

This chapter contains information for interpreting data parameters on Ford vehicles.

For additional information on Ford vehicles, see the following sections:

- “Ford Operations” on page 53
- “Ford Testing” on page 71
- “Ford Communications Problems” on page 717

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4x4 Parameters

4_LOW_LED

Range: _____ ON/OFF

The 4x4 low status.

4WDCPWMOU

4WDCPWMST(%)

Range: _____ not available

4WD clutch PWM status.

4WDHIGLMP

Range: _____ not available

4WD HIGH indicator lamp status.

4WDINP_SW

Range: _____ 2-W DRIVE, GND, OPEN, 4-W LOW, NEUTRAL, A4WD, 4W AUTO/HI

4WD switch status.

4WDLOWLMP

Range: _____ not available

4WD LOW warning indicator.

4WDMODE_L

Range: _____ ON/OFF

4WD mode lamp status.

4X4_BOO

Range: _____ ON/OFF

Brake ON/OFF status.

4X4CCWRLY

Range: _____ ON/OFF

Transfer case shift relay (L2H counterclockwise status).

4X4_CWRLY

Range: _____ ON/OFF

4WD HIGH indicator LED.

ABS_ACTIVE

Range: _____ ON/OFF

Clockwise relay control.

ABS_MSG

Range: _____ PRESENT/NOT PRESENT

CAN message is missing from the ABS.

ABS_PWR_R

Range: _____ ON/OFF

Antilock braking system power relay output status.

CCNT

Range: _____ not available

Number of continuous codes present.

CLCH_SOL (%)
Range: _____ not available
PWM Output control command #1 status.

COPENPLAT
Range: _____ not available
Currently open contact plates status.

CW_CCW
Range: _____ not available
Clockwise relay control status.

FR_OUTSHA
Range: _____ not available
Front shaft speed status.

HALLPOWER
Range: _____ not available
Hall effect sensor power status.

HIGH_LAMP
Range: _____ ON/OFF
4WD HIGH indicator LED.

IGN_SW
Range: _____ START/RUN
Ignition switch status.

IGNITION(V)
Range: _____ not available
Ignition status.

IWE_SOL
Range: _____

IWE_SOLST
Range: _____ ON/OFF
Integrated wheel ends solenoid status.

LF_WSPD
Range: _____ not available
Left front wheel speed sensor.

LR_WSPD
Range: _____ not available
Left rear wheel speed sensor.

LFDR_SW
Range: _____ AJAR/CLOSED
Left front door ajar switch status.

LOW_LAMP
Range: _____ ON/OFF
4WD Low indicator status.

MTR_CCW
Range: _____ ON/OFF
Counterclockwise shift motor driver output state.

MTR_CW

Range: _____ ON/OFF

Clockwise shift motor driver output state.

NSAFETYSW

Range: _____ NEUTRAL/OFF

Neutral safety switch state.

NTF_4X4M

Range: _____

NTF_CMD

Range: _____ ON/OFF

Neutral tow function state.

NTF_LAMP

Range: _____

TOW_LAMP

Range: _____ ON/OFF

Neutral tow light state.

OILPRES

Range: _____ not available

All wheel drive oil pressure before any FMEM substitution.

OIL_TMP

Range: _____ not available

All wheel drive oil temperature before any FMEM substitution.

PCM_MSG

Range: _____ PRESENT/NOT PRESENT

Indicates if CAN message is missing from the PCM.

PLATE_A

Range: _____ OPEN/CLOSED

Transfer case contact plate switch A state.

PLATE_B

Range: _____ OPEN/CLOSED

Transfer case contact plate switch B state.

PLATE_C

Range: _____ OPEN/CLOSED

Transfer case contact plate switch C state.

PLATE_D

Range: _____ OPEN/CLOSED

Transfer case contact plate switch D state.

PLATE_PWR

Range: _____ ON/OFF

Contact plate power state.

PMP_AMP

Range: _____ not available

Pump current - Actual.

R_PUTSHA
 Range: _____ not available
 Rear shaft speed.

RF_WSPD
 Range: _____ not available
 Right front wheel speed sensor.

RR_WSPD
 Range: _____ not available
 Right rear wheel speed sensor.

RPM_ENG_E4WD
 Range: _____ not available
 Engine speed state.

SELTESTDTC
 Range: _____ not available
 Diagnostic trouble codes state.

SHMOTCCLO
 Range: _____ ON/OFF
 Counterclockwise shift motor driver short to ground.

SHMOTCLOC
 Range: _____ not available
 Clockwise shift motor driver short to ground.

TCYC_FS
 Range: _____ ACTIVE/PASSIVE
 Traction control system state.

TPI
 Range: _____ not available
 Throttle position state.

TRCASEGND
 Range: _____ not available
 Transfer case contact plate ground return.

VBATT
 Range: _____ not available
 Battery positive voltage.

VLV_AMP
 Range: _____ not available
 Valve current - Actual.

VLVCHAR
 Range: _____ not available
 Valve characteristic signal.

VSS(KPH/MPH)
 Range: _____ not available
 Vehicle speed.

Powertrain Control Module (PCM) Parameters

This section defines data parameters available from the engine control module or the powertrain control module (PCM) on Ford vehicles.

3/2 SHIFT SOL

4/3 SHIFT SOL

Range: _____ ON/OFF

State of the two solenoids used to activate the 3-2 and 4-3 downshift valves during deceleration and read ON when energized.

4X4Low

Range: _____ ON/OFF

State of 4-wheel drive low switch on the instrument panel. The switch sends a ground signal to the PCM when 4x4 low is ON, which is used to adjust the transmission shift schedule.

4x4Low reads as follows:

- ON when the switch circuit is closed
- OFF when the switch is open

A_CT(°C/°F)

Range: _____ not available

Evaporator temperature state.

A_CT_V(V)

Range: _____ not available

Evaporator temperature signal voltage.

A/CClutchSw

Range: _____ ON/OFF

State of the A/C cycling switch. The PCM uses this parameter to adjust engine speed for added load.

A/CClutchSw reads as follows:

- ON when the switch is closed
- OFF when the switch is open

A/CPrs(V)

Range: _____ 0.0 to 5.0 V

Condition of the air conditioning pressure (ACP) switch and reads as follows:

- 0 V when the switch is closed
- 4.0–5.0 V when the switch is open

On some models, the PCM turns on the high-speed cooling fan if ACP readings indicate A/C compressor head pressure is over 325 psi. The PCM may also use the signal to control idle speed and the A/C clutch.

AAT(°C/°F)

Range: _____ not available

Ambient air temperature.

ACFD_BAT

Range: _____ ON/OFF

A/C full demand switch for the battery area.

ACFD_PAS
Range: _____ **ON/OFF**

A/C full demand switch for the passenger area.

AC_RC_SW
Range: _____ **ON/OFF**

A/C recirculation switch.

ACCS
Range: _____ **ON/OFF**

Air conditioning compressor cycling switch.

ACCS=A/C
Range: _____ **ON/OFF**

Position of the air conditioning cycle switch (ACCS). It reads ON if the A/C switch on the instrument panel is on, or the PCM is commanding A/C on.

In some cases, the A/C compressor may not turn on even though the switch is closed. Several other switch or sensor signals may prevent the PCM from engaging the A/C compressor clutch.

ACClutchHEV
Range: _____ **ON/OFF**

Air conditioning clutch.

ACDS1
Range: _____ **ENABLE/DISABLE**

Air conditioning diagnostic switch 1.

ACDS2
Range: _____ **ENABLE/DISABLE**

Air conditioning diagnostic switch 2.

ACL=ACCEL
Range: _____ **ON/OFF**

Accelerometer status.

AcIPedl(V)
Range: _____ **0.0 to 5.0 V**

Accelerator pedal (AP) sensor signal voltage to the PCM on diesel control systems. The AP sensor is similar to the throttle position sensor on a gasoline engine.

The AP sensor signal is used to calculate the fuel injection quantity and to control the exhaust backpressure regulator. The MIL lights if the AP sensor signal does not match the IVS signal at idle. A faulty AP sensor allows the engine to run at low idle speed only.

ACP
Range: _____ **not available**

Air conditioning pressure switch.

ACP
Range: _____ **OPEN/CLOSED**

Air conditioning pressure switch.

ACP_PSI(KPA)
Range: _____ **not available**

A/C pressure sensor.

ACRDV
Range: _____ ON/OFF

A/C refrigerant distribution valve commanded.

ACRDV_F
Range: _____ YES FAULT/NO FAULT

A/C refrigerant distribution valve status.

ACT_MNT
Range: _____ ON/OFF

Active mount control commanded.

ACTF
Range: _____ YES/NO

Inlet air temperature status.

ACTMNT_F
Range: _____ YES FAULT/NO FAULT

Active mount control status.

AFT_ADDS
Range: _____ not available

Passenger side power sliding door module.

AFT2_ADDS
Range: _____ not available

Adaptive fuel table 2.

AIR
Range: _____ ON/OFF

PCM command to the electric air pump and reads ON when the PCM has commanded the air pump on. The parameter also indicates the secondary air injector. The AIR and AIRMonitor parameters should read the same.

AIR A
Range: _____ ON/OFF

PCM command to the secondary air relay and reads ON when the PCM is energizing the relay solenoid to close the relay contacts and run the air pump.

AIR_FLT
Range: _____ YES FAULT/NO FAULT

Secondary air injection status.

AIRBA
Range: _____ ON/OFF

Secondary air bypass actual.

AIRBypass

Range: _____

AIR B

Range: _____ **ON/OFF**

Air bypass solenoid, which controls vacuum to the air bypass valve. If bypass is activated, air is directed to either the catalyst or an upstream-downstream valve. When the system is deactivated, air is blocked from the catalyst or routed to atmosphere.

These parameters read as follows:

- ON when the air bypass solenoid is on and air bypass voltage is low
- OFF if the solenoid is off and air bypass voltage is high

AIRCON_SW_STATUS

Range: _____ **ON/OFF**

Air conditioning switch status.

AIRD

Range: _____ **ON/OFF**

Secondary air injection divert.

AIRDA

Range: _____ **ON/OFF**

Secondary air divert actual.

AIRDivert

AIR D

Range: _____ **ON/OFF**

State of the air diverter solenoid, which controls vacuum to the air diverter valve. When the air diverter system is activated, air is routed upstream on many systems.

These parameters read as follows:

- ON when the air diverter solenoid is on and air bypass voltage is low
- OFF when the solenoid is off and voltage is high

AIREVAL_DC_MODE1

Range: _____ **YES/NO**

Secondary air system is evaluated.

AIRFault

Range: _____ **YES/NO**

Secondary air injection system and reads YES when a fault is present.

AIRM

Range: _____ **ON/OFF**

Status of the secondary air monitor.

AIRMonitor

Range: _____ **ON/OFF**

Status for the electric air pump based on a PCM feedback signal and reads ON if the PCM detects a voltage change when the pump is commanded on. The AIR and AIRMonitor parameters should read the same.

ANTISCAN

Range: _____ **ACTIVE/OFF**

Anti-scan function status.

AP(%)
 Range: _____ **not available**

Accelerator pedal position.

AP(V)
APP1(V)
APP2(V)
APP3(V)
 Range: _____ **0 to 5.00 V**

Voltage signal of the accelerator pedal position on a diesel engine control system. The accelerator position (AP) sensor is a three-wire potentiometer.

Table 13-1 Normal AP sensor voltage readings

SENSOR	CLOSED THROTTLE	WIDE OPEN THROTTLE
APP1	3.9–4.2 V	0.7–1.2 V
APP2	1.4–1.6 V	3.6–4.1 V
APP3	0.8–1.1 V	3.1–3.5 V

AP_MODE_TCM
 Range: _____ **PT/WOT/CT**

AP_PER_TCM(%)
 Range: _____ **not available**

Accelerator pedal position.

APP_MODE
 Range: _____ **CT/PT/WOT**

Indicates whether the APP sensor mode is closed throttle (CT, partial throttle (PT, or wide open throttle (WOT).

APP_F
 Range: _____ **NO FAULT/FAULT**

Accelerator pedal position status.

APP1(V)
 Range: _____ **not available**

Accelerator pedal position sensor 1.

APP_LOW(V)
 Range: _____ **not available**

Closed throttle status.

ARPMDES(rpm)
 Range: _____ **not available**

Ancillary RPM desired, which is the engine speed required to maintain the vehicle speed being commanded by the speed control system.

AST
 Range: _____

AST2
 Range: _____ **not available**

Time since start in seconds.

AXLE
Range: _____ **not available**

This parameter indicates the axle ratio.

BARO(Hz)
Range: _____ **125 to 160 Hz)**

Barometric pressure in cycles per second, or Hertz (Hz) and should read as follows:

- 160 Hz at sea level
- 125 Hz at an elevation of 10,000 feet

BARO(V)
Range: _____ **2.6 to 4.6 V**

Barometric pressure as voltage and should read as follows:

- 4.6 V at sea level
- 2.6 V at an elevation of 10,000 feet

BLoWerMoToR
Range: _____ **ON/OFF**

Blower motor status.

BLSHORT BATT
Range: _____ **YES/NO**

Presence of a short to battery positive in the blower motor circuit. YES means that a short exists.

BLSHORT GND
Range: _____ **YES/NO**

Presence of a short to ground in the blower motor circuit. YES means that a short exists.

BOO
Range: _____ **ON/OFF**

Brake ON/OFF status.

BOO=BRAKE SW
Range: _____ **ON/OFF**

Brake pedal switch. Whenever the brake pedal is pressed, the brake ON/OFF (BOO) switch sends a battery voltage signal to the PCM.

BOO=BRAKE SW should read as follows:

- ON when the brake pedal is pressed
- OFF at all other times

Depending on the vehicle, the PCM may adjust engine idle speed with the brakes applied and the A/C turned on, or may turn the A/C off after a preset time. On vehicles with locking torque converters, the PCM may unlock the torque converter when the brakes are applied.

BP=BARO (kPa)
BP=BARO (”HG)
 Range: _____ see description

Barometric pressure, which is calculated by the PCM based on the frequency of the barometric pressure (BP) sensor signal.

This parameter reads as follows:

- 102 kPa (30.1 inHG at sea level)
- 78 kPa (23 inHG at 7,000 feet)

Actual readings vary with weather conditions that cause barometric pressure to change.

BPA
 Range: _____ ON/OFF

Brake pressure applied switch status.

BPA_SW
 Range: _____ ON/OFF

Brake pedal position status.

BPO
 Range: _____ YES/NO

Battery power off request.

BPO_Hz
 Range: _____ not available

Battery power off signal.

BPP_BOO
 Range: _____ ON/OFF

Brake pedal position.

BrakeOnOff
 Range: _____ ON/OFF

Brake pedal switch and reads as follows:

- ON when the brakes are applied
- OFF when the brakes are not applied

This parameter should read the same as the BOO=BRAKE SW parameter.

CAMDC 1
CAMDC 2
 Range: _____ not available

Duty cycle of the variable cam timing solenoids.

- CAMDC 1 = bank 1
- CAMDC 2 = bank 2

CAMDCR
 Range: _____ 0 to 99%

“On” time of the variable camshaft timing (VCT solenoid as requested by the PCM.

CAMDCR should read as follows:

- Near 0% with the engine running at a warm idle, camshaft fully advanced with no EGR
- Near 50% with a warm engine and the vehicle operating at a steady cruise speed

CAMERR1**CAMERR2****Range:** _____ **not available**

Variable cam timing error in crankshaft degrees.

- CAMERR 1 = bank 1
- CAMERR 2 = bank 2

CANP=PURGE**Range:** _____ **ON/OFF**

Canister purge solenoid, which opens canister purge (CANP) valve to regulate the flow of fuel vapors from the EVAP canister to the intake manifold.

- When the engine is at operating temperature, the solenoid turns ON. This opens the canister purge valve and purging occurs.
- When the engine is at idle or below operating temperature, the solenoid turns OFF. The valve closes and purge stops.

CASeGND(V)**Range:** _____ **-16.0 to 16.0 V**

Voltage difference between the PCM case ground and the hardwired Fuel Level Input from the fuel pump driver module.

- Above 0.050 V indicates high resistance
- 0.027 V is a typical reading

CAT MONITOR**CAT mon ready****Range:** _____ **YES/NO**

Indicate whether the Catalyst Efficiency Monitor has successfully completed and read as follows:

- YES if the monitor completed
- NO if it did not

CATCAL1(Hz)**CATCAL2(Hz)****Range:** _____ **1 to 4 Hz)**

Catalyst calibrated frequency for each cylinder bank, which is determined by the PCM based on engine load and RPM. See CATTST for further information.

CATEVAL_DC_MODE1**Range:** _____ **YES/NO**

Catalyst monitor evaluated.

CATTST1(Hz)**CATTST2(Hz)****Range:** _____ **1 to 4 Hz)**

Steady State CAT monitor measured frequency for banks 1 and 2 and are only used in 1996 OBD-II vehicles. The reading is the frequency of the rear O2S during a catalyst efficiency monitor test. This number is compared to a calibrated frequency number determined by the PCM (CATCAS based on engine load and RPM).

If the CATTST value is greater than CATCAL, a Diagnostic Trouble Code (DTC) is stored. The DTCs associated with this test are DTCs P0420 and P0430. The MIL is activated after a fault is detected on two consecutive drive cycles.

If the CATTST value is less than CATCAL the catalyst monitor will indicate YES or passed.

CCC=TCC
 Range: _____ LOCKED/OFF

PCM command to the torque converter clutch control (TCC solenoid and reads as follows:

- LOCKED when the TCC is engaged
- OFF when the TCC is disengaged

CCL
 Range: _____ ON/OFF

Fuel cap off indicator lamp state.

CCLF
 Range: _____ YES FAULT/NO FAULT

Fuel cap off indicator lamp fault state.

CCMSTAT_DC_MODE1
 Range: _____ YES/NO

Comprehensive components monitor evaluated state.

CCS
 Range: _____ ON/OFF

Coast clutch solenoid state.

CCS_FLT
 Range: _____ YES FAULT/NO FAULT

CCSFault
 Range: _____ YES/NO

Presence of a fault in the coast clutch solenoid circuit. Reads YES or YES FAULT when a circuit fault is present.

CCSA
 Range: _____ ON/OFF

PCM feedback signal indicating the actual state of the coast clutch solenoid. When activated, fourth gear is disabled to allow engine braking in third gear. CCSA and the CoastCISol readings should simultaneously display ON or OFF.

CHT(°C/°F)
CHT SENSOR(°)
 Range: _____ ON/OFF

Cylinder head temperature.

CHT_COLD(°C/°F)
 Range: _____ not available

Cylinder head temperature cold value.

CHT_HOT(°C/°F)
 Range: _____ not available

Cylinder head hot value.

CHT_V(°C/°F)
 Range: _____ not available

Cylinder head temperature.

CHTFM
 Range: _____ YES FAULT/NO FAULT

Cylinder head temperature status.

CHTIL
Range: _____ ON/OFF
CHTILFault
Range: _____ YES/NO
CHTIL_FLT
Range: _____ FAULT/NO FAULT

Operating status of the Cylinder Head Temperature Indicator Lamp (CHTIS).

- CHTIL reads ON when the lamp is on.
- CHTILFault reads YES if a fault was detected.

CKP_PROF
Range: _____ YES/NO

Learned misfire correction profile state.

CLRDIST_NOMIL
Range: _____ not available

Distance since the last time diagnostic trouble codes were cleared.

CMPFM
Range: _____ YES/NO

CMPFM
Range: _____ YES FAULT/NO FAULT

Camshaft position (CMP) failure mode, which indicates if a fault was detected in the camshaft position (CMP) sensor circuits and reads YES if a fault occurred.

When the engine is cranking, or if operating in CMPFM mode, two spark plugs fire simultaneously until the CMP is determined by the PCM. This allows the engine to run even though the PCM is unable to determine if cylinder number 1 is on compression.

CMPFM2
Range: _____ YES FAULT/NO FAULT

Camshaft position sensor 2 status.

CmprCompMon rdy
Range: _____ YES/NO

Indicates whether the Component monitor has successfully completed and reads as follows:

- YES if the monitor completed
- NO if it did not

CMPS_Ip_Lev
Range: _____ HIGH/LOW

Camshaft position sensor level state.

CMPS_Status
Range: _____ OK/FAULT

Camshaft position sensor state.

COAST
Range: _____ ON/OFF

Speed control actuator coast switch state.

CoastCISol
Range: _____ ON/OFF

PCM command to the coast clutch solenoid, which allows engine braking in third gear when fourth gear is disabled by the transmission control switch. Reads ON when the coast clutch solenoid is activated.

CoastCISol(mA)
 Range: _____ 0 to 1000 mA

CoastCISol(%)
 Range: _____ 0 to 100%

PCM command to the coast clutch solenoid. When activated, coast clutch solenoid allows engine braking in third gear when fourth gear is disabled by the transmission control switch.

The milliamp parameter displays the coast clutch solenoid current, and the percent parameter displays the duty cycle of the pulse width modulated solenoid signal.

CPC_AMP
 Range: _____ not available

Converter pressure control state.

CPP
 Range: _____ ON/OFF

Clutch pedal position switch state.

CPP_ST
 Range: _____ NOT DEPRESSED/DEPRESSED

Clutch pedal position switch state.

CPP/TCS
 Range: _____ ON/OFF

Indicates the following:

- Manual transmission vehicles—the status of the clutch pedal position switch (CPP)
- Automatic transmission vehicles—the status of the transmission control switch (TCS)

CPP/TCS reads as follows:

- ON when the switch is closed
- OFF when the clutch pedal or TCS is pressed and the switch opens

CRUISE
 Range: _____ ON/OFF

Reads ON if the driver selectable cruise control switch is on.

CRUISE_SW
 Range: _____ ON/OFF

Speed control command switch state.

CSEGND(V)
 Range: _____ -16.0 to 16.0 V

Voltage difference between the PCM case ground and signal return.

- Above 0.050 V indicates high resistance
- 0.027 V is a typical reading

CylHdTemp(V)
 Range: _____ (range 0.25 to 4.75 V)

Cylinder head temperature as voltage. The higher the voltage, the lower the temperature.

DCDC_ENA
 Range: _____ ON/OFF

DC to DC converter enabled status.

DCDC_F
Range: _____ **YES FAULT/NO FAULT**

DC to DC converter status.

DPFE(V)
Range: _____ **0.45 to 4.60 V**

Differential pressure feedback EGR (DPFE sensor signal, which displays exhaust pressure to the PCM. The PCM uses DPFE to compute optimum EGR flow.

Pressure feedback EGR systems control EGR flow rate by monitoring pressure drop across a remotely located sharp-edged orifice. There are several sensor designs, some have an aluminum housing and use a 0.55 V offset, others have aluminum or plastic housings and use a 1.0 V offset. Typically, sensor output should be as shown in Table 13-2.

Table 13-2 *Outputs for DPFE sensors with 0.55 V and 1.0 V offsets*

0.55 V OFFSET			1.0 V OFFSET		
inHg	kPa	Volts	inHg	kPa	Volts
8.83	29.81	4.66	8.56	28.9	4.95
6.62	22.36	3.64	4.3	14.4	2.97
4.41	14.90	2.61	0	0	1.0
2.21	7.46	1.58			
0	0	0.55			

DPFEGR
Range: _____ **not available**

Delta feedback pressure exhaust gas recirculation state.

DRIVE Count
Range: _____ **0 to 255**

The number of times the engine has been started since the last DTC P1000 (monitor readiness set).

DRIVECNT
Drive_COUNT
Range: _____ **not available**

Valid drive counters.

DSD
Range: _____ **not available**

Desired idle speed (rpm).

DTC
Range: _____ **not available**

Diagnostic trouble codes.

DTC_CNT
Range: _____ **not available**

DTC count and includes DTCs needing no action.

DTC CouNT (pcm)
Range: _____ **see description**

The number of continuous or pending codes that have set. The number changes each time a new code sets.

EBP(V)
 Range: _____ **0 to 5 V**

Voltage signal from the exhaust backpressure sensor, which is used by the PCM to control the exhaust backpressure regulator (EPR). As voltage increases, so does pressure:

Table 13-3 *Outputs for exhaust backpressure sensor*

VOLTS	psi	kPa
0.00	0.00	0.00
0.25	8.00	55.1
1.45	20.0	137
4.45	50.0	344
4.75	53.0	365
5.00	60.0	413

ECT(°C)
 Range: _____ **-40 to 199**

ECT(°F)
 Range: _____ **-40 to 389**

ECT(V)
 Range: _____ **0.0 to 5.0**

ECT
 Range: _____ **NORM/COLD/HOT**

Engine coolant temperature (ECT sensor signal as temperature or voltage). The ECT is a thermistor installed in the engine coolant passages. A 5 V reference signal is applied to the ECT. As temperature increases, sensor resistance decreases to provide a variable voltage signal to the PCM. The PCM converts ECT sensor voltage to temperature.

These parameters read as follows:

- The temperature parameter reads 185° to 220°F (85° to 105°C on a warm engine at idle).
- A temperature reading of -40°C or -40°F may indicate an open sensor or circuit.
- A temperature reading above 185°C or 366°F may indicate a short in the sensor or circuit.
- The voltage parameter reads 0.70 to 0.40 V on a warm engine at idle.

ECT_FF (°C/°F)
 Range: _____ **not available**

Engine coolant temperature.

ECTF
 Range: _____ **YES FAULT/NO FAULT**

Engine coolant temperature state.

EFTA
 Range: _____ **not available**

Fuel rail pressure state.

EGR_EVAL
 Range: _____ **YES/NO**

Exhaust gas recirculation system has been evaluated.

EGR_Fault
Range: _____ **YES FAULT/NO FAULT**

Exhaust gas recirculation state.

EGR MONITOR

EGR mon ready
Range: _____ **YES/NO**

EGR system monitor has successfully completed and read as follows:

- YES if the monitor completed
- No if it did not.

EGRBARO
Range: _____ **0 to 5 V**

EGR Baro sensor voltage signal. The signal is used by the PCM to control EGR flow. The greater the EGR flow, the lower the voltage.

EGRCFault
Range: _____ **YES/NO**

PCM has detected a fault in the EGR control solenoid circuit and reads YES when a fault is present.

EGRCvacsol
Range: _____ **ON/OFF**

State of a normally closed solenoid that regulates vacuum to the EGR valve with a variable duty cycle and reads as follows:

- ON when the solenoid is enabled
- OFF when it is disabled

EGRDC(%)
Range: _____ **not available**

Exhaust gas recirculation valve duty cycle.

EGRDtyCycl(%)
Range: _____ **0 to 100%**

Duty cycle of the EGR vacuum regulator valve or EVR. The EVR controls the amount of EGR flow.

EGRDtyCycl reads as follows:

- 0% when the EVR is fully open and allowing vacuum to vent to atmosphere
- 100% when the EVR is fully closed allowing vacuum to open the EGR valve

EGREVAL_DC_MODE1
Range: _____ **YES/NO**

Indicates if the exhaust gas recirculation system has been evaluated.

EGRFOpen
Range: _____ **YES/NO**

Indicates whether the PCM has detected an open circuit in the EGR vacuum regulator valve or EVR circuit and reads YES when a fault is present.

EGRFShort
Range: _____ **YES/NO**

Indicates whether the PCM has detected a short circuit in the EGR vacuum regulator valve or EVR circuit and reads YES when a fault is present.

EGRMC1
EGRMC2
EGRMC3
EGRMC4
 Range: _____ **ON/OFF**

EGR motor control state for the indicated EGR motor control number.

EGRMC1F
EGRMC2F
EGRMC3F
EGRMC4F
 Range: _____ **YES FAULT/NO FAULT**

EGR motor control fault state for the indicated EGR motor control number.

EGRMDSD
 Range: _____ **not available**

EGR motor position desired.

EGRTPDC(%)
 Range: _____ **not available**

EGR throttle position.

EGRVP(V)
EGRTP(V)
 Range: _____ **0.30 to 4.50 V**

Voltage signal sent to the PCM by the EGR valve position sensor, which indicates the position of the EGR valve pintle.

- A low reading indicates low EGR flow
- A high reading indicates high EGR flow

EGRVPDES
 Range: _____ **0 to 14%**

Desired EGR.

EGRVR(%)
 Range: _____ **0 to 90%**

Signal sent to the PCM by the EGR valve position sensor as a percentage.

A low reading indicates low EGR flow, while a high reading indicates high EGR flow.

EGRVR_FLT
 Range: _____ **No fault/Short/Open/Yes Fault/Invalid**

Exhaust gas recirculation vacuum regulator fault.

EGRVentsol
 Range: _____ **ON/OFF**

PCM command to the EGR vent solenoid and reads ON when the solenoid is energized to bleed vacuum from the EGR valve and closing it.

EGRVFault
 Range: _____ **ON/OFF**

PCM has detected a fault in the EGR vent solenoid circuit and reads YES when a fault is present.

ElecPrsCtrl
Range: _____ **0 to 100 psi**

PCM commanded transmission electronic control pressure. This is a calculated parameter based on PCM-controlled pulse-width output.

EngFuelTA(V)
EngFuelTB(V)
Range: _____ **0 to 5.00 V**

Engine fuel temperature sensor voltage on diesel, flexible-fuel, and natural-gas powered vehicles.

- EngFuelTA = bank 1
- EngFuelTB = bank 2

EOT(V)
Range: _____ **0 to 5 V**

EOT(°)

EngOilTemp(°)

EOT_DEG(°C/°F)

Range: _____ **0 to 212°F or -17.8 to 100°C**

Engine oil temperature (EOT in volts and degrees).

EOT_M(°C/°F)
Range: _____ **not available**

Engine oil temperature.

EOTF
Range: _____ **YES FAULT/NO FAULT**

Engine oil temperature state.

EOTM
Range: _____ **HOT/COLD/NORM/DEF**

General state, or mode, of the engine oil temperature (EOT on diesel powertrain control systems).

Possible states are HOT, COLD, NORM (normal), and DEF (deFAULT). If the engine oil temperature is out of range, EOTM reads DEF.

EPC(psi)
Range: _____ **0 to 100 psi**

PCM commanded transmission electronic control pressure (EPC). This is a calculated parameter based on PCM-controlled Pulse-Width output.

EPC(V)
Range: _____ **2 V to battery voltage**

Average operating voltage of the pulse-width-modulated electronic pressure control solenoid.

A low average voltage reading indicates a higher EPC pressure; a higher reading indicates a lower EPC pressure.

EPCV(V)
Range: _____ **not available**

Electronic pressure control voltage.

EPR(%)
Range: _____ **0 to 100%**

Position of the exhaust pressure regulator (EPR). No further definition available at this time.

ETC_ACT
Range: _____ **Actual degrees**

ETC_DSD
Range: _____ **Desired degrees**

Actual (ACT) and desired (DSD) electronic throttle control.

ETC_CTRL
Range: _____ **not available**

Throttle control for drive shaft balance.

EVAP mon ready
Range: _____ **YES/NO**

Evaporative monitor has successfully completed and reads as follows:

- YES if the monitor completed.
- NO if it did not complete.

EVAPC
EVAPCV(%)
Range: _____ **0 to 100%**

PCM-commanded canister purge valve duty cycle and reads 100% when the canister purge valve is closed and not allowing fuel vapors from the evaporative canister.

EVAPCPFault
Range: _____ **YES/NO**

Indicates whether the PCM detects a fault in the canister purge solenoid circuit and reads YES when a fault is present.

EVAPCP
Range: _____ **ON/OFF**

Indicates whether the canister purge solenoid is on (ON) or off (OFF).

EVAPCP_FLT
Range: _____ **YES FAULT/NO FAULT**

Evaporative emission canister purge fault.

EVAPCV
Range: _____ **0 to 100%**

Duty cycle of the EVAP canister vent solenoid, which controls the amount of air entering the EVAP system.

EVAPCV reads as follows:

- 0% when the solenoid is fully open
- 100% when the solenoid is fully closed

EVAPCVA
Range: _____ **ON/OFF**

Evaporative emission canister vent valve.

EVAPCVF1
Range: _____ **YES FAULT/NO FAULT**

Evaporative emission canister vent valve status.

EVAPCVFault
Range: _____ YES/NO

EVAPCVFLT
Range: _____ YES FAULT/NO FAULT

PCM detects a fault in the canister vent solenoid circuit and reads YES when a fault is present.

EVAPEVAL_DC_MODE1
Range: _____ YES/NO

Evaporative system monitor evaluated.

EVAPPrgFlw(V)
Range: _____ 0 to 5 V

Presence of purge flow from the canister to the engine. Voltage should increase as purge flow increases.

EVAPPrgFlw reads as follows:

- 0.4 to 1.3 V at idle
- 0.4 to 4.0 V at steady cruise

EVAPSTA
Range: _____ not available

Evaporative emissions monitor status.

EVAPVM(%)
Range: _____ not available

Evaporative emission vapor management valve status command.

EVAPVM_Fault
Range: _____ YES FAULT/NO FAULT

Evaporative emission vapor management fault.

EVAPVMA
Range: _____ ON/OFF

Commanded state of the EVAPVM.

EVMV
Range: _____ OFF/ON/VARYING

Evaporative emission vapor management valve status.

EVP(V)
STE=EVP(V)
Range: _____ 0.30 to 4.50 V

EGR valve position (EVP) sensor signal, which reflects EGR valve pintle position. The EVP sensor is mounted on the EGR valve.

The spring-loaded EGR valve is operated by a vacuum signal from the EGR vacuum regulator solenoid. As supply vacuum overcomes spring force, the diaphragm moves. This lifts the pintle off of its seat and allows exhaust gas to recirculate. The amount of flow is proportional to the pintle position. Specifications are model dependant.

EVR(%)
Range: _____ **0 to 100%**

Duty-cycle output by the PCM to operate the EGR vacuum regulator (EVR) solenoid.

The EVR solenoid is a pulse-width-modulated (PWM) device that controls manifold vacuum to the EGR valve. The PCM outputs to the EVR regulates the vacuum output to the EGR valve. As the duty-cycle is increased, so is the vacuum output to the EGR valve.

EVR(% reads as described in Table 13-4.

Table 13-4 EVR(% readings

EVR(%)	inHg RANGE	kPa RANGE
0%	0 to 0.75	0 to 2.53
33%	0.55 to 2.05	1.86 to 6.9
90%	5.69 to 6.95	19.2 to 23.47

ExhBackPrs
Range: _____ **0 to 2368 psi**

Exhaust back pressure sensor as determined by a variable-capacitor type sensor in the right exhaust manifold on diesel powertrain control systems.

FAN
Range: _____ **LOW/HIGH/OFF**

Operational status of the engine cooling fan.

FAN_FLT
Range: _____ **No Fault/LFC Fault/HFC FAULT**

Engine cooling fan operation.

FAN Monitor
Range: _____ **ON/OFF**

Feedback signal that determines if the fan has been successfully commanded on or off by the PCM. The PCM monitors the fan side of the CCRM (or IRCM).

- ON indicates high input voltage
- OFF indicates low input voltage

FAN_REQ
Range: _____ **ON/OFF**

Cooling fan state requested.

FANM(HIGH)
Range: _____ **ON/OFF**

Indicates whether the PCM is commanding the fan to run at high speed and reads ON when the fan is running at high speed.

FANSSM
Range: _____ **HIGH/LOW**

Fan speed sensor monitor.

FANSS
Range: _____ **not available**

Electronic cooling fan speed sensor.

FDSP_ESCS_GPL
Range: _____ ON/OFF

Glow plug lamp state.

FFINF(%)
Range: _____ not available

Inferred flex fuel.

FFLRND
Range: _____ YES/NO

Flex fuel learned status.

FICM_LPWR
FICM_VPWR
Range: _____ 10.5 to 15.5 V

FICM_MPWR
Range: _____ 40 to 52 V

Voltage readings from the fuel injector control module (FICM).

- LPWR = Logic power
- MPWR = Main power
- VPWR = Vehicle power

FICMSYNC
Range: _____ YES/NO

Synchronization from the FICM (Fuel Injector Control Module).

FIRMSHFT
Range: _____ ON/OFF

Firm shift status.

FLIFM
Range: _____ YES/NO

Fuel level input FMEM flag.

FLI_PERCENT(%)
Range: _____ not available

Fuel level state.

FP
Range: _____ ON/OFF

Fuel pump status.

FlexFuel(Hz)
Range: _____ -32,512 to 32,768

Flexible fuel output frequency.

FLG_MLUSFM
Range: _____ YES FAULT/NO FAULT

Torque converter unlocking due to slipping.

FLG_OTLK
Range: _____ YES FAULT/NO FAULT

Transmission over temperature lock up mode.

FLG_SS4
 Range: _____ ON/OFF

Shift solenoid 4 state.

FLI(V)
 Range: _____ not available

Fuel level input voltage.

FLInput(V)
FueLvlinput(V)
 Range: _____ 0 to 32.0 V

FLInput(%)
FueLvlinput(%)
 Range: _____ 0 to 100%

Fuel level in the fuel tank as a voltage. A voltage or percentage at the high end of the sensor range indicates a high fuel level.

The PCM must receive a signal of 25–75% before beginning the evaporative emission monitor test.

FLI_SG(V)
 Range: _____ not available

Fuel level input voltage.

FPA STATE
 Range: _____ ON/OFF

Actual state of the fuel pump power circuit and reads as follows:

- ON when the pump is running
- OFF when it is not

FP=FUEL PUMP
 Range: _____ ON/OFF

ON/OFF status of the fuel pump relay.

- The fuel pump turns ON when the ignition switch is turned on and the fuel pump relay is energized.
- The fuel pump shuts OFF if the ignition switch is not turned to the start position and the PCM de-energizes the fuel pump relay after approximately one second.

The PCM operates the fuel pump when the ignition is in the start position to provide fuel while the engine is cranking. Once the engine starts the PCM continues operating the fuel pump unless the engine speed drops below 120 RPM or the inertia fuel switch (IFS) is activated.

FP_FLT
 Range: _____ YES FAULT/NO FAULT

Fuel pump fault status.

FPFault
 Range: _____ YES/NO

Indicates whether the PCM has detected a fault in the fuel pump circuit and reads YES when a fault is present.

FPM
Range: _____ ON/OFF
FPM(%)
Range: _____ not available

Fuel pump monitor.

FPMode
Range: _____
FPMonitor
Range: _____ ON/OFF

Indicate whether the fuel pump has turned on or off in response to a command from the PCM.

FRP(psi)
Range: _____ 37 to 150 psi

Fuel rail pressure (FRP) in psi on natural gas powered vehicles.

FRP(V)
Range: _____ not available

Fuel rail pressure voltage.

FRP_DSD
Range: _____ not available

Fuel pressure desired.

FRP_FAULT
Range: _____ YES FAULT/NO FAULT

Fuel rail pressure status.

FRP_PRESS
Range: _____ not available

Fuel rail pressure.

FRPFM
Range: _____ YES FAULT/NO FAULT

Fuel rail pressure transducer status.

FRT1FM
Range: _____ YES FAULT/NO FAULT

Fuel rail temp sensor #1 status.

FSVFault
FuelSolVlv
Range: _____ YES/NO

Indicates whether the PCM detects a fault in the fuel solenoid valve circuit on flexible-fuel vehicles and reads YES when a fault is present.

FSVMonitor
Range: _____ ON/OFF

Fuel solenoid valve (FSV circuit on flexible-fuel vehicles state and reads ON when the PCM has turned on the fuel solenoid valve.

FTIV_HEV(%)
Range: _____ not available

Fuel tank isolation valve.

FTIV_F
 Range: _____ YES FAULT/NO FAULT

Fuel tank isolation valve status.

FTP(KPA)
 Range: _____ not available

Fuel tank pressure transducer.

FTP_FAULT
 Range: _____ YES FAULT/NO FAULT

Fuel tank pressure transducer status.

FUEL mon ready
 Range: _____ YES/NO

Indicates whether the Fuel monitor has successfully completed and reads as follows:

- YES if the monitor completed
- NO if it did not

FUEL_RAIL_TEMP(°C/°F)
 Range: _____ not available

Fuel rail temperature.

FuelPumpA
 Range: _____ ON/OFF

Actual state of the commanded fuel pump output and should read the same as the fuel pump monitor and fuel pump command output displays. All three should be ON or OFF at the same time.

FUELPW(mS)
 Range: _____ 0 to 99.9

Time in milliseconds (mS) that the PCM commands the fuel injectors to turn on for diesel powertrain control systems.

- A high reading indicates more on-time.
- A low reading indicates less on-time.

FUELPW
 Range: _____ not available

Fuel pulse width.

FUELPW1(mS)
FUELPW2(mS)
 Range: _____ 0 to 99.9

Current commanded pulse width of the injectors affected by O2S1 and O2S2. The displayed value is the pulse width that was commanded at the time of the last update.

On some vehicles, updating may occur only when a PIP signal is being received, and the last updated value is retained after the PIP signal stops. In these cases, a value greater than zero may display during KOEO.

FUELPW2(%)
 Range: _____ not available

Fuel pulse width #2 percentage.

FuelRailPrs(V)
Range: _____ **0 to 4.5 V**

Fuel rail pressure in volts on natural gas powered vehicles. As voltage increases, so does pressure.

- 0 V = 37.6 psi (260 kPa)
- 4.5 V = 150 psi (1034 kPa)

FUEL STATUS

FUEL SYS

FUEL SYS1

FUEL SYS2

FUELSYS

Range: _____ **see description**

Indicate whether the vehicle is operating in open or closed loop. It is similar to the OPEN/CLSD LOOP but provides more information about the cause of the open- or closed-loop condition. FUEL SYS1 and FUEL SYS2 refer to bank 1 and 2.

These parameters read as follows:

- CL = normal closed loop
- CL FLT = One O2S is not switching and the PCM is using the other one for feedback
- OL = normal open loop
- OL DRV = Open loop because of driver action or other special circumstances
- OL FLT = Open loop with O2S problem or primary side coil failure

FuelTankPrs(V)
Range: _____ **0 to 5.0 V**

Signal voltage from the fuel tank pressure sensor. The Evaporative Emissions Monitor requires input from this sensor.

With the gas cap removed, signal voltage should be between 2.4 and 2.8 V. During the evaporative emissions test, expect voltage to decrease while the PCM applies vacuum to the fuel tank.

G_SDN
Range: _____ **YES/NO**

Generator shutdown request.

GEAR
Range: _____ **1st/2nd/3rd/4th/5th/6th/REV**

Processor commanded gear position on vehicles with electronic transmissions.

GEAR_MAX
Range: _____ **not available**

Highest gear allowed.

Gear_OSC
Range: _____ **not available**

Gear command by output state control.

GEAR_RAT
Range: _____ **not available**

Gear ratio.

GENLMP
GEN_LAMP
 Range: _____)ON/OFF

Generator lamp circuit.

GEN_FAULT
 Range: _____ YES/NO

Reads YES when the PCM detects a generator output fault.

GEN_MON
 Range: _____ LOW/HIGH

GEN_MON(%)
 Range: _____ not available

Generator monitor status.

GENB_F
 Range: _____ YES FAULT/NO FAULT

Generator B fault.

GENB_FAULT
 Range: _____ YES/NO

Reads YES when the PCM detects a fault in the generator B+ circuit.

GENF
 Range: _____ YES FAULT/NO FAULT

Generator output fault.

GENFDC(%)
 Range: _____ not available

Generator field duty cycle.

GENFIL
 Range: _____ YES/NO

Reads YES when the PCM detects a fault in the generator lamp circuit.

GENVDS
 Range: _____ not available

Generator voltage desired.

GlowPlugCtrl(%)
 Range: _____ 0 to 100%

Glow plug control (GPC duty cycle on diesel truck powertrain control systems, this. At high battery voltage, the PCM cycles the glow plug current on and off to prevent damage to the glow plugs.

GlowPlugCtrl reads as follows:

- 0% = the glow plug circuit is off
- 100% = the circuit is on continuously

Related parameters that may display are GPCTM and GPLTM.

GPC(%)
 Range: _____ not available

Glow plug control percentage.

GPC_L
Range: _____ **not available**

Glow plug current, left bank.

GPC_R
Range: _____ **not available**

Glow plug current, right bank.

GPCoilTiMe
Range: _____ **10 to 120 seconds**

Glow plug control time on diesel powertrain control systems, which shows the actual time the glow plugs would be switched on for if the engine were started under current conditions.

The time interval is based on engine oil temperature and reads as follows:

- About 10 seconds on a warm engine
- 120 seconds on a cold engine

GPCTM
Range: _____ **not available**

Glow plug coil on time.

GPLTM
Range: _____ **not available**

Glow plug lamp time if active.

GPLampTiMe
Range: _____ **2 to 10 seconds**

Glow plug lamp time on diesel powertrain control systems, which shows the length of time that the “wait to start” would be illuminated if the ignition was switched on under current conditions.

The lamp comes on every time a key reset occurs, and it remains on from 2 to 10 seconds depending upon engine temperature.

GR_RATIO
Range: _____ **not available**

Transmission gear ratio.

GTQ_OUT_ENG
Range: _____ **not available**

Measured generator torque.

HCATEVAL_DC_MODE1
Range: _____ **YES/NO**

Heated catalyst monitor is evaluated.

HFC
Range: _____ **ON/OFF**

Fan control high speed.

HFC_FLT
Range: _____ **YES FAULT/NO FAULT**

Fan control high fault.

HFCA
Range: _____ **ON/OFF**

Actual state of the commanded output to the fan. It should be the same as the fan monitor and fan command output displays; that is, all three should display ON or OFF at the same time.

HFCFault
Range: _____ **YES/NO**

Indicates whether the PCM detects a fault with the high speed cooling fan circuit and reads YES if a fault is present.

HO2S11(mA)
HO2S12(mA)
HO2S21(mA)
HO2S22(mA)
Range: _____ **0 to 1000 mA)**

Actual current in the heated oxygen sensor (HO2S heater circuit in milli-amps).

The two-digit numbers after HTR in the parameter refer to the HO2S position:

- 11—Bank 1, Upstream
- 12—Bank 1, Downstream
- 21—Bank 2, Upstream
- 22—Bank 2, Downstream

HO2S MONITOR
HO2S mon ready
Range: _____ **YES/NO**

Indicate whether the heated oxygen sensor (HO2S monitor has successfully completed and reads as follows:

- YES if the monitor completed
- NO if it did not

HPRC_ENA
Range: _____ **ON/OFF**

Heater pump command.

HPRC_F
Range: _____ **YES FAULT/NO FAULT**

Heater pump status.

HTR11Fault
HTR11F
HTR12Fault
HTR12F
HTR21Fault
HTR21F
HTR22Fault
HTR22F
Range: _____ **YES/NO**

PCM detects a fault in the oxygen sensor (O2S) heater circuit. Reads YES when a fault is present. The two-digit numbers after HTR in the parameter refer to the O2S position:

- 11—Bank 1, Upstream
- 12—Bank 1, Downstream
- 21—Bank 2, Upstream
- 22—Bank 2, Downstream

HTR11A
HTR11
HTR12A
HTR12
HTR21A
HTR21
HTR22A
HTR22
Range: _____ **ON/OFF**

O2S heaters state. The state should be the same as for the corresponding HTRX data parameter; both should read ON or OFF at the same time.

- HTR11/HTR11A = bank 1 upstream O2S, should read the same as HTRX1
- HTR12/HTR12A = bank 1 downstream O2S, should the same as HTRX2
- HTR21/HTR21A = bank 2 upstream O2S, should read the same as HTRX1
- HTR22/HTR22A = bank 2 downstream O2S, should read the same as HTRX2

HTR13
Range: _____ **ON/OFF**

Heated exhaust gas oxygen sensor heater (bank 1, sensor 3).

HTR21F
Range: _____ **YES FAULT/NO FAULT**

Heater control for O2S21 fault.

HTR23
Range: _____ **ON/OFF**

Heated exhaust gas oxygen sensor heater (bank 2, sensor 3).

HTRCM11
Range: _____ **not available**

Heater current monitor for heated exhaust oxygen sensor 11.

HTRCM12
Range: _____ **not available**

Heater current monitor for heated exhaust oxygen sensor 12.

HTRCM21
 Range: _____ **not available**

Heater current monitor for heated exhaust oxygen sensor 21.

HTRCM22
 Range: _____ **not available**

Heater current monitor for heated exhaust oxygen sensor 22.

HTREVAL_DC_MODE1
 Range: _____ **YES/NO**

Heated exhaust oxygen sensor heater system evaluated.

HTRX1
HTRX2
 Range: _____ **ON/OFF**

PCM-command status for the upstream (HTRX1) or downstream (HTRX2) O2S heater. ON means the heater is on.

IAC(%)
 Range: _____
IAC=IDLE AIR(%)
 Range: _____ **0 to 100%**

PCM output command to the idle air bypass solenoid. The reading displays as a percentage value and corresponds to the IAC valve amperage (current and voltages in Table 13-5).

Table 13-5 IAC(%) and IAC=IDLE AIR(%) readings

PERCENTAGE READING	IAC VALVE VOLTAGE	IAC VALVE AMPERAGE
10%	1 V	0.1 A
50%	5 V	0.5 A
80%	8 V	0.8 A
100%	10–12 V	1.0 A

The idle air control (IAC) solenoid is used to regulate the amount of air that bypasses the throttle at idle, and thus the idle speed. A lower number indicates the valve is open for a shorter period, providing less idle air. A higher number indicates that the valve is open longer, providing more idle air.

An adaptive IAC strategy is used by the PCM to compensate for wear, vacuum leaks, and throttle plate coking. When engine conditions meet IAC adaptive strategy learning requirements, the PCM monitors and determines the values for ideal idle calibration. These values are stored in PCM memory as a correction factor for controlling idle speed.

IAC_CELL0
 Range: _____ **not available**

Airflow time learned (Drive, A/C, OFF).

IAC_CELL1
 Range: _____ **not available**

Airflow time learned (Drive, A/C, ON).

IAC_CELL2
 Range: _____ **not available**

Airflow time learned (Neutral, A/C, On.)

IAC_CELL3
Range: _____ **not available**

Airflow time learned (Neutral, A/C, OFF.)

IAC_MODE
Range: _____ **not available**

Idle air control.

IAC_TRIM
Range: _____ **not available**

Short term airflow trim before KAM learned.

IACDTCY(%)
Range: _____ **not available**

Idle air control valve duty cycle.

IACF
Range: _____ **not available**

Idle air control fault.

IACFault
Range: _____ **YES/NO**

IAC_FLT
Range: _____ **YES FAULT/NO FAULT**

Indicate whether the PCM detects a fault in the idle air control (IAC) system and reads YES if a fault is present.

IAT

IAT(°C)

IAT(°F)

IAT_C

IAT2

IAT2_TEMP

IAT_T

IAT2_VOLTS

Range: _____ **0 to 255°C or °F**

Intake air temperature. The IAT2 sensor provides a manifold air temperature signal to the PCM and is located in the intake manifold.

IAT(V)

IAT2(V)

Range: _____ **0.0 to 5.0 V**

Voltage signal from the intake air temperature sensor. A 5 V reference signal is applied to the IAT. As temperature increases, the sensor resistance decreases, which provides a variable intake air voltage signal to the PCM.

IAT=ACT(°C)
 Range: _____ -40 to 199°C

IAT=ACT(°F)
 Range: _____ -40 to 389°F

IAT=ACT(V)
 Range: _____ 0.0 to 5.0 V

Intake air temperature (IAT) sensor signal as temperature or voltage. The IAT is a thermistor that is typically installed in the air cleaner. A 5 V reference signal is applied to the IAT. As temperature increases, the sensor resistance decreases, which provides a variable intake air voltage signal to the PCM. The PCM converts IAT voltage signals to temperature readings.

IAT readings, along with MAF or MAP, are primary parameters used by the PCM to calculate the amount of air entering the engine, which is critical for determining the amount of fuel required. The IAT reading should be close to the ambient air temperature on a cold engine and should rise steadily as the engine warms up. Readings on a warm engine differ greatly between vehicles because of under-hood temperature variations and hot-soak conditions.

IAT_FAULT
 Range: _____ YES FAULT/NO FAULT

Indicates the inlet air temperature status.

ICP(V)
 Range: _____ 0.0 to 5.0 V

Injector control pressure (ICP) sensor signal, which indicates absolute pressure for the fuel injection on a diesel engine. The ICP sensor is mounted on the left cylinder bank.

The display may be the unconverted voltage signal, or it may be the PCM converted equivalent pressure in psi or megapascal (MPa). On any of these scales, a low reading indicates low injection pressure and a high reading indicates higher injection pressure.

ICP_DES
 Range: _____ not available

Injector control pressure desired.

ICP_PRESS
 Range: _____ not available

Injector control pressure.

IGN_RUN_PCM
 Range: _____ not available

Ignition key status.

ILINE_V
 Range: _____ not available

Generator command.

IMRC
 Range: _____ ON/OFF

Intake manifold runner control.

IMRCM(V)
 Range: _____ not available

Intake manifold runner control monitor.

IMRC1M(V)

Range: _____

IMRC2M(V)Range: _____ **not available**

Position of the intake manifold runner control valves on cylinder Bank 1 (IMRC1M) and Bank 2 (IMRC2M). Depending on the vehicle, a high voltage may mean that the valve is open or that the valve is shut.

IMRCFaultRange: _____ **YES/NO****IMRCFLT**Range: _____ **YES FAULT/NO FAULT**

Indicate whether the PCM detected a fault in the intake manifold runner control system and reads YES when a fault is present.

IMS_SRCRange: _____ **not available**

Intermediate shaft speed.

IMTV(%)Range: _____ **0 to 100%**

PCM-command status for the intake manifold tuning valve. At 100% the valve should be fully open.

IMTV_FLTRange: _____ **YES FAULT/NO FAULT****IMTVF**Range: _____ **YES FAULT/NO FAULT**

Intake manifold tuning valve fault status.

IMTV1_PER(%)Range: _____ **not available**

Intake manifold tuning valve bank 1.

IMTV2Range: _____ **ON/OFF**

Intake manifold tuning valve bank 2.

IMTV2_FLTRange: _____ **YES FAULT/NO FAULT**

IMTV 2 status.

IMTV2_PER(%)Range: _____ **not available**

Intake manifold tuning valve bank 2.

IMTVFaultRange: _____ **YES/NO**

Indicates whether the PCM has set an intake manifold tuning valve DTC and reads YES when the PCM set a DTC.

INJRange: _____ **YES FAULT/NO FAULT**

Indicates the injector fault status.

INJ PW1(mS)
INJ PW2(mS)
Range: _____ **0 to 99.9)**

Length of time in milliseconds (mS) that the PCM commands the fuel injectors to energize. These parameters are used on multiport fuel injection systems.

On Electronic Fuel Injection (EFI) systems, the PCM simultaneously pulses half of the fuel injectors at a time. INJ PW1(mS) refers to those injectors installed in bank #1, and INJ PW2(mS) refers to the injectors in bank #2. Depending on the engine, banks #1 and #2 may be staggered.

These parameters read as follows:

- A high pulse width indicates more on-time and a richer mixture.
- A low pulse width indicates less on-time and a leaner mixture.

There are no definite specifications for injector pulse width, but the reading should change as engine speed and load change.

On EFI systems, these parameters read as follows:

- 1 to 5 mS at idle
- About 18 mS at wide open throttle (a little higher for some engines)

Since the PCM on SEFI systems pulses each injector individually, the readings represent, at best, the “average” injector pulse width for each bank. Ford SEFI systems use these parameters to allow the PCM to conduct rationality tests on the fuel delivery, the mass airflow (MAF sensor, and the throttle position (TP) sensor.

INJ_TIM
Range: _____ **not available**

Injector timing before top dead center.

INJ1
INJ2
INJ3
INJ4
INJ5
INJ6
INJ7
INJ8
INJ9
INJ10
Range: _____ **YES FAULT/NO FAULT**

Injector fault according to injector number.

INJnFault
Range: _____ **YES/NO**

Reads YES when the PCM has detected a fault, such as an open or short, in the injector circuit.

The “n” in INJnFault is a variable from 1 to 10, depending on the indicated cylinder.

InjPrsReg(%)
Range: _____ **0 to 100%**

On-time of the pulse-width-modulated injector pressure regulator on a diesel engine as a percentage. The PCM controls the fuel volume by varying the injection oil pressure with the injector pressure regulator. The injector pressure regulator is a ground-side controlled 12 V regulator.

InManRunCtrl(%)
Range: _____ **0 to 100%**

PCM-command status for the intake manifold runner control valve. At 100% the pulse-width-modulated valve should be fully open.

InManRunCtrl
Range: _____ **ON/OFF**

Intake manifold runner control valve status. Reads as follows:

- ON = the valve is open
- OFF = the valve is close

Normally this valve is closed when the engine speed is below 3000 RPM.

IPR(%)
Range: _____ **not available**

Injector control pressure regulator.

ISS(rpm)
Range: _____ **not available**

Input shaft speed.

ISS_DIR
Range: _____ **FORWARD/REVERSE**

Immediate shaft direction.

ISS_F
Range: _____ **YES FAULT/NO FAULT**

Intermediate shaft speed reliable.

ISS_FAULT
Range: _____ **YES/NO**

Reads YES when a fault is detected in the input shaft speed (ISS circuit).

ITS1
Range: _____ **GEAR1/NOT GEAR1**

1st gear indicator.

ITS2
Range: _____ **NOT GEAR/GEAR**

2nd gear indicator.

ITSD
Range: _____ **DRIVE/NOT DRIVE**

Drive status.

ITSR
Range: _____ **REVERSED/NOT REVERSED**

Reverse indicator.

IVS
Range: _____ **YES/NO**

Idle validation switch (IVS state, which verifies that the accelerator pedal (AP) is in the idle position on diesel powertrain control systems.

The IVS provides a check on the AP sensor. The MIL lights if the IVS signal does not match the AP sensor signal. A faulty IVS or AP sensor allows the engine to run at low idle speed only.

KAMFUSE
Range: _____ **ON/FAULT**

Keep alive memory power.

KEYPOS
Range: _____ **not available**

Ignition key status.

KNOCK_1
Range: _____ **not available**

Sensor 1 status.

KNOCK_2
Range: _____ **not available**

Sensor 2 status.

LCF_FLT
Range: _____ **YES FAULT/NO FAULT**

Fan control low fault.

LFC
Range: _____ **ON/OFF**

Fan control low speed.

LFC=LO FAN
HFC=HI FAN
HighFanCtrl
Range: _____ **ON/OFF**

Fan relays. Some engines have a two-speed electric fan, which the PCM controls through LFC and HFC outputs to the fan relays.

The high speed relay is a normally open for all models. However, the low speed fan relay is normally closed for Escort and Tracer, and normally open for Probe.

When the fan is off:

- HFC should read OFF.
- LFC should read OFF for Probe and ON for Escort and Tracer.

With the low speed fan on:

- HFC should read OFF.
- LFC should read ON for Probe and OFF for Escort or Tracer.

When the high speed fan is on:

- HFC should read ON.
- LFC should read OFF for all models.

LFCFault
Range: _____ **YES/NO**

Reads YES when the PCM has detected a low speed fan control module fault.

LFT1(%)
Range: _____ **not available**

Long term fuel trim 1.

LFTRIM 1(%)
LFTRIM 2(%)
Range: _____ **-35% to +35%**

The long-term fuel trim (LFTRIM) numbers represent the operation and long-term correction of fuel-metering on a fuel-injected engine. The value shows if the PCM is commanding a rich or a lean mixture.

Similar to short-term fuel trim (SFTRIM), the LF TRIM number can range from -35% to +35%, with 000% as the midpoint. A number above zero percent indicates the PCM has commanded a long-term rich mixture correction. A number below zero percent indicates the PCM is commanding a lean mixture.

The LF TRIM number follows the short-term fuel (ST FUES) number and makes long-term corrections to the fuel-metering in response to a pattern or trend of short-term fuel changes.

Compare LF TRIM numbers to injector on-time. Numbers above zero percent indicate increased on-time. Numbers below zero percent indicate decreased on-time. LF TRIM corrections operate only in closed loop. In open loop, the number goes to a fixed value.

LOAD(%)
ENG LOAD(%)
Range: _____ **see description**

Engine load as calculated by the PCM based on engine speed (RPM), number of cylinders, airflow, and cylinder air charge compared to the theoretical air charge that occurs at standard PCM temperature and pressure (volumetric efficiency). The resulting ratio—called engine load—is expressed as a percentage.

The engine load parameters read as follows:

- 20–40% = a normal load at idle
- Less than 80% = normal driving
- More than 100% = under hard acceleration in cold temperatures or high barometric pressure, or on supercharged vehicles

LOAD_FF(%)
Range: _____ **not available**

Engine load.

LONGFT1(%)
Range: _____ **not available**

Long term fuel trim 1.

LONGFT2(%)
Range: _____ **not available**

Long term fuel trim 2.

LOS_BRAK
Range: _____ **YES/NO**

Limited operating mode due to the regenerative braking system.

LOS_ENG Range: _____	YES/NO
Limited operating mode due to the engine.	
LOS_ETC Range: _____	YES/NO
Limited operating mode due to the electronic throttle control.	
LOS_EQ Range: _____	YES/NO
Limited operating mode due to the E-quizzer.	
LOS_GEN Range: _____	YES/NO
Limited operating mode due to the generator.	
LOS_HV Range: _____	YES/NO
Limited operating mode due to the high voltage battery.	
LOS_IPC Range: _____	YES/NO
Limited operating mode due to the independent plausibility checker.	
LOS_KEY Range: _____	YES/NO
This parameter indicates the limited operating mode due to the key position.	
LOS_LV Range: _____	YES/NO
Limited operating mode due to the 12-Volt battery.	
LOS_MOT Range: _____	YES/NO
Limited operating mode due to the electric motor.	
LOS_OWC Range: _____	YES/NO
Limited operating mode due to the one way clutch.	
LOS_TCM Range: _____	YES/NO
Limited operating mode due to the transmission control module.	
LOSSTRT Range: _____	YES/NO
Limited operating mode due to the engine no start.	
LowFanCA Range: _____	ON/OFF
Actual state of the commanded output to the fan. It should read the same as the fan monitor and fan command output; that is, all three should be ON or OFF at the same time.	
LowFanCtrl Range: _____	ON/OFF
State of the low-speed fan control on vehicles with multiple fan speed control.	

LowFPumpFault**Range:** _____ **YES/NO**

Reads YES when the PCM has detected a fault in the low speed fuel pump circuit.

LPC_AMP**Range:** _____ **not available**

Line pressure.

LT TRIM B1(%)**LT TRIM B2(%)****Range:** _____ **-20 to +20%**

Long-term fuel trim (LT TRIM B1 or B2 = BANK 1, or BANK 2) numbers represent the operation and long-term correction of fuel-metering on a fuel-injected engine. The value shows if the PCM is commanding a rich or a lean mixture.

Similar to short-term fuel trim ("ST TRIM B1(%)" on page 380), the LT TRIM parameter ranges from -20% to +20% with 00% as the midpoint:

- A number above zero percent indicates the PCM has commanded a long-term rich mixture correction.
- A number below zero percent indicates the PCM is commanding a lean mixture.

LT TRIM follows the short-term fuel (ST FUES number and makes long-term corrections to the fuel-metering in response to a pattern or trend of short-term fuel changes.

Compare LT TRIM numbers to injector on-time. Numbers above zero percent indicate increased on-time. Numbers below zero percent indicate decreased on-time. LT TRIM corrections operate only in closed loop. In open loop, the number goes to a fixed value.

M_DPFE**Range:** _____ **not available**

EGR sensor input at the time of a misfire.

M_IAT**Range:** _____ **not available**

Intake air temperature (IAT at the time of a misfire.

M_LOAD(%)**Range:** _____ **not available**

Engine load at the time of a misfire.

M_PNP**Range:** _____ **not available**

Park/Neutral Position (PNP) at the time of a misfire.

M_RPM**Range:** _____ **not available**

Engine speed at the time of a misfire.

M_RUN**Range:** _____ **not available**

Engine running time at the time of a misfire.

M_SOAK**Range:** _____ **not available**

Engine-off soak time in minutes prior to a misfire.

M_TP
Range: _____ **not available**

Throttle position at the time of a misfire.

M_TRIP
Range: _____ **not available**

Number of trips since the time of a misfire.

M_VSS
Range: _____ **not available**

Vehicle speed at the time of a misfire.

M_WHEEL
Range: _____ **not available**

Learned misfire correction profile at the time of a misfire.

MAF(gm/S)
AIRFLOW(g/S)
Range: _____ **0 to 255**

Amount of air flowing into the engine in grams per second. It is the same as the MAF=MASS AIR(gm/sec) parameter. Reading should be low at idle and higher at high RPM.

MAF(V)
Range: _____ **0 to 5.0 V**

Voltage signal from the mass airflow (MAF sensor to the PCM).

It is the same as the MAF=MASS AIR(V parameter. The reading should be low at idle and higher at high RPM.

MAF_Fault
MASS AIR FLOW_STATUS
Range: _____ **YES/NO**

Indicate whether a fault has occurred in the MAF circuit.

MAF_RATE
Range: _____ **not available**

Indicates the mass air flow.

MAF=MASS AIR(V)
Range: _____ **0.5 to 5.0 V**
MASS AIR(gm/sec)
Range: _____ **0 to 255**

Display the MAF sensor output in volts on EEC-IV systems with DCL. They display a value in grams per second calculated by the PCM based on the MAF sensor signal on EEC-V (OBD-II) systems.

The MAF sensor, which is located between the air cleaner and the throttle body, measures the mass of air flowing to the engine. The PCM uses this value to calculate the injector pulse width needed to obtain an optimal air-fuel ratio.

MAF sensor readings should be low at idle and should increase as the throttle opens.

MAFF
Range: _____ **YES FAULT/NO FAULT**

Mass air flow status.

MAN LEV POS**Range:** _____ **see description**

Position of the gear selector lever: PARK, REV, NEUT, O/D, DRIVE, MAN1, and MAN2.

MAN LEV POS(V)**Range:** _____ **see description**

Status of the manual lever position (MLP) sensor, which is a ratiometric sensor with six resistors in series. The PCM looks at the voltage for each shift lever position.

Typical readings are:

- Park = 4.41 V
- Reverse = 3.60 V
- Neutral = 2.83 V
- Drive = 2.09 V
- 2nd = 1.37 V
- 1st = 0.68 V

MAN VAC**Range:** _____ **0 to 35 "HG**

Internally calculated PCM value that indicates engine manifold vacuum as determined by inputs from various system sensors. Values should equal actual vacuum gauge readings.

MAP(Hz)**Range:** _____ **see description**

Manifold absolute pressure (MAP) sensor outputs frequency signal, which is relative to intake manifold vacuum. The MAP sensor frequency increases as vacuum decreases.

MAP(Hz) reads as follows:

- 80 Hz at 101.6 kPa (30 inHG of manifold vacuum)
- 159 Hz at zero manifold vacuum

The PCM uses the MAP signal to determine engine load and regulate the air-fuel ratio, ignition timing, and EGR flow, and to compensate for altitude.

MAP(psi)**Range:** _____ **0 to 2368 psi**

Manifold absolute pressure on turbocharged diesel powertrain systems in pounds per square inch (psi). The PCM uses the MAP sensor signal to decrease fuel during acceleration until reaching a specified boost pressure. This decreases tailpipe smoke.

MAP_DI2**Range:** _____ **not available**

Manifold absolute pressure sensor status.

MAP_F**Range:** _____ **YES FAULT/NO FAULT**

Manifold absolute pressure sensor status.

MAP_PCM**Range:** _____ **not available**

Manifold absolute pressure sensor.

MAP_V**Range:** _____ **not available**

Manifold absolute pressure sensor.

MAP2
 Range: _____ not available

Manifold absolute pressure sensor.

MASTERKEY
 Range: _____ PRESENT/NOT PRESENT

Master key present status.

MAT
 Range: _____ not available

Input signal from the manifold air temperature sensor to the PCM on diesel powertrain systems. The PCM uses this signal and other sensor signals to determine fuel injection rate.

MECP_ENA
 Range: _____ ON/OFF

Motor electronics coolant pump.

MECP_F
 Range: _____ YES FAULT/NO FAULT

Motor electronics coolant pump status.

MECT_V(V)
 Range: _____ not available

Motor electronics coolant temperature.

MIN_KEY
 Range: _____ not available

Minimum number of keys required.

MFC
 Range: _____ ON/OFF

Medium fan control

MFC_FLT
 Range: _____ YES FAULT/NO FAULT

Medium fan control status.

MFDES
 Range: _____ 0 to 255 mG

Internal PCM calculation of the mass fuel desired (MFDES per stroke of the injection pump to operate the engine under the current speed, load, and temperature conditions on diesel powertrain systems.

The readings are in milligrams (mG):

- 8 to 10 mg at idle
- About 60 mg at full throttle

MGP
 Range: _____ -10 to 30 psi)

Manifold gauge pressure (MGP).

MIL
Range: _____ ON/OFF
MILFault
Range: _____ YES/NO

Indicate whether a fault has occurred in the MIL circuit:

- ON = the MIL is lit
- OFF = the MIL is off

MIL_FLT
Range: _____ YES FAULT/NO FAULT

MIL driver fault.

MISF_EVAL
Range: _____ YES/NO

Misfire monitor evaluated.

MISFEVAL_DC_MODE1
Range: _____ YES/NO

Misfire monitor evaluation is complete.

MISFire
Range: _____ YES/NO

Indicates whether a misfire has occurred. Crankshaft acceleration is measured for each cylinder firing event. Should the acceleration drop below a specified threshold, a misfire is deemed to have occurred.

MPLRN
Range: _____ YES/NO

Learned status of the misfire wheel. Reads as follows:

- YES if the PCM has learned and stored the misfire wheel profile
- NO if the profile has not been learned

M_SDN
Range: _____ YES/NO

Electronic motor shutdown request.

MTQ_OUT_ENG
Range: _____ not available

Total number of misfires.

N_KEYCODE
Range: _____ not available

Number of keys stored.

NM
Range: _____ not available

Total number of misfires.

NUMKEYS
Range: _____ not available

Number of keys stored in the module.

O2 B1-S1(V)**O2 B1-S2(V)****O2 B2-S1(V)****O2 B2-S2(V)**Range: _____ **0 to 1.800 V**

Oxygen sensors (O2SS) are the primary sensors used to determine if the engine is running rich or lean. The O2S generate a voltage signal ranging from 0 to a little over 1 V:

- 0.800 V or higher signal indicates a rich exhaust
- 0.200 V or lower signal indicates a lean exhaust

An O2S must be hot (above 500°F/260°C), and the PCM must be operating in closed loop before the PCM responds to the sensor signal. EEC-IV V-type engines have separate sensors for the left and right banks, while EEC-IV transverse-mounted engines have separate sensors for front and rear.

EEC-V systems have additional oxygen sensors after each catalyst. Ford calls these downstream sensors catalyst monitor sensors (CMS. This means EEC-V vehicles with dual exhaust have four sensors:

- B1-S1—The upstream sensor for bank 1
- B1-S2—The downstream sensor for bank 1
- B2-S1—The upstream sensor for bank 2
- B2-S2—The downstream sensor for bank 2

O2OEVAPRange: _____ **YES/NO**

Indicates whether the EVAP purge leak check monitor has completed.

- YES indicates the leak check was performed and the PCM can run a purge monitor idle test.
- NO indicates that the purge monitor is being prevented because the leak check failed.

O2OTESTRange: _____ **YES/NO**

Indicates whether the minimum soak time has elapsed to enable an EVAP monitor test.

- YES indicates the purge monitor test is enabled.
- NO indicates the purge monitor is being prevented due to insufficient soak time.

O2S1(mV)
O2S2(mV)
O2S11(mV)
O2S12(mV)
O2S21(mV)
O2S22(mV)
Range: _____ **0 to 1800**

The oxygen sensors (O2SS) are the primary sensors used to determine if the engine is running rich or lean. The O2S generate a voltage signal ranging from 0 to a little over 1 V (0 to 1000 mV).

- A high millivolt signal indicates a rich exhaust.
- A low signal indicates a lean exhaust.

An O2S must be hot (above 500°F/260°C), and the PCM must be operating in closed loop before the PCM responds to the sensor signal. EEC-IV V-type engines have separate sensors for the left and right banks, EEC-IV transverse-mounted engines have separate sensors for front and rear.

EEC-V systems have an additional O2S after each catalyst. Ford calls these downstream sensors catalyst monitor sensors (CMS). This means EEC-V vehicles with dual exhaust have four sensors:

- O2S11 — The upstream sensor for bank 1
- O2S12 — The downstream sensor for bank 1
- O2S21 — The upstream sensor for bank 2
- O2S22 — The downstream sensor for bank 2.

O2S11FM
Range: _____ **YES FAULT/NO FAULT**

Heated exhaust oxygen sensor (bank1, sensor 1 status).

O2S12(V)
Range: _____ **not available**

Heated exhaust oxygen sensor (bank 1, sensor 2).

O2S13(V)
Range: _____ **not available**

Heated exhaust oxygen sensor (bank 1, sensor 3).

O2S21(V)
Range: _____ **LEAN/RICH**

Heated exhaust oxygen sensor (bank 2, sensor 1).

O2S21FM
Range: _____ **YES FAULT/NO FAULT**

Heated exhaust oxygen sensor (bank 2, sensor 1).

O2S22(V)
Range: _____ **LEAN/RICH**

Heated exhaust gas oxygen sensor (bank 2, sensor 2).

O2S23(V)
Range: _____ **not available**

Heated exhaust gas oxygen sensor (bank 2, sensor 3).

O2SEVAL_DC_MODE1
 Range: _____ YES/NO

Oxygen sensor monitor evaluated.

OCTANE
 Range: _____ not available

Octane of the fuel.

OCTANE ADJ
 Range: _____ ON/OFF

OCT ADJ

OCTADJ
 Range: _____ YES/NO

Status of the octane adjust shorting bar, which is used to retard spark, and read as follows:

- ON when the shorting bar is removed
- OFF at all other times



NOTE:
 Removing the shorting bar retards spark about 3 degrees.

ODS(rpm)
 Range: _____ not available

Overdrive drum speed sensor.

OFMFLG
 Range: _____ YES FAULT/NO FAULT

Pressure control failure mode.

OPEN/CLSD LOOP
LOOP
 Range: _____ (OPEN/CLSD)

Indicate whether the PCM is operating the engine in open or closed loop and read as follows:

- OPEN during warm-up
- CLSD when the engine reaches normal operating temperature and the PCM responds to O2S voltage

Some failure conditions (many associated with trouble codes) will cause the PCM to return to open-loop operation. Additionally, some vehicles normally return to open-loop operation at idle. This occurs because the O2S cools off at idle, and the PCM returns to open loop because the signal is no longer reliable.

To restore closed-loop operation, accelerate and hold engine speed at a high idle to warm the sensor.

OSFMFLG
 Range: _____ YES FAULT/NO FAULT

Output-shaft speed failure mode.

OSS(rpm)
 Range: _____ not available

Output shaft speed.

OSS_DIR
Range: _____ **FORWARD/REVERSE**

Output shaft direction.

OSS_F
Range: _____ **YES FAULT/NO FAULT**

EGR motor position desired.

OSS_FAULT
Range: _____ **YES/NO**

Reads YES when a fault is detected in the output shaft speed (OSS circuit).

OSS=TSS(RPM)
Range: _____ **0 to vehicle max**

PCM calculated RPM value for the transmission turbine shaft. The turbine speed sensor (TSS is a voltage-generating magnetic pickup. The processor converts the voltage signal of the TSS to an RPM value.

OTEMP_FMFLG
Range: _____ **YES FAULT/NO FAULT**

Transmission over temperature.

OUT_CODE
OUTCODE_BIT
Range: _____ **not available**

Indicate the outcode status.

OutShftSp(RPM)
Range: _____

PCM calculated RPM value for the transmission output shaft. The output shaft speed sensor (OSS is a voltage-generating magnetic pickup. The processor converts the voltage signal of the OSS to an RPM value.

OverdriveCancel
Range: _____ **NOT DEPRESSED/DEPRESSED**

Overdrive cancel switch/Hold switch.

P/S PRESS(HIGH)
PwrStrPrs
Range: _____ **YES/NO**

Status of the power steering pressure (PSP) switch, which closes under high pressure and read as follows:

- YES when the steering wheel is turned right or left to full lock
- NO at all other times

If it does not change between NO and YES as the wheel turns through its full range, there may be a problem with the switch or other component in the power steering system.

PARK_INPT
Range: _____ **PARK/NOT PARK**

Park position input.

ParkBrakeApply
 Range: _____ YES/NO

State of the parking brake applied switch on diesel powertrain control systems. The parking brake applied switch is located under the instrument panel.

ParkBrakeApply reads as follows:

- YES with the brake applied
- NO with the brake not applied

This switch disables speed control when it is applied and it also prevents operation of the power take off (PTO) when it is not applied.

ParkNeuPos
PARK/NEU POS
 Range: _____ P-N—/R-DS

Indicate whether an automatic transmission is in park or neutral or in one of the drive ranges.

These parameters read as follows:

- P-N— if the transmission is in either park or neutral
- -R-DL if the transmission is in any forward gear or reverse

The park/neutral switch is a grounding switch that is closed in park or neutral and open in any forward gear or reverse.

PATS_TYPE
 Range: _____ TIMED/CODED

Security access type.

PATSENL
 Range: _____ ENABLE/DISABLE

Vehicle enable status.

PBA
 Range: _____ ON/OFF

Parking brake switch status.

PCA
 Range: _____ not available

Pressure control solenoid A.

PCA_FAULT
PCD_FAULT
PCE_FAULT
PCF_FAULT
PCG_FAULT
 Range: _____ YES/NO

Read YES when a fault is detected in pressure control (PC solenoids A, D, E, F, and G, respectively).

PCA_FLT2
 Range: _____ NO FAULT/FAULT

Pressure control solenoid A.

PCAA
 Range: _____ not available

Pressure control solenoid A.

PCB
Range: _____ not available
Pressure control solenoid B.

PCBA
Range: _____ not available
Pressure control solenoid B.

PCBFLT
Range: _____ NO FAULT/FAULT
Pressure control solenoid B fault state.

PCC
Range: _____ not available
Pressure control solenoid C.

PCCA
Range: _____ not available
Pressure control solenoid C.

PCC_FLT
Range: _____ NO FAULT/FAULT
Shift solenoid pressure control C.

PCD
Range: _____ not available
Shift solenoid pressure control D.

PCD_AMP
Range: _____ not available
Shift solenoid pressure control D.

PCD_FLT
Range: _____ NO FAULT/FAULT
SSPCD status.

PCE
Range: _____ not available
Shift solenoid pressure control E.

PCE_FLT
Range: _____ NO FAULT/FAULT
Shift solenoid pressure control E.

PCF
Range: _____ not available
Line pressure control.

PCF_FLT
Range: _____ NO FAULT/FAULT
LPC status.

PCG
Range: _____ not available
Converter pressure control.

PCG_FLT
Range: _____ **NO FAULT/FAULT**

Torque converter clutch status.

PCLowOSM
Range: _____ **ON/OFF**

Low speed engine cooling fan monitor.

PERDEL1(%)
Range: _____ **not available**

Percent delta for cylinder 1.

PERDEL2(%)
Range: _____ **not available**

Percent delta for cylinder 2.

PERDEL3(%)
Range: _____ **not available**

Percent delta for cylinder 3.

PERDEL4(%)
Range: _____ **not available**

Percent delta for cylinder 4.

PERDEL5(%)
Range: _____ **not available**

Percent delta for cylinder 5.

PERDEL6(%)
Range: _____ **not available**

Percent delta for cylinder 6.

PERDEL7(%)
Range: _____ **not available**

Percent delta for cylinder 7.

PERDEL8(%)
Range: _____ **not available**

Percent delta for cylinder 8.

PEVAP_TMP(°C/°F)(V)
Range: _____ **not available**

Post evaporator temperature sensor input.

PFE(V)
Range: _____ **0.25 to 4.75 V**

Pressure feedback EGR (PFE sensor signal voltage, which determines exhaust system pressure. The PCM uses this signal to compute optimum EGR flow.

PFE systems control EGR flow rate by monitoring pressure drop across a remotely located sharp-edged orifice. Typically, sensor output should be as described in Table 13-6.

Table 13-6 PFE sensor outputs

inHg	kPa	VOLTS
3.70	12.5	4.75
2.79	9.42	4.38
1.85	6.25	4.0
0.94	3.17	3.82
0	0	3.25
-5.03	-17.0	1.22
-7.40	-25.0	0.25

The PFE pressure transducer is a feedback device. Pressure is varied by valve modulation. The vacuum output of the EGR vacuum regulator (EVR) solenoid modulates the valve. With PFE, the EGR valve serves as a pressure regulator, rather than a metering device.

PinInputLevel
Range: _____ **ON/OFF**

Profile ignition pick-up.

PIP
Range: _____ **YES/NO**

Status of the profile ignition pickup (PIP) and reads as follows:

- YES when the PIP is switching between low and high voltage
- NO when there are no PIP signal transitions

PNP
Range: _____ **NEUTRAL/DRIVE**

Neutral switch circuit.

PNP_ONLY
Range: _____ **NEUTRAL/DRIVE**

Park/neutral position switch.

PS1
Range: _____ **OPEN/CLOSED**

Pressure switch 1.

PSP
Range: _____ **HIGH/LOW**

PSP(V)

PSP(KPA/PSI)

Range: _____ **not available**

Power steering pressure switch status.

PSR
Range: _____ **ON/OFF**

Power sustained relay commanded.

PTO
Range: _____ **ON/OFF**

Power take off status.

PwTakeOff
Range: _____ **ON/OFF**

Status of the driver-operated power take off (PTO) switch on diesel powertrain control systems.

RCAM
Range: _____ **-15° to +45°**

Actual position of the camshaft in relation to the crankshaft in degrees of rotation and reads as follows:

- Near -15° with the engine running at a warm idle, camshaft fully advanced with no EGR
- Near 40° with a warm engine and the vehicle operating at a steady cruise speed

RCL_F
Range: _____ **YES FAULT/NO FAULT**

Cooling fan state.

RCL_FAULT
Range: _____ **YES/NO**

Reads YES when a fault is detected in the reverse control lamp (RCS circuit).

RESUME
Range: _____ **ON/OFF**

Speed control actuator switch RESUME.

REV_SW
Range: _____ **ON/OFF**

Reverse switch.

RPM
Range: _____ **0 to engine max**

Engine speed and is always shown at the left of the top line on the display. RPM is internally computed by the PCM based on ignition reference pulses or a crankshaft sensor.

RPMDES
Range: _____ **0 to engine max**

Desired engine speed as calculated by the PCM for base idle. This reading should always be close to actual idle RPM.

SBB_SS2
Range: _____ **ON/OFF**

Shift solenoid 2.

SC_OFF
Range: _____ **ON/OFF**

Speed control actuator switch off status.

SC_ON
Range: _____ **ON/OFF**

Speed control actuator switch on status

SCBC
Range: _____ **ON/OFF**

Super charger bypass control.

SCBCF
Range: _____ **YES FAULT/NO FAULT**

Super charger bypass control fault.

SC VAC SW
SC VENT SW
Range: _____ **ON/OFF**

PCM output commands to the speed control (SC vacuum and vent solenoids, which control the speed control servo. The SC VAC SW and SC VENT SW readings have the following relationships with throttle position control:

Table 13-7 S/C VAC SW and S/C VENT SW readings and throttle position

SC VAC SW	SC VENT SW	THROTTLE
ON	OFF	Accelerate
OFF	ON	Decelerate
OFF	OFF	Steady

SCCS
Range: _____ **see description**

Position of the driver-operated speed control command switch (SCCS on the steering wheel. The SCCS parameter displays several range states according to which SCCS button is pressed:

- OFF
- COAST
- ACCEL
- RESUME
- ON

Two hyphens (– –), the default range state, indicates that none of the speed control switch buttons are pressed.

SCCS(V)
Range: _____ **0 to 10.00**

Speed control command switch (SCCS voltage.

SCCS_CANCEL
Range: _____ **ON/OFF**

Speed control cancel switch status.

SCCS_NULL
Range: _____ **ON/OFF**

Speed control no switch input status.

SCCS_OFF_PID Range: _____	ON/OFF
Speed control actuator switch off status.	
SCCS_ON_PID Range: _____	ON/OFF
Speed control actuator switch on status.	
SCCS_RESUME Range: _____	ON/OFF
Speed control actuator switch RESUME status.	
SCCS_TAP_DN Range: _____	ON/OFF
Speed control actuator switch coast status.	
SCCS_TAP_UP Range: _____	ON/OFF
Speed pressure actuator switch SET/ACCEL status.	
SCICP Range: _____	ON/OFF
Super charger intercooler pump.	
SCICPF Range: _____	YES FAULT/NO FAULT
Supercharger intercooler pump fault.	
SCP_PARK_BRAKE Range: _____	ON/OFF
Parking brake applied status.	
SEC_ACCES Range: _____	Denied/In Progress/GrantED
Vehicle security access status.	
SecAIR mon rdy Range: _____	YES/NO
Secondary air monitor status and reads YES when the monitor successfully completed.	
SERV_MOD Range: _____	YES/NO
PATS service module status.	
SET_ACL Range: _____	ON/OFF
Speed control actuator switch SET/ACCEL.	
SFT1 Range: _____	not available
Short term fuel trim 1.	
SFT2 Range: _____	not available
Short term fuel trim 2.	

SFTRIM 1(%)
SFTRIM 2(%)
Range: _____ **-25% to +35%**

The short-term fuel (ST FUES numbers are short-term fuel-metering corrections on a fuel-injected engine. It indicates whether the PCM is commanding a rich or a lean mixture.

The SFTRIM parameter ranges from -25% to +35% with 000% as the midpoint:

- A number above zero percent indicates the PCM has commanded a short-term rich mixture correction.
- A number below zero percent indicates the PCM is commanding a short-term lean mixture correction.

The ST FUEL number leads the long-term fuel (LT FUES number. When a pattern or trend of short-term corrections to fuel-metering occur, long-term fuel (LT FUES responds with a similar correction.

Compare ST FUEL numbers to injector on-time. Numbers above zero indicate increased on-time, below zero indicates decreased on-time. The ST FUEL corrections operate only in closed loop. In open loop, it goes to a fixed value.

ShiftSol1
ShiftSol2
ShiftSol3
Range: _____ **ON/OFF**

PCM commands for the 1, 2, and 3 shift solenoids and read ON when the PCM has commanded the shift solenoid to energize.

ShiftSol1A
ShiftSol2A
ShiftSol3A
Range: _____ **ON/OFF**

Shift solenoid 1, 2, and 3 feedback status to the PCM.

When the solenoid circuits and PCM function properly, the command parameter, such as ShiftSol1, and the feedback parameter, such as ShiftSol1A, should both display ON or OFF.

ShiftSol1Fault
ShiftSol2Fault
ShiftSol3Fault
Range: _____ **YES/NO**

Read YES when a shift solenoid circuit fault is present.

SHFT_TYP
Range: _____ **not available**

Indicates the shift type.

SHRTFT1(%)
Range: _____ **not available**

Short term fuel trim 1.

SHRTFT2(%)
Range: _____ **not available**

Short term fuel trim 2.

SLIP_DES_SCP
 Range: _____ not available

Torque converter slip desired in rpm.

SPAREKEY_PCM
 Range: _____ ENABLED/DISABLED

Spare key programming status.

SPARK_ACT
 Range: _____ not available

Spark advance actual.

SPARKADV(°)
 Range: _____ -54 to +54 degrees

Amount of spark advance in degrees. An advance of more than 54 degrees shows as a negative value; this is normal.

SPARK ADV(°)
SPRKADV(°)
IGN ADVANCE(°)
 Range: _____ -90° to +90°

Total spark advance or retard, including the base timing, that the PCM is commanding.

SPARKDUR1
SPARKDUR2
SPARKDUR3
SPARKDUR4
SPARKDUR5
SPARKDUR6
SPARKDUR7
SPARKDUR8
 Range: _____ not available

Spark duration of the indicated cylinder.

SRC_CAN
 Range: _____ ENABLE/DISABLE

Starter motor relay enable status.

SSA_AMP
 Range: _____ not available

Shift solenoid pressure control A.

SSA_SS1
 Range: _____ ON/OFF

Shift solenoid 1.

SSA_SS1_FLT
 Range: _____ YES FAULT/NO FAULT

Shift solenoid 1 status.

SSB_AMP
 Range: _____ not available

Soft solenoid pressure control B.

SSB_SS2_FLT
Range: _____ YES FAULT/NO FAULT
Shift solenoid 2 status.

SSC_SS3
Range: _____ ON/OFF
Shift solenoid 3.

SSC_SS3_FLT
Range: _____ YES FAULT/NO FAULT
Shift solenoid 3 status.

SSC(%)
Range: _____ not available
Shift solenoid pressure control C.

SCC_AMP
Range: _____ not available
Shift solenoid pressure control C.

SSD(%)
Range: _____ not available
Shift solenoid pressure control D.

SSD_SS4
Range: _____ ON/OFF
Shift solenoid 4.

SSE(%)
Range: _____ not available
Shift solenoid pressure control E.

SSPCA
Range: _____ not available
Shift solenoid pressure control A.

SSPCA_FLT
Range: _____ NO FAULT/FAULT
SSPCA status.

SSPCB
Range: _____ not available
Shift solenoid pressure control B.

SSPCB_FLT
Range: _____ YES FAULT/NO FAULT
SSPCB status.

SSPCC
Range: _____ not available
Shift solenoid pressure control C in KPA/PSI.

SSPCC_FLT
Range: _____ YES FAULT/NO FAULT
SSPCC status.

STATUS B1

Range: _____ see description

Operating status of fuel bank 1 and reads as follows:

- CL (closed-loop)
- OL (open-loop)
- OL DRIVE
- OL FAULT
- CL FAULT

ST TRIM B1(%)

ST TRIM B2(%)

Range: _____ -100% to +100%

The short-term fuel (ST TRIM) numbers are short-term fuel-metering corrections for a fuel-injected engine. It indicates whether the PCM is commanding a rich or a lean mixture.

Similar to long-term fuel trim ("LT TRIM B1(%)” on page 361), the ST TRIM parameter ranges from -100% to +100% with 000% as the midpoint:

- A number above zero percent indicates the PCM has commanded a short-term rich mixture correction.
- A number below zero percent indicates the PCM is commanding a short-term lean mixture correction.

The ST TRIM number leads the long-term fuel (LT TRIM) number. When a pattern or trend of short-term corrections to fuel-metering occur, long-term fuel (LT TRIM) responds with a similar correction.

Compare ST TRIM numbers to injector on-time. Numbers above zero indicate increased on-time, below zero indicates decreased on-time. The ST TRIM corrections operate only in closed loop. In open loop, it goes to a fixed value.

SYNC_DI

Range: _____ YES/NO

Indicates if the CMP and CKP are synchronized.

TC_SLIP

Range: _____ not available

Torque converter slip actual.

TCC

Range: _____ Engaged/Modulated/OFF

Torque converter clutch (modulatED).

TCC(%)

Range: _____ 0 to 100%

Pulse-width-modulated (PWM) signal to the torque converter clutch (TCC) solenoid and reads as follows:

- 0% with exhaust solenoid (TCC solenoid) closed, TCC not applied
- 100% with exhaust solenoid fully open, TCC applied

TCC_FLT

Range: _____ YES FAULT/NO FAULT

Torque converter clutch fault.

TCC_OSC
Range: _____ **not available**

Output state control of the torque converter.

TCCA
Range: _____ **ON/OFF**

Torque converter clutch actual (TCCA) feedback signal to the PCM indicating the status of the torque converter clutch.

Normally, the TCC SOL and TCCA parameters should both read ON or OFF simultaneously.

TCCA(V)
Range: _____ **not available**

Voltage signal to the torque converter clutch (TCC) solenoid. Information on this parameter is not available at this time.

TCCF
Range: _____ **YES FAULT/NO FAULT**

Torque converter clutch fault status.

TCCFault
Range: _____ **YES/NO**

Presence of a PCM detected fault in the torque converter clutch circuit and reads YES when a fault is present.

tccmact (RPM)
TCCMACT(RPM)
Range: _____ **0 to vehicle max**

PCM calculated value of torque converter slippage. The value is derived by subtracting the turbine speed from the engine RPM.

TCCMACT(RPM) reads less than 50 RPM when TCC(%), TCC SOL(%) reads 95% or greater or when TCC SOL reads ON.

TCC SOL
Range: _____ **ON/OFF**

PCM command status for the torque converter clutch. When the system functions properly, ON means the torque converter clutch solenoid is energized to lock the converter.

TCC SOL(%)
Range: _____ **0 to 100%**

Pulse-width-modulated (PWM) signal to the torque converter clutch (TCC) solenoid and reads as follows:

- 0% with exhaust solenoid (TCC solenoid) closed, TCC not applied
- 100% with exhaust solenoid fully open, TCC applied

TCIL
Range: _____ **ON/OFF**

Transmission Control Indicator Lamp (TCIS) command status. TCIL reads ON when the TCIL in the dash or shifter should be on.

TCILFault
TCIL_FAULT
TCIL_FLT
Range: _____ **YES/NO**

Indicate if a fault has occurred in the Transmission Control Indicator Lamp circuit.

TCS
 Range: _____ **DEPRESSED/NOT DEPRESSED**

Overdrive cancel switch/hold switch.

THEFT_LMP
 Range: _____ **YES FAULT/NO FAULT**

Antitheft indicator lamp control.

TIRESIZE
 Range: _____ **not available**

Tire size.

TFT(V)(°C/°F)
 Range: _____ **not available**

Transmission fluid temperature.

TFT=TOT(V)
 Range: _____ **0 to 5.10 V**

Transmission fluid temperature (TFT), which is also referred to by Ford as the transmission oil temperature (TOT, as voltage).

The TFT sensor is a thermistor that changes resistance in response to temperature changes. Resistance decreases as temperature increases to provide a variable voltage signal to the PCM.

TFT=TOT(V) typically reads as follows:

- 0.60 V at 194°F (90°C)
- 3.88 V at 32°F (0°C)

THTRC(%)
 Range: _____ **not available**

Thermostat heater control.

THTRCF
 Range: _____ **YES FAULT/NO FAULT**

Thermostat heater control fault.

TORQUE(lb-ft)
 Range: _____ **0 to 999**

Engine torque as calculated by the PCM.

TORQUE
 Range: _____ **not available**

PCM calculated engine torque in Nm or ft-lb on diesel powertrain control systems. The torque reading indicates how much load is placed on the engine.

TorqConvCl
 Range: _____ **ON/OFF**

Output used by the PCM to control the converter clutch by way of a solenoid. ON or OFF displays as the PCM commands the solenoid on or off.

TOTF
 Range: _____ **YES FAULT/NO FAULT**

Transmission fluid temperature status.

TOWHAUL
Range: _____ **ON/OFF**

Tow haul switch.

TP(V)
Range: _____ **0.0 to 5.0 V**

Voltage signal from the throttle position (TP) sensor to the PCM.

TP_FAULT
Range: _____ **YES FAULT/NO FAULT**

Throttle position sensor status.

TP MODE
Range: _____ **PT/WOT/CT**

Position of the accelerator pedal based on accelerator position sensor readings on diesel powertrain systems.

TP=TPS(V)
Range: _____ **0 to 5.1 V**

Throttle position (TP) sensor voltage signal, which is in proportion to the throttle position. The TP signal allows the PCM to determine throttle opening: low voltage at closed throttle and high voltage at wide open throttle.

TP=TPS(V) reads as follows:

- About 0.5 V at idle
- 4.5 V at WOT

TP=TPS(%)
Range: _____ **(range 0 to 100%**

Throttle position (TP) as calculated by the PCM based on TP sensor voltage on models with an autoranging TP sensor. The PCM resets the 0 to 100% range in relation to TP sensor voltage as it senses new minimum and maximum voltages.

TP1
Range: _____ **not available**

Throttle position sensor 1.

TP2
Range: _____ **not available**

Throttle position sensor 2.

TP MODE
ThrPosMODE
Range: _____ **see description**

Throttle position (TP) as calculated by the PCM based on the TP sensor signal and read as follows:

- C/T - closed throttle at idle and during deceleration
- P/T - part throttle at cruise or during moderate acceleration
- WOT - wide open throttle at de-choke on crank, A/C cutout, or during maximum acceleration

TPCT(V)
TPREL(V)
Range: _____ **not available**

Throttle position closed throttle (TPCT indicates the most recent throttle position (TP) sensor voltage reading at closed throttle. This parameter updates each time the throttle is fully closed.

TPF
Range: _____ **YES/NO**

Throttle position sensor status.

TQ_CNTL
Range: _____ **not available**

Torque fuel/spark limiting status.

TR
Range: _____ **Man1/Man2/D/OD/N/R/P**

Transmission range.

TR_DC(%)
Range: _____ **not available**

Transmission range.

TR_FAULT
Range: _____ **YES/NO**

Reads YES when a fault is detected in the Transmission Range (TR) circuit.

TR_FREQ(Hz)
Range: _____ **not available**

Transmission range.

TR1
TR2
TR3
TR4
Range: _____ **OPEN/CLOSED**

Digital transmission range switch numbered.

TR3_MODE
Range: _____ **OPEN/CLOSED**

Digital transmission range switch 3.

TRAC_ACT
Range: _____ **ON/OFF**

Traction control system modulating status.

TRAN_OT_FAULT
Range: _____ **YES/NO**

Reads YES when a fault is detected in the trans over temp circuit.

TRANSMIT
Range: _____ **ON/OFF**

Anti-theft RF enabled and transmit command status.

TransRange_D**Range:** _____ **see description**

Four possible switch states of the transmission range switches TR1 through TR4 and reads as follows:

- 0 indicates the switch is closed
- 1 indicates the switch is open

Typical readings are as follows

- PARK POSITION = 0000
- Between P & R = 0100
- REVERSE POSITION = 1100
- Between R & N = 0100
- NEUTRAL POSITION = 0110
- Between N & O/D = 1100
- O/D POSITION = 1111
- Between O/D & 2 = 1011
- MANUAL 2 POSITION = 1001
- Between 1 & 2 = 1011
- MANUAL 1 POSITION = 0011

TRFM**Range:** _____ **YES FAULT/NO FAULT**

Transmission range status.

TRIM B1-S1(%)**TRIM B2-S1(%)****Range:** _____ **-55% to +55%**

The trim bank x – sensor x (TRIM Bx-Sx numbers are short-term fuel-metering corrections for a fuel-injected engine. It indicates whether the PCM is commanding a rich or a lean mixture.

The TRIM parameters range from -45% to +35% with 000% as the midpoint:

- A number above zero percent indicates the PCM has commanded a short-term rich mixture correction.
- A number below zero percent indicates the PCM is commanding a short-term lean mixture correction.

The TRIM Bx-Sx number leads the long-term fuel (LT TRIM) number. When a pattern or trend of short-term corrections to fuel-metering occur, long-term fuel (LT TRIM) responds with a similar correction.

Compare ST TRIM numbers to injector on-time. Numbers above zero indicate increased on-time, below zero indicates decreased on-time. The ST TRIM corrections operate only in closed loop. In open loop, it goes to a fixed value.

TRIM B1-S1 should read the same as ST TRIM B1. TRIM B2-S1 should read the same as ST TRIM B2.

TRIP**Range:** _____ **YES/NO**

Indicates whether an On-Board diagnostic trip has occurred. A trip is a complete ignition on, engine run, ignition off cycle that tests all components and systems on an OBD-II vehicle.

TRIP_CNT
 Range: _____ not available

Number of on board diagnostic tripe completed.

TRIP Count
 Range: _____ 0 to 255

Number of completed OBD-II drive cycles completed since the last DTC P1000 monitor readiness set.

TRS1(V)
 Range: _____ not available

Transmission range selector 1.

TRS2(V)
 Range: _____ not available

Transmission range selector 2.

TRS3(V)
 Range: _____ not available

Transmission range selector 3.

TR_V
 Range: _____ see description

Voltage at processor pin 64 (signal return). Voltage for a digital transmission range (DTR) should match the examples in Table 13-8 below ± 0.3 V.

Table 13-8 Sample TR_V readings

TR_V READING	GEAR
0.0 V	PARK
1.5 V	REVERSE
1.5 V	NEUTRAL
1.5 V	ODRIVE
0.0 V	MAN2
0.0 V	MAN1

TrnCtrlIndLamp
 Range: _____ ON/OFF

Displays ON and an indicator lamp is lit when “Overdrive Cancel” is requested.

TrnCtrlSw
TCSLAMP
 Range: _____ ON/OFF

Condition of the transmission control switch (TCS) and read as follows:

- OFF = the switch is open
- ON = the driver requests overdrive cancellation and the switch closes

TrnFluidTmp(V)
 Range: _____ 0.0 to 5.0 V

Voltage signal from the transmission fluid temperature (TFT) sensor to the PCM.

A low voltage reading indicates a high fluid temperature, while a high voltage reading indicates a low fluid temperature.

TrnRange
Range: _____ **0.0 to 5.0 V**

Voltage at PCM pin 64 to signal return, or ground. This voltage indicates the position of the gear selector lever.

Each position has a typical range, as follows:

- L = 0.29 to 0.79 V
- D2 = 1.29 to 1.53 V
- OD = 1.88 to 2.29 V
- N = 2.53 to 3.04 V
- R = 3.43 to 3.78 V
- P = 4.30 to 4.73 V

TRO_N_FAULT
Range: _____ **YES/NO**

TRO_N_F
Range: _____ **YES/NO**

Reads YES when a fault is detected in the Neutral Output circuit.

TRO_P_F
Range: _____ **YES/NO**

Reads YES when a fault is detected in the Park Output circuit.

TR=GEAR
Range: _____ **see description**

Displays the driver demanded gear selection from the transmission range sensor and reads as follows:

- MAN1
- MAN2
- DRIVE
- ODRIVE
- REVERSE
- PARK/NEUTRAL

TSMFLG
Range: _____ **YES FAULT/NO FAULT**

Turbine speed sensor failure mode.

TSLIPRAT
Range: _____ **not available**

Transmission slip ratio.

TSS(rpm)
Range: _____ **not available**

Turbine shaft speed.

TSS_F
Range: _____ **YES FAULT/NO FAULT**

Turbine shaft speed reliable.

TSS_FAULT
Range: _____ **YES/NO**

Reads YES when a fault is detected in the Turbine Shaft Speed (TSS circuit).

TurbSpdS(RPM)
 Range: _____ 0 to 8192

Speed of the transmission turbine shaft.

UNLIMITED_KEY
 Range: _____ ENABLED/DISABLED

Unlimited key mode status.

V_4X4L
 Range: _____ PRESENT/NOT PRESENT

The 4x4 low range input.

V_OCTADJ
 Range: _____ ACTIVE/INACTIVE

The Octane Adjust/Spark Retard.

V_TCASE
 Range: _____ PRESENT/NOT PRESENT

Manual shift on the fly.

VBAT(V)
VBATT_PCM(V)
 Range: _____ not available

This parameter indicates the battery positive voltage.

VCT 1_FAULT
VCT 2_FAULT
 Range: _____ YES/NO

Read YES if a fault has occurred in the VCT circuit.

VCT1
VCT2
 Range: _____ 7.5 to B+

Variable valve timing.

VCT1F
 Range: _____ YES FAULT/NO FAULT

Variable cam timing status.

VCT2F
 Range: _____ YES FAULT/NO FAULT

Variable cam timing 2 status.

VCTA
 Range: _____ ON/OFF

Variable cam timing solenoid actual state.

VCTADV
 Range: _____ not available

Variable cam timing actual advance status.

VCTADV2
 Range: _____ not available

Variable cam timing 2 actual advance.

VCTADVERR
Range: _____ **not available**
VCT advance error status.

VCTADVERR2
Range: _____ **not available**
Variable cam timing 2 advance error.

VCTDC(%)
Range: _____ **not available**
Variable camshaft timing duty cycle.

VCTDC2(%)
Range: _____ **not available**
Variable cam timing 2 duty cycle.

VCTSYS
Range: _____ **OPEN/CLOSED LOOP**
VCT system status.

VehSpdSensr
Range: _____ **0 to 255**
Vehicle speed in miles per hour or kilometers per hour.

VFC(%)
Range: _____ **not available**
Fan speed monitor.

VFCDC(%)
Range: _____ **not available**
Variable fan duty cycle.

VFCF
Range: _____ **YES FAULT/NO FAULT**
Cooling fan driver fault.

VFDES
Range: _____ **0 to 255 mm³**
Internal PCM calculation of the volume of fuel desired (VFDES per stroke from the injection pump to operate the engine for current speed, load, and temperature conditions on diesel powertrain systems.
Readings are in cubic millimeters (mm³) and 10–15 mm³ at idle.

VGTD(%)
Range: _____ **not available**
Variable geometry turbocharger.

VGT_F
Range: _____ **YES FAULT/NOFAULT**
EGR motor position desired.

VGT_FAULT
Range: _____ **YES/NO**
reads YES if a fault is detected in the variable geometry turbo (VGT circuit).

VPoWeRRange: _____ **0.0 to 24.0 V**

Vehicle battery voltage.

Some vehicles may normally read lower (8 V or higher (16 V than expected. Verify system voltage with a DVOM.

VPWR(V)Range: _____ **not available**

Module supply voltage.

VPWR=BATT(V)**VPoWeR(V)**Range: _____ **0 to 25.5 V**

Vehicle battery voltage. The powertrain control system has no specific sensor to measure battery voltage, but some PCMs calculate this parameter from a sensing circuit on the supply voltage circuit.

The reading should be close to normal charging system regulated voltage, or about 13.5 to 14.5 V, at idle. Check against actual voltage measured at the battery or alternator.

This parameter is principally for PCM self-diagnostics. Some PCM functions are modified if voltage is out of range. For example, if voltage drops below a minimum, the PCM may try to recharge the battery by running the engine at a higher idle. This may affect the idle control, fuel metering, and ignition timing parameters.

VREF(V)Range: _____ **0 to 5.12 V**

Reference voltage that system sensors operate on for some vehicles. The PCM monitors this voltage and provides the parameter.

Nominal reference voltage is 5.0 V. Depending on system calibration and charging system voltage, readings may vary a few tenths of a volt. Some models normally read about 6.5 V. Verify voltage with a DVOM.

VS SETRange: _____ **see description**

Set speed of the speed control system.

VS_SRCRange: _____ **not available**

Transfer case speed sensor.

VSS(MPH)**VSS(KPH)**Range: _____ **0 to vehicle max**

VSS is the measurement provided by the vehicle speed sensor (VSS) pulses to the PCM. The PCM calculates the actual speed. The PCM uses vehicle speed to control fuel injection, ignition timing, and transmission and trans-axle shift timing.

VSS_FAULTRange: _____ **YES FAULT/NO FAULT**

Vehicle speed sensor reliable.

VSFMFLGRange: _____ **YES FAULT/NO FAULT**

Vehicle speed sensor signal status.

WAC
Range: _____ ON/OFF

Air conditioning clutch at wide open throttle.

WAC_FLT
Range: _____ YES FAULT/NO FAULT

Wide open throttle A/C cutoff fault.

WACA
Range: _____ ON/OFF

Wide open throttle air conditioning cutoff fault.

WAC=WOT A/C
Range: _____ ON/OFF

Indicates whether the PCM is preventing the A/C system from operating due to undesirable engine conditions. These include operation during engine cranking and wide open throttle.

On almost all vehicles, WAC=WOT A/C reads as follows:

- OFF when the PCM senses undesirable conditions and is currently preventing the A/C clutch from energizing
- ON when the PCM is allowing the A/C clutch to energize

WACFault
Range: _____ YES/NO

Reads YES when the PCM has set a wide open throttle A/C cutout fault.

WARM_NOMIL
Range: _____ 0 to vehicle max

Number of warm-ups since the DTCs were cleared.

WASTEGATE
Range: _____ 0 to 100%

PCM input that indicates the position of the wastegate as a percentage on diesel powertrain control systems.

WFS
Range: _____ YES/NO

Indicates the water in fuel.

WotA/Ccutoff
Range: _____ ON/OFF

Reads ON when the wide open throttle (WOT A/C cutoff has been activated and the A/C has been switched off.

Airbag Parameters

ABBRGR
Bracket(Ω)
Range: _____ **0 to 25.5 Ω**

Resistance of the airbag mounting bracket to chassis ground.

CRaSHSN1(Ω)
CRSHSN1(Ω)
CRaSHSN2(Ω)
CRSHSN2(Ω)
Range: _____ **0 to 25.5 Ω**

Resistance of the crash sensors.

- CRaSHSN1 = the resistance of sensor number 1
- CRaSHSN2 = the resistance of sensor number 2

D_Airbag(Ω)
D_AirBAG2(Ω)
D_AirBAGLoop2(Ω)
P_Airbag(Ω)
P_AirBAG2(Ω)
P_AirBAGLoop2(Ω)
Range: _____ **0 to 25.5 Ω**

Resistance between the two contacts of the airbag.

- "D" = driver side airbag
- "P" = passenger side airbag

D_Preten(Ω)
D_PRETNR(Ω)
P_Preten(Ω)
P_PRETNR(Ω)
Range: _____ **0 to 25.5 Ω**

Resistance in the shoulder belt pre-tensioner circuit.

- D_Preten refers to the driver side pre-tensioner.
- P_Preten refers to the passenger side pre-tensioner.

DSBELTR
PSBELTR
Range: _____ **0 to 25.5 Ω**

Driver side seat belt buckle switch resistance.

DTC CouNT (AIRBAG)
Range: _____ **0 to 20**

Number of diagnostic trouble codes (DTCS in the airbag module memory).

EXTCRSH
Range: _____ **not available**

Information on this External Crash Sensor Test Voltage parameter is not available at this time.

VBATT(V)
Range: _____ **0 to 25 V**

This parameter displays the battery voltage being supplied to the airbag electronic control module (ECM).

Antilock Brake Parameters

4WDINP_SW_ABS
Range: _____ 2WD/4WD)

Status of the 4WD switch status.

ABPROS
Range: _____ ON/OFF

Antilock braking system power relay output status.

ABS_MTR
Range: _____ ACTIVE/INACTIVE

Status of the ABS pump motor.

ABS_PLS
Range: _____ ON/OFF

Information on this "ABS MODULATE" parameter is not available at this time.

ABS_POWER
Range: _____ ON/OFF

Status of the ABS power relay.

ABS_PWR_R
Range: _____ ON/OFF

Antilock braking system power relay output status.

ABS_partbaseno
Range: _____ not available

Module part base number.

ABS_PartNoldSuffix
Range: _____ not available

Part version suffix.

ABS_SoftVerNo
Range: _____ not available

Software version number.

ABS_TCS_WIN126_SELTESTDTC
Range: _____ not available

DTC count. The count includes those needing no action.

ABSLAMP
ABS_LAMP
Range: _____ ON/OFF

PCM command status to the ABS indicator lamp and reads ON when the Lamp is lit.

ABSLF I
ABSLF O
ABSLR I
ABSLR O
ABSRF I
ABSRF O
ABSRR I
ABSRR O
Range: _____ ON/OFF

State of the PCM commands to the ABS inlet (I) and outlet (O) valves.

- LF = left front
- LR = left rear
- RF = right front
- RR = right rear

ABSR I

ABSR O

Range: _____ ON/OFF

PCM commanded status to the rear ABS inlet (I) or outlet (O) valves. This parameter is only used in 4WABS systems that use a rear differential speed sensor instead of a sensor at both rear wheels. In an ABS stop this system controls both rear wheels at the same time.

ABSPMPRLY

Range: _____ ON/OFF

ABS pump motor relay.

ABSVLVRLY

Range: _____ ON/OFF

Status of the ABS valve control relay.

ACCLMTR

Range: _____ not available

Indicates the accelerometer.

ACCR_TEMP (°C/°F)

Range: _____ not available

Brake accumulator temperature.

ACCR_TRAV

Range: _____ ON/OFF

Brake accumulator travel signal.

ACU_CHK

Range: _____ not available

ACU Bleed Check.

ARCFault

Range: _____ YES/NO

Indicates whether an automatic ride control DTC has set.

AutoRideCtrl

Range: _____ ON/OFF

PCM command status to the automatic ride control system.

AWD_MSG_ABS_MZ

AWD_MSG

Range: _____ PRESENT/NOT PRESENT

Indicate if there is CAN communication with the 4x4 module. NOT PRESENT indicates no communication.

BALVLV1

Range: _____ ON/OFF

Indicates the status of balance valve 1.

BALVLV2
Range: _____ ON/OFF

Indicates the status of balance valve 2.

BLD_STAT
Range: _____ DONE/NOT DONE

Indicates the status of the brake air bleed check.

BOO_ABS
Range: _____ ON/OFF

Brake pedal switch status and reads as follows:

- OFF when the brakes are not applied
- ON when the brakes are applied

This parameter should read the same as "BOO=BRAKE SW" on page 329.

BP_CALST
Range: _____ DONE/NOT DONE

Indicates the status of the brake pedal travel sensor calibration.

BPTSCAL
Range: _____ not available

Indicates the offset calibration.

BRAKPRES(KPA/PSI)
Range: _____ not available

ABS main brake pressure.

BRAKE_LMP
Range: _____ ON/OFF

Brake warning lamp.

BrakePrsApply
Range: _____ 0 or 12 V

PCM command status to the brake pressure applied switch and reads as follows:

- 0 V when the switch is on
- 12 V when the switch is off

BRK_CHK
Range: _____ not available

Brake bleed check.

BRK_FLUID
Range: _____ LOW/OK

Brake fluid level.

BRK_MSIG(KPA/PSI)
Range: _____ not available

ABS main brake pressure.

BRK_RSIG
Range: _____ PRESSURE

ABS redundant brake pressure.

BRK_WARN
 Range: _____ ON/OFF

State of the brake warning lamp.

BRKLAMP
 Range: _____ ON/OFF

PCM command status to the brake warning indicator lamp on the instrument panel and reads ON when the Lamp is lit.

BSTLRNCYC
 Range: _____ ON/OFF

Status of the booster learn cycle.

BSTR_BSWF
 Range: _____ YES/NO

Booster solenoid brake switch failure.

BSTR_MECH
 Range: _____ PASS/FAIS

Booster mechanical failure status.

BSTR_LCCS
 Range: _____ YES/NO

Booster learn cycle is complete. YES indicates complete.

BSTR_LERN
 Range: _____ PASS/FAIS

Booster self check/calibration status.

BSTR_SOL
 Range: _____ ON/OFF

Interactive vehicle dynamics booster solenoid status.

BSTR_SOL1
 Range: _____ not available

Booster solenoid output state.

BSTR_SW_T
 Range: _____ ON/OFF

Booster switch test signal output state.

BSTRBP_FSNC
 Range: _____ OPEN/CLOSED

Booster brake pedal force switch. The switch is normally closed.

BSTRBP_FSNO
 Range: _____ OPEN/CLOSED

Booster brake pedal force switch. The switch is normally open.

CCB_LCCS
 Range: _____ YES/NO

Indicates if the current cycle booster learn cycle is complete. YES indicates complete.

CCB_LCTF
 Range: _____ YES/NO

Indicates if the current cycle booster learn cycle test has failed. Yes indicated failed.

CCLAS_ICS
Range: _____ YES/NO

Indicates the if the current cycle lateral acceleration sensor initialization test is complete. YES indicates complete.

CCLAS_ITF
Range: _____ YES/NO

Indicates if the current cycle lateral acceleration sensor initialization test has failed. YES indicates failed.

CCNTABS
Range: _____ not available

Indicates the total number of continuous (soft) DTCs stored in the ABS control module.

CCSWA_TPS
Range: _____ YES/NO

Indicates if the current cycle steering wheel angle lock to lock test passed. YES indicates passed.

CCYR_ICS
Range: _____ YES/NO

Indicates if current cycle yaw rate initialization is complete.

CCYR_ITF
Range: _____ YES/NO

Indicates if the current cycle yaw rate initialization test is complete. YES indicates complete.

CONPROV
Range: _____ not available

Indicates the configuration and programming version.

CUTVLV1
Range: _____ ON/OFF

Indicates the status of cut valve 1.

CUTVLV2
Range: _____ ON/OFF

Indicates cut valve 2.

DSBL_TOG
Range: _____ ON/OFF

Indicates the state disable valve toggle.

DYNOMODE
Range: _____ YES/NO

Indicates the state of the brake two-wheel dynamode.

EVACFILL
Range: _____ DONE/NOT DONE

Indicates the fill status of the Electro-Hydraulic EVAC.

G_INPUT
Range: _____ not available

Indicates the accelerometer.

G_SENSOR
Range: _____ ON/OFF

Indicates the longitudinal acceleration sensor initialization start.

IC_MSG_ABS_MZ

Range: _____

IC_MSG

Range: _____ PRESENT/NOT PRESENT

Indicate if the CAN message is missing from the IC. NOT PRESENT indicates missing.

IGNITION(V)

Range: _____ VOLTS

Indicates the status of the ignition.

IVD_R_IN

Range: _____ ON/OFF

Status of the rear-only dump valve.

IVD_R_OUT

Range: _____ ON/OFF

Status of the rear-only isolation valve.

L_ACCEL_EPB

Range: _____ Acceleration/G

Longitudinal acceleration sensor.

LAS_ICS

Range: _____ YES/NO

Status of the EEPROM - lateral acceleration sensor initialization. YES indicates complete.

LATACCEL

Range: _____ TRUE/FALSE

State of the lateral accel sensor initialization start.

LATACCL

Range: _____ not available

ABS lateral acceleration rate.

LATACINPT

Range: _____ not available

Status of the lateral accelerometer input.

LF_FAIL

Range: _____ TRUE/FALSE

Left front failure test.

LF_IN(AMP)

Range: _____ not available

Current of the left front current inlet valve.

LF_INLET

Range: _____ ON/OFF

Status of the left front inlet valve.

LF_OUT(AMP)

Range: _____ not available

Current of the front left current outlet valve.

LF_OUTLET
Range: _____ ON/OFF
Left front outlet valve.

LF_PRES
Range: _____ not available
Left front brake pressure applied.

LF_PRIME
Range: _____ ON/OFF
Traction assist left front priming valve output state.

LF_SWITCH
Range: _____ ON/OFF
Traction assist left front switching valve output state.

LF_TC_PRV
Range: _____ ON/OFF
Status of the left front traction control priming valve.

LF_TC_SWV
Range: _____ ON/OFF
State of the traction assist left priming valve output.

LF_WSPD(KPH/MPH)
Range: _____ not available
Status of the left front wheel speed sensor.

LONG_ACCL
Range: _____ not available
Status of the longitudinal accelerometer signal.

LR_PRES(KPA/PSI)
Range: _____ not available
Left rear brake pressure applied.

LR_PRIME
Range: _____ ON/OFF
Status of the traction assist left rear priming valve output.

LR_SWITCH
Range: _____ ON/OFF
Status of the traction assist left rear switching valve output state.

LR_TC_SWV
Range: _____ ON/OFF
Status of the left rear traction control switching valve.

LR_TC_VLV
Range: _____ ON/OFF
Status of the left rear traction control valve.

LF WSPD(MPH
LR WSPD(MPH
R WSPD(MPH
RF WSPD(MPH
RR WSPD(MPH
Range: _____ **0 to 100+ MPH/KPH**

Display the speed signals being sent by each front wheel speed sensor (LF/RF, each rear wheel speed sensors (LR or RR), or the single rear wheel speed sensor (R) to the electronic control module (ECM).

Wheel speeds should be equal to each other and to vehicle speed as the vehicle is driven in a straight line without braking. Wheel speeds vary when turning a corner and during braking without antilock operation. During antilock braking, wheel speeds should remain close to equal.

Some 4WABS systems use a rear differential speed sensor (R) instead of a sensor at both rear wheels. In an ABS stop this system controls both rear wheels at the same time.

LR_FAIL
Range: _____ **TRUE/FALSE**

Left rear failure test.

LR_IN(AMP)
Range: _____ **not available**

Current of the left rear current inlet valve.

LR_INLET
Range: _____ **ON/OFF**

Status of the left rear inlet valve.

LR_OUT(AMP)
Range: _____ **not available**

Current of the left rear current outlet valve.

LR_OUTLET
Range: _____ **ON/OFF**

Status of the left rear outlet valve.

LR_PRIME
Range: _____ **ON/OFF**

State of the traction assist left rear priming valve output.

LR_SWITCH
Range: _____ **ON/OFF**

State of the traction assist left rear switching valve output.

LR_TC_PRV
Range: _____ **ON/OFF**

Status of the left rear traction control priming valve.

LR_TC_SWV
Range: _____ **ON/OFF**

Status of the left rear traction control switching valve.

LR_TC_VLV
Range: _____ **ON/OFF**

Status of the left rear traction control valve.

LR_WSPD(KPH/MPH)	
Range: _____	not available
Status of the left rear wheel speed sensor.	
LTRL_ACC	
Range: _____	not available
ABS lateral acceleration rate.	
MAP_PCM	
Range: _____	not available
Manifold absolute pressure sensor.	
MC_PT_1	
Range: _____	not available
Master cylinder travel signal 1.	
MC_PT_2	
Range: _____	not available
Master cylinder travel signal 2.	
MIL_DIS	
Range: _____	not available
Distance travelled since the MIL was activated.	
MNC_VEL_1	
Range: _____	not available
Brake tandem main cylinder velocity signal 1.	
MNC_VEL_2	
Range: _____	not available
Brake tandem main cylinder velocity signal 2.	
MN_PR_TRN	
Range: _____	PASS/FAIS
Booster main pressure transducer status.	
MODSTATE	
Range: _____	not available
Indicates the module state.	
PART#PRE_ABS	
Range: _____	not available
Indicates the part version prefix.	
PCM_MSG	
Range: _____	PRESENT/NOT PRESENT
Indicates if there is CAN communication with the PCM. NOT PRESENT indicates no communication.	
PRE_CHK	
Range: _____	ON/OFF
Indicates the pre-drive check.	
PRIM_VLV	
Range: _____	ON/OFF
Indicates the status of the primary low pressure supply valve.	

PMP_MOTOR
Range: _____ ON/OFF

Indicates the status of the hydraulic pump motor.

PMPSTAT
Range: _____ ON/OFF

Indicates the status of the ABS pump motor.

PUMP
Range: _____ ON/OFF

Indicates the status of the pump.

PUMPEFF
Range: _____ not available

Indicates the status of the pump efficiency test.

PWR RLY
Range: _____ ON/OFF

Indicates whether the relay for the ABS System has been commanded on by the ABS module.

PWR RLY reads ON when the relay contacts are closed, which directs current to the ABS pump motor.

R_DIF_SPD
Range: _____ not available

Indicates the rear differential wheel speed.

R_INLET
Range: _____ ON/OFF

Indicates the status of the rear only isolation valve.

R_OUTLET
Range: _____ ON/OFF

Indicates the status of the right outlet.

RF_FAIL
Range: _____ TRUE/FALSE

Indicates right front failure test.

RF_IN(AMP)
Range: _____ not available

Indicates the current of the right front current inlet valve.

RF_INLET
Range: _____ ON/OFF

Indicates the status of the right front inlet valve.

RF_OUT(AMP)
Range: _____ not available

Indicates the current of the right front current outlet valve.

RF_OUTLET
Range: _____ ON/OFF

Indicates the status of the right front outlet valve.

RF_PRES(KPA/PSI)	not available
Range: _____	
Indicates right front brake pressure applied.	
RF_PRIME	ON/OFF
Range: _____	
Indicates the state of the right front priming valve output.	
RF_SWITCH	ON/OFF
Range: _____	
Indicates the state of the traction assist right front switching valve output.	
RF_TC_PRV	ON/OFF
Range: _____	
Indicates the status of the front right traction control priming valve.	
RF_TC_SWV	ON/OFF
Range: _____	
Indicates the status of the front right traction control switching valve.	
RF_WSPD(KPH/MPH)	not available
Range: _____	
Indicates the status of the right front wheel speed sensor.	
ROLLRAT	
ROLLRATE	
Range: _____	not available
Indicate the roll rate value.	
RPM_FF	not available
Range: _____	
Indicates the engine speed.	
RR_FAIL	TRUE/FALSE
Range: _____	
Indicates the status of the right rear failure test.	
RR_IN(AMP)	not available
Range: _____	
Indicates the current of the right rear current inlet valve.	
RR_INLET	ON/OFF
Range: _____	
Indicates the status of the right rear inlet valve.	
RR_OUT(AMP)	not available
Range: _____	
Indicates the current of the right rear current outlet valve.	
RR_OUTLET	ON/OFF
Range: _____	
Indicates the status of the right rear outlet valve.	
RR_PRIME	ON/OFF
Range: _____	
Indicates the state of the right rear priming valve output.	

RR_PRES(KPA/PSI)

Range: _____ not available

Indicates the right rear brake pressure applied.

RR_SWITCH

Range: _____ ON/OFF

Indicates the state of the traction assist right rear switching valve output.

RR_TC_VLV

Range: _____ ON/OFF

Indicates the status of the right rear traction assist valve.

Passive Antitheft System (PATS) Parameters

PATS parameters may be located in any of the following locations:

- HEC
- ICM
- PATS
- PCM
- SCIL
- VIC

Refer to your service manual for a correct PATS location.

AntiScan

Range: _____ **ON/OFF**

Indicates if PATS has activated the Antiscan function. The PATS enables Antiscan after an unprogrammed PATS key is used to attempt to start the engine. Antiscan then temporarily locks out all keys from starting the vehicle and flashes a dash-mounted LED or the Theft Lamp indicator.

C KEYMD

Range: _____ **ACTIVE/NOTACTIVE**

This parameter should read ACTIVE when PATS has been requested to clear all keys.

ENABLE S

Range: _____ **DISABLE/ENABLE**

Information on this "VEHICLE ENABLE STATUS" parameter is not available at this time. It appears to be an output from PATS indicating that the engine will start or is ENABLED.

FAILSAF

Range: _____ **ON/OFF**

Information on this "Failsafe Mode" parameter is not available at this time.

M KEY

Master KEY

Range: _____ **NOTPRE/PRESENT**

Indicate whether a Master Key is present in the ignition. Master keys are required to program in new spare keys. Depending upon the type of PATS system, one or two Master keys may be needed to program extra spare keys.

NUMKEYS

Range: _____ **0 to 255**

Number of Master and Spare keys that are programmed into the PATS control module.

PCM ID

Range: _____ **STORED/NOTSTORED**

Indicates whether the PATS has learned and stored the unique identification (ID) of the powertrain control module (PCM).

PCM VFY

Range: _____ **YES/NO**

Indicates whether PATS has verified that the PCM ID matches the ID stored from module initialization.

SPAREKY
 Range: _____ **DISABLE/ENABLE**

Indicates whether spare key programming is enabled in the PATS module. Spare key programming may not be desired and therefore can be disabled or enabled on certain models.

V ENABLE
 Range: _____ **DISABLE/ENABLE**

Information on this "VEH ENABLE" parameter is not available at this time.

RR_WSPD(KPH/MPH)
 Range: _____ **not available**

This parameter indicates the speed of the right rear wheel.

SAS_CAL
 Range: _____ **TRUE/FALSE**

Indicates the status of the steering angle sensor initialization start.

SECND_VLV
 Range: _____ **ON/OFF**

Indicates the secondary low pressure feed valve.

SECPR_TRN
 Range: _____ **PASS/FAIS**

Indicates the status of the booster secondary transducer.

SELTESTDTC
 Range: _____ **not available**

Indicates the DTC count. Count includes those that needing no action.

SEN_CAL
 Range: _____ **not available**

Indicates the status of the pressure sensor calibration.

SENVBAT(V)
 Range: _____ **not available**

Indicates the IVD/DSC sensors supply voltage.

STEER_ANGL
 Range: _____ **not available**

Indicates the steering wheel angle sensor.

ST_WH_ANG
 Range: _____ **not available**

Indicates the ABS steering wheel angle.

SW_TEST
 Range: _____ **ON/OFF**

Indicates the switch test signal.

SWA_CW
SWA_CCW
 Range: _____ **not available**

Indicate an angle in degrees clockwise from start.

SWA_LPS
Range: _____ YES/NO

Shows if the SWA Lock to Lock test is passed. YES indicates passed.

SWA_POS(°)
Range: _____ not available

This parameter indicates the steering wheel angle in degrees.

SWA1_CIR
Range: _____ Open/Sht-B+/Sht-Gnd/Normal

Indicates the steering wheel angle 1 circuit state.

SWA1_INPT
Range: _____ HIGH/LOW

Indicates the steering wheel angle 1 input state.

SWA2_CIR
Range: _____ Open/Sht-B+/Sht-Gnd/Normal

Indicates the steering wheel angle 2 circuit state.

SWA2_INPT
Range: _____ HIGH/LOW

Indicates the steering wheel angle 2 input state.

TA_LVAL
Range: _____ ON/OFF

Indicates the status of the traction assist left control valve.

TA_RVAL
Range: _____ ON/OFF

Indicates the status of the traction assist right control valve.

TC_RVAL
Range: _____ ON/OFF

Indicates the status of the traction assist right control valve

TCYC_FS
Range: _____ ACTIVE/PASSIVE or ON/OFF

Indicates the status of the traction control system.

TCYC_SW
Range: _____ NOT DEPRESSED/DEPRESSED or ACTIVATED/NOT ACTIVATED

Indicates the status of the traction control switch.

TDPT_COMP
Range: _____ YES/NO

States if the travel direction plausibility test is complete. YES indicates complete.

TDPT_PASS
Range: _____ YES/NO

Indicates if the travel direction plausibility test is complete. YES indicates complete.

TRAC SW
Range: _____ ON/OFF

Indicates the status of the driver-operated Traction Switch. When ON, TRACtionassist should also display ON.

TRACtionassist
 Range: _____ ON/OFF

Reads ON when the PCM has activated the Traction Assist system.

VALVCAL
 Range: _____ not available

Indicates the status of the valve calibration.

VALVE_CAL
 Range: _____ DONE/NOT DONE

Indicates the calibration status of the Electro-Hydraulic valve.

VSS_FF
 Range: _____ not available

Vehicle speed input to overhead trip computer.

VSS_PCM
 Range: _____ not available

Vehicle speed.

WAKESIG
 Range: _____ not available

Wake-up signal.

XDCR_ACCR(KPA/PSI)
 Range: _____ not available

Brake pressure transducer accumulator signal.

XDCR_LFW(KPA/PSI)
 Range: _____ not available

Brake pressure transducer left front wheel signal.

XDCR_LRW(KPA/PSI)
 Range: _____ not available

Brake pressure transducer left rear wheel signal.

XDCR_RFW(KPA/PSI)
 Range: _____ not available

Brake pressure transducer right front wheel signal.

XDCR_RRW(KPA/PSI)
 Range: _____ not available

Brake pressure transducer right rear wheel signal.

XDCR_TMC(KPA/PSI)
 Range: _____ not available

Brake pressure transducer tandem main cylinder signal.

XDUCERCAL
 Range: _____ ENERGIZED/DE-ENERGIZED

Status of the pressure transducer.

YAW_INPUT

Range: _____ **not available**

Status of the yaw rate sensor input circuit.

YAW_RATE(°)

Range: _____ **not available**

ABS yaw rate value in degrees.

YAWRATE

Range: _____ **ON/OFF**

Yaw rate sensor initialization start.

YAWRTSEN(°)

Range: _____ **not available**

ABS yaw rate value.

YR_ICS

Range: _____ **YES/NO**

Complete status of yaw rate initialization. YES indicates complete.

Generic Electronic Module (GEM) Parameters

4WDClutch(%)
Range: _____ **0 to 100%**

Amount of transfer case clutch lockup that is commanded by the module. When both front and rear axles rotate at the same speed, 4WDClutch(%) should display 0 to 2%.

4WDClutchElec
Range: _____ **ON/OFF**

Power available to the 4WD magnetic clutch and should read ON for about 1 second after shifting from 4WD to 2WD.

4WDClutchPWM
Range: _____ **ON/OFF**

Reads ON when the GEM is controlling the transfer case clutch using pulse-width modulation (PWM).

4WDClutchStat
Range: _____ **ON/OFF**

4WD clutch output status. The module determines actual status of the A4WD magnetic clutch by monitoring the Torque ON Demand Relay output.

4WDClutchStat reads ON when commanded by the GEM/4X4 module.

4WDHigh
Range: _____ **ON/OFF**

Reads ON when the GEM has commanded the transfer case to run in 4WD high mode.

4WDLOLED
Range: _____ **ON/OFF**

Command status of the 4X4 Low indicator LED and reads ON when the 4WD low lamp is illuminated.

4WDLow
Range: _____ **ON/OFF**

GEM command status to run the transfer case in 4WD low mode. Reads ON when the transfer case is running in 4WD low mode.

4WD_FrShftSp
4WD_RrShftSp
Range: _____ **0 to 255 MPH**

Speeds in MPH for the front and rear transfer case drive shafts. Using the speeds of these two shafts, the GEM module calculates wheel slippage between the front and rear axles. The amount of wheel slippage is used to determine how much the GEM module applies the 4WD clutch.

4WDPlate_A
PLATE A
4WDPlate_B
PLATE B
4WDPlate_C
PLATE C
4WDPlate_D
PLATE D
Range: _____ **OPEN/CLOSED**

Status of various transfer case contact plates. Refer to the Ford factory manual for a chart identifying plate positions with shift lever positions.

4WDPlatePwr
Range: _____ **ON/OFF**

Power available to the transfer case shift motor contact plates that limit transfer case shift linkage travel and should read ON when shifting the transfer case between ranges.

4WD_Switch
Range: _____ **AUTO/4HI/4LOW**

GEM module input from the driver-operated 4WD switch. The switch controls transfer case operation.

ABagCHIME
Range: _____ **ON/OFF**

Commanded status of the Air Bag Chime from the restraint module.

ABagCHIME normally reads OFF and reads ON only if a short or open is detected in the Air Bag lamp circuit by the Restraint module.

A/C BLndoorPos
Range: _____ **OPEN/CLOSE**

Commanded position of the A/C blend door.

ACC_Pos
RUN_Pos
IGN Run
START_Pos
OFF/LOCK_Pos
IGN O/L
Range: _____ **YES/NO**

Current position of the ignition switch and read as follows:

- ACC_Pos reads YES with the switch in accessory position.
- START_Pos reads YES with the switch in cranking position.
- RUN_Pos or IGN_Run reads YES with the switch in run position.
- OFF/LOCK_Pos or IGN_O/L reads YES with the switch in lock position and reads NO when the ignition switch is in the off position or accessory position.

AccessoryDly
ACC DeLaY
Range: _____ **ON/OFF**

Actual status of the accessory power relay and read ON when the relay contacts are closed, allowing some accessories to be turned on after the ignition key has been switched off.

ALarm EVent1-8

Range: _____ **see description**

Trigger source for the last 8 perimeter alarm activations. Event # 1 is the oldest and # 8 is the newest. They continue to rotate from 8 to 1 as more events accumulate.

The following descriptions may appear depending upon model and available options: DOOR, BATTERY, DECKLID, DRIVDOOR, DOODAJR, HOOD/TRNK, IGNITION, LRDOOR, NO EVNT, PANIC, PASS DOOR, RADIO, RR/SLI.

AUTOLMP

Range: _____ **ON/OFF**

Status of the Automatic Headlamp switch.

BATSAV**BattSaver**

Range: _____ **ON/OFF**

Actual status of the battery saver relay and read ON when the relay contacts are closed, allowing some accessories to be turned on after the ignition key has been turned to the OFF position.

When the battery saver relay contacts are closed, all the accessories operate. If an accessory is left on with the ignition key off, after approximately one hour the battery saver relay contacts open to shut off the accessories.

BOO_GEM**BOO SW**

Range: _____ **ON/OFF**

Brake ON/OFF (BOO) pedal switch signal to the GEM module and read ON when the switch contacts are closed.

CCW_Shift_Mtr**CW_Shift_Mtr**

Range: _____ **ON/OFF**

GEM commands to the counterclockwise (CCW and clockwise (CW shift motor relays on 4WD systems. The relays control the directional rotation of the shift motor inside the transfer case.

These parameters read ON when the solenoid for the relay is energized, which closes the relay contacts.

ChimeReq**CHIMERQ**

Range: _____ **ON/OFF**

Command status for the warning chime and read ON when the chimes sound.

The module relies on inputs from the door switches, door key cylinder, headlight switch, and seatbelt buckle to determine when to activate the chime.

ClutchLock

Range: _____ **ACTIVE/INACTV**

Status of the driver-operated clutch pedal switch on 4WD systems and reads ACTIVE when the switch contacts are closed.

COOLANT

Range: _____ **notOK/OK**

Displays the coolant level.

D DR SW
DECKLID
Dr DR SW
LGATESW
LRDR Switch
LRDoor SWitch
LRDR SW
P DR SW
Pass DR SW
RRDoor SWitch
Range: _____ **CLOSED/OPEN**

Indicate whether the indicated door and trunk switches are open or closed and read OPEN when the door is open and switch contacts are closed.

DIM DEC
Range: _____ **NotAct/Active**

Status of the instrument cluster illumination control switch and should read ACTIVE when the OFF button is pressed.

DIM INC
Range: _____ **NotAct/Active**

Status of the instrument cluster illumination control switch and should read ACTIVE when the MAX button is pressed.

DoorAjarLamp
DoorAJR L
Range: _____ **ON/OFF**

Read ON when the door ajar lamp should be lit.

DoorLock
DoorUnlock
Range: _____ **LOCK/UNLOCKN**

Command status for the door lock solenoids and reads LOCK when the module has commanded the solenoids to energize towards the lock position.

Dr SBELT
Range: _____ **IN/OUT**

Reads IN when the passenger side seat belt buckle switch is engaged and the belt is buckled.

D SBELT
Range: _____ **IN/OUT**

Reads IN when the driver side seat belt buckle switch is engaged and the belt is buckled.

DTC CouNT
Range: _____ **0 to 20**

Displays the number of diagnostic trouble codes stored in GEM module memory.

FrWiperMd
RearWiperMd
Range: _____ **see description**

Display the position of the driver-operated front or rear windshield wiper switch. The GEM module uses this information to control the wiper and washer relays. Readings vary by model. The screen may display the selected switch range position or the switch operating status.

The possible range positions include POS1, POS2, POS3, POS4, POS5, POS6, POS7, WASH.

The possible operating states include INT, LOW, HIGH, OPEN, CKT.

HallPwr
Range: _____ **ON/OFF**

Indicates whether the module is supplying a reference voltage to the transfer case Hall-effect switches on 4WD systems.

HatchUnlkSw
LF_UnlockSw
RF_UnlockSw
Range: _____ **ON/OFF**

Status of the driver-operated door unlock switches and read ON when the switch contacts are closed.

HeaDLaMP
HDLMPSW
Range: _____ **ON/OFF**

Actual status of the headlamp switch and read ON when the switch contacts are closed and the headlamps are on.

HORN SW
Range: _____ **ON/OFF**

Actual status of the horn switch and reads ON when the switch contacts are closed and the horn should be on.

IllumEntry
Range: _____ **ON/OFF**

Indicates the presence of a request to turn on the illuminated entry lamps. A request to light the entry lamps may come from any one of the door ajar switches, and a special driver door handle switch whose contacts close when the handle is lifted.

KeyInIgn
Range: _____ **ON/OFF**

Indicates if the key is in the ignition switch.

LFBeltFstnd
Range: _____ **ON/OFF**

Indicates if the left front seat belt buckle is latched.

LFDoorAjar
LRDoorAjar
RFDoorAjar
RR/SlidDr_Ajar
Trunk/Htch_Ajar
Range: _____ **ON/OFF**

Indicate whether door and trunk switches are open or closed. NO means the door is shut and switch contacts are closed.

LF_PwrWndw
Range: _____ **ENABLE/DISABLE**

Status of the left front window one-touch down feature and reads ENABLE when this feature should be currently rolling the window down.

LFWindowDn
Range: _____ **YES/NO**

GEM command status for the left front window to roll down and reads YES when the window is rolling down.

LFWindowMotr(A)
Range: _____ **0 to 64**

Amount of current through the left front window motor during use.

LFWndwPeak(A)
Range: _____ **0 to 64**

Maximum amount of current drawn by the left front window motor after use.

LR TURN
RR TURN
Range: _____ **ON/OFF**

Commanded status of the left rear and right rear turn signal lamps.

NeuSafetySw
Range: _____ **ACTIVE/INACTV**

Status of the neutral safety switch on 4WD systems and reads ACTIVE when the switch contacts are closed.

NeuTowFcnLmp
Range: _____ **ON/OFF**

Command status for the neutral tow indicator lamp on 4WD systems and reads ON when the lamp is lit and the Neutral Tow function is enabled.

NeutTowFcn
Range: _____ **ENABLE/DISABLE**

Indicates if the transfer case is in neutral tow mode on 4WD systems and reads ENABLE when tow mode is in effect.

Neutral tow prevents drive train damage when the vehicle is being towed.

NTRL SW
Range: _____ **NotAct/Active**

Status of the neutral safety switch and reads ACTIVE when the switch contacts are closed.

OverSpdWarn
Range: _____ **ENABLE/DISABLE**

Presence of a higher-than-normal wheel speed sensor signal and reads ENABLE only when one or more wheels exceeded maximum vehicle speed or a speed sensor circuit has shorted.

ParkLmpSw
Range: _____ **ON/OFF**

Status of the driver-operated park lamp switch and reads ON when the park lamp switch contacts are closed.

RearDefRly
Range: _____ **ON/OFF**

Command status to the rear window defroster relay and reads ON when the module is commanding the relay solenoid to energize and close the relay contacts.

RearDefSw
Range: _____ **ON/OFF**

Status of the driver-operated rear window defroster switch and reads ON when the defroster switch contacts are closed.

RearPosSense
Range: _____ **YES/NO**

Reads YES when the rear windshield wiper is in the PARK position.

RearWasher
Range: _____ **ON/OFF**

Reads ON when the GEM is commanding the rear window washer to apply fluid to the rear window.

RearWASHSW
Range: _____ **ON/OFF**

Actual status for the rear window washer switch and reads ON when the washer switch contacts are closed.

RearWiper
Range: _____ **ON/OFF**

Command status for the rear window wiper and reads ON when the rear wiper is operating.

RearWiperDn
RearWiperUp
Range: _____ **ON/OFF**

Module status for the rear wiper arm down or up command.

- RearWiperDn = ON means the wiper should be moving down to home position.
- RearWiperUp = ON means the wiper should be moving up.

RearWPRUN
Range: _____ **ON/OFF**

Status for the rear window wiper switch and reads ON when the rear wiper switch is in the on position.

RevSel
Range: _____ **ON/OFF**

Indicates whether the gear selector is in reverse on 4WD systems and reads ON when the gear selector is in reverse.

SeatBeltLamp
Range: _____ **ON/OFF**

GEM command status to the seat belt lamp indicator on the instrument panel and reads ON if the GEM has commanded the lamp to light.

SpdSensWipr
Range: _____ **ENABLE/DISABLE**

Status of the windshield wiper mode that makes wiper motion vehicle speed sensitive and reads ENABLE when the wiping motion speed increases and decreases with vehicle speed.

VBatt(V)
Range: _____ **0 to 25 V**

Battery voltage.

VBatt_GEM(V)
Range: _____ **0 to 25 V**

Battery voltage supplied to the GEM module.

VBatt_REM(V)
Range: _____ **0 to 25 V**

Battery voltage supplied to the REM module.

VSS_GEM
Range: _____ **0 to 120 MPH**

Vehicle speed sensor (VSS signal being supplied to the GEM module in MPH).

WasherPumpRly
WASHRLY
Range: _____ **ON/OFF**

Command status to the washer pump relay and read ON when the module has energized the relay solenoid to close the relay contacts.

WasherPumpSw
Range: _____ **ON/OFF**

Status of the driver-operated washer pump switch and reads ON when the switch contacts are closed.

WEAR OK
Range: _____ **YES/NO**

Status of the brake pad wear switch and reads as follows:

- YES when the switch contacts are closed
- NO when the switch contacts are open

The dash brake warning indicator illuminates when the switch contacts open.

WFLUID
Range: _____ **LOW/OK**

Indicates whether the washer fluid level is LOW or OK.

Wiper2SpdRly
Range: _____ **ON/OFF**

Status of the two-speed (high wiper relay and reads ON when the relay contacts are closed, allowing the wipers to operate at high speed.

WiperPk-Pk(mS)
Range: _____ **0 to 255 mS**

Windshield intermittent delay time.

WiperRunRly
Range: _____ **ON/OFF**

Command status to the wiper run relay and reads ON when the module has energized the relay solenoid to close the relay contacts.

Transmission Control Module Parameters

ABS_ACTIVE
Range: _____ NORMAL/ACTIVE

Antilock braking system.

ABS_MSG_TCM
Range: _____ PRESENT/NOT PRESENT

CAN message is missing from the ABS.

ACCLUTCH_TCM
Range: _____ ON/OFF

Status of the air conditioning clutch.

AP_PER_TCM
Range: _____ not available

Accelerator pedal position 1 in percentage.

APP1_FN_TCM
Range: _____ not available

Accelerator pedal position sensor 1.

APP1_TCM
Range: _____ not available

Accelerator pedal position sensor 1.

APP2_TCM
Range: _____ not available

Accelerator pedal position sensor 2.

APP3_TCM
Range: _____ not available

Accelerator pedal position sensor 3.

BARO_TCM
Range: _____ not available

Barometric pressure.

BATT_I_REC
Range: _____ not available

Battery current received.

BATT_V_REC
Range: _____ not available

Battery voltage received from the transmission control module.

BOO_TCM
Range: _____ ON/OFF

Brake switch input status.

BRKPEDSW
Range: _____ ACTIVE/INACTIVE

Status of the brake pedal switch.

CCNT_TCM
Range: _____ not available

Indicates continuous codes.

CLTCHAMP_CMD
Range: _____ not available
Commanded current for the clutch actuator.

CONTRACTOR
Range: _____ OPEN/CLOSED
Contractor status.

CPC_AMP
Range: _____ not available
Converter pressure control.

DISTDIG_TCM
Range: _____ not available
Distance since the last time diagnostic trouble codes were cleared.

DRIVECNT_TCM
Range: _____ not available
Valid drive counter.

DRIVEPOS_TCM
Range: _____ YES/NO
Gear level position - drive.

DTC_CNT_TCM
Range: _____ not available
DTC count (includes those needing no action)

ECT_TCM (°C/°F)
Range: _____ not available
(ECT transmission control module temperature.)

ECT_TCM_DI (°C/°F)
Range: _____ not available
Engine coolant temperature.

ENG_CTO
Range: _____ not available
Engine speed clean tachometer output.

ENG_TORQ
Range: _____ not available
Engine torque.

ENGINE_STAT
Range: _____ YES/NO
Engine running status.

FIRMSHFT
Range: _____ ON/OFF
Firm shift status.

FLG_MLUSFM
Range: _____ YES FAULT/NO FAULT
Torque converter had unlocked due to slipping.

FLG_OTLK		
Range:	_____	YES FAULT/NO FAULT
Transmission over temperature lockup mode.		
FRZ_DTC		
Range:	_____	not available
Freeze frame diagnostic trouble code.		
FUEL_CUT		
Range:	_____	not available
Fuel cut-off signal.		
G_SDN_A		
Range:	_____	not available
Generator shutdown from e-quizzer.		
G_SDN_B		
Range:	_____	not available
Generator shutdown for vehicle system control.		
G_SDN_C		
Range:	_____	not available
Generator shutdown from the powertrain control module.		
Gear		
Range:	_____	not available
Commanded by module.		
GEAR_MAX		
Range:	_____	not available
Highest gear allowed.		
Gear_OSCIP		
Range:	_____	not available
Gear command by output state control.		
GEAR_RAT		
Range:	_____	not available
Gear ratio.		
GEN_BRK_CMD		
Range:	_____	ON/OFF
Generator brake command.		
GEN_CTRL		
Range:	_____	not available
Generator control mode.		
GEN_COILTEMP (°C)(°F)		
Range:	_____	not available
Generator coil temperature.		
GEN_INV_V		
Range:	_____	not available
Voltage of the generator inverter.		

GEN_SPEED	
Range: _____	not available
Generator speed.	
GEN_TEMPHI (°C)(°F)	
Range: _____	not available
Generator inverter phase temperature.	
GEN_TORQ_CMD	
Range: _____	not available
Generator torque command.	
GR_RATIO	
Range: _____	not available
Transmission gear ratio.	
GTQ_OUT	
Range: _____	not available
Generator torque from AC Source.	
I_SDN_1	
Range: _____	not available
Rapid discharge signal 1.	
I_SDN_2	
Range: _____	not available
Rapid discharge signal 2.	
IAT_TCM (°C)(°F)	
Range: _____	not available
Intake air temperature.	
IGNITION	
Range: _____	not available
Indicates the ignition.	
IMAN_DN_TCM	
Range: _____	OPEN/CLOSED
Gear lever position - Tip Minus.	
IMIN_UP_TCM	
Range: _____	OPEN/CLOSED
Position of the gear level - Tip Plus.	
IMS_SRC	
Range: _____	not available
Immediate shaft speed.	
ISS	
Range: _____	not available
Input shaft speed.	
ISS_DIR	
Range: _____	FORWARD/REVERSE
Intermediate shaft direction.	

ISS_F
 Range: _____ YES FAULT/NO FAULT

Intermediate shaft speed reliability.

LF_WSPD_TCM
 Range: _____ not available

Left front wheel speed sensor.

LOAD_TCM
 Range: _____ not available

Percentage engine load.

LCP_AMP
 Range: _____ not available

Line pressure control.

M_SDN_A
 Range: _____ not available

Motor shutdown from E-quizzer.

M_SDN_B
 Range: _____ not available

Motor shutdown from vehicle system control.

M_SDN_C
 Range: _____ not available

Motor shutdown from powertrain control module.

MANSW_TCM
 Range: _____ OPEN/CLOSED

Gear level position - manual.

MECH_TCM (°C/°F)
 Range: _____ not available

Motor electronics coolant temperature.

MIL_DIS_TCM
 Range: _____ not available

Distance traveled since the MIL was activated.

MTQ_OUT
 Range: _____ not available

Motor torque from AC source.

MTR_COILTEMP (°C)(°F)
 Range: _____ not available

Motor coil temperature.

MTR_INV_V
 Range: _____ not available

Motor inverter voltage.

MTR_SPEED
 Range: _____ not available

Motor speed in RPM (Rotations Per Minute).

MTR_TEMPHI (°C)(°F)
Range: _____ not available

This parameter indicates the motor inverse phase temperature.

MTR_TORQ_CMD
Range: _____ not available

This parameter indicates the motor torque command.

NEUTPOS_TCM
Range: _____ YES/NO

Gear level position is neutral.

ODOMETER_TCM
Range: _____ not available

Indicates the total distance.

OFMFLG
Range: _____ YES FAULT/NO FAULT

Indicates the pressure control failure mode

OSS
Range: _____ not available

Output shaft speed.

OSS_F
Range: _____ YES FAULT/NO FAULT

Reliability of the output shaft speed.

OSS_DIR
Range: _____ FORWARD/REVERSE

Output shaft direction.

OSS_TCM
Range: _____ not available

Output shaft speed in RPM.

OTEMP_FMFLG
Range: _____ YES FAULT/NO FAULT

Transmission over temperature.

OverdriveCancel
Range: _____ NOT DEPRESSED/DEPRESSED

State of the overdrive cancel switch/hold switch.

PCA
Range: _____ not available

Pressure control solenoid A.

PCA_FLT
Range: _____ NO FAULT/FAULT

Pressure control solenoid A.

PCA_MES
Range: _____ not available

Measured pressure of the transmission PCA.

PCAA Range: _____	not available
Pressure control solenoid A.	
PCAAMP_MES Range: _____	not available
Measured current PCA.	
PCB Range: _____	not available
Pressure control solenoid B.	
PCBA Range: _____	not available
Pressure control solenoid B.	
PCBAMP_MES Range: _____	not available
Measured current for the transmission PCB.	
PCCAMP_MES Range: _____	not available
Measured current for the PCC.	
PCC Range: _____	not available
Pressure control solenoid C.	
PCC_MES Range: _____	not available
Measured pressure of the PCC.	
PCCA Range: _____	not available
Pressure control solenoid C.	
PCD Range: _____	not available
Shift solenoid pressure control D.	
PCD_FLT Range: _____	YES FAULT/NO FAULT
Indicates the SSPCD status.	
PCD_AMP Range: _____	not available
Shift solenoid pressure control D.	
PCE_AMP Range: _____	not available
Shift solenoid pressure control E.	
PCF Range: _____	not available
Line pressure control	

PCF_FLT
Range: _____ YES FAULT/NO FAULT
LPC status.

PCG
Range: _____ not available
Converter pressure control.

PCG_FLT
Range: _____ YES FAULT/NO FAULT
Torque converter clutch status.

PCE
Range: _____ not available
Shift solenoid pressure control E.

RCL_F
Range: _____ YES FAULT/NO FAULT
Reverse control lamp status.

PCM_MSG_TCM
Range: _____ PRESENT/NOT PRESENT
CAN message is missing from the PCM.

PVT_WDS
Range: _____ not available
Pressure vacuum transducer.

RESPOS_TCM
Range: _____ YES/NO
Gear level position - Reverse.

RF_WSPD_TCM
Range: _____ not available
Right front wheel speed sensor.

RPM_DSD_TCM
Range: _____ not available
Desired idle speed (RPM).

RPM_TCM
Range: _____ not available
Engine rpm (revolutions per minutE).

RPM_TCM_HEV
Range: _____ not available
Shift position.

SHIFT_POS
Range: _____ not available
Status of the transmission control indicator light.

SHFT_TYP
Range: _____ not available
Shift type.

- SLIP_DES_SCP**
 Range: _____ not available
 Desired torque converter slip.
- SSA_AMP**
 Range: _____ not available
 Shift solenoid pressure control A.
- SSAFM**
 Range: _____ YES/NO
 Shift solenoid 1 status.
- SSB_AMP**
 Range: _____ not available
 Shift solenoid pressure control B.
- SSB_SS1**
 Range: _____ ON/OFF
 Shift solenoid 1.
- SSB_SS2**
 Range: _____ ON/OFF
 Shift solenoid 2.
- SSBFM**
 Range: _____ YES/NO
 Shift solenoid 2 status.
- SSC_AMP**
 Range: _____ not available
 Shift solenoid pressure control C.
- SSE**
 Range: _____ not available
 Shift solenoid pressure control E.
- SSPCA**
 Range: _____ not available
 Shift solenoid pressure control A.
- SSPCA_FLT**
 Range: _____ NO FAULT/FAULT
 SSPCA status.
- SSPCB**
 Range: _____ not available
 Shift solenoid pressure control B.
- SSPCB_FLT**
 Range: _____ NO FAULT/FAULT
 SSPCB status.
- SSPCC**
 Range: _____ not available
 Shift solenoid pressure control C.

SSPCC_FLT
Range: _____ **NO FAULT/FAULT**
SSPCC status.

TC_SLIP
Range: _____ **not available**
Rpm of the torque converter slip actual.

TCC
Range: _____ **not available**
Torque converter clutch (modulated).

TCCAMP_MES
Range: _____ **not available**
Measured current for the TCC pressure control.

TCC_FLT
Range: _____ **YES FAULT/NO FAULT**
Status of the torque converter clutch fault.

TCC_OSC
Range: _____ **not available**
Output state control of the torque converter.

TCC_SLIP_DSD
Range: _____ **not available**
Desired torque converter slip.

TCIL
Range: _____ **ON/OFF**
Status of the transmission control indicator light.

TCIL_FLT
Range: _____ **YES FAULT/NO FAULT**
Transmission control indicator light.

TCM_CAUTION
Range: _____ **ON/OFF**
Status of the transmission control module caution.

TCM_HAZ
Range: _____ **ON/OFF**
Transmission control module hazard warning.

TCS
Range: _____ **NOT DEPRESSED/DEPRESSED**
Status of the overdrive cancel switch/hold switch.

TFT (°C/°F)
Range: _____ **not available**
Transmission fluid temperature.

TIP_MIN_TCM
Range: _____ **OPEN/CLOSED**
Gear level position - Tip Minus.

TIP_PL_TCM
 Range: _____ OPEN/CLOSED

Gear level position - Tip Plus.

TORQUE
 Range: _____ not available

Net engine torque.

TORQUE_DSD
TORQ_DSD
 Range: _____ not available

Desired total torque.

TORQUE_TCM
 Range: _____ not available

Net engine torque.

TOT_ENG (°C/°F)
 Range: _____ not available

Transmission fluid temperature.

TOTF
 Range: _____ YES FAULT/NO FAULT

Transmission fluid temperature status.

TOWHAUL
 Range: _____ ON/OFF

Tow haul switch.

TP_PER
 Range: _____ not available

Throttle position in percentage.

TP_REL_TCM
 Range: _____ not available

Relative throttle position.

TR
TR_FREQ(Hz)
TTR_DC
TR_V
 Range: _____ not available

Indicate the transmission range.

TRAN_TEMP (°C/°F)
 Range: _____ not available

Indicates the transmission oil temperature.

TRFM
 Range: _____ YES FAULT/NO FAULT

Indicates the transmission range status.

TRO_N_F
 Range: _____ YES FAULT/NO FAULT

Neutral output status.

TRO_P_F
Range: _____ **YES FAULT/NO FAULT**
Park output status.

TSES_TCM
Range: _____ **CLOCKTIME**
Time since start in seconds.

TSLIPRAT
Range: _____ **not available**
Transmission slip ratio.

TSMFLG_TCM
TSMFLG
Range: _____ **YES FAULT/NO FAULT**
Status of the turbine speed sensor failure mode.

TSS
Range: _____ **not available**
Turbine shaft speed.

TSS_F
Range: _____ **YES FAULT/NO FAULT**
Turbine shaft speed reliability.

TSS_TCM
Range: _____ **not available**
Turbine shaft speed.

TQ_CNTL
Range: _____ **not available**
Torque fuel/spark limiting status.

VAR_CMD
Range: _____ **not available**
Commanded variator ratio (input speed/output speed).

VAR_MES
Range: _____ **not available**
Measured variator ratio (input speed/output speed).

VEH_CTRL
Range: _____ **not available**
Vehicle control mode.

VOLT_SENSR
Range: _____ **not available**
Sensor supply voltage.

VPWR_TCM
VPWR
Range: _____ **not available**
Module supply voltage.

VS_SRC
Range: _____ **not available**
Transfer case sensor.

VSMFLG
Range: _____ YES FAULT/NO FAULT

Vehicle speed sensor signal status.

VSS_F
Range: _____ YES FAULT/NO FAULT

Vehicle speed sensor reliability.

VSS_TCM
Range: _____ not available

Vehicle speed.

VSS_TCM_HEV
Range: _____ not available

Vehicle speed.

VSS_TCM_HR
Range: _____ not available

Vehicle speed - high resolution.

WARMUPDTC_TCM
Range: _____ not available

Number of warm-ups since the DTCs were cleared.

Tire Pressure Monitor (TPM) Parameters

CCNT_TPMS
Range: _____ not available

Indicates continuous codes.

HORN_TPM
Range: _____ ACTIVE/INACTIVE

Indicates horn output.

LAST_ID
Range: _____ not available

Indicates the last received tire transmitter ID code value.

LF_ID
Range: _____ not available

Indicates the left front tire transmitter identifier.

LF_LRN
Range: _____ ACTIVE/INACTIVE

Indicates the left front learn status.

LF_MES
Range: _____ ACTIVE/INACTIVE

Left front re-measure status.

LF_NORM
Range: _____ ACTIVE/INACTIVE

Left front normal status.

LF_PSI
Range: _____ not available

Left front tire pressure.

LF_REC
Range: _____ YES/NO

Left front transmit has been received after learn.

LFAWAKE
Range: _____ not available

Left front awake status.

LFIDPRG
Range: _____ YES/NO

Left front sensor programmed.

LFLOBAT
Range: _____ LOW/OK

Left front low battery.

LR_ID
Range: _____ not available

Left rear tire transmitter identifier.

LR_LRN
Range: _____ ACTIVE/INACTIVE

Left rear learn status.

LR_MES
 Range: _____ ACTIVE/INACTIVE

Right rear re-measure status.

LR_NORM
 Range: _____ ACTIVE/INACTIVE

Left rear normal status.

LR_REC
 Range: _____ YES/NO

Left rear transmit has been received after learn.

LRAWAKE
 Range: _____ not available

Left rear awake status.

LRIDPRG
 Range: _____ YES/NO

Left rear sensor programmed.

LRLOBAT
 Range: _____ LOW/OK

Left rear low battery.

LRO_PSI
 Range: _____ not available

Left rear outer tire pressure.

RESET
 Range: _____ ACTIVE/INACTIVE

Parameter reset command.

RF_ID
 Range: _____ not available

Right front tire transmitter identifier.

RF_REC
 Range: _____ YES/NO

Right front transmit has been received after learn.

RF_LRN
 Range: _____ ACTIVE/INACTIVE

Right front learn status.

RF_MES
 Range: _____ ACTIVE/INACTIVE

Right front re-measure status.

RF_NORM
 Range: _____ ACTIVE/INACTIVE

Right front normal status.

RF_PSI
 Range: _____ not available

Right front tire pressure.

RFAWAKE
Range: _____ not available
Right front awake status.

RFIDPRG
Range: _____ YES/NO
Right front sensor programmed.

RFLOBAT
Range: _____ LOW/OK
Right front low battery.

RR_ID
Range: _____ not available
Right rear tire transmitter identifier.

RR_LRN
Range: _____ ACTIVE/INACTIVE
Right rear learn status.

RR_MES
Range: _____ ACTIVE/INACTIVE
Right rear re-measure status.

RR_NORM
Range: _____ ACTIVE/INACTIVE
Right rear normal status.

RR_REC
Range: _____ YES/NO
Right rear transmit has been received after learn.

RRAWAKE
Range: _____ not available
Right rear awake status.

RRIDPRG
Range: _____ YES/NO
Right rear sensor programmed.

RRLOBAT
Range: _____ LOW/OK
Right rear low battery.

RRO_PSI
Range: _____ not available
Right rear outer tire pressure.

SP_LRN
Range: _____ ACTIVE/INACTIVE
Spare learn status.

SP_MES
Range: _____ ACTIVE/INACTIVE
Spare re-measure status.

SP_NORM
Range: _____ ACTIVE/INACTIVE

Spare normal status.

SP_REC
Range: _____ YES/NO

Spare transmit has been received after learn.

SPAWAKE
Range: _____ not available

Spare awake status.

SPIDPRG
Range: _____ YES/NO

Spare sensor programmed.

SPLOBAT
Range: _____ ACTIVE/INACTIVE

Spare low battery.

SPR_ID
Range: _____ not available

Spare tire transmitter identifier.

SPR_PSI
Range: _____ not available

Spare tire pressure.

VSS_TPM
Range: _____ not available

Vehicle speed.

WARN_1
Range: _____ not available

Transmitter identifier with warning value 1.

WARN_2
Range: _____ not available

Transmitter identifier with warning value 2.

WARN_3
Range: _____ not available

Transmitter identifier with warning value 3.

WARN_4
Range: _____ not available

Transmitter identifier with warning value 4.

WARN_5
Range: _____ not available

Transmitter identifier with warning value 5.