



ATTS Training Program For Dorman Training Has Won The Training Award For The Best Training Program

2022

ROUP







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ROM, RAM, & KAM

Computer's need memory in order to do everything from remembering the radio presets to complicated timing calculations. Memory comes in three flavors: ROM, RAM, and KAM



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How Computers "Think"

The Scan Tool as Interpreter

Our dialog with the vehicle computer begins when We use the scan tool to enter a request for data. We may ask for information about fault codes, or about the current state of engine sensors. The computer responds to our request and sends back a string of coded voltage pulses representing data. The scan tool converts data from the vehicle computer into words and measurements and displays them on the scan tool display screen.



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The scan tool is the middleman - the interpreter - in our communication with the computer.

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	ГІ	reeze	e Frame	
FI 2 F2 F3 F3 F4 TEM F5 TE			F12	<i>A</i> 1
Providence Advance and the Providence and	JHLRD78854	C017656 PGM	A-FI DE 04 03 02 11 PAA580	
Freeze Data - DTC: 71-1 MISFIRE No.1 CYLINDER				-
Signal	Value	Units		5
ENGINE SPEED	1290	RPM A		2
VEHICLE SPEED	29	MPH		DTC
ECT SENSOR 1	53.6	9F		<u>S</u>
TAT SENSOR (2)	26.6	-F		S.a.
MAP SENSOR	1.51	V		
CLV	49	5		6
BARO SENSOR	2.88	V		
TP SENSOR	0.47	V		
AF SENSOR	-128	mA		
AF LAMBDA	0.00			
AF FB (ST FUEL TRIM)	0.92			
AF FB AVE (LT FUEL TRIM)	0.97	-		
F55	OL COND			
RATTEDY	0.74	V		
EINIECTOR	5.40			
SPARK ADVANCE	10.5	1115		
CMP CTRL	0.5			
		2		
				DTC 98















I/M Readines	S
Misfire monitor	OK
Fuel system monitor	OK
Comprehensive component monitor	OK
Catalyst monitor	INC 🔪
Heated catalyst monitor	N/A
Evaporative system monitor	OK
Secondary air system monitor	N/A
Oxygen sensor monitor	INC 🔨
Oxygen sensor heater monitor	OK
EGR and/or VVT system monitor	OK





















Global OBDII Code Check ← Back		
Codes Main Menu:	Codes Pending Codes	































2002 Chevy Silverado 5.3L V8 DTCs	
Looking at Freeze Frame data can be the key to repairing the DTCs. Performing a complete scan of all systems and checking Pending DTCs, Mode 6 data, Monitors and other data can lead to an affective repair.	
Looking at our case study scan data carefully led to a proper repair.	
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2002 Chevy Silverado DTCs P0300 & Pending DTCs

2002 Chevy Silverado with a 5.3L V8 came in with one DTC, P0300 Random/Multiple Cylinder Misfire along with three Pending DTCs, P0106 Manifold Absolute Pressure, P0171 System Too Lean Bank 1 and P0174 System Too Lean Bank 2. *Now where do you start to diagnosis and repair this vehicle?* Many would say you don't have to worry about Pending DTCs, so start with the P0300 because it's a hard DTC. Well, that would be absolutely wrong because the Pending DTCs provides great insight on why the P0300 was set. Your "Game Plan" should always be to look at all PID data, Monitor status, Freeze Frame, Mode 6, Mode 9 and Pending DTCs. In this case the Pending DTCs are leading us to the source of the problem, the MAP sensor and the two lean DTCs P0171 and P0174.

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	x.) =	15 i	n of vacuu
Supported PIDs	Abbrev	Data	Units
P0300 DTC caused Freeze Frame Storage #0	:	1	
Calculated Load	LOAD_PCT	2.7451	%
Engine Coolant Temperature	ECT	50.0000	Deg F
Short Term Fuel Trim Bank 1	SHRTFT1	35.1562	%
Long Term Fuel Trim Bank 1	LONGFT1	25.0000	%
Short Term Fuel Trim Bank 2	SHRTFT2	35.9375	%
Long Term Fuel Trim Bank 2	LONGFT2	25.0000	%
Intake Manifold Absolute Pressure	MAP	14.1744	HG
Engine RPM	RPM	815.7500	RPM
Vehicle Speed Sensor	VSS	0.0000	mph
Air Flow Rate from Mass Air Flow Sensor	MAF_g/s	7.4400	g/s
Air Flow Rate from Mass Air Flow Sensor	MAF_lb/m	0.9821	lb/m
Absolute Throttle Position	TP	0.3922	%
So w	hat's the m	ohlom	2



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2002 Chevy Silverado DTCs P0300 & Pending DTCs

Looking at the scan data the PCM is doing its job and commanding a large amount of fuel delivery to compensate for a lean condition. With the Freeze Frame data providing us with the temperature information of 50 F it's a good idea to smoke the engine when it's cold to locate the source of the problem. On this vehicle the intake manifold gaskets needed to be replaced in order to get this engine back in fuel control.

Note: Many times, smoke will note be visible due to hydrocarbons that are in the intake manifold. In chemistry two likes will attract and the one with more volume will consume the other. In other words, the smoke is a HC base that will be absorbed in the manifold by the fuel vapors making it difficult to find the leaking area. A good suggestion is to use CO2 along with CO2 leak detector and the special ATS form. The tool is called BULLSEYE, that can be used for EVAP, AC systems, crankcase leaks, tires or anything that holds something.

































Sensors

The most important sensors:

- 1. Engine Speed (rpm)
- 2. Temperature of engine coolant, intake air and battery in some cases
- 3. Engine load MAP or MAF sensor
- 4. Throttle Position/Accelerator Pedal Position
- 5. Oxygen Sensor/Air Fuel Sensor

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Service Resets and D	alonns		
← Back			
Service Resets a	nd Relearns		
	Engine Perform Idle Learn Procedure	Replace Engine Oil	
	Replace Fuel Injector	Replace/Relearn Grankshaft Position Sensor	
	Replace/Relearn Oxygen Sensor	Replace/Relearn Throttle Body	
	Reset Fuel Trim		
	ADAS / Driver Alds		
	Table Contrate		
	Read/Write VIN		
	Elaises.		
	Replace/Relearn Brake Pedal Position Sensor	Replace Brake Fluid Pressure Sensor	
	Dieed Anti-Lock Brake System		





































ALLDATA			
ata View Database Toolbox H	lelp		
(🔅 💼 🛼 🏧 🗞 🕯	🥪 🗱 😽 🔮	s 🔝 ? 🗘 📇	
Axygen Sensor: Service P eated Oxygen Sensor Resistance L	recautions earn Reset Caution		
Heated Oxygen Sensor Resistan Caution: When replacing the HO2S perfor * A code clear with a scan to * HO2S heater resistance lea Perform the above in order to res	nce Learn Reset Cau m the following: bol, regardless of whet arn reset with a scan to set the HO2S resistanc	ition ther or not a DTC is set ool, where available ce learned value and avoid	d possible HO2S failur











K5 & V55 Schsols	
KS (Knock Sensor) consists of a piezoelectric element attached t cylinder block to detect engine knocking conditions. Knocking in cylinder block is converted to an AC varying voltage signal whice sent to the PCM and used for timing adjustment.	to the state of th
VSS (Vehicle Speed Sensor) is an AC or DC voltage depending on the sensor installed. This sensor informs the PCM of the rate of acceleration and how fast the vehicle is moving. VSS is a	-Con-
major input to the TCM (Transmission Controller Computer).	

	Toyota EVAP	
	NOTE: Vacuum too high Closing Purge VSV	
	Continue Exit	ng
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haelz K'ngina lu	the and Drivaahility problem. Our diagnosis	first uncovered the
ICCK Engine ng	potot M A: D C Dolat Dola	
llowing DICs,	P0101 Mass Air Performance, P01/1, P01/2	4 Bank I and 2 Lean
ondition, P0172	2, P0715 Bank 1 and 2 Rich Condition. Even	1 after clearing the code
e PID data dis	olaved Bank 1 STFT -14% and LTFT 32% :	and Bank 2 STFT -13%
	prayed Dank 1 511 1 -1470 and E11 1 5270 (
nd LTFT 30% s	so you can see where the lean and rich codes	s were coming from.
	-	_
Code	Description	*
and the second se		
	DTC Codes:	
P0101	DTC Codes: Mass or Volume Air Flow Circuit Range/Performance	
P0101 P0171	DTC Codes: Mass or Volume Air Flow Circuit Range/Performance System Too Lean Bank 1	
P0101 P0171 P0172	DTC Codes: Mass or Volume Air Flow Circuit Range/Performance System Too Lean Bank 1 System Too Rich Bank 1	
P0101 P0171 P0172 C3401	DTC Codes: Mass or Volume Air Flow Circuit Range/Performance System Too Lean Bank 1 System Too Rich Bank 1 Description not available	
P0101 P0171 P0172 C3401	DTC Codes: Mass or Volume Air Flow Circuit Range/Performance System Too Lean Bank 1 System Too Rich Bank 1 Description not available No Pending Codes Present	
P0101 P0171 P0172 C3401	DTC Codes: Mass or Volume Air Flow Circuit Range/Performance System Too Lean Bank 1 System Too Rich Bank 1 Description not available No Pending Codes Present So where do we go with our diagnosis	\$?
P0101 P0171 P0172 C3401	DTC Codes: Mass or Volume Air Flow Circuit Range/Performance System Too Lean Bank 1 System Too Rich Bank 1 Description not available No Pending Codes Present So where do we go with our diagnosis	5?
P0101 P0171 P0172 C3401	DTC Codes: Mass or Volume Air Flow Circuit Range/Performance System Too Lean Bank 1 System Too Rich Bank 1 Description not available No Pending Codes Present So where do we go with our diagnosis	s?

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Actuators

EGR

Exhaust Linear EGR valves are operated by a small electrical stepper motor that drives the EGR pintle open and closed on command from the PCM. The valve also contains a position sensor that signals a change in pintle position as the valve operates.

Zero Count = ?????

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Indexing Before every applying any power or ground to a solenoid you need to perform the following: 1. Turn the power off - Key or Button OFF 2. Disconnect the connector plug from actuator. 3. Turn the power on and check what side of the connector has 12 volts and ground. 4. Apply power and ground to the correct terminal ends of the actuator to activate it (actuator plug wire disconnected). 117 © A.T.T.S. Inc. 2001 - 2022

	Prog	ramming	
	 Control Tribline service getter fully the period Control Free List View Favories Tools Help Control = Control = Page + Safety + Tools + Q + 	ann 2 ≤ 2 € 4 mm	0.*
Reprogramming Even minor software flaws can be corrected with reprogramming. Additionally, reprogramming can adapt the onboard computer's default settings to compensate for wear and tear and variations in external factors like fuel quality or severe operating conditions.	Reset J2524 Tool	Select Diagnostic Tool and Programming Process Select Diagnostic Tool D2534 Tool Tect/2 Remote Select Programming Process Reprogram ECU Replace and Program ECU Java Version: 1.8.0_52	
		Screwslot Added 5.4 Assembled and Added 5.4	5.95% -

	"A		
	CRANK (CKP) PATTERN LEARNING		1
Ka	WARMING UP ep the engine speed at 3000 RPM to warm up the engine to 167 °F(75 °C)		
	ENGINE SPEED 1850RPM		
ORPM	3005FPM ECT SENSOR 96.8°F	6000RPM	
32 ØF	१६र <i>े</i> ७२	248.0%	

Fact	tory Enhanced Scan Data	1	
	" <u>a</u>		
	CRANK (CKP) PATTERN LEARNING		
	Turn the ignition awitch off.		
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2006 Honda Pilot 3.5L P0175 Too Rich Negative Fuel Trim Date: 5/24/2019 2:46 PM Date: 6/24/2019 2:46 PM
 11-1
 | Right Front Tire Low Air Pressure

 13-1
 Left Front Tire Low Air Pressure

 15-1
 Right Rear Tire Low Air Pressure

 17-1
 Left Rear Tire Low Air Pressure

 18-1
 Left Rear Tire Pressure sons Signal Failure
 2006 Honda Pilot 3.5L V6 SOHC VTEC (J35A9) AutoClinic 9 Lupi Plaza Mahopac, New York 10541 845 628-6668 WE TEST NOT GUESS www.autoclinicofny.com VTM-4 - Current Codes 77-1 | Powertrain System Failure Pre Scan Vehicle System Report Gauges - Gauges Codes B1177 | Abnormal Battery Voltage VEILCLE INFORMATION VIA 2006 1950514503243 VTEAR 2006 MODEL FORM ENGINE 3.5L V6 SONC VTEC (J35A9) SYSTEM LICENSE CODE SCAN RESULTS Systems Analyzed: 8 A Engine - Permanent Codes C Engine - Temporary Codes C Transmission A Antilock Brakes - Codes C Arbag A True Pressure Monitor - Current Codes A VTM-4 - Current Codes A Gauges - Gauges Codes Engine - Permanent Codes P0175 | Front Bank (Bank 2) Fuel System Too Rich Engine - Temporary Codes Transmission Antilock Brakes - Codes 61-1 | Battery Voltage Failure 112-1 | Internal Power Source Failure Airbag Tire Pressure Monitor - Current Codes 134 © A.T.T.S. Inc. 2001 - 2022 134

TIME OUT - CASE STUDY

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2007 Ram 3500 No Start

This Ram 3500 was towed in from an independent shop that was not able to start the engine. It cranked but would not start so they towed it to the Ram dealer. The vehicle was checkout by a few of the dealer's top techs. After checking it out for over a month the dealer told the shop that the following computers had to be replaced; SKIM, overhead and PCM. The dealer had charged them for a new key and WCM (Wireless Control Module) and programming. The independent shop had to pay an \$890.00 invoice for a vehicle that would still not start. The shop asked around and came up with my name as the guy who can fix it.

When I received the vehicle, I checked it out and found that the dealer left everything apart. I first connected my aftermarket scan tool only to come up short handed, so I connected the Chrysler WiTech2 factory scan tool.

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2007 Ram 3500 No Start

With the WiTech2 scan tool I was able to see all the problems. I reprogrammed the VIN to the WCM and learned all 3 keys that I was given for this Ram. My next step was to send the seed code to the PCM so it could accept all the keys registered in the WCM. After trying it a few times without any luck I called two different tech support companies. Each company spent hours as I did without getting the vehicle to start. They both came up with the same conclusion that the SKIM, overhead and PCM had to be replaced. After thinking about how the system works, I thought that I would regroup and go through the complete process again. The results were still the same, so I thought what do I have to lose by reprogramming the PCM even though I was told not to do that by both tech support services. I decided to reprogram the PCM and see what happens. BINGO...it all worked, the engine started right up and all 3 keys, two used and one new one, were all registered and all started the engine. The moral is sometimes you have to think out of the box.

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4 > 0 A man	fernintesk anne findere blanijk kohide Jan II & Rockar	
Vehicle +	2007 RAM 3500 CAB CHASSIS 6.7L CUMMINS TURBO DIESEL	🗢 🖬 13.90 Volt
Activities	POCM Powertrain Control Module	Switch ECU +
Golded Diagnostics Whick Preparations	Current Part Number: 5230043442. ECU Status: Up-to-Date	
Customer Preferences	ECU NEW PART NUMBER CALIBRATION	# OF BULLETINS
bittlese	ECM 52300834AZ 2007 DC 6 7L CLIMMINS ENG REF #S3041150AA OR 53041408AA AUTO 50 STATE	3*





