 Sensor - Abnormal rate of change	X	X	X	X
4377	12	Amber	Solid	Aftertreatment 1 Outlet NH3 Bad Intelligent Device Or Component	3936	Aftertreatment 1 Outlet NH3 Sensor - Bad intelligent device or component	X	X	X	X
4377	13	Amber	Solid	Aftertreatment 1 Outlet NH3 Out Of Calibration	3935	Aftertreatment 1 Outlet NH3 Sensor - Out of Calibration	X	X	X	X
4380	2	Amber	Solid	Aftertreatment 1 Outlet NH3 Gas Sensor Power In Range Data Erratic, Intermittent Or Incorrect	3934	Aftertreatment Outlet NH3 Gas Sensor Power Supply - Data erratic, intermittent or incorrect	X	X	X	X
4380	16	Amber	Solid	Aftertreatment 1 Outlet NH3 Gas Sensor Power In Range Data Valid But Above Normal Operating Range - Moderately Severe Level	3932	Aftertreatment Outlet NH3 Gas Sensor Power Supply - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
4380	18	Amber	Solid	Aftertreatment 1 Outlet NH3 Gas Sensor Power In Range Data Valid But Below Normal Operating Range - Moderately Severe Level	3933	Aftertreatment Outlet NH3 Gas Sensor Power Supply - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X

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SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
4382	10	Amber	Solid	Aftertreatment 1 Outlet NH3 Gas Sensor Heater Preliminary FMI Abnormal Rate Of Change	3912	Aftertreatment 1 Outlet NH3 Gas Sensor Heater - Abnormal rate of change	X	X	X	X
4752	18	Amber	Solid	Engine Exhaust Gas Recirculation 1 (EGR1) Cooler Efficiency Data Valid But Below Normal Operating Range - Moderately Severe Level	3342	Engine Exhaust Gas Recirculation Cooler Efficiency - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
4765	2	Amber	Solid	Aftertreatment 1 Diesel Oxidation Catalyst Intake Gas Temperature Data Erratic, Intermittent Or Incorrect	3315	Aftertreatment 1 Diesel Oxidation Catalyst Intake Temperature - Data erratic, intermittent or incorrect	X	X	X	X
4765	3	Amber	Solid	Aftertreatment 1 Diesel Oxidation Catalyst Intake Gas Temperature Voltage Above Normal, Or Shorted To High Source	3314	Aftertreatment 1 Diesel Oxidation Catalyst Intake Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X	X	X
4765	4	Amber	Solid	Aftertreatment 1 Diesel Oxidation Catalyst Intake Gas Temperature Voltage Below Normal, Or Shorted To Low Source	3313	Aftertreatment 1 Diesel Oxidation Catalyst Intake Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X	X	X
4765	16	Red	None	Aftertreatment 1 Diesel Oxidation Catalyst Intake Gas Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	3251	Aftertreatment 1 Diesel Oxidation Catalyst Intake Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
4766	18	Amber	Solid	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature Data Valid But Below Normal Operating Range - Moderately Severe Level	3394	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature - Data Valid But Below Normal Operating Range - Moderately Severe Level				X
4792	7	None	None	Aftertreatment 1 SCR Catalyst System Mechanical System Not Responding Or Out Of Adjustment	3751	Aftertreatment SCR Catalyst System - Mechanical system not responding or out of adjustment	X	X	X	X
4792	14	Red	Solid	Aftertreatment 1 SCR Catalyst System Special Instructions	4585	Aftertreatment 1 SCR Catalyst System - Special Instructions	X	X	X	X
4794	31	None	Solid	Aftertreatment 1 SCR Catalyst System Missing Condition Exists	3151	Aftertreatment 1 SCR Catalyst System Missing - Condition Exists	X	X	X	X
4795	31	None	Solid	Aftertreatment 1 Diesel Particulate Filter Missing Condition Exists	1993	Aftertreatment 1 Diesel Particulate Filter Missing - Condition Exists	X	X	X	X
4796	31	None	Solid	Aftertreatment 1 Diesel Oxidation Catalyst Missing Condition Exists	1664	Aftertreatment 1 Diesel Oxidation Catalyst Missing - Condition Exists	X	X	X	X
5018	11	None	Solid	Aftertreatment 1 Diesel Oxidation Catalyst System Root Cause Not Known	2637	Aftertreatment 1 Diesel Oxidation Catalyst Face Plugged - Root Cause Not Known				X

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
5019	2	None	Solid	Engine Exhaust Gas Recirculation 1 Outlet Pressure Data Erratic, Intermittent Or Incorrect	3138	Engine Exhaust Gas Recirculation Outlet Pressure - Data erratic, intermittent or incorrect	X	X		
5019	3	None	Solid	Engine Exhaust Gas Recirculation 1 Outlet Pressure Voltage Above Normal, Or Shorted To High Source	3136	Engine Exhaust Gas Recirculation Outlet Pressure Sensor Circuit - Voltage above normal, or shorted to high source	X	X		
5019	4	None	Solid	Engine Exhaust Gas Recirculation 1 Outlet Pressure Voltage Below Normal, Or Shorted To Low Source	3137	Engine Exhaust Gas Recirculation Outlet Pressure Sensor Circuit - Voltage below normal, or shorted to low source	X	X		
5024	10	None	Solid	Aftertreatment 1 Intake Gas NOx Sensor Heater Ratio Abnormal Rate Of Change	3649	Aftertreatment 1 Intake NOx Sensor Heater - Abnormal rate of change	X	X	X	X
5031	10	None	Solid	Aftertreatment 1 Outlet Gas NOx Sensor Heater Ratio Abnormal Rate Of Change	3583	Aftertreatment Outlet NOx Sensor Heater - Abnormal rate of change	X	X	X	X
5097	3	Amber	Solid	Engine Brake Active Lamp Data Voltage Above Normal, Or Shorted To High Source	4293	Engine Brake Active Lamp - Voltage Above Normal, or Shorted to High Source	X	X	X	X
5097	4	Amber	Solid	Engine Brake Active Lamp Data Voltage Below Normal, Or Shorted To Low Source	4294	Engine Brake Active Lamp - Voltage below normal, or shorted to low source	X	X	X	X
5125	3	Amber	Solid	Sensor supply voltage 7 Voltage Above Normal, Or Shorted To High Source	3419	Sensor Supply 7 Circuit - Voltage above normal, or shorted to high source				X
5125	4	Amber	Solid	Sensor supply voltage 7 Voltage Below Normal, Or Shorted To Low Source	3421	Sensor Supply 7 Circuit - Voltage below normal, or shorted to low source				X
5246	0	Red	None	Aftertreatment SCR Operator Inducement Severity Data Valid But Above Normal Operational Range - Most Severe Level	3712	Aftertreatment SCR Operator Inducement - Data valid but above normal operational range - Most Severe Level	X	X	X	X
5285	18	Amber	Solid	Engine Charge Air Cooler 1 Efficiency Data Valid But Below Normal Operating Range - Moderately Severe Level	3343	Engine Charge Air Cooler Efficiency - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
5298	17	None	Solid	Aftertreatment 1 Diesel Oxidation Catalyst Conversion Efficiency Data Valid But Below Normal Operating Range - Least Severe Level	2638	Aftertreatment Diesel Oxidation Catalyst Conversion Efficiency - Data Valid But Below Normal Operating Range - Least Severe Level	X	X	X	X
5298	18	None	Solid	Aftertreatment 1 Diesel Oxidation Catalyst Conversion Efficiency Data Valid But Below Normal Operating Range - Moderately Severe Level	1691	Aftertreatment 1 Diesel Oxidation Catalyst Conversion Efficiency - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
5302	18	Amber	Solid	Aftertreatment 1 Post SCR NH3 Conversion Efficiency Data Valid But Below Normal Operating Range - Moderately Severe Level	4454	Aftertreatment 1 Post SCR NH3 Conversion Efficiency - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
5319	31	None	Solid	Aftertreatment 1 Diesel Particulate Filter Incomplete Regeneration Condition Exists	3376	Aftertreatment Diesel Particulate Filter Incomplete Regeneration - Condition Exists	X	X	X	X
5394	2	None	None	Aftertreatment Diesel Exhaust Fluid Dosing Valve Data Erratic, Intermittent Or Incorrect	3755	Aftertreatment Diesel Exhaust Fluid Dosing Valve - Data erratic, intermittent or incorrect	X	X	X	X
5394	5	None	Solid	Aftertreatment Diesel Exhaust Fluid Dosing Valve Current Below Normal Or Open Circuit	3567	Aftertreatment Diesel Exhaust Fluid Dosing Valve - Current below normal or open circuit	X	X	X	X
5394	7	None	Solid	Aftertreatment Diesel Exhaust Fluid Dosing Valve Mechanical System Not Responding Or Out Of Adjustment	3568	Aftertreatment Diesel Exhaust Fluid Dosing Valve - Mechanical system not responding or out of adjustment	X	X	X	X
5395	16	Amber	Solid	Engine Idle Fuel Quantity Data Valid But Above Normal Operating Range - Moderately Severe Level	3337	Engine Idle Fuel Quantity - Data Valid But Above Normal Operating Range - Moderately Severe Level				X
5395	18	Amber	Solid	Engine Idle Fuel Quantity Data Valid But Below Normal Operating Range - Moderately Severe Level	3338	Engine Idle Fuel Quantity - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
5396	31	Amber	Solid	Engine Crankcase Ventilation Hose Disconnected Condition Exists	3377	Engine Crankcase Ventilation Hose Disconnected - Condition Exists				X
5397	31	Amber	Solid	Aftertreatment 1 Diesel Particulate Filter Regeneration too Frequent Condition Exists	3375	Aftertreatment Diesel Particulate Filter Regeneration too Frequent - Condition Exists	X	X	X	X
5491	3	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater Relay Voltage Above Normal, Or Shorted To High Source	3562	Aftertreatment Diesel Exhaust Fluid Line Heater Relay - Voltage above normal, or shorted to high source	X	X	X	X
5491	4	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Line Heater Relay Voltage Below Normal, Or Shorted To Low Source	3563	Aftertreatment Diesel Exhaust Fluid Line Heater Relay - Voltage below normal, or shorted to low source	X	X	X	X
5571	0	Amber	Solid	High Pressure Common Rail Fuel Pressure Relief Valve Data Valid But Above Normal Operational Range - Most Severe Level	3741	High Pressure Common Rail Fuel Pressure Relief Valve - Data valid but above normal operational range - Most Severe Level	X	X	X	X
5571	7	None	None	High Pressure Common Rail Fuel Pressure Relief Valve Mechanical System Not Responding Or Out Of Adjustment	3727	High Pressure Common Rail Fuel Pressure Relief Valve - Mechanical system not responding or out of adjustment	X	X	X	X

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

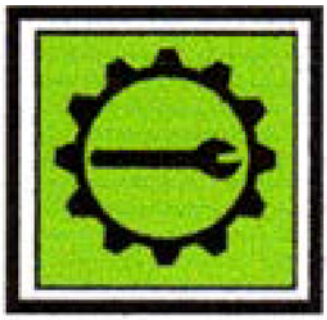
SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
5585	18	Amber	Solid	Engine Injector Metering Rail 1 Cranking Pressure Data Valid But Below Normal Operating Range - Moderately Severe Level	4691	Engine Injector Metering Rail 1 Cranking Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
5603	9	None	None	Cruise Control Disable Command Abnormal Update Rate	3843	Cruise Control Disable Command - Abnormal update rate	X	X	X	X
5603	31	None	None	Cruise Control Disable Command Condition Exists	3845	Cruise Control Disable Command - Condition Exists	X	X	X	X
5605	31	None	None	Cruise Control Pause Command Condition Exists	3844	Cruise Control Pause Command - Condition Exists	X	X	X	X
5741	3	Amber	Solid	Aftertreatment 1 Outlet Soot Voltage Above Normal, Or Shorted To High Source	4143	Aftertreatment 1 Outlet Soot Sensor - Voltage Above Normal, or Shorted to High Source	X	X	X	X
5741	4	Amber	Solid	Aftertreatment 1 Outlet Soot Voltage Below Normal, Or Shorted To Low Source	4144	Aftertreatment 1 Outlet Soot Sensor - Voltage below normal, or shorted to low source	X	X	X	X
5742	3	Amber	Solid	Aftertreatment Diesel Particulate Filter Temperature Sensor Module Voltage Above Normal, Or Shorted To High Source	4161	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Voltage Above Normal, or Shorted to High Source	X	X	X	X
5742	4	Amber	Solid	Aftertreatment Diesel Particulate Filter Temperature Sensor Module Voltage Below Normal, Or Shorted To Low Source	4162	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Voltage below normal, or shorted to low source	X	X	X	X
5742	9	Amber	Solid	Aftertreatment Diesel Particulate Filter Temperature Sensor Module Abnormal Update Rate	4151	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Abnormal update rate	X	X	X	X
5742	11	Amber	Solid	Aftertreatment Diesel Particulate Filter Temperature Sensor Module Root Cause Not Known	4259	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Root Cause Not Known	X	X	X	X
5742	12	Amber	Solid	Aftertreatment Diesel Particulate Filter Temperature Sensor Module Bad Intelligent Device Or Component	4158	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Bad intelligent device or component	X	X	X	X
5742	16	Amber	None	Aftertreatment Diesel Particulate Filter Temperature Sensor Module Data Valid But Above Normal Operating Range - Moderately Severe Level	4163	Aftertreatment Diesel Particulate Filter Temperature Sensor Module- Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
5743	3	Amber	Solid	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module Voltage Above Normal, Or Shorted To High Source	4164	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Voltage Above Normal, or Shorted to High Source	X	X	X	X

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
5743	4	Amber	None	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module Voltage Below Normal, Or Shorted To Low Source	4165	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Voltage below normal, or shorted to low source	X	X	X	X
5743	9	Amber	Solid	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module Abnormal Update Rate	4152	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Abnormal update rate	X	X	X	X
5743	11	Amber	Solid	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module Root Cause Not Known	4261	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Root Cause Not Known	X	X	X	X
5743	12	Amber	Solid	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module Bad Intelligent Device Or Component	4159	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Bad intelligent device or component	X	X	X	X
5743	16	Amber	None	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module Data Valid But Above Normal Operating Range - Moderately Severe Level	4166	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X	X	X
5745	3	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Voltage Above Normal, Or Shorted To High Source	4168	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater - Voltage Above Normal, or Shorted to High Source	X	X	X	X
5745	4	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Voltage Below Normal, Or Shorted To Low Source	4169	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater - Voltage below normal, or shorted to low source	X	X	X	X
5745	18	Amber	None	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Data Valid But Below Normal Operating Range - Moderately Severe Level	4171	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater - Data Valid But Below Normal Operating Range - Moderately Severe Level	X	X	X	X
5746	3	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Relay Voltage Above Normal, Or Shorted To High Source	4155	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Relay - Voltage Above Normal, or Shorted to High Source	X	X	X	X
5746	4	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Relay Voltage Below Normal, Or Shorted To Low Source	4156	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Relay - Voltage below normal, or shorted to low source	X	X	X	X
5747	3	Amber	Solid	Aftertreatment 1 Outlet Soot Sensor Heater Voltage Above Normal, Or Shorted To High Source	4153	Aftertreatment 1 Outlet Soot Sensor Heater - Voltage Above Normal, or Shorted to High Source	X	X	X	X
5747	4	Amber	Solid	Aftertreatment 1 Outlet Soot Sensor Heater Voltage Below Normal, Or Shorted To Low Source	4154	Aftertreatment 1 Outlet Soot Sensor Heater - Voltage below normal, or shorted to low source	X	X	X	X
5798	2	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Temperature Data Erratic, Intermittent Or Incorrect	4245	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Temperature - Data erratic, intermittent or incorrect	X	X	X	X

SA 0 SAE Diagnostic Trouble Codes and Cummins Fault Codes

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
5798	10	Amber	Solid	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Temperature Abnormal Rate Of Change	4251	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Temperature - Abnormal Rate of Change	X	X	X	X
5848	2	Amber	Solid	Aftertreatment 1 SCR Intermediate NH3 Data Erratic, Intermittent Or Incorrect	4281	Aftertreatment 1 SCR Intermediate NH3 - Data erratic, intermittent or incorrect	X	X	X	X
5848	9	Amber	Solid	Aftertreatment 1 SCR Intermediate NH3 Abnormal Update Rate	3911	Aftertreatment 1 SCR Intermediate NH3 Sensor - Abnormal update rate	X	X	X	X
5848	20	Amber	None	Aftertreatment 1 SCR Intermediate NH3 Data Drifted High	4278	Aftertreatment 1 SCR Intermediate NH3 - Data not Rational - Drifted High	X	X	X	X
5848	21	Amber	None	Aftertreatment 1 SCR Intermediate NH3 Data Drifted Low	4279	Aftertreatment 1 SCR Intermediate NH3 - Data not Rational - Drifted Low	X	X	X	X
5862	0	Red	None	Aftertreatment 1 SCR Intermediate Gas Temperature Data Valid But Above Normal Operational Range - Most Severe Level	4524	Aftertreatment 1 SCR Intermediate Gas Temperature - Data valid but above normal operational range - Most Severe Level	X	X		
5862	2	Amber	Solid	Aftertreatment 1 SCR Intermediate Gas Temperature Data Erratic, Intermittent Or Incorrect	4521	Aftertreatment 1 SCR Intermediate Gas Temperature Sensor - Data erratic, intermittent or incorrect	X	X		
5862	3	Amber	Solid	Aftertreatment 1 SCR Intermediate Gas Temperature Voltage Above Normal, Or Shorted To High Source	4518	Aftertreatment 1 SCR Intermediate Gas Temperature Sensor Circuit - Voltage above normal, or shorted to high source	X	X		
5862	4	Amber	Solid	Aftertreatment 1 SCR Intermediate Gas Temperature Voltage Below Normal, Or Shorted To Low Source	4519	Aftertreatment 1 SCR Intermediate Gas Temperature Sensor Circuit - Voltage below normal, or shorted to low source	X	X		
5862	16	Red	None	Aftertreatment 1 SCR Intermediate Gas Temperature Data Valid But Above Normal Operating Range - Moderately Severe Level	4525	Aftertreatment 1 SCR Intermediate Gas Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level	X	X		
520325	31	Amber	Solid	Manufacturer Assignable SPN Condition Exists	2718	Brake and Throttle Conflict - Condition Exists	X	X	X	X
520595	3	Amber	Solid	Manufacturer Assignable SPN Voltage Above Normal, Or Shorted To High Source	4286	Closed Crankcase Ventilation System Pressure Sensor - Voltage Above Normal, or Shorted to High Source				X
520595	4	Amber	Solid	Manufacturer Assignable SPN Voltage Below Normal, Or Shorted To Low Source	4287	Closed Crankcase Ventilation System Pressure Sensor - Voltage below normal, or shorted to low source				X

SAE J1939 SPN	SAE J1939 FMI	Lamp Color	MIL Lamp Status	J1939 SPN/FMI Description	Fault Code	Cummins Description	2013 ISX15	2013 ISX12	2013 ISL9	2013 ISB6.7
520668	31	Amber	Solid	Manufacturer Assignable SPN Condition Exists	4452	Aftertreatment 1 Outlet NOx Sensor Closed Loop Operation - Condition Exists	X	X	X	X
520669	31	Amber	Solid	Manufacturer Assignable SPN Condition Exists	4453	Aftertreatment 1 Outlet NH3 Sensor Closed Loop Operation - Condition Exists	X	X	X	X
520680	11	Amber	None	Accelerator Brake Override – Condition Exists.	4527	Accelerator Brake Override – Condition Exists.	X	X	X	X
520701	31	Amber	Solid	Manufacturer Assignable SPN Condition Exists	4612	Air Handling Feedback Control - Condition Exists	X	X	X	X



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FAULT CODES

1000 TRANSMISSIONS

2000 TRANSMISSIONS

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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

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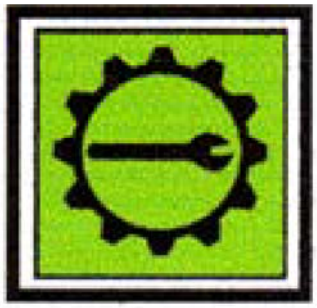

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FAULT CODES

3000 MH
TRANSMISSIONS

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3000 Series Gen IV

Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
C1312	Retarder Request Sensor Failed Low	No	May inhibit retarder operation if not using J1939 datalink
C1313	Retarder Request Sensor Failed High	No	May inhibit retarder operation if not using J1939 datalink
P0122	Pedal Position Sensor Low Voltage	No	Use default throttle values. Freezes shift adapts.
P0123	Pedal Position Sensor High Voltage	No	Use default throttle values. Freezes shift adapts.
P0218	Transmission Fluid Over Temperature	No	Use hot mode shift schedule. Holds fourth range. TCC is inhibited. Freezes shift adapts.
P0602	TCM Not Programmed	Yes	Lock in Neutral
P0610	TCM Vehicle Options (TransID) Error	Yes	Use TID A calibration
P0613	TCM Processor	No	All solenoids off
P0614	Torque Control Data Mismatch—ECM/TCM	Yes	Allows operation only in reverse and second range.
P0634	TCM Internal Temperature Too High	Yes	SOL OFF (hydraulic default)
P063E	Auto Configuration Throttle Input Not Present	Yes	Use default throttle values

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Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions *(cont'd)*

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
P063F	Auto Configuration Engine Coolant Temp Input Not Present	No	None
P0658	Actuator Supply Voltage 1 (HSD1) Low	Yes	DNS, SOL OFF (hydraulic default)
P0659	Actuator Supply Voltage 1 (HSD1) High	Yes	DNS, SOL OFF (hydraulic default)
P0702	Transmission Control System Electrical (TransID)	Yes	Uses TID A calibration
P0703	Brake Switch Circuit Malfunction	No	No Neutral to Drive shifts for refuse packer. TCM inhibits retarder operation if a TPS code is also active.
P0708	Transmission Range Sensor Circuit High Input	Yes	Ignore defective strip selector inputs
P070C	Transmission Fluid Level Sensor Circuit—Low Input	No	None
P070D	Transmission Fluid Level Sensor Circuit—High Input	No	None
P0711	Transmission Fluid Temperature Sensor Circuit Performance	Yes	Use default sump temp
P0712	Transmission Fluid Temperature Sensor Circuit Low Input	Yes	Use default sump temp
P0713	Transmission Fluid Temperature Sensor Circuit High Input	Yes	Use default sump temp
P0716	Turbine Speed Sensor Circuit Performance	Yes	DNS, Lock in current range
P0717	Turbine Speed Sensor Circuit No Signal	Yes	DNS, Lock in current range
P0719	Brake Switch ABS Input Low	No	TCM assumes ABS is OFF
P071A	RELS Input Failed On	Yes	Inhibit RELS operation
P071D	General Purpose Input Fault	Yes	None
P0721	Output Speed Sensor Circuit Performance	Yes	DNS, Lock in current range
P0722	Output Speed Sensor Circuit No Signal	Yes	DNS, Lock in current range
P0726	Engine Speed Sensor Circuit Performance	No	Default to turbine speed
P0727	Engine Speed Sensor Circuit No Signal	No	Default to turbine speed
P0729	Incorrect 6th Gear Ratio	Yes	DNS, Attempt 5th, then 3rd
P0731	Incorrect 1st Gear Ratio	Yes	DNS, Attempt 2nd, then 5th
P0732	Incorrect 2nd Gear Ratio	Yes	DNS, Attempt 3rd, then 5th
P0733	Incorrect 3rd Gear Ratio	Yes	DNS, Attempt 4th, then 6th
P0734	Incorrect 4th Gear Ratio	Yes	DNS, Attempt 5th, then 3rd
P0735	Incorrect 5th Gear Ratio	Yes	DNS, Attempt 6th, then 3rd, then 2nd
P0736	Incorrect Reverse Gear Ratio	Yes	DNS, Lock in Neutral
P0741	Torque Converter Clutch System Stuck Off	Yes	None
P0776	Pressure Control Solenoid 2 Stuck Off	Yes	DNS, RPR
P0777	Pressure Control Solenoid 2 Stuck On	Yes	DNS, RPR

Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions *(cont'd)*

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
P0796	Pressure Control Solenoid 3 Stuck Off	Yes	DNS, RPR
P0797	Pressure Control Solenoid 3 Stuck On	Yes	DNS, RPR
P0842	Transmission Pressure Switch 1 Circuit Low	Yes	DNS, Lock in current range
P0843	Transmission Pressure Switch 1 Circuit High	Yes	DNS, Lock in current range
P0880	TCM Power Input Signal	No	None
P0881	TCM Power Input Signal Performance	No	None
P0882	TCM Power Input Signal Low	Yes	DNS, SOL OFF (hydraulic default)
P0883	TCM Power Input Signal High	No	None
P0894	Transmission Component Slipping	Yes	DNS, Lock in first
P0960	Pressure Control Solenoid Main Mod Control Circuit Open	Yes	None
P0962	Pressure Control Solenoid Main Mod Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P0963	Pressure Control Solenoid Main Mod Control Circuit High	Yes	None
P0964	Pressure Control Solenoid 2 (PCS2) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P0966	Pressure Control Solenoid 2 (PCS2) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P0967	Pressure Control Solenoid 2 (PCS2) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P0968	Pressure Control Solenoid 3 (PCS3) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P0970	Pressure Control Solenoid 3 (PCS3) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P0971	Pressure Control Solenoid 3 (PCS3) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P0973	Shift Solenoid 1 (SS1) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P0974	Shift Solenoid 1 (SS1) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P0975	Shift Solenoid 2 (SS2) Control Circuit Open	Yes	7-speed: Allow 2 through 6, N, R
P0976	Shift Solenoid 2 (SS2) Control Circuit Low	Yes	7-speed: Allow 2 through 6, N, R. Inhibit TCC operation
P0977	Shift Solenoid 2 (SS2) Control Circuit High	Yes	7-speed: Allow 2 through 6, N, R
P0989	Retarder Pressure Sensor Failed Low	No	None
P0990	Retarder Pressure Sensor Failed High	No	None
P1739	Incorrect Low Gear Ratio	Yes	Command 2nd and allow shifts 2 through 6, N, R
P1891	Throttle Position Sensor PWM Signal Low Input	No	Use default throttle values
P1892	Throttle Position Sensor PWM Signal High Input	No	Use default throttle values
P2184	Engine Coolant Temperature Sensor Circuit Low Input	No	Use default engine coolant values

DIAGNOSTIC TROUBLE CODES (DTC)

Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions *(cont'd)*

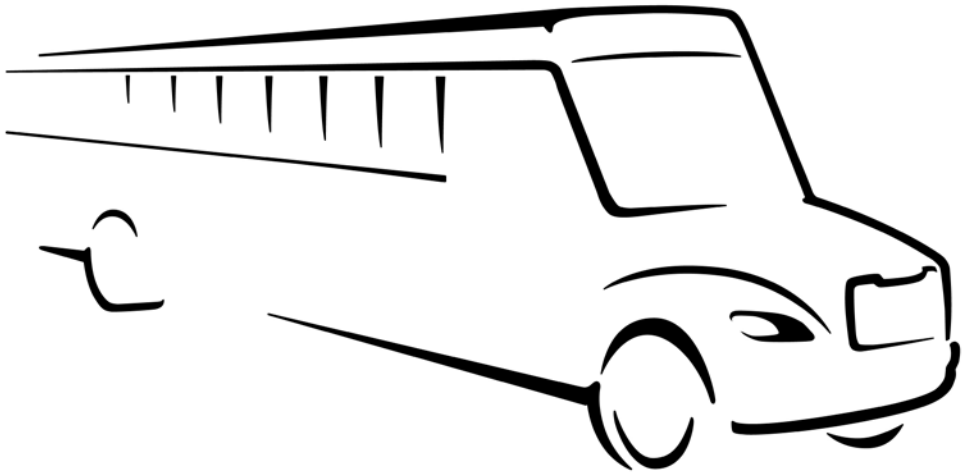
DTC	Description	CHECK TRANS Light	Inhibited Operation Description
P2185	Engine Coolant Temperature Sensor Circuit High Input	No	Use default engine coolant values
P2637	Torque Management Feedback Signal (SEM)	Yes	Inhibit SEM
P2641	Torque Management Feedback Signal (LRTP)	Yes	Inhibit LRTP
P2670	Actuator Supply Voltage 2 (HSD2) Low	Yes	DNS, SOL OFF (hydraulic default)
P2671	Actuator Supply Voltage 2 (HSD2) High	Yes	DNS, SOL OFF (hydraulic default)
P2685	Actuator Supply Voltage 3 (HSD3) Low	Yes	DNS, SOL OFF (hydraulic default)
P2686	Actuator Supply Voltage 3 (HSD3) High	Yes	DNS, SOL OFF (hydraulic default)
P2714	Pressure Control Solenoid 4 (PCS4) Stuck Off	Yes	DNS, RPR
P2715	Pressure Control Solenoid 4 (PCS4) Stuck On	Yes	DNS, SOL OFF (hydraulic default)
P2718	Pressure Control Solenoid 4 (PCS4) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P2720	Pressure Control Solenoid 4 (PCS4) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P2721	Pressure Control Solenoid 4 (PCS4) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P2723	Pressure Control Solenoid 1 (PCS1) Stuck Off	Yes	DNS, RPR
P2724	Pressure Control Solenoid 1 (PCS1) Stuck On	Yes	DNS, RPR
P2727	Pressure Control Solenoid 1 (PCS1) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P2729	Pressure Control Solenoid 1 (PCS1) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P2730	Pressure Control Solenoid 1 (PCS1) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P2736	Pressure Control Solenoid 5 (PCS5) Control Circuit Open	Yes	Inhibit retarder operation
P2738	Pressure Control Solenoid 5 (PCS5) Control Circuit Low	Yes	Allow 2 through 6, N, R. Inhibit retarder and TCC operation
P2739	Pressure Control Solenoid 5 (PCS5) Control Circuit High	Yes	Inhibit retarder operation
P2740	Retarder Oil Temperature Hot	No	None
P2742	Retarder Oil Temperature Sensor Circuit—Low Input	No	Use default retarder temp values
P2743	Retarder Oil Temperature Sensor Circuit—High Input	No	Use default retarder temp values
P2761	TCC PCS Control Circuit Open	Yes	Inhibit TCC operation
P2763	TCC PCS Control Circuit High	Yes	Inhibit TCC operation
P2764	TCC PCS Control Circuit Low	Yes	7-speed: allow 2 through 6, N, R. Inhibit TCC operation
P278A	Kickdown Input Failed ON	No	Inhibit kickdown operation
P2793	Gear Shift Direction Circuit	Yes	Ignores PWM input from shift selector
P2808	Pressure Control Solenoid 6 (PCS6) Stuck Off	Yes	DNS, RPR

DIAGNOSTIC TROUBLE CODES (DTC)

Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions *(cont'd)*

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
P2809	Pressure Control Solenoid 6 (PCS6) Stuck On	Yes	DNS, RPR
P2812	Pressure Control Solenoid 6 (PCS6) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P2814	Pressure Control Solenoid 6 (PCS6) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P2815	Pressure Control Solenoid 6 (PCS6) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
U0001	Hi Speed CAN Bus Reset Counter Overrun (IESCAN)	No	Use default values, inhibit SEM
U0010	CAN BUS Reset Counter Overrun	No	Use default values, inhibit SEM
U0100	Lost Communications with ECM/PCM (J1587)	Yes	Use default values
U0103	Lost Communication With Gear Shift Module (Shift Selector) 1	Yes	Maintain range selected, observe gear shift direction circuit
U0115	Lost Communication With ECM	Yes	Use default values
U0291	Lost Communication With Gear Shift Module (Shift Selector) 2	Yes	Maintain range selected, observe gear shift direction circuit
U0304	Incompatible Gear Shift Module 1 (Shift Selector) ID	Yes	Ignore shift selector inputs
U0333	Incompatible Gear Shift Module 2 (Shift Selector) ID	Yes	Ignore shift selector inputs
U0404	Invalid Data Received From Gear Shift Module (Shift Selector) 1	Yes	Maintain range selected, observe gear shift direction circuit
U0592	Invalid Data Received From Gear Shift Module (Shift Selector) 2	Yes	Maintain range selected, observe gear shift direction circuit

Saf-T-Liner C2
Fault Codes



SA 33

1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
84	19	Vehicle speed received data error	Troubleshoot for a fault with the vehicle speed sensor and wiring, as described in the engine service literature. The vehicle speed sensor is part of the engine management system, and the data is broadcast from the engine ECU over J1939 or J1708 on EPA07 and older vehicles.	data	—
598	7	Clutch switch fault	The top-of-clutch switch and bottom-of-clutch switch are both measured as closed at the same time. Troubleshoot for clutch switch shorted, or for a wiring fault between the clutch switch and the BHM. Engine starting is disabled and other optional functions may be interrupted until the fault is corrected and the ignition switch is cycled.	440C top 15K bottom	**BHM** B6, B2 B6 (top) B3 (bottom)
879	5	Front left turn lamp — current below expected value	The BHM measures the current on this circuit when the lamp is commanded ON. This fault indicates the bulb is open, or the wiring between the BHM and the bulb is an open circuit.	38L	**CHM** C3, N
879	6	Front left turn lamp — current above expected value	The BHM measures the current on this circuit when the lamp is commanded ON. This fault indicates that the lamps connected to this circuit are drawing more current than the circuit is designed to supply, or there is a wiring fault shorting this circuit to ground.	38L	**CHM** C3, N
881	5	Front right turn lamp — current below expected value	The BHM measures the current on this circuit when the lamp is commanded ON. This fault indicates that the bulb is open, or the wiring between the BHM and the bulb is an open circuit.	38R	**CHM** C3, R
881	6	Front right turn lamp — current above expected value	The BHM measures the current on this circuit when the lamp is commanded ON. This fault indicates that the lamps connected to this circuit are drawing more current than the circuit is designed to supply, or there is a wiring fault shorting this circuit to ground.	38R	**CHM** C3, R

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
882	4	Marker lamps — voltage below expected value	The BHM drives the 5 cab overhead clearance and ID lamps from connector B5, pin C on circuit 46. All other marker and tail lamps are driven from BHM connector B1, K on circuit 23. This circuit connects to the CHM as an input at connector J3, P. The CHM passes the signal through to power the tail lamps and marker lamps from connector C2, pin G and also from connector C1, pins D, E, and F. Troubleshoot for a wiring short-to-ground fault on any of the CHM output or BHM output circuits discussed above. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	23, 46, 23A, 23C	**BHM** B1, K B5, C **CHM** J3, P C2, G C1, D C1, E C1, F
882	5	Marker lamps — current below expected value	The BHM measures the current on this circuit when the lamps are commanded ON. This fault indicates some bulbs are open or the wiring between the BHM and the bulbs is open circuit.	23, 46, 23A, 23C	**BHM** B1, K B5, C **CHM** J3, P C2, G C1, D C1, E C1, F
882	6	Marker lamps — current above expected value	The BHM drives the 5 cab overhead clearance and ID lamps from connector B5 pin C on circuit 46. All other marker and tail lamps are driven from BHM connector B1,K on circuit 23. This circuit connects to the CHM as an input at connector J3,P. The CHM passes the signal through to power the tail lamps and marker lamps from connector C2 pin G and also from connector C1 pins D, E, and F. Troubleshoot for a wiring short to ground fault on any of the CHM output or BHM output circuits discussed above. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	23, 46, 23A, 23C	**BHM** B1, K B5, C **CHM** J3, P C2, G C1, D C1, E C1, F
1487	7	Backlighting intensity switch circuit fault	The backlighting dimmer switch connects ground to circuit 29C in the increase intensity position. It connects ground to circuit 29 in the decrease intensity position. If both circuits are at ground, this fault is set.	29, 29C	**BHM** B6, B5 B6, B6
1550	5	AC compressor clutch — current below expected value	The BHM measures the current on this circuit when the AC compressor is commanded ON. This fault indicates the clutch circuit is open or the wiring between the BHM and the AC compressor clutch is high resistance or open.	97F, 97C, 98Z	**BHM** B2, M
1550	6	AC compressor clutch — current above expected value	The BHM measures the current on this circuit when the AC compressor clutch is commanded ON. This fault indicates that the circuit is drawing more current than it is designed to supply, and possibly there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	97F, 97C, 98Z	**BHM** B2, M

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
2003	19	Transmission controller not broadcasting expected message	The BHM expects to receive data from the transmission controller. This fault indicates that the transmission ECU is not broadcasting or there is a fault with the J1939 databus. Also troubleshoot the power feed circuits to the transmission controller.	data	—
2071	19	Chassis module not broadcasting expected message	The BHM expects to receive data from the chassis module. This fault indicates that the CHM is not broadcasting or there is a fault with the J1939 databus. Also troubleshoot the power feed circuits to the CHM.	data	—
6890	8	DRL output fault	The CHM does not suupport PWM type DRLs. The vehicle has a BHM mismatch with the CHM. Replace the CHM with one that is compatible with the BHM.	379L 379R	**CHM** C3, K C4, F
6891	4	CHM power feed VBAT1 — low voltage	The output circuits that are powered by VBAT1 will all be inoperative. Other fault codes may be present, but troubleshoot for this first. The fuse in the main PDM powering this circuit may be open. The root cause could be excessive loads on an output, or a short to ground in the VBAT1 supply to the CHM.	14G	**CHM** C4, P
6892	4	CHM power feed VBAT2 — low voltage	The output circuits that are powered by VBAT2 will all be inoperative. Other fault codes may be present, but troubleshoot for this first. The fuse in the main PDM powering this circuit may be open. The root cause could be excessive loads on an output, or a short to ground in the VBAT2 supply to the CHM.	14G	**CHM** C3, J
6893	4	CHM power feed VBAT3 — low voltage	The output circuits that are powered by VBAT3 will all be inoperative. Other fault codes may be present, but troubleshoot for this first. The fuse in the main PDM powering this circuit may be open. The root cause could be excessive loads on an output, or a short to ground in the VBAT3 supply to the CHM.	14G	**CHM** C4, J
6906	7	PTO 2 no pressure feedback	The PTO 2 output circuit has been commanded ON, but air pressure is not detected at the pressure feedback switch. Troubleshoot for PTO 2 air solenoid fault, and for air pressure switch open circuit fault.	variable	variable
6907	7	PTO 2 pressure detected fault	The PTO 2 output circuit is commanded OFF, but air pressure is detected at the pressure feedback switch. Troubleshoot for PTO 2 air solenoid fault, and for air pressure switch short circuit fault.	variable	variable
6908	7	PTO 1 no pressure feedback	The PTO 1 output circuit has been commanded ON, but air pressure is not detected at the pressure feedback switch. Troubleshoot for PTO 2 air solenoid fault, and for air pressure switch open circuit fault.	variable	variable
6909	7	PTO 1 pressure detected fault	The PTO 1 output circuit is commanded OFF, but air pressure is detected at the pressure feedback switch. Troubleshoot for PTO 2 air solenoid fault, and for air pressure switch short circuit fault.	variable	variable
6910	7	Axle lift 2 no pressure feedback	The axle lift 2 output circuit has been commanded ON, but air pressure is not detected at the pressure feedback switch. Troubleshoot for axle lift 2 air solenoid fault, and for air pressure switch open circuit fault.	variable	variable

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6911	7	Axle lift 2 pressure detected fault	The axle lift 2 output circuit is commanded OFF, but air pressure is detected at the pressure feedback switch. Troubleshoot for axle lift 2 air solenoid fault, and for air pressure switch short circuit fault.	variable	variable
6912	7	Remote start switch stuck in crank	BHM connector B6, A5 is at battery voltage for more than 30 seconds and the key is in the ON position. The remote start switch circuit 15D is at ground, and the remote start relay is active. Troubleshoot the pneumatic remote start switch system in trucks with a bucket lift, or the remote start switch applicable to the vehicle.	15D, 15	**BHM** B6, A5
6915	4	BHM 8 amp ignition output circuit — voltage below expected value	The BHM supplies battery power on this circuit when the key is in the RUN or CRANK positions. Troubleshoot for a wiring fault shorting this circuit to ground or for too many optional circuits spliced into it that is causing the BHM to turn it off. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	81C	**BHM** B5, G
6915	5	BHM 8 amp ignition output circuit — current below expected value	The BHM supplies battery power on this circuit when the key is in the RUN or CRANK positions. Troubleshoot for an open circuit fault.	81C	**BHM** B5, G
6915	6	BHM 8 amp ignition output circuit — current above expected value	The BHM supplies battery power on this circuit when the key is in the RUN or CRANK positions. Troubleshoot for a wiring fault shorting this circuit to ground or for too many optional circuits spliced into it that is causing the BHM to turn it off. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	81C	**BHM** B5, G
6916	19	Wiper park position — data fault	The wiper switch is in the OFF position and the BHM park input from the wiper motor is not in park position. Troubleshoot for a wiper motor park switch circuit fault.	—	**BHM** B3, C **ICU** A2
6917	19	Four way flashers — data fault	The ICU broadcasts the state of the turn signal indicators to the BHM. When this fault is active, the four-way flashers are on and the ICU is not controlling the turn signal indicators according to the BHM command. Replace the ICU.	—	**BHM** B6, B8
6918	7	Missing smart switch	The BHM is not detecting the presence of all the smart switches it is configured to have. Use ServiceLink to determine which smart switch is missing. From the BHM screen, click on the "Configuration" tab then click the "Check for Missing Smart Switches" box. The switch ID will be missing from the Smart Switch the vehicle is expected to have.	—	—

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6919	7	Duplicate smart switch	The BHM is detecting more than one smart switch with the same ID number present on the vehicle. The outputs controlled by the switch and the indicator in the switch are commanded OFF. The position information for the switch becomes Not Available. Remove the duplicate Smart Switch, then use ServiceLink to verify that the correct Smart Switches are configured for the vehicle. From the BHM screen, click the "Features" tab. The reference parameters that configure the Smart Switches are identified in this list.	—	—
6920	7	Extra smart switch	The BHM is detecting one or more smart switches connected to the vehicle that have not been configured with BHM parameters. Use ServiceLink to identify which Smart Switches are configured for the vehicle. From the BHM screen, click the "Features" tab. The reference parameters that configure the Smart Switches are identified in this list. Determine if the extra switch is not required for the vehicle or if the switch has been installed but the necessary reference parameter has not been programmed into the BHM.	—	—
6921	7	BHM microprocessor fault	Replace the BHM.	—	—
6922	7	Wake up circuit fault	The wake up circuit is powered to a battery voltage circuit. One of the ECUs using circuit 14E is holding this circuit ON, or there is a wiring fault. Use the procedure in service bulletin **54-266**.	14E	**BHM** B1, B B1, D B4, H B6, A2 **CHM** C4, A **SHM** J1, C **SEM** J1, 2
6923	7	Wiper park circuit fault	When the wiper switch is turned to the OFF position, the BHM expects to see ground on the park switch circuit within 5 seconds. This fault is set if ground is not detected. Troubleshoot for an open in circuit 317, or an open park switch in the wiper motor.	317	**BHM** B3, C
6924	19	Wiper switch ON/OFF logic fault	The ICU reads the wiper switch position and sends the status of the switch to the BHM. This fault becomes active when the ICU reads that either the LO speed or HI speed is active when the wiper switch is also in the OFF position. Troubleshoot for a inoperative stalk switch.	473C	**ICU** A2
6925	19	Wiper switch HI/LO logic fault	The ICU reads the wiper switch position and sends the status of the switch to the BHM. This fault becomes active when the ICU reads that both LO speed and HI speed are active at the same time. Troubleshoot for an inoperative stalk switch.	473C	**ICU** A2

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6926	7	Marker interrupt switch fault	The BHM reads the marker-interrupt smart switch. If the switch input is activated for too long, this fault becomes active. Troubleshoot for the marker interrupt switch stuck in the active position, or for the user holding it too long.	variable	variable
6928	7	Suspension proportioning — no pressure feedback	The suspension proportioning output circuit has been commanded ON, but air pressure is not detected at the pressure feedback switch. Troubleshoot for a suspension proportioning air solenoid fault, and for an air pressure switch open circuit fault.	variable	variable
6929	7	Suspension proportioning — pressure detected	The suspension proportioning output circuit is commanded OFF, but air pressure is detected at the pressure feedback switch. Troubleshoot for suspension proportioning air solenoid fault, and for air pressure switch short circuit fault.	variable	variable
6931	7	Suspension dump — no pressure feedback	The suspension dump output circuit has been commanded ON, but air pressure is not detected at the pressure feedback switch. Troubleshoot for suspension dump air solenoid fault, and for air pressure switch open circuit fault.	variable	variable
6932	7	Suspension dump — pressure detected	The suspension dump output circuit is commanded OFF, but air pressure is detected at the pressure feedback switch. Troubleshoot for suspension dump air solenoid fault, and for air pressure switch short circuit fault.	variable	variable
6944	6	Fuel water separator heater circuit — current above expected value	The BHM measures the current on this circuit. This fault indicates that the circuit is drawing more current than it is designed to supply, and possibly there is a wiring fault shorting this circuit to ground. Troubleshoot for a wiring fault shorting this circuit to ground, and for a short in the heater. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	196	**CHM** C3, A
6951	7	Fifth wheel slide — no pressure feedback	The fifth wheel slide output circuit has been commanded ON, but air pressure is not detected at the pressure feedback switch. Troubleshoot for a fifth wheel slide air solenoid fault, and for an air pressure switch open circuit fault.	variable	variable
6952	7	Fifth wheel slide — pressure detected	The fifth wheel slide output circuit is commanded OFF, but air pressure is detected at the pressure feedback switch. Troubleshoot for a fifth wheel slide air solenoid fault, and for an air pressure switch short circuit fault.	variable	variable
6954	7	End of frame air — no pressure feedback	The End of Frame air output circuit has been commanded ON, but air pressure is not detected at the pressure feedback switch. Troubleshoot for an End of Frame air solenoid fault, and for an air pressure switch open circuit fault.	variable	variable
6955	7	End of frame air — pressure detected	The End of Frame air output circuit is commanded OFF, but air pressure is detected at the pressure feedback switch. Troubleshoot for an End of Frame air solenoid fault, and for an air pressure switch short circuit fault.	variable	variable

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6958	6	Brake air dryer circuit — current above expected value	The BHM measures the current on this circuit. This fault indicates that the circuit is drawing more current than it is designed to supply, and possibly there is a wiring fault shorting this circuit to ground. Use the schematic in module 84A to assist troubleshooting this circuit. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	94	**BHM** B4, M
6961	7	Axle lift # 1 — no pressure feedback	The axle lift 1 output circuit has been commanded ON, but air pressure is not detected at the pressure feedback switch. Troubleshoot for axle lift 1 air solenoid fault, and for air pressure switch open circuit fault.	variable	variable
6962	7	Axle lift # 1 — pressure detected	The axle lift 1 output circuit is commanded OFF, but air pressure is detected at the pressure feedback switch. Troubleshoot for axle lift 1 air solenoid fault, and for air pressure switch short circuit fault.	variable	variable
6965	4	BHM VBAT 5 input — voltage below expected value	The output circuits that are powered by VBAT5 will all be inoperative. Other fault codes may be present, but troubleshoot for this first. The fuse in the main PDM powering this circuit may be open. The root cause could be excessive loads on an output, or a short to ground in the VBAT5 supply to the BHM.	14H	**BHM** B1, J
6966	4	BHM VBAT 4 input — voltage below expected value	The output circuits that are powered by VBAT4 will all be inoperative. Other fault codes may be present, but troubleshoot for this first. The fuse in the main PDM powering this circuit may be open. The root cause could be excessive loads on an output, or a short to ground in the VBAT4 supply to the BHM.	14H	**BHM** B4, K
6967	4	BHM VBAT 3 input — voltage below expected value	The output circuits powered by VBAT3 will all be inoperative. Other fault codes may be present, but troubleshoot for this first. The fuse in the main PDM powering this circuit may be open. The root cause could be excessive loads on an output, or a short to ground in the VBAT3 supply to the BHM.	14H	**BHM** B1, N
6968	4	BHM VBAT 2 input — voltage below expected value	The output circuits that are powered by VBAT2 will all be inoperative. Other fault codes may be present, but troubleshoot for this first. The fuse in the main PDM powering this circuit may be open. The root cause could be excessive loads on an output, or a short to ground in the VBAT2 supply to the BHM.	14H	**BHM** B4, G
6969	4	BHM VBAT 1 input — voltage below expected value	The output circuits that are powered by VBAT1 will all be inoperative. Other fault codes may be present, but troubleshoot for this first. The fuse in the main PDM powering this circuit may be open. The root cause could be excessive loads on an output, or a short to ground in the VBAT1 supply to the BHM.	14H	**BHM** B3, D
6970	5	Wiper high speed circuit — current below expected value	The BHM measures the current on this circuit when the windshield wipers are operating on high speed. This fault indicates the wiper motor high speed circuit is open, or the wiring between the BHM and the wiper motor is open circuit. Test for an open wiper motor and use the schematic in module 66B to assist troubleshooting the circuit.	318	**BHM** B3, F

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6970	6	Wiper high speed circuit — current above expected value	The BHM measures the current on this circuit when the windshield wipers are operating on high speed. This fault indicates the wiper motor high speed circuit is short to ground, or the wiring between the BHM and the wiper motor is short to ground. Use the schematic in module 66B to assist troubleshooting the circuit.	318	**BHM** B3, F
6971	5	Wiper low speed circuit — current below expected value	The BHM measures the current on this circuit when the windshield wipers are operating on low speed. This fault indicates the wiper motor low speed circuit is open, or the wiring between the BHM and the wiper motor is open circuit. Test for an open wiper motor and use the schematic in module 66B to assist troubleshooting the circuit.	316	**BHM** B3, H
6971	6	Wiper low speed circuit — current above expected value	The BHM measures the current on this circuit when the windshield wipers are operating on low speed. This fault indicates the wiper motor low speed circuit is short to ground, or the wiring between the BHM and the wiper motor is short to ground. Use the schematic in module 66B to assist troubleshooting the circuit.	316	**BHM** B3, H
6972	19	Windshield wiper high speed switch — data error	The ICU is unable to broadcast a valid wiper high speed switch position to the BHM. Troubleshoot for a wiper switch fault or for loss of J1939 communication from the ICU.	—	**ICU** A2
6973	19	Windshield wiper low speed switch — data error	The ICU is unable to broadcast a valid wiper low speed switch position to the BHM. Troubleshoot for a wiper switch fault or for loss of J1939 communication from the ICU.	—	**ICU** A2
6974	19	Windshield wiper switch — data error	The ICU is unable to broadcast a valid wiper switch position to the BHM. Troubleshoot for a wiper switch fault or for loss of J1939 communication from the ICU.	—	**ICU** A2
6976	5	Windshield washer pump circuit — current below expected value	The BHM measures the current on this circuit when the windshield washer pump is operating. This fault indicates the windshield washer pump is open circuit, or the wiring between the BHM and the windshield washer pump is open circuit. Test for an open washer pump and use the schematic in module 66B to assist troubleshooting the circuit.	320	**BHM** B3, G
6976	6	Windshield washer pump circuit — current above expected value	The BHM measures the current on this circuit when the windshield washer pump is operating. This fault indicates the windshield washer pump is short to ground, or the wiring between the BHM and the windshield washer pump is short to ground. Use the schematic in module 66B to assist troubleshooting the circuit. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	320	**BHM** B3, G
6977	19	Windshield washer switch — data error	The ICU is unable to broadcast a valid windshield washer switch position to the BHM. Troubleshoot for a washer switch fault or for loss of J1939 communication from the ICU.	—	**ICU** B7

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6978	19	Right turn signal switch — data error	The ICU is unable to broadcast a valid turn signal switch position to the BHM. Troubleshoot for a turn signal switch fault or for loss of J1939 communication from the ICU.	—	**ICU** B6
6979	19	Left turn signal switch — data error	The ICU is unable to broadcast a valid turn signal switch position to the BHM. Troubleshoot for a turn signal switch fault, or for loss of J1939 communication from the ICU.	—	**ICU** B6
6980	5	Right stop/turn lamp — current below expected value	The BHM measures the current on this circuit when the lamp is commanded ON. This fault indicates the bulb is open, or the wiring between the BHM and the bulb is open circuit.	39R	**CHM** C1, L
6980	6	Right stop/turn lamp — current above expected value	The BHM measures the current on this circuit when the lamp is commanded ON. This fault indicates that the lamps connected to this circuit are drawing more current than the circuit is designed to supply, or there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	39R	**CHM** C1, L
6981	5	Left stop/turn lamp — current below expected value	The BHM measures the current on this circuit when the lamp is commanded ON. This fault indicates the bulb is open, or the wiring between the BHM and the bulb is open circuit.	39L	**CHM** C1, N
6981	6	Left stop/turn lamp — current above expected value	The BHM measures the current on this circuit when the lamp is commanded ON. This fault indicates that the lamps connected to this circuit are drawing more current than the circuit is designed to supply, or there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	39L	**CHM** C1, N
6982	5	Wake up / ICU power output circuit — current below expected value	The BHM measures the current on this circuit when the wake up/ICU power output circuit is commanded ON. This fault indicates an open circuit.	81C	**BHM** B5, D
6982	6	Wake up / ICU power output circuit — current above expected value	The BHM measures the current on this circuit when the wake up/ICU power output is commanded ON. This fault indicates that the wake up/ICU power circuit is drawing more current than the circuit is designed to supply, and possibly there is a wiring fault shorting this circuit to ground. Some BHM configurations force this circuit off until the ignition switch is cycled.	81C	**BHM** B5, D
6983	5	Starter relay output — current below expected value	The BHM measures the current on this circuit when the starter output is commanded ON. This fault indicates the magnetic switch or the wiring between the BHM and the magnetic switch is open circuit.	472S	**BHM** B4, B

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6983	6	Starter relay output — current above expected value	The BHM measures the current on this circuit when the starter output is commanded ON. This fault indicates that the magnetic switch circuit is drawing more current than the circuit is designed to supply and possibly there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	472S	**BHM** B4, B
6984	5	Ignition accessory output circuit — current below expected value	The BHM measures the current on this circuit when the accessory output is commanded ON. This fault indicates an open circuit. Use the vehicle schematics to determine what devices are powered by this circuit.	295A or 98	**BHM** B6,A9 or **BHM** B6,A10
6984	6	Ignition accessory output circuit — current above expected value	The BHM measures the current on this circuit when the accessory output is commanded ON. This fault indicates that the accessory circuit is drawing more current than the circuit is designed to supply, and possibly there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	295A or 98	**BHM** B6,A9 or B6,A10
6985	5	Ignition output circuit — current below expected value	The BHM measures the current on this circuit when the ignition output is commanded ON. This fault indicates an open circuit. Use the vehicle schematics to determine what devices are powered by this circuit.	439W+ 376C, 223A, 439A, 81C	**BHM** B1, F B1, P B2, L B2, K B6, A8
6985	6	Ignition output circuit — current above expected value	The BHM measures the current on this circuit when the ignition output is commanded ON. This fault indicates that the ignition circuit is drawing more current than the circuit is designed to supply, and possibly there is a wiring fault shorting this circuit to ground. Some BHM configurations force this circuit off until the ignition switch is cycled.	439W+ 376C, 223A, 439A, 81C	**BHM** B1, F B1, P B2, L B2, K B6, A8
6985	7	The CHM ignition input circuit is not measuring the same state as the BHM ignition output circuit	The BHM ignition output circuit is ON and the CHM ignition input circuit is measuring OFF, or the opposite combination is occurring. This could indicate a combination of wiring faults in the ignition ON circuit to the CHM.	81C	**CHM** C3, M and **BHM** B6, A8

<table>
<tr><th colspan="6">J1939 Fault Codes From Bulkhead Module (SA 33)</th></tr>
<tr><th>SPN</th><th>FMI</th><th>Fault Description</th><th>Diagnosis</th><th>Circuit</th><th>ECU Conn/ Pin</th></tr>
<tr><td>6986</td><td>7</td><td>Ignition switch circuits to BHM are in an invalid combination</td><td>The voltage on the 3 ignition-switch input circuits is expected to be a combination of the values shown below. This fault is active when any of the "Error" combinations occur. Troubleshoot for a wiring fault between the ignition switch and the BHM, or for a defective ignition switch.
<table><tr><th>ACC B6, A1</th><th>IGN B6, A3</th><th>Crank B6,A5</th><th>State</th></tr><tr><td>0</td><td>0</td><td>0</td><td>Off</td></tr><tr><td>12</td><td>0</td><td>0</td><td>Acc</td></tr><tr><td>0</td><td>12</td><td>0</td><td>Error</td></tr><tr><td>12</td><td>12</td><td>0</td><td>On</td></tr><tr><td>0</td><td>0</td><td>12</td><td>Error</td></tr><tr><td>12</td><td>0</td><td>12</td><td>Error</td></tr><tr><td>0</td><td>12</td><td>12</td><td>Crank</td></tr><tr><td>12</td><td>12</td><td>12</td><td>Error *</td></tr></table>* Unless the truck has remote start, this is the remote crank signal.</td><td>52,15, 305, 306</td><td>BHM
B6, A1
B6, A3
B6, A5</td></tr>
<tr><td>6987</td><td>5</td><td>Tail lamp circuit — current below expected value</td><td>The BHM measures the current on this circuit when the tail lamp output is commanded ON. This fault indicates the tail lamp circuit from the BHM to the CHM, or the wiring between the CHM and the lights is open circuit.</td><td>23, 23A, 23C</td><td>BHM
B1, K
and
CHM
C1, D
C1, E
C1, F
C2, G
C3, P</td></tr>
<tr><td>6987</td><td>6</td><td>Tail lamp circuit — current above expected value</td><td>The BHM measures the current on this circuit when the tail lamp output is commanded ON. This fault indicates that the tail lamp circuit is drawing more current than it is designed to supply and possibly there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.</td><td>23, 23A, 23C</td><td>BHM
B1, K
and
CHM
C1, D
C1, E
C1, F
C2, G
C3, P</td></tr>
<tr><td>6988</td><td>5</td><td>Left low beam headlamp circuit — current below expected value</td><td>The BHM measures the current on this circuit when the headlamp output is commanded ON. This fault indicates the headlamp circuit or the wiring between the BHM and the lamp is open circuit.</td><td>20L</td><td>BHM
B1, R</td></tr>
<tr><td>6988</td><td>6</td><td>Left low beam headlamp circuit — current above expected value</td><td>The BHM measures the current on this circuit when the headlamp output is commanded ON. This fault indicates that the headlamp circuit is drawing more current than it is designed to supply and possibly there is a wiring fault shorting this circuit to ground.</td><td>20L</td><td>BHM
B1, R</td></tr>
</table>

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6989	5	Right low beam headlamp circuit — current below expected value	The CHM measures the current on this circuit when the headlamp output is commanded ON. This fault indicates the headlamp circuit or the wiring between the CHM and the lamp is open circuit.	21L	**CHM** C3, L
6989	6	Right low beam headlamp circuit — current above expected value	The CHM measures the current on this circuit when the headlamp output is commanded ON. This fault indicates that the headlamp circuit is drawing more current than it is designed to supply and possibly there is a wiring fault shorting this circuit to ground.	21L	**CHM** C3, L
6990	5	Left high beam headlamp circuit — current below expected value	The BHM measures the current on this circuit when the headlamp output is commanded ON. This fault indicates the left high beam headlamp circuit or the wiring between the BHM and the lamp is open circuit.	20H	**BHM** B1, L
6990	6	Left high beam headlamp circuit — current above expected value	The BHM measures the current on this circuit when the headlamp output is commanded ON. This fault indicates that the left high beam headlamp circuit is drawing more current than it is designed to supply and possibly there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	20H	**BHM** B1, L
6991	5	Right high beam headlamp circuit — current below expected value	The CHM measures the current on this circuit when the headlamp output is commanded ON. This fault indicates the right high beam headlamp circuit or the wiring between the CHM and the lamp is open circuit.	21H	**CHM** C4, K
6991	6	Right high beam headlamp circuit — current above expected value	The CHM measures the current on this circuit when the headlamp output is commanded ON. This fault indicates that the right high beam headlamp circuit is drawing more current than it is designed to supply and possibly there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	21H	**CHM** C4, K
6992	19	High beam switch status — data not available	The BHM is not receiving valid data from the ICU for high beam switch status. Troubleshoot for a fault with the multifunction switch high and low beam circuits to the ICU.	473B	ICU B7
6993	7	Headlamp switch inputs to BHM are in an invalid combination	There are two headlamp ON circuits and one park lamp ON circuit from the headlight switch to the BHM. Both headlamp ON circuits must be at the same voltage. The park lamp circuit from the headlight switch can not be ON when the headlamp circuits are ON. This fault will be active when either of these two fault conditions are present. Troubleshoot for a headlight switch fault, and a wiring fault between the headlight switch and the BHM.	20, 21, 23F	**BHM** B6, B9 B6, B10, B6, B11
6994	19	Hazard lamp switch — circuit out of range	The hazard lamp switch closes a circuit from BHM pin B6, B8 through a resistor in the switch unit to ground. Troubleshoot for a fault in the wiring or an error in the switch assembly.	38B	**BHM** B6, B8

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6995	4	Electric horn — voltage below expected value	The BHM measures the current on this circuit when the horn is commanded ON. Troubleshoot for a short to ground in the wiring between the BHM and the horn. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	24	**BHM** B3, E
6995	5	Electric horn — current below expected value	The BHM measures the current on this circuit when the horn is commanded ON. Troubleshoot for high resistance or open circuit between the BHM and the horn.	24	**BHM** B3, E
6995	6	Electric horn — current above expected value	The BHM measures the current on this circuit when the horn is commanded ON. Troubleshoot for a short to ground in the wiring between the BHM and the horn. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	24	**BHM** B3, E
6996	5	Dome lamp switched power circuit — current below expected value	The BHM measures the current on the dome lamp circuit that is controlled by the door switches when the lamp output is commanded ON. This fault indicates the dome lamp bulb or the wiring between the BHM and the light is open circuit.	108D	**BHM** B5, B
6996	6	Dome lamp switched power circuit — current above expected value	The BHM measures the current on the dome lamp circuit that is controlled by the door switches when the lamp output is commanded ON. This fault indicates the dome lamp circuit is drawing more current than it is designed to supply and possibly there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	108D	**BHM** B5, B
6997	4	Cigar lighter circuit — voltage below expected value	The BHM measures the voltage on this circuit when the lighter output is powered ON. This fault indicates the lighter circuit is measuring lower voltage than the BHM expects. Troubleshoot for a short to ground or for too many accessories connected to this circuit. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	57	**BHM** B5, F
6997	5	Cigar lighter circuit — current below expected value	The BHM measures the current on this circuit . This fault indicates the lighter or the lighter circuit between the BHM and the lighter is high resistance or open circuit.	57	**BHM** B5, F
6997	6	Cigar lighter circuit — current above expected value	The BHM measures the current on this circuit when the lighter output is powered ON. This fault indicates the lighter circuit is drawing more current than the circuit is designed to supply. Troubleshoot for a short to ground or too many accessories connected to this circuit. Some BHM configurations force this circuit off until the ignition switch is cycled.	57	**BHM** B5, F
6998	5	Smart switch battery power circuit — current below expected value.	The BHM measures the current on the smart switch power circuit. Troubleshoot for an open circuit between the BHM and the smart switches.	41	**BHM** B7, A12

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
6998	6	Dome lamp battery power circuit — current above expected value	The BHM measures the current on the dome lamp circuit that is powered by the BHM. This circuit is powered ON when the BHM is in awake state. This fault indicates the dome lamp circuit is drawing more current than it is designed to supply and possibly there is a wiring fault shorting this circuit to ground. Some BHM configurations force this circuit off until the ignition switch is cycled.	41	**BHM** B5, A
6999	5	Backup lamp circuit — current below expected value	The CHM measures the current on this circuit when the backup lamp output is commanded ON. This fault indicates the backup lamp circuit or the wiring between the CHM and the lamp is open circuit.	120B	**CHM** C1, A C1, H C1, J
6999	6	Backup lamp circuit — current above expected value	The CHM measures the current on this circuit when the backup lamp output is commanded ON. This fault indicates that the backup lamp circuit is drawing more current than it is designed to supply and possibly there is a wiring fault shorting this circuit to ground. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	120B	**CHM** C1, A C1, H C1, J
7000	4	Backlighting circuit — voltage below expected value	The BHM measures the current on this circuit when the backlighting is ON. Troubleshoot for a short to ground in the backlighting circuits. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	29A	**BHM** B5, H
7000	5	Backlighting circuit — current below expected value	The BHM measures the current on this circuit when the backlighting is ON. Troubleshoot for an open circuit in the backlighting wiring.	29A	**BHM** B5, H
7000	6	Backlighting circuit — current above expected value	The BHM measures the current on this circuit when the backlighting is ON. Troubleshoot for a short to ground in the backlighting circuits. The fault remains active until the ignition is turned ON when the fault is no longer present. Some BHM configurations force this circuit off until the ignition switch is cycled.	29A	**BHM** B5, H
524280	31	Component ID mismatch	The BHM is in a non-recoverable boot mode. Replace the BHM and contact the help desk to arrange for shipping this BHM to DTNA engineering.	—	—
524281	31	Application to parameters fail	Reflash the BHM — disconnect ServiceLink and cycle the ignition switch.	—	—
524282	12	Parameter data fails checksum	Reflash the BHM — disconnect servicelink and cycle the ignition switch.	—	—
524283	12	Application code fails checksum	Reflash the BHM — disconnect servicelink and cycle the ignition switch.	—	—
524284	12	Boot block checksum fail	The BHM is in a non-recoverable boot mode. Replace the BHM.	—	—

J1939 Fault Codes From Bulkhead Module (SA 33)					
SPN	**FMI**	**Fault Description**	**Diagnosis**	**Circuit**	**ECU Conn/ Pin**
524285	4	Boot hold line is active	The BHM is in a non-recoverable boot mode. Replace the BHM and contact the help desk to arrange for shipping this BHM to DTNA engineering.	—	—
524286	12	RAM test fails	The BHM is in a non-recoverable boot mode. Replace the BHM.	—	—

Table 1, J1939 Fault Codes From Bulkhead Module (SA 33)

SAF-T-LINER C2E HYBRID

EATON CODES

Fault Code Isolation Procedure Index

Index

Symptom-Driven Diagnostics Index

Index

Symptom	Isolation Procedure	Page Number
Power-up no crank and Gear Display shows a “-”	Front Box Test	page 420
Power-up no crank and Gear Display shows a “N”	Engine Crank Test	page 425
Power-up no crank and Gear Display shows “--”, “**”, or blank	Power Up Sequence Test	page 19
Power-up vehicle cranks and Gear Display shows “--”, “**”, or blank	Refer to OEM for gear display issue	
Vehicle acceleration performance is not acceptable	Hybrid Performance Test	page 429
Transmission will not engage a gear from neutral and warning tone sounds (solid “N” in gear display)	Gear Engagement Test	page 432
Transmission will not move from a stop (solid gear number in gear display)	Gear Engagement Test	page 432
Transmission will not engage a gear from neutral (flashing gear number in gear display)	Front Box Test	page 420
Red “Service” lamp on the push button shift control is on/blinking	Fault Code Retrieval and Clearing	page 11
Amber “Check Hybrid” lamp on the dash is on	Fault Code Retrieval and Clearing	page 11
Red “Stop Hybrid” lamp on the dash is on	Fault Code Retrieval and Clearing	page 11
ePTO mode does not operate as expected	ePTO Test	page 435

Product Diagnostic Mode (PDM)

Product Diagnostic Mode (PDM) is used to help diagnose inactive codes that may have been set during normal driving. This diagnostic mode increases the sensitivity of the fault sensing capabilities.

This procedure tests loose, degraded, and intermittent connections. Use the active fault isolation procedure to guide you to the wiring and connectors that are associated with the inactive fault codes. Flex the wiring harness and connectors and attempt to recreate the fault after activating (PDM).

PDM is only to be used by a trained service technician in an authorized dealer.

To enter PDM mode

Note: The vehicle will not start in Product Diagnostic Mode (PDM). You must turn vehicle key "OFF" and allow the system to power down to exit PDM.

1. Vehicle must be stationary, engine must not be running, vehicle parking brake must be set.
2. Connect ServiceRanger to the 9-pin diagnostic connector.
3. Select the "View Fault Codes" screen.
4. Perform two key clicks of the ignition switch starting in the "ON" position and ending in the "ON" position

Note: An "88" may show up in the dash at key on, which is a normal power-up test of the display.

5. The gear display will flash a solid "PD" (Product Diagnostic Mode) and the mode will be activated.
6. Flex the wiring harness and connectors and attempt to recreate the fault.
7. If a fault becomes active during PDM, ServiceRanger will display the fault with a status of active.
8. If a fault is detected, exit PDM mode and perform the corresponding "Fault Isolation Procedure" page 6.

Note: Active codes set during PDM mode will not be stored as inactive.

9. To exit PDM mode, power the system down by turning the key to the "OFF" position.

PDM will only work with the following inactive codes

9, 10, 14, 16, 17, 18, 19, 22, 24, 32, 33, 34, 35, 36, 38, 39, 40, 48, 49, 50, 51, 52, 56, 58, 59, 60, 61, 63, 76, 87, 88, 89, 95, 118

Hybrid Lamp and Gear Display Descriptions

All Eaton® Hybrid systems use a combination of three lamps to indicate failures of different operating systems and the ability of the vehicle to drive. These lamps include the red “Service” lamp, amber “Check Hybrid” lamp, and the red “Stop Hybrid” lamp. The details for each lamp are included below.

red “Service” Lamp

1. This lamp is located on the Push Button Shift Control and reads “SERVICE.”
2. This lamp is turned on and off by the Transmission Electronic Control Unit (TECU) for Automated Transmissions faults over the High Integrity Link (HIL).
3. This lamp also comes on momentarily at key on then goes out as part of the TECU self-test.

amber “Check Hybrid” Lamp

1. This lamp is located near the middle of the dash. The lamp is amber and contains wording below stating “Check Hybrid.”
2. This lamp is turned on and off indirectly by the Hybrid Control Module (HCM) and directly by the Body Controller over J1939.
3. This lamp is turned on when a Hybrid system fault is active.
4. When the amber lamp is on, the vehicle can still be driven, however, the vehicle may operate without Hybrid electric assist.

red “Stop Hybrid” Lamp

1. This lamp is located near the middle of the dash. The lamp is red and contains wording below stating “Stop Hybrid.”
2. This lamp is turned on and off indirectly by the Hybrid Control Module (HCM) and directly by the Body Controller over J1939.
3. This lamp is turned on when a Hybrid system fault is active.
4. When the red lamp is on, the vehicle should not be driven. Have the vehicle towed or trailered to the OEM truck dealership.

Blinking amber “Check Hybrid” Lamp

1. The majority of vehicles have a red stop switch on the front of the Power Electronics Carrier (PEC). If this switch is pushed in, the amber “Check Hybrid” lamp will blink. To reset, pull the switch out and turn the key off for 2 minutes. If the lamp remains on, go to the “Hybrid Diagnostic Procedure on page 6 and start with step 3 “Retrieve Active Faults with ServiceRanger”. You should have an active Fault Code 76 FMI 4, or Fault Code 116, FMI 10. Continue to the diagnostic test for the fault that is currently active.

“ST” in Gear Display

1. A “ST” in the gear display indicates a driver trigger Snapshot was recorded. Snapshot is a diagnostic tool that is used to capture specific data at the time of a fault. It is triggered through two different means listed below.
   a. Fault code triggered - Specific faults will trigger the HCM or TECU to capture a Snapshot file for later retrieval. This method will not display and “ST” in the gear display.
   b. Driver triggered - If the driver chooses to capture a Snapshot of an event he needs to decide if he wants TECU or HCM data. To capture a TECU Snapshot select, “Low” and the up button twice. To capture a HCM Snapshot select, “Drive” or “Low” and the up button and the down button.

“PD” in Gear Display

1. A “PD” in the gear display indicates the TECU and HCM are in a special diagnostic mode called Product Diagnostic Mode (PDM). For more details on the mode and its operation see the Product Diagnostic Mode on page 16.

“CA” in Gear Display

1. A “CA” in the gear display indicates the HCM is detecting a clutch abuse situation. If the vehicle detects a clutch abuse situation it will first tone the Push Button Shift Control and flash a “CA” in the gear display. If the clutch abuse situation continues, the Hybrid system will only allow an electric only launch in addition to continuing the tone and the “CA”. If the clutch abuse continues, while driving the Hybrid system will open the clutch once vehicle speed is below 5mph and allow the clutch to cool.

“OS” in Gear Display

1. A “OS” in the gear display indicates the HCM is detecting a motor overspeed situation. The vehicle will upshift in Drive and Low automatically, however, if the user is in Manual they perform the upshift unless the vehicle is close to the motor overspeed. If the vehicle is descending a long steep grade in top gear, the driver may see an “OS” indicating he needs to depress the service brake pedal to slow the vehicle. The HCM will normally shift the vehicle or reduce torque to prevent the motor from going overspeed.

“F” in Gear Display

1. A “F” in the gear display indicates the TECU has detected an active fault. This fault can be accessed with ServiceRanger. See the Fault Code Isolation Procedure Index starting on page 12.

“-” in Gear Display

1. A “-” in the gear display indicates the transmission is stuck in gear. See the Symptom Driven Diagnostic Index on page 15.

“**” in Gear Display

1. A “**” in the gear display indicates the gear display has power but no communication on the data link. See the Symptom Driven Diagnostic Index on page 15.

“- -” in Gear Display

1. A “- -” in the gear display indicates the gear display has power, and there is no communication present on the data link, or the TECU isn’t communicating with the display. See the Symptom Driven Diagnostic Index on page 15.

Blank Gear Display

1. A Blank gear display indicates the display has lost power, or the TECU isn’t communicating with the gear display. See the Symptom Driven Diagnostic Index on page 15.

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Dash Retrieved Fault Codes

Conventional FS65

Saf-T-Liner C2, C2e Hybrid

Saf-T-Liner HDX, HD, ER

Saf-T-Liner EF, EFX

All Years