



# Flatrater Diagnostics

Case studies for Professional Driveability Technicians

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Case Description	Title	Case Description	Title
--	3.4 Vin S EGR Passage	3800 coolant ingestion	3800 misfire
1500 -- misfire -- gas look	Multiple misfires	3800 IC Circuit Error	Sob Story
1500 replacement injector	Weird	3800 Stall -- CKP	Cranky
1987 Bosch MAF sensor	Corvette fun	5 gas -- smog check	Smog check
1991 Camaro -- injectors	Surge and Stall	5 gas analysis	Guess that misfire
1991 S10 Loss of 5v Ref	Simple Things	5 gas analysis	Quick Gas Analysis
1992 3800 DTC 17 & 34	3800 Roachmobile	5.7L Intake Leak and Miss	Not another truck
1995 3800 Ignition	That darned ignition system	6 gas analysis	Gas Applet Test
1995 Aurora ISC Motor	Aurora time again	6.0 Multec 2 misfire	Name that misfire
1995 Geo Prizm Coil	Breakdown	7.4L WOT fuel sys test	Fuel pump test
1996 Misfire Counters	Misfire Counters (again) Part 1	8100 CKP failure	No start
1998 G van wiring - stall	Stall	85 Vette misfire	Misfiring Vette
1999 Astro VTD fault	I Wanna Start	87 Vette Code 34 -- ECM	To Scope or Not to Scope
2.2L -- NOx -- Catalyst	NOx failure	88 Regal EGR and booster	Surges and stalls...
2.2L ICM failure	Misfire	88 Vette Stallout -- FP Relay	Stall Out -- Fuel Pump Relay
2.8 Idle learn explained	Magic	89 3.1L Shorted Injectors	Old Car
2000 Astro Misfire	Snapshot...	89 5.7L Truck -- smog failure	CA Smog Failure
2000 Astro P0147	Flash Fix	89 Corvette MAF failure	Expensive repair?
2000 Big Block misfire	Liar	89 Truck TBI failure	OBD 1 Oldie
2000 Express KS circuit	Knock Sensor Circuit	91 Chev truck - distributor	Oops....
2000 Malibu Stall	Take Your Best Shot	91 Geo Tracker Injector	Ack! No Scanner...
2000 Olds 3.5L Dual CKP	Olds 3.5L Dual CKP Sensor	91 Vett No Start (EST)	Hacker Headache
2000 Silverado P0446	Need a Laxative?	92 3.4L X motor -- EGR	3.4 X Motor EGR
2001 Impala -- converter	Smog Failure	92 truck trans codes	Tranny problems
2002 4.3L CKP Glitch	RPM glitch	93 Corsica Code 42	The Dreaded Code 42
2002 LS1 Air Pump Valve	Blow Hard	94 Astro LEGR failure	Odd Find
2003 Silverado -- MAP	System Strategy	94 Opti-Spark Distributor	Idle Flare Up
2003 Silverado P0442	Is there a leak?	95 1500 Ign Module	Big Block Problems
2004 KS failure	One or two?	95 3800 Stall (fuel reg)	Another stall concern
3 Dead Holes 1 misfire	Detection Error	95 Astro Stall -- Timing	Engine Goes Died?
3 wire TPS oddity	Things we hold true...	95 Tracker Mileage Switch	Tracker MIL - No Codes
3.1 CKP Harness Failure	Oldies...	95 Truck DTC 34 - wiring	Visiting the past
3.1 MAF Sensor Stall	More Precision Guess Work	96 1500 Air Injection	Strategy
3.1 IAT and Misfires	Strange Union	96 3.4 X motor PCM	Lumina X
3100 24x induced stall	Stalling Grand Am	96 Big block multiple codes	Which DTC first?
3100 ICM wiring fault	Another no start	96 C Truck Misfire	Fateful Decarbon
3100 stuck fuel injector	Quick diagnosis	96 Caprice Evap System	Mixed Up SS
3800 P0341 & P0121	Nightmare Riviera	96 Cavalier Evap System	A Simple Problem
3800 CKP Stall	Stall out...	96 S10 O2 Sensor Surge	Mystery Misfire

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97 Astro - fuel level module	Defective Mentor	Cat Converter Diagnosis	Software Glitch?
97 Astro multiple codes	Pick your battles	CCC Data Streams	Dinosaurs
97 Truck bad Dist Cap	Poppet Nozzles... Just say no!	Charging System Look	Won't Crank
97 Truck stalling -- wire	It just quits	CKP signal and RPM	Scanner Kill
98 Malibu Alternator	Alternators Part 5	CKP Trigger error	Limited Info
99 1500 V8 misfire	Guess that misfire	Clarification of KS test	Knock Sensor Test Clarification
99 Cavalier CTS System	Fender Brain	Class 2 data fault	Talk to me
99 Truck Vacuum Leak	Information Overload	CNP Failure	Parts Swapper
A Look At Lambda	Lambda Scan	Code 36 -- CKP air gap	Code 36 stall
A look at open loop trim	Open loop fuel trim	Coil cover failure	Another quad 4 misfire
ABS and Wheel speed	ABS Blues	Coil Over Plug Failure	COP Truck
Acid and low current circuits	Mega Code Nightmare	Common Evap Leak	Take 5 #4
Affects of loose PCV vent	Oops...	Compression and KVs	Snapper
Air Injection -- 2002 G van	Thats Odd	Contaminated O2 Sensor	Stupid MIL
Air Pump System - P0410	I'll Give You One Last Chance	Converter bad, MAF good...	The Guess
All 6 Poppets plugged	Plugged Injectors	CPI fuel pump issue	Fuel pumps
Alternator amp wave	Yes, Another Alternator	Cracked S10 head (2.2L)	No gravy today
Alternator Waveforms	Take 5 #1	Crankshaft variation relearn	Problematic Misfire
Amp probe and no fuel	You can't have my amp probe	Current drop after filter	Pump Current and Plugged Filter
Amp Wave Starter Diagnostic	Take 5 Diagnostic Shortcut	Current Monitored Heater	Heater...
Analyzing Freeze Frames	Freeze Frame Analysis	Daytime running lamps	J body DRL
Astro exhaust rattle	Exhaust rattle	Dirty EGR Pintle	Take 5 #6
Astro HVS Ignition	Distribution Issue	DIS Coil Tunneling	Coil Tunneling
Bad ICM Causing Stall	Another 3800	Duramax calibration fault	Duramax Diesel
Bad intake valves	Gravy Tuneup?	Duramax IAH failure	DuraJunk
Bad O2 Wiring	Take 5 Prizm O2	ECM -- voltage correction	Quick money?
Bad Timing Belt	Vacuum	EGR Issue	Hesitating G Van
Bad Transmission	Ping	Electro-Viscous Fan	Spin me
Bad wire, no misfire count	Misfire Misconceptions	Eng Miss - Injector wiring	Out Smarted Again
Balance Pump (dual tanks)	Big White Truck	Engine Load Definitions	Load...
Batteries and AC voltage	Them Darn Batteries	Enhanced evap problem	Evap Problems
Big Block leaking injector	Fire Line	Evap FF oddity	Odd MIL
Bigger Fuel Strainer	Strain Me	Evap purging issue	Enhanced P1441
Brake booster and fuel trim	College Beater	Failed PCM driver supply	Driver Sensing
Broken PCV Valve	Pirate Air	False P0171 -- Flex joint	Ya just got to know....
Burnt Power Block	Take 5 No Start Astro	Faulty Misfire Counting	MissWire
Calibration Fix	Mystery	Firebird TAC system	Communications error
Camaro P1870	Flash Me?	Flaky TPS	1990 Snapshot
Carbon and misfiring	Another odd misfire	Forum questions	Questions
Carbon Tracking	Take 5 #2	Freak data	Freak

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From the forum...	Fuel Trim Questions	Lean -- MAF failure	Prizm P0171
Fuel press bleed down	Long crank time	Lean Silverado (TB coking)	Lean Machine
Fuel pump leakdown	Hard start	LEGR Flow Error P0401	Aint Got No Flow Codes
Fuel pump lock up/stall	Old Pile	LEGR Pintle Error Codes	LEGRs Continued
Fuel Pump Misfire	adVenture	Light cruise misfire	Alero from hell
Fuel pump, cmp offset, EGR	Quick decision	Light Load Misfire Look...	The Other End
Fuel pump, cmp offset, EGR	Quick decision	Linear EGR Testing	Intermittent OBD2
Fuel Quality Stallout	The Basics	Loose intake tube havoc	Baffled
Fuel Rail Deposits (TSB)	Pattern Failure Bonanza	Loose spark plug	Quad 4 misfire
Fuel Trim and Lambda	Lambda Look	Low compression	Quad 4 smog failure
Fuel trim enable/learn	Fuel Trim Blurb	Low Fuel Volume	Current Romper
Fuel Trim Index	Confused Malibu	Low fuel volume P0304	Mystery P0304
Gas analysis -- opti-spark	Access	LS1 bad 24x reductor	Hi Yo Silver.... ado
Generic OBD2 fix	Generic	LT1 EGR System	Old Tech OBD2 Marriage
Geo Changes (prom cal)	Tracking Changes	LT1 Opti-Spark	LT1 Misfire
Glitch in CKP signal	Slow scan data?	M van sticking valve	Leave the hood closed
Hard start and cam sensor	Another AdVenture	MAF failure	Luke, trust your feelings....
High Fuel Pressure -- DTC 32	Rough Ide and Code 32	MAF Quiz	MAF System Quiz
High Idling S10 (walnut)	Nutty S10	MAF Sensor Failure	Family Outing
How Failure Records Work	Failure Records	MAF Wiring and no load	Real Specs
HVS CMP failure misfire	Strange Misfire	MAP and Plugged Exhaust	Sluggard
IAC driver failure	My tax dollars at work	Metro Evap System Failure	Pattern Failure Letdown
IAC System Explored	Out of Control	Misfire -- bad ground	Dang lifted trucks
Idle misfire - switched inj wire	Head Banger	Misfire -- PCM ground	Trigger happy
Idle surge and A/C wiring	Wiring...	Misfire and 5 gas	Quick gas analysis
Ign 0,1,& 3	Get in, get out, move on	Misfire and fuel trim	A quick quiz
Ignition Ref Low & Misfire	Aurora # 3	Misfire and no history counts	No History
Injector pigtail fault	Fuel pump waveform	Misfire Counters Revisited	Misfire Counters Again...
Intermittent MAF Sensor	VDR Capture	Misfire counts - open wire	Open wire
K motor missing PCV	P0401	Misfires and fuel trim	Fuel Trim Experiment
Keep An Eye On The O2	Low Power O2 Monitoring	Misfires, fuel trim, & Gas	A tale of two trucks
Knock Sensor Noise Channel	Knock, No Knock?	More Bosch MAF Stuff	86 Vette Gravy
KS impaired Performance	Poor Acceleration	More dirty fuel injectors	Analysis
Late Ignition Timing	Low Power Quiz	More Fuel Pump amp ramping	Got Gas?
Leaking 7.4 fuel regulator	Rough big block	No communication -- Bad PCM	Protocols
Leaking CPI Tube/Assembly	Sucker...	No spark misfire and trim	Another misfire and fuel trim
Leaking EGR -- LT1	Experience	No Start -- Bad chain	Aurora # 2

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No Start Truck -- CTS --	Take 5 Chilly No Start	Pattern failures	More pattern failure nonsense
More Misfire Counters	Misfire Counters (again) Part 2	PCM controlled heaters	O2 Heater Circuits
Multiple DTC	Multiple DTCs	PCM CTS Spike	Aurora # 1
Multiple OBD2 DTCs	Quick Decision	PCM Driver Failure (COP)	Cold COP
Negative FT P1415	Easy to fix, hard to explain	Plugged Cat – EGR	Pattern Failure
No communication -- Bad PCM	Protocols	Plugged Cat -- Lean bank	Another Misfire
Negative FT P1415	Easy to fix, hard to explain	Plugged Cat and misfire	Volumetric Misfire
Non-Enhanced GM Evap	Flow During Non-Purge	Plugged converter	No power
Normal fuel pump leak	Fuel Pressure Dip	Plugged Exhaust -- P0101	Testing Our Theory
O2 failure -- false P0410	Multiple problems?	Plugged fuel strainer	No power
O2 Low Voltage Codes	That Place..	Plugged fuel strainer	No start 3100
OBD2 Evaporative System	Under Pressure	Poppet Nozzle issue	Freebie?
OBD2 Oxygen sensor circuits	Compare Me	Poppet Nozzles Cause Error	False Heater Code
Oil caps and fuel trim	Oil cap quiz	Prom induced misfire	Going to the Prom
Olds Intrigue -- Prom update fix	Intrigued	Purging at Idle	Rich APV
Open injector misfire	Lambda misfire?	Quad 4 coil and Cat Conv	On Fire Malibu
Open Loop STFT....	Explain this to me	Quad 4 map hose	Toggle Me
Open PCM Injector Wiring	Pattern Failure?	Quad 4 Loss of Dref	Curve Ball
Opti-spark case study	Training time	Restricted fuel filter	Lack of power
Opti-spark leaking wire	Opti-spark issues	Rich code Lean condition	Express Van
P0101 -- MAF Debris	A Matter of Theory	Same as title....	Opening Poppet Nozzles With Nitrogen
P0172 and P0108 -- MAP	Snapshot	Scrambled PCM Memory	Fast Idle Metro
P0300 and P0400	Root Cause	Service vehicle soon lamp	SVS vs SES
P0304 pattern failure	Pattern Failure	Shorted 5v Reference	Low Voltage
P0336 -- Low Fuel	Odd Things	Shorted COP coil	Bad COP
P0339 Failure Record Data	Intermittent CKP	Shorted O2 and P1870	The Smog Inspection
P0410 and P0130 (S10)	Gravy	Silverado evap canister	Leaky sandwich
P0440 -- Purge valve	That gas cap code	Silverado fuel gauge issue	Senseless
P1336 and corroded battery	On a CK Roll....	Silverado hard start	Hard Start
P1351 (open coil wire)	Policy repair?	Silverado MAF failure	Stuck
P1404 -- Closed Pintle Error	More EGR Fun	Silverado MAP failure	Bang
P1404 Software Fix Info	P1404 Blurb	Silverado Stall -- fuel pump	Stall Out
Passlock Operation	My Reward	Skewed fuel gauge	Point of reference
P0410 and P0130 (S10)	Gravy	Snapshot analysis	Avoiding my DSO
P0440 -- Purge valve	That gas cap code	Stalling and ECM data line	Data Window
P1336 and corroded battery	On a CK Roll....	Stalling and Fuel Trim	Sheriffs in Town
P1351 (open coil wire)	Policy repair?	Strategy with bad injector ct.	Strategy
P1404 -- Closed Pintle Error	More EGR Fun	Strategy with bad injector ct.	Strategy
P1404 Software Fix Info	P1404 Blurb	Stray KVs...	The Glitch
Passlock Operation	My Reward	Stuck TCC Solenoid Stall	It Just Died...

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Supercharged P0131	Something new! And old..	Tracker -- Low MAR Stall	Tracker Stall
Supercharged P0401	Self inflicted wound	Tracker evap problem	Stupid Asian Vehicles
TAC System and Serial Data	TAC Communications	Trans Failure Stall Out	County Curse
Tahoe TAC system glitch	To Flash?	Trim codes and an air filter	Contradiction
TBI-DTC 33-Injector	Old Truck?	Volumetric Efficiency diag	VE Look
Testing Quad 4 ignition	What to do	Vortec CMP Offset	Misfire Mystery
Throttle Actuator Error	TAC Patrol	Vortec CMP Offset Info	Take 5 CMP Offset Correction
Timing and EGR EVRV	Smog Failure	Vortec Fuel Pump	Quick Bucks?
TPS and EGR (98 7.4)	P0xxx vs P1xxx	Vortec Knock Sensors	Knock Knock
TPS Glitch	To Skin a Cat	Vortec with broken rotor	Broken Rotor
TPS Glitch	Fly's, Pepper, and 200 ms		

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