

2002 PCED OBDII-Diesel

SECTION 6: Reference Values

Control System Diagnostic Sheet Reference

PCM Pin Descriptions and Expected Values

Pin #	Name	Circuit #	Wire Color	Key Off	Key On	Low Idle	High Idle	Operating Range	Comments
2 ^f	Service Engine Soon	658	PK/LG	0v	0v/B+	0v/B+	0v/B+	0v/B+	0v = Light On, B+ = Light Off
3 ^a b	MIAHM	3996	RD/YE	0v	0v-B+	0v-B+	0v-B+	0v-B+	Manifold Intake Air Heater Monitor — B+ When Heater is Commanded On
5	PBA	162	LG/RD	7v	0v/B+	0v/B+	0v/B+	0v/B+	Parking Brake Applied Switch; B+ = Brake Off, 0v = Brake On
6 ^b c	SS1	237	OG/YE	0.9v	0v	0v	0v	0v/B+	Shift Solenoid #1 0v = "On," B+ = "Off"
8	GPCOMM	1277	WH/LG	0v	0v/B+	0v/B+	0v/B+	0v/B+	GPCM Communication Circuit, Digital 12V Frequency
10	IVS ^d , ETC	308, 1285	RD/OG, RD/LG	0v	0v	0v	B+	0v/B+	Idle Validation Signal Circuit; 0v = At Idle, B+ = Off Idle
11 ^b c	SS2	315	VT/OG	0.9v	B+	B+	B+	0v/B+	Shift Solenoid #2 0v = "On," B+ = "Off"
12 ^b c	TCIL	911	WH/LG	0.9v	0v/B+	0v/B+	0v/B+	0v/B+	Trans Control Indicator Light; 0v = Light "On," B+ = Light "Off"
13	FEPS	107	VT	N/A	N/A	N/A	N/A	N/A	Flash EPROM Power Supply
15	BUS (-)	915	PK/LB	N/A	N/A	N/A	N/A	N/A	Data Link Connector
16	BUS (+)	914	TN/OG	N/A	N/A	N/A	N/A	N/A	Data Link Connector
17 ^b c	TR1	1012 ^d , 1144	OG/BK, YE/BK	0v	Varies with gear			0v/10.7v	P = 0v, R = 0v, N = 0v, D = 10.7v, MAN2 = 10.7v, MAN1 = 10.7v
18 ^j	ACCR	331	PK/YE	0v	0v/B+	0v/B+	0v/B+	0v/B+	B+ = A/C Relay Command "Off" 0v = A/C Relay Command "On"
19 ^f	TAC	648	WH/PK	0v	B+	11.5v/ 130 Hz	9v/ 660 Hz	8-12v	Tachometer Signal Reflected CMP Signal

20 ^c	CCS	924	BN/OG	0.9v	0v	0v	0v	0v/B+	Coast Clutch Solenoid; 0v = "On," B+ = "Off"
21	CMP	795	DG	0.9v	0.8v	7v	7v	100-700 Hz	Camshaft Position Sensor; 650-3600 rpm
24	APGND, ETC GND	837 ^d , 357	YE/BK, YE/WH	0v	0v	0v	0v	0v	Accelerator Pedal Sensor Ground
25	CASE GND	875 ^d , 567, 570 ^j	BK/LB, LB/YE, BK/WH	0v	0v	0v	0v	0v	Case Ground
28 ^e f	WIFIL	643	RD	0v	B+	B+	B+	B+	Water In Fuel Indicator Lamp; 0v = Light "On", B+ = Light "Off"
29	CPP ^g (Allison Auto)	329	PK	0v	0v/B+	0v/B+	0v/B+	0v/B+	Allison AT545 B+ in Neutral, 0v Not in Neutral
	CPP (Manual)	306	TN/LB	0v	0v/B+	0v/B+	0v/B+	0v/B+	Clutch Pedal Position Switch (Manual)
	TCS (Auto)	224	TN/WH	0v	0v/B+	0v/B+	0v/B+	0v/B+	Transmission Control Switch (Automatic) B+ Switch Depressed
30 ^b	EBP	553	VT/LB	0v	1v	1v	2v	0v-4.5v	Exhaust Back Pressure Sensor
31 ^b	BPA	810 ^d , 307	RD/LG, BK/YE	0.9v	0v/B+	0v/B+	0v/B+	0v/B+	Brake Pedal Applied Switch; 0v = Brake "On", B+ = Brake "Off"
33 ^h	VSS (-)	676 ^d	PK/OG	9v	0v	0v	0v	0v	Vehicle Speed Sensor Ground
35 ^b	ALTI	1183	WH/YE	0.9v	0.5-2v	6-10v	6-10v	6-10v	Alternator #1 (Top) Monitor
36 ^e	WIF	1280	GY/RD	1v	B+	B+	B+	B+	Water In Fuel
37 ^b c	TFT, ECT (Manual)	923	OG/BK	0v	0.3v-4.5v	0.3v-4.5v	0.3v-4.5v	0.3v-4.5v	Transmission Fluid Temperature; 4.5v = -40°C, 0.3v = 130°C
38	EOT	354	LG/RD	0v	0.3v-4.7v	0.3v-4.7v	0.3v-4.7v	0.3v-4.7v	Engine Oil Temperature; 4.7v = -40°C, 0.3v = 150°C
39	IAT	743	GY	0v	0.2v-4.5v	0.2v-4.5v	0.2v-4.5v	0.2v-4.5v	Intake Air Temperature; 4.5v = .40°C, 0.2v = 130°C
40 ^b	FPM	787	PK/BK	0v	0v/B+	0v/B+	0v/B+	0v/B+	Fuel Pump Monitor
40 ⁱ	ASMM	175	BK/YE	0v	0v	B+	B+	0v/B+	Automatic Transmission Shift Modulator Monitor (Kickdown Relay)
41	ACC ^{fj}	347 ^d , 439	BK/YE, TN/LG	0v	0v/B+	0v/B+	0v/B+	0v/B+	Air Conditioning Clutch; 0v = A/C "Off", B+ = A/C "On"

42 ^b	EPR	318	GY/RD	0v	0v	0v/B+	0v/B+	0v/B+	Exhaust Back Pressure Regulator; Duty Cycled, 0v = "Off"
47 ^b	WGC	1275	WH/RD	0v	0v	0v	0v/B+	0v/B+	Waste Gate Control
48	EF	818	GY/WH	0v	3v	1v	0.9v-3v	0.9v-3v	Electronic Feedback line; Digital B+ Frequency
49 ^b ^c	TR2	146 ^d , 1145	WH/PK, LB/BK	0v	Varies with gear			0v/10.7v	P = 0v, R = 0v, N = 11v, D = 11v, MAN2 = 0v, MAN1 = 11v
50 ^b ^c	TR4	145 ^d , 1143	GY/BK, WH/BK	0v	Varies with gear			0v/10.7v	P = 0v, R = 11v, N = 0v, D = 11v, MAN2 = 11v, MAN1 = 0v
43 ^b	DOL	71	OG/LG	0v	0v	0.1v-0.2v	0.5v-2v	0v-3v	Tripminder Fuel Economy Input
51	PWR GND	570	BK/WH	0v	0v	0v	0v	0v	Power Ground
54 ^b ^c	TCC	480	VT/YE	0v	B+	B+	B+	0v/B+	Torque Converter Clutch Solenoid; 0v = "On," B+ = "Off"
55	KAPWR	37 ^d , 729	YE, RD/WH	B+	B+	B+	B+	B+	Keep Alive Power; B+ = Battery Voltage
58 ^b	VSS (+)	679	GY/BK	Frequency Signal — Varies with Vehicle Speed					Vehicle Speed Sensor
59 ^c	OSS ^k	136	DB/YE	Frequency Signal — Varies with Vehicle Speed					Output Shaft Speed Sensor
60 ^b	ALT2	1185	YE	0v	0.5-2v	6-10v	6-10v	6-10v	Alternator #2 (Bottom) Control
61	SCCS	151	LB/BK	0v	6.6v	6.6v	6.6v	0v/B+	Cruise Control Command Switch; On = B+, "Off" = 0v, Set = 2.8v, Resume = 4.7v, Coast = 0.8v, Hold = 6.6v
62 ^l ^m	MAT	1291	RD/YE	0v	0.3v-4.7v	0.3v-4.7v	0.3v-4.7v	0.3v-4.7v	Manifold Air Temperature
64 ^b ^c	TR3	199	LB/YE	0v	Varies with gear			0.7v-4.5v 0v/1.6v	F-Series: P = 4.5v, R = 3.7v, N = 2.9v, D = 2.2v, MAN2 = 1.4v, MAN1 = 0.7v, P=0v, R=1.67v, N=1.67v, D=1.67v, 2=0v, 1=0v
65	CMP GND	796	LB	0v	0v	0v	0v	0v	Camshaft Position Sensor Ground
66 ⁿ	PTO	322, 439 ^d	LB/YE, TN/LG	0v	0/B+	0/B+	0/B+	0/B+	Power Take Off Enable
67 ^b	BATT1	904,	LG/RD,	0v	B+	B+	B+	B+	Dual Alternator Battery

o		905 ^d	GY/LB						Lamp Indicator 0v = Lamp "On"
70 ^f	GPL	464	BK/PK	0v	0v/B+	B+	B+	0v/B+	Glow Plug Lamp, 0v = Light "On", B+ = Light "Off"
71	VPWR	361	RD	0v	B+	B+	B+	B+	Ignition Source Power
76	PWR GND	570	BK/WH	0v	0v	0v	0v	0v	Power Ground
77	PWR GND	570	BK/WH	0v	0v	0v	0v	0v	Power Ground
79	MAP	358	LG/BK	0	1-2v	1-2v	1.5v-3v	1-3v	Manifold Absolute Pressure
80	IDM_EN	814	WH/BK	0v	B+>0v	0v	0v	0v/B+	IDM Relay; 0v = Relay "On", B+ = Relay "Off"
81 ^b	EPC	925	WH/YE	0v	8v	10v	B+	8v-B+	Electronic Pressure Control Solenoid
83	IPR	552	YE/RD	0v	B+	B+	B+	B+	Injection Pressure Regulator; Duty Cycle Controlled
84 ^b c p	TSS	970	DG/WH	0v	0v	0v	0v	0v	Transmission Speed Sensor
87	ICP	812	DB/LG	0v	0.2v-0.4v	1v	2v	0.1v-3v	Injection Control Pressure Sensor (Min 0.83v req. for starting)
89	AP/ETC	355	GY/WH	0v	0.5v-0.7v	0.5v-1.6v	3.4v-4.95v	0.5v-4.95v	Accelerator Pedal Sensor Circuit
90	V REF	351	BN/WH	0.2v-0.5v	5.0 ± 0.5v	5.0 ± 0.5v	5.0 ± 0.5v	5.0 ± 0.5v	Voltage Reference
91	SIG GRD	359	GY/RD	0v	0v	0v	0v	0v	Ground for All Sensor Signals
92	BOO	511 ^d , 810	RD/LG	0v/B+	0v/B+	0v/B+	0v/B+	0v/B+	Brake On/Off Switch; 0v = Brake "Off", B+ = Brake "On"
94	FP	926	LB/OG	0v	0/B+	0v	0v	0v	Fuel Pump Control
94 ⁱ	ASM	237	OG/YE	0v	B+	B+	0v	0v/B+	Downshift Relay Control at Over 85% Throttle
95	FDCS	821	BN/OG	0v	0v	1v/49 Hz	4v/200 Hz	40 Hz-240 Hz	Fuel Delivery Control Signal; 650-3600 rpm
96	CI	817	YE/LB	0v	0v	6v/5 Hz	7v/30 Hz	5 Hz-30 Hz	Cylinder Identification
97	VPWR	361	RD	0v	B+	B+	B+	B+	Ignition Source Power
98 ^b q	MIAH	462	VT	0v	B+	B+	B+	B+	Manifold Intake Air Heater
100 ^{fr}	FLI	29	YE/WH	0v	0-4v	0-4v	0-4v	0-4v	Fuel Level Indicator
101	GPC/GP Enable	1086	VT/OG	0v	0v/B+	0v/B+	0v/B+	0v/B+	Glow Plug Control, 0v = Relay "On", B+ = Relay "Off"

103	PWR GND	570	BK/WH	0v	0v	0v	0v	0v	Power Ground
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^a VBAT when heater is on; will cycle from 0 to VBAT to 0 during KOER test.

^b Not used on F650/750.

^c 4R100 transmission only.

^d Econoline only.

^e Voltage goes to 0 when water in fuel activates switch.

^f Pin not used on F-Series or Excursion.

^g Neutral switch — F-Series with AT545 Allison automatic transmission.

^h Not used on F-series.

ⁱ F650/750 only.

^j F-Series 250/550

^k Output is in Hz. and varies with vehicle speed; zero Hz when stopped; 450 to 750 Hz. at 50 mph.

^l Not used on Econoline.

^m Voltage increases as manifold air temperature increases.

ⁿ Voltage normally 0, goes to VBAT when PTO switch is turned on and ignition is on.

^o Will momentarily go to VBAT during lamp check.

^p Voltage goes to VBAT if engine is not running and key is on for over 20 seconds.

^q Grounded when heater is on; will cycle from VBAT to 0 to VBAT during KOER test.

^r Voltage increases as fuel level increases.

Fault Code	Refer to Footnote	Circuit Index	Condition Description	Probable Causes
P0107	a b	BARO	Barometric pressure sensor circuit low input	PCM's internal barometric sensor
P0108	a b	BARO	Barometric pressure sensor circuit high input	PCM's internal barometric sensor
P0112	b	IAT	Intake air temp. sensor circuit low input	Grounded circuit, biased sensor, PCM
P0113	b	IAT	Intake air temp. sensor circuit high input	Open circuit, biased sensor, PCM, short to 5v
P0122	a b	AP	Accelerator pedal sensor circuit low input	Grounded circuit, biased sensor, PCM
P0123	a b	AP	Accelerator pedal sensor circuit high input	Open circuit, biased sensor, PCM, short to 5v
P0197	a b	EOT	Engine oil temp. sensor circuit low input	Grounded circuit, biased sensor, PCM
P0198	a b	EOT	Engine oil temp. sensor circuit high input	Open circuit, biased sensor, PCM, short to 5v
P0220	—	IVS	Throttle switch B circuit malfunction	Short/open circuit, switch failure, operator, PCM
P0221	a b	AP/IVS	Throttle switch B circuit performance	Failed pedal assembly
P0230	—	FP	Fuel pump relay driver failure	Open FP relay, blown fuse, open/grounded circuit
P0231	b	FP	Fuel pump circuit failure	Fuse, relay, inertia switch, fuel pump, open/short circuit
P0232	—	FP	Fuel pump circuit failure	Relay failure, short circuit, pump failure
P0236	b	MAP	Turbo boost sensor A circuit	Restricted inlet/exhaust/supply hose,

			performance	missing hose
P0237	a b	MAP	Turbo boost sensor A circuit low input	Circuit open, short to ground, MAP sensor
P0238	a b	MAP	Turbo boost sensor A circuit low high	Circuit short to power, MAP sensor
P0261	a b	INJ	Injector circuit low — Cylinder 1	Harness short to ground
P0262	—	INJ	Injector circuit high — Cylinder 1	Miswired connector or harness
P0263	—	PCED	Cylinder 1 contribution/balance fault	Power cylinder, valve train or injector problem, circuit
P0264	a b	INJ	Injector circuit low — Cylinder 2	Harness short to ground
P0265	—	INJ	Injector circuit high — Cylinder 2	Miswired connector or harness
P0266	—	PCED	Cylinder 2 contribution/balance fault	Power cylinder, valve train or injector problem, circuit
P0267	a b	INJ	Injector circuit low — Cylinder 3	Harness short to ground
P0268	—	INJ	Injector circuit high — Cylinder 3	Miswired connector or harness
P0269	—	PCED	Cylinder 3 contribution/balance fault	Power cylinder, valve train or injector problem, circuit
P0270	a b	INJ	Injector circuit low — Cylinder 4	Harness short to ground
P0271	—	INJ	Injector circuit high — Cylinder 4	Miswired connector or harness
P0272	—	PCED	Cylinder 4 contribution/balance fault	Power cylinder, valve train or injector problem, circuit
P0273	a b	INJ	Injector circuit low — Cylinder 5	Harness short to ground
P0274	—	INJ	Injector circuit high — Cylinder 5	Miswired connector or harness
P0275	—	PCED	Cylinder 5 contribution/balance fault	Power cylinder, valve train or injector problem, circuit
P0276	a b	INJ	Injector circuit low — Cylinder 6	Harness short to ground
P0277	—	INJ	Injector circuit high — Cylinder 6	Miswired connector or harness
P0278	—	PCED	Cylinder 6 contribution/balance fault	Power cylinder, valve train or injector problem, circuit
P0279	a b	INJ	Injector circuit low — Cylinder 7	Harness short to ground
P0280	—	INJ	Injector circuit high — Cylinder 7	Miswired connector or harness
P0281	—	PCED	Cylinder 7 contribution/balance fault	Power cylinder, valve train or injector problem, circuit

P0282	a b	INJ	Injector circuit low — Cylinder 8	Harness short to ground
P0283	—	INJ	Injector circuit high — Cylinder 8	Miswired connector or harness
P0284	—	PCED	Cylinder 8 contribution/balance fault	Power cylinder, valve train or injector problem, circuit
P0301	b	INJ	Fault cylinder 1 — Misfire detected	Mechanical engine failure
P0302	b	INJ	Fault cylinder 2 — Misfire detected	Mechanical engine failure
P0303	b	INJ	Fault cylinder 3 — Misfire detected	Mechanical engine failure
P0304	b	INJ	Fault cylinder 4 — Misfire detected	Mechanical engine failure
P0305	b	INJ	Fault cylinder 5 — Misfire detected	Mechanical engine failure
P0306	b	INJ	Fault cylinder 6 — Misfire detected	Mechanical engine failure
P0307	b	INJ	Fault cylinder 7 — Misfire detected	Mechanical engine failure
P0308	b	INJ	Fault cylinder 8 — Misfire detected	Mechanical engine failure
P0340	—	CMP	Camshaft position sensor ckt. malfunction	Open/grounded circuit, sensor fault, short to power
P0341	b	CMP	Camshaft position sensor ckt. performance	Harness routing, charging circuit, sensor
P0344	a b	CMP	Camshaft position sensor ckt. intermittent	Harness routing, charging ckt., sensor, int. ckt., improper gap
P0380	b	GP	Glow plug circuit malfunction	Open/grounded ckt., solenoid open/shorted, failed PCM
P0381	b	GP	Glow plug indicator circuit malfunction	Open/grounded circuit, lamp open, failed PCM
P0460	—	FLI	Fuel level sensor circuit malfunction	Open/short circuit, cluster, tank unit, open case GND
P0470	—	EBP	Exhaust back pressure sensor circuit malfunction	Biased sensor, open signal return
P0471	b	EBP	Exhaust back pressure sensor circuit performance	Plugged, stuck or leaking hose
P0472	b	EBP	Exhaust back pressure sensor circuit low input	Open/grounded circuit, biased sensor, PCM
P0473	b	EBP	Exhaust back pressure sensor circuit high input	Circuit shorted to 5v, biased sensor, PCM
P0475	b	EPR	Exhaust pressure control valve malfunction	Open/grounded ckt., solenoid open/shorted, failed PCM
P0476	—	EPR	Exhaust pressure control valve performance	Failed/stuck EPR control, EBP fault, EPR circuit
P0478	b	EPR	Exhaust pressure control valve	Plugged sensor line, stuck butterfly,

			high input	restricted exhaust
P0500	b	VSS	Vehicle speed sensor malfunction	Sensor, circuit, PCM, PSOM, TR failure, low trans. fluid
P0503	—	VSS	Vehicle speed sensor noisy	Harness routing, sensor
P0541	—	MIAH	Manifold intake air heater...	Open/short circuit
P0542	—	MIAH	Manifold intake air heater...	Grounded circuit
P0560	—	PCED	System voltage malfunction	Charging system problem/load, glow plugs still enabled
P0562	b	PCED	System voltage low	Low sys. voltage, charging sys., internal PCM failure
P0563	—	PCED	System voltage high	High sys., voltage, charging sys., internal PCM failure
P0565	—	PCED	Cruise "On" signal malfunction	Open or short circuit, switch failure, PCM failure or failed to activate switch during KOER switch test
P0566	—	PCED	Cruise Off signal malfunction	Open or short circuit, switch failure, PCM failure or failed to activate switch during KOER switch test
P0567	—	PCED	Cruise "Resume" signal malfunction	Open or short circuit, switch failure, PCM failure or failed to activate switch during KOER switch test
P0568	—	PCED	Cruise "Set" signal malfunction	Open or short circuit, switch failure, PCM failure or failed to activate switch during KOER switch test
P0569	—	PCED	Cruise "Coast" signal malfunction	Open or short circuit, switch failure, PCM failure or failed to activate switch during KOER switch test
P0571	—	BPA	Brake switch A circuit malfunction	Cruise control codes will be set on every switch test on vehicles not equipped with cruise control
P0603	—	PCED	Internal control module KAM error	Open PCM pin, disconnect B+, faulty PCM
P0605	—	PCED	Internal control module ROM error	Internal PCM failure
P0606	—	PCED	PCM processor fault	Internal PCM failure
P0640	—	MIAH	Manifold intake air heater...	Circuit open or shorted to ground
P0670	—	GPCM	GPCM Glow plug control module control line failure	Open/grounded circuit, open/shorted GPCM, failed PCM
P0671	—	GPCM	Glow plug #1 failure	Open/shorted circuit, faulty glow plug, failed GPCM
P0672	—	GPCM	Glow plug #2 failure	Open/shorted circuit, faulty glow plug, failed GPCM
P0673	—	GPCM	Glow plug #3 failure	Open/shorted circuit, faulty glow plug, failed GPCM
P0674	—	GPCM	Glow plug #4 failure	Open/shorted circuit, faulty glow plug, failed GPCM
P0675	—	GPCM	Glow plug #5 failure	Open/shorted circuit, faulty glow plug,

				failed GPCM
P0676	—	GPCM	Glow plug #6 failure	Open/shorted circuit, faulty glow plug, failed GPCM
P0677	—	GPCM	Glow plug #7 failure	Open/shorted circuit, faulty glow plug, failed GPCM
P0678	—	GPCM	Glow plug #8 failure	Open/shorted circuit, faulty glow plug, failed GPCM
P0683	—	GPCM	GPCM glow plug control module communication line failure	Open/shorted circuit, failed GPCM, failed PCM
P0703	—	BOO	Brake switch B circuit malfunction	Open/short circuit, switch, PCM, failed to activate switch during KOER switch test
P0704	c	CPP	Clutch switch input circuit malfunction; F650-F750 with Allison AT545: neutral switch	Open/short circuit, switch, PCM, failed to activate switch during KOER switch test
P0705	b	TR	TR sensor circuit malfunction	Resistance in circuit, faulty sensor, PCM
P0707	—	TR	TR sensor circuit low input	Open in circuit, biased sensor, PCM
P0708	b	TR	TR sensor circuit high input	Open in circuit, biased sensor, PCM, short to power
P0712	d	TFT	Trans. fluid temp. sensor ckt. low input	Short to ground, biased sensor, PCM
P0713	d	TFT	Trans. fluid temp. sensor ckt. high input	Open in circuit, biased sensor, PCM, short to power
P0715	b d	TSS	TSS sensor circuit malfunction	Short/open circuit, sensor, PCM
P0717	d	TSS	TSS intermittent failure	Short/open circuit, sensor, PCM
P0718	—	TSS	Noisy TSS	Erratic signal, sensor, intermittent circuit
P0720	b d	OSS	OSS sensor circuit malfunction	Short/open circuit, sensor, PCM
P0721	—	OSS	Noisy OSS	Erratic signal, sensor, intermittent circuit
P0722	d	OSS	OSS intermittent failure	Short/open circuit, sensor, PCM
P0732	—	GRV	Gear 2 incorrect ratio	Mechanical/hydraulic failure, 4x4 switch failure
P0733	—	GRV	Gear 3 incorrect ratio	Mechanical/hydraulic failure, 4x4 switch failure
P0741	—	TCC	Torque converter clutch ckt. performance	Circuit failure, faulty solenoid, PCM
P0743	b d	TCC	Torque converter clutch system electrical	Faulty solenoid, circuit, PCM
P0750	b	SS1	Shift solenoid A malfunction	Circuit failure, faulty solenoid, PCM
P0755	b d	SS2	Shift solenoid B malfunction	Circuit failure, faulty solenoid, PCM
P0781	d	—	1-2 Shift malfunction	Circuit failure, faulty solenoid, faulty clutch, PCM
P0782	d	—	2-3 Shift malfunction	Circuit failure, faulty solenoid, faulty clutch, PCM
P0783	d	—	3-4 Shift malfunction	Circuit failure, faulty solenoid, faulty

				clutch, PCM
P1000	—	N/A	OBDII monitor status	OBDII monitors/drive cycle incomplete
P1105	—	ALT	Dual alternator upper fault (monitor)	Circuit failure, alternator failure, PCM
P1106	—	ALT	Dual alternator lower fault (control)	Circuit failure, alternator failure, PCM
P1107	b	ALT	Dual alternator lower circuit malf. (control)	Circuit failure, alternator failure, PCM
P1108	—	ALT	Dual alternator BATT lamp ckt. malf.	Open/short circuit, lamp, fuse, PCM
P1118	b	MAT	Manifold air temp sensor out of range low	Short to GND MAT circuit, MAT sensor
P1119	b	MAT	Manifold air temp sensor out of range high	Open/short to PWR circuit, MAT sensor
P1139	—	WIFIL	Water in fuel lamp circuit malfunction	WIF lamp, circuit failure, fuse, PCM
P1140	—	WIF	Water in fuel condition	Water in fuel, grounded circuit, shorted sensor, PCM
P1184	—	TEST	Engine oil temp out of self test range	Engine too cold/hot, leaking thermostat, ckt., sensor
P1209	b	IPR	ICP system fault	IPR valve stuck
P1210	b	ICP	ICP above expected level	ICP sensor, open signal return
P1211	a b	IPR	ICP pressure above/below desired	IPR valve failed, stuck, or shorted to ground
P1212	—	ICP	ICP voltage not at expected level	Biased sensor or ckt., open signal return, low oil in reservoir
P1218	b	PCM/ IDM	CID stuck high	CID circuit open, probably intermittent
P1219	b	PCM/ IDM	CID stuck low	CID circuit short to ground, probably intermittent
P1247	b	MAP	Turbo boost pressure low	MAP hose, sensor, EBP sys, intake leaks, turbo
P1248	b	MAP	Turbo boost pressure not detected	MAP hose, sensor, EBP sys, intake leaks, turbo
P1249	b	WG	Waste gate steady state failure	GND short, plugged hose/port, solenoid, actuator
P1260	—	NA	Electronic positive anti-theft system failure	Refer to appropriate workshop manual.
P1261- P1268	—	INJ	High to low side short cyl. # 1-8	Short circuit, shorted injector, failed IDM
P1271- P1278	—	INJ	High to low side open cyl. # 1-8	Open circuit, open injector, failed IDM
P1280	a b	ICP	ICP circuit out of range low	Open/grounded circuit, biased sensor, PCM
P1281	a b	ICP	ICP circuit out of range high	Circuit shorted to 5v, biased sensor, PCM

P1282	a b	IPR	Excessive ICP pressure	Faulty IPR regulator (sticking), IPR short to ground
P1283	—	IPR	IPR circuit failure	Open/grounded circuit, stuck IPR, loose connection
P1284	—	N/A	ICP failure — aborts KOER CCT test	See codes P1280, P1281, P1282, P1283, P1211
P1291	—	INJ	High side # 1 (right) short to grd. or B+	Short circuit, faulty IDM
P1292	—	INJ	High side # 2 (left) short to grd. or B+	Short circuit, faulty IDM
P1293	—	INJ	High side open bank No. 1 (right)	Open circuit, faulty IDM
P1294	—	INJ	High side open bank No. 2 (left)	Open circuit, faulty IDM
P1295	a b	INJ	Multiple faults on bank No. 1 (right)	Miswired connector or harness, short to ground
P1296	a b	INJ	Multiple faults on bank No. 2 (left)	Miswired connector or harness, short to ground
P1297	—	INJ	High sides shorted together	Shorted wires, faulty IDM
P1298	—	PCED	IDM failure	Internal IDM failure
P1316	a b	IDM	Injector circuit/IDM codes detected	Injector circuit failure/IDM codes detected
P1397	—	VPWR	System voltage out of self test range	Voltage too high or low for glow plug monitor test
P1464	—	N/A	A/C on during KOER CCT test	Operator error, A/C circuit shorted to power
P1501	—	N/A	Vehicle moved during testing	Operator error
P1502	—	TEST	Invalid test — APCM functioning	APCM active while KOER test is running
P1531	—	N/A	Invalid test — accelerator pedal movement	Accelerator moved during KOER on-demand or CCT test
P1536	—	PBA	Parking brake applied fail	Circuit, switch, PCM, failed to activate switch KOER
P1660	—	PCED	OCC signal high	High system voltage, internal PCM fault
P1661	—	PCED	OCC signal low	Low system voltage, internal PCM fault
P1662	—	PCED	IDM EN circuit failure	Open relay, blown fuse, open/grounded circuit
P1663	—	PCM/IDM	FDSCS circuit failure	Open/grounded circuit, faulty IDM
P1667	—	PCM/IDM	CID circuit failure	Open/grounded circuit, faulty IDM
P1668	—	PCM/IDM	PCM/IDM diag. communication error	Open/shorted EF or FDSCS wire, open IDM grd.
P1670	b	EF	EF signal not detected	Open/shorted EF circuit
P1690	b	WG	Waste gate failure	WGC circuit or solenoid, PCM

P1702	d	TRS	TRS sensor intermittent circuit malfunction	Sensor, wiring, PCM, mechanical alignment
P1704	—	TRS	Digital TRS failed to transition state	Sensor, wiring, PCM, mechanical alignment
P1705	—	TR	TR sensor out of self-test range	Operator error, circuit failure, faulty sensor, PCM
P1711	—	TFT	TFT sensor out of self-test range	Circuit failure, faulty sensor, PCM
P1713	d	TFT	TFT stuck in range low — below 50°F	Sensor, circuit, PCM
P1714	b	SS1	Shift solenoid 1 inductive	Circuit, solenoid, PCM
P1715	b	SS2	Shift solenoid 2 inductive	Circuit, solenoid, PCM
P1718	d	TFT	TFT stuck in range high — above 250°F	Sensor, circuit, PCM
P1728	d	TCC	Transmission slip error	Solenoid failure or mechanical failure
P1729	d	4x4L	4x4L low switch error	Circuit failure, faulty switch, PCM
P1744	b	TCC	Converter not functioning	Converter solenoid/hydraulic/mechanical failure
P1746	d	EPC	EPC solenoid open circuit	Open circuit, faulty solenoid, PCM
P1747	b	EPC	EPC solenoid short circuit	Short circuit, faulty solenoid, PCM shorted to ground
P1754	—	CCS	Coast clutch solenoid ckt. malfunction	Circuit failure, faulty solenoid, PCM
P1760	d	EPC	EPC solenoid short intermittent	Switch not detected during self test, circuit, switch
P1780	—	TCS	TCS circuit out of self-test range	Circuit, switch, PCM, failed to activate switch KOER
P1781	—	4x4L	4x4L circuit out of self-test range	Operator error, short to ground, PCM
P1783	d	TFT	Transmission overtemperature condition	Internal trans. failure, circuit failure, sensor, PCM
P1902	e	KDS	Kickdown solenoid relay — control circuit failure	Blown fuse, failed relay, open control circuit, faulty PCM, faulty wiring
P1903	e	KDS	Kickdown solenoid circuit — low voltage	Blown fuse, failed relay, open control circuit, faulty PCM
P1904	e	KDS	Kickdown solenoid circuit — high voltage	Blown fuse, failed relay, open control circuit, faulty PCM, open in ASMM (circuit #175)

^a MIL (FMEM) illuminates after first fault (Federal calibration only).

^b MIL (OBDII) illuminates after second consecutive fault.

^c Neutral switch for F650/F750 with Allison AT545 auto transmission.

^d Transmission control indicator (TCIL) flashes when fault is present.

^e F-Series 650/750 with Allison AT545 automatic transmission.

PCED=Powertrain Control/Emissions Diagnosis Manual.

