

Freeze Frame Data

Description

Freeze frame data allows access to emission-related values from specific generic parameter identification (PID). These values are stored when an emission-related diagnostic trouble code (DTC) is stored in continuous memory. This provides a snapshot of the conditions that were present when the DTC was stored. Once one set of freeze frame data is stored, this data remains in memory even if another emission-related DTC is stored, with the exception of misfire or fuel system DTCs. Once freeze frame data for a misfire or fuel system DTC is stored, it overwrites any previous data, and freeze frame data is no longer overwritten. When a DTC associated with the freeze frame data is erased or the DTCs are cleared, new freeze frame data can be stored again. In the event of multiple emission-related DTCs in memory, always note the DTC for the freeze frame data.

FREEZE FRAME DATA TABLE

Acronym	Description	Measurement Units
AAT	Ambient Air Temperature	Degrees
AIR	Secondary Air Status	
APP_D	Accelerator Pedal Position D	%
APP_E	Accelerator Pedal Position E	%
APP_F	Accelerator Pedal Position F	%
BARO	Barometric Pressure	kPa
CATTEMP11	Catalyst Temperature Bank 1, Sensor 1	Degrees
CATTEMP21	Catalyst Temperature Bank 2, Sensor 1	Degrees
CLRDIST	Distance Since Codes Cleared	Km
ECT	Engine Coolant Temperature	Degrees
EQ_RAT	Commanded Equivalence Ratio	Unit
EQ_RAT11	Lambda Value Bank 1, Sensor 1	Unit
EQ_RAT21	Lambda Value Bank 2, Sensor 1	Unit
EVAPPCT	Commanded Evaporative Purge	%
EVAPVP	Evaporative System Vapor Pressure	Pa
FLI	Fuel Level Input	%
FRP	Fuel Rail Pressure	kPa
FUELSYS1	Open/Closed Loop 1	OL/CL/OL DRIVE/OL FAULT/CL FAULT
FUELSYS2	Open/Closed Loop 2	OL/CL/OL DRIVE/OL FAULT/CL FAULT
IAT	Intake Air Temperature	Degrees
LFT1	Long Term Fuel Bank 1	%
LFT2	Long Term Fuel Bank 2	%
LOAD	Calculated Load Value	%
MAF	Mass Air Flow Rate	g/s
MAP	Manifold Absolute Pressure	kPa
O2S11	Bank 1 Upstream Oxygen Sensor (11)	Volts/mA
O2S12	Bank 1 Downstream Oxygen Sensor (12)	Volts
O2S21	Bank 2 Upstream Oxygen Sensor (21)	Volts/mA
O2S22	Bank 2 Downstream Oxygen Sensor (22)	Volts
RPM	Engine RPM	RPM

RUNTM	Run Time	Seconds
SFT1	Short Term Fuel Bank 1	%
SFT2	Short Term Fuel Bank 2	%
SPARKADV	Spark Advance	Degrees
TAC_ PCT	Commanded Throttle Actuator	%
TP	Absolute Throttle Position	%
TP_REL	Relative Throttle Position	%
VS	Vehicle Speed	km/h-mph
WARMUPS	Number of Warmups Since Code Cleared	Units

Some unique PIDs are stored in the keep alive memory (KAM) of the powertrain control module (PCM) to help in diagnosing the root cause of misfires. These PIDs are collectively called misfire freeze frame (MFF) data. These parameters are separate from the generic freeze frame data that is stored for every MIL code. They are used for misfire diagnosis only. The MFF data could be more useful for misfire diagnosis than the generic freeze frame data. It is captured at the time of the highest misfire rate, and not when the DTC is stored at the end of a 200 or 1,000 revolution block. (Generic freeze frame data for misfire can be stored minutes after the misfire actually occurred.)

Note: MFF PIDs are supported on all vehicles, but may not be available on all scan tools because enhanced PID access may vary by scan tool manufacturer.

MISFIRE FREEZE-FRAME PIDs

PID Name	Description	Measurement Units
MFF RPM	Engine RPM at the time of misfire	RPM
MFF LOAD	Engine load at the time of misfire	%
MFF VSS	Vehicle speed at the time of misfire	km/h-mph
MFF IAT	Intake air temperature at the time of misfire	Degrees
MFF SOAK	Engine-off soak time at the time of misfire	Time
MFF RNTM	Engine running time at the time of misfire	Time
MFF EGR	EGR DPFE sensor at the time of misfire	Volts
MFF TP	Throttle Position at time of misfire	Volts
MFF TRIP	Number of driving cycles at the time of misfire (at least one 1,000 rev block)	Number of Trips
MFF PNP	1= in DRIVE during the time of misfire	Mode
MP_ LRN	1= Misfire wheel profile learned in KAM	Yes/No

