2014 Volkswagen Jetta Hybrid Quick Reference Specification Book

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DTC CHART

Engine Code CNLA

Fuel and Air Mixture, Additional Emission Regulations

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P000B	Exhaust Camshaft Position Slow Response Bank 1	Difference between target vs. actual > 8 to 22 Deg. CRK for 2 to 3 Sec. and adjustment angle ≥ 2.5 Deg. CRK
P0010	Intake Camshaft Position Actuator Circuit Open Bank 1	Signal voltage 4.7 to 5.4 V
P0011	Intake Camshaft Position Timing - Over-Advanced Bank 1	Adjustment angle < 2.5° CRK • Difference between target vs. actual position < 2.5° CRK
P0013	Exhaust Camshaft Position Actuator Control Circuit Open	Signal voltage 4.70 to 5.40 V
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P025A	Fuel Pump Module Control Circuit Open	Signal voltage > 4.4 - 5.6 V
P025C	Fuel Pump Module Control Circuit Low	Signal voltage < 2.15 - 3.25 V
P025D	Fuel Pump Module Control Circuit High	Signal current > 1.1 A
P0030	HO2S Heater Control Circuit Bank 1 Sensor 1	Heater voltage 4.70 - 5.40 V
P0031	HO2S Heater Control Circuit Low Bank 1 Sensor 1	Heater voltage 0.0 - 3.26 V

DTC	Error Message	Malfunction Criteria and Threshold Value
P0032	HO2S Heater Control Circuit High Bank 1 Sensor 1	Heater current > 5.50 A
P0033	Turbocharger Bypass Valve Control Circuit	Actuator diagnostic signal failure or electrical error
P0034	Turbocharger Bypass Valve Control Circuit Low	Actuator diagnostic signal failure or electrical error
P0035	Turbo Charger Bypass Valve Control Circuit High	Actuator diagnostic signal failure or electrical error
P0036	HO2S Heater Control Circuit Bank 1 Sensor 2	Heater voltage, 2.34 - 3.59 V
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P0038	HO2S Heater Control Circuit High Bank 1 Sensor 2	Heater voltage > 3.59 V
P0042	O2 Sensor Heater Control Circ. Bank 1 Sensor 3	-
P0043	O2 Sensor Heater Control Circ. Low. Bank 1 Sensor 3	-
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P0068	MAP to Throttle Position Correlation	Plausibility with fuel system • Load calculation < -22% Plausibility with fuel system • Load calculation > 22%
P006C	MAP To Charge Pressure Sensor Correlation	Difference of manifold pressure to average pressure value in front of throttle body > 20 kPa
P006D	Barometric Pressure - Turbocharger/Supercharger Inlet Pressure Correlation Bank 1	Difference of ambient pressure to boost pressure value in front of throttle body > 15 to 250 kPa
P0070	Ambient Air Temperature Sensor Circuit	Ambient air temperature < -50° C
P0071	Ambient Air Temperature Sensor Performance	• Difference in value IAT vs. ECT @ engine start (depending on engine off time) < 25 K • Difference in value IAT - AAT @ engine start > 25 K (depending on engine off time)
P0072	Ambient Air Temperature Sensor Circuit Low	Ambient air temperature > 77° C

DTC	Error Message	Malfunction Criteria and Threshold Value
P007B	Charge Air Cooler Temperature Sensor Circuit Performance	Difference of IAT at start vs. ECT at start < -24.8 or > 24.8 Kelvin or Difference of IAT at start vs. charge air cooler temp sensor at start < -24.8 or > 24.8 Kelvin
P007C	Charge Air Cooler Temperature Sensor Circuit Low	Signal voltage < 0.22 V
P007D	Charge Air Cooler Temperature Sensor Circuit High	Signal voltage > 4.85 V
P0087	Fuel Rail/System Pressure - Too Low Bank 1	• Fuel trim activity 1.3 - 0.16 • Output value rail pressure control activity > 2 MPa • Difference between target and actual pressure > -16.4
P00AF	Turbocharger Boost Control Module Performance	Difference between target and actual position < -12 or > 12%
P0106	Manifold Absolute Pressure/ Barometric Pressure Circuit Performance	• Difference of boost pressure signal vs altitude sensor signal > 230 hPa or • Difference of boost pressure signal vs altitude sensor signal < -130 hPa • Difference of manifold pressure to average value of all pressure sensors < -3.70 or > 3.70 kPa
P0107	Manifold Absolute Pressure/ Barometric Pressure Circuit Low	Signal voltage < 2 V or manifold pressure signal < 10 kPa
P0108	Manifold Absolute Pressure/ Barometric Pressure Circuit High	Signal voltage > 4.8 V or manifold pressure signal > 370 kPa
P0111	Intake Air Temperature Sensor 1 Circuit Range/Performance	• Difference in value IAT vs. ECT @ engine start (depending on engine off time) > 25 K • Difference in value IAT - AAT @ engine start < 25 K (depending on engine off time)

DTC	Error Message	Malfunction Criteria and Threshold Value
P0112	Intake Air Temperature Sensor 1 Circuit Low Input	IAT > 141.0° C
P0113	Intake Air Temperature Sensor 1 Circuit High Input	IAT < -46 °C
P0116	Engine Coolant Temperature Sensor 1 Circuit Performance	• Difference in value IAT vs. ECT @ engine start (depending on engine off time) > 25 K • Difference in value IAT - AAT @ engine start < 25 K (depending on engine off time)
P0117	Engine Coolant Temperature Sensor 1 Circuit Low Input	Engine coolant temperature > 140° C
P0118	Engine Coolant Temperature Sensor 1 Circuit High Input	Engine coolant temperature < -40° C
P0121	Accelerator Pedal Position Sensor Circuit Range/ Performance	• TPS 1 - TPS 2 > 6.30% • Actual TPS 1 calculated value > TPS 2 calculated value • TPS 1 calc. value > 9.00%
P0122	Accelerator Pedal Position Sensor Circuit Low Input	Signal voltage < 0.20 V
P0123	Accelerator Pedal Position Sensor Circuit High Input	Signal voltage > 4.81 V
P0130	O2 Sensor Circuit Bank 1, Sensor 1	O2S ceramic temp. < 640° C
P0131	O2 Sensor Circuit, Bank 1 - Sensor 1 Low Voltage	Virtual mass < 1.75 V
		Nernst voltage < 1.50 V
		IA or IP > < 0.30 V
P0132	O2 Sensor Circuit, Bank 1 - Sensor 1 High Voltage	Virtual mass > 3.25 V
		Nernst voltage > 4.40 V
		IA or IP > 7 V

DTC	Error Message	Malfunction Criteria and Threshold Value
P0133	O2 Circuit Slow Response Bank 1 Sensor 1	Signal dynamic slope check • O2S signal front vs. modeled O2S signal ratio < 0.35 and > 0.01 • Cycles completed > 5 Oscillation check • Lambda amplitude signal > 20% • Cycles > 5 • Time lambda > lambda amplitude 400 m sec. Delay check • Delay modeled lambda signal minus measured signal > 460 m sec. • Cycles > 12
P0135	O2 Heater Circuit Bank 1 Sensor 1	• Heater duty cycle, > 90% • O2S ceramic temperature, < 715° C • Time after O2S heater on 40 Sec.
P0136	O2 Sensor Circuit Bank 1 Sensor 2	• Delta voltage one step at heater switching > 2.00 V • Number of checks 4
P0137	O2 Sensor Circuit Low Voltage Bank 1 Sensor 2	Cold condition • Signal voltage, < 0.06 V. Warm condition • Signal voltage < 59.6 mv • Reaction at closed loop enrichment - no reaction
P0138	O2 Sensor Circuit High Voltage Bank 1 Sensor 2	Signal voltage 1.08 V for > 5 Sec.
P0139	O2 Sensor Circuit Slow Response Bank 1 Sensor 2	• EWMA filtered transient time at fuel cutoff > 1.2 Sec • In voltage range of 201 - 401 mV • Number of checks 3
P013A	O2 Sensor Slow Response Rich to Lean Bank 1 Sensor 2	EWMA filtered max differential transient time at fuel cutoff ≥ 5 Sec. and number of checks ≥ 3

DTC	Error Message	Malfunction Criteria and Threshold Value
P013B	O2 Sensor Slow Response Lean To Rich Bank 1 Sensor 2	EWMA filtered max differential transient time at fuel feed restart and number of checks ≥ 1
P013E	O2 Sensor Delayed Response Rich to Lean Bank 1 Sensor 2	EWMA filtered max differential transient time at fuel cutoff ≥ 5 Sec. and number of checks ≥ 3
P013F	O2 Sensor Delayed Response Lean To Rich Bank 1 Sensor 2	EWMA filtered max differential transient time at fuel feed restart and number of checks ≥ 1
P0140	O2 Sensor Circuit No Activity Detected Bank 1 Sensor 2	Signal voltage • Signal voltage 0.40 - 0.60 mV for > 3 Sec. Internal resistance • > 40000 ohm
P0141	O2 Sensor Heater Circuit Bank 1 Sensor 2	Heater resistance, 792 to 4560 Ohm
P0142	O2 Sensor Circ. Bank 1 Sensor 3	-
P0143	O2 Sensor Circ. Low Voltage Bank 1 Sensor 3	-
P0144	O2 Sensor Circ. High Voltage, Bank 1 Sensor 3	-
P0145	O2 Circuit Slow Response (Bank 1, Sensor 2)	-
P0146	O2 Sensor Circ. No Activity Detected Bank 1 Sensor 3	-
P0147	O2 Sensor Heater Circ. Bank 1 Sensor 3	-
P0169	Incorrect Fuel Composition	• Fuel quantity incorrect • Fuel correction factor incorrect • Internal check failed
P0171	System Too Lean Bank 1	At idle • Adaptive value > 5.02% At part load • Adaptive value > 21%
P0172	System Too Rich Bank 1	At idle • Adaptive value < 5.02% At part load • Adaptive value < 21%
P0190	Fuel Rail Pressure Sensor Circuit	Signal voltage > 4.8 V

DTC	Error Message	Malfunction Criteria and Threshold Value
P0191	Fuel Rail Pressure Sensor Circuit Range/Performance	Actual pressure > 20.6 MPa
P0192	Fuel Rail Pressure Sensor Circuit Low Input	Signal voltage < 0.2 V
P0201	Injector Circuit Open Cylinder 1	• Low side signal current < 2.1 A • Internal logic failure
P0202	Injector Circuit Open Cylinder 2	• Low side signal current < 2.1 A • Internal logic failure
P0203	Injector Circuit Open Cylinder 3	• Low side signal current < 2.1 A • Internal logic failure
P0204	Injector Circuit Open Cylinder 4	• Low side signal current < 2.1 A • Internal logic failure
P0221	Accelerator Pedal Position Sensor Circuit Range/ Performance	• TPS 1 - TPS 2 > 6.30% • Actual TPS 2 calculated value > actual TPS 1 calculated value • TPS 2 calculated value > 9.00%
P0222	Accelerator Pedal Position Sensor Circuit Low Input	Signal voltage < 0.20 V
P0223	Accelerator Pedal Position Sensor Circuit High Input	Signal voltage > 4.81 V
P0234	Turbocharger Overboost Condition	Difference of set value boost pressure vs. actual boost sensor signal > 260 to 1275 hPa
P0236	Turbocharger Boost Sensor Circuit Range/Performance	Difference of set value boost pressure vs altitude sensor signal > 230 and < -130 hPa
P0237	Turbocharger Boost Sensor Circuit Low	Signal voltage < 0.2 V
P0238	Turbocharger Boost Sensor A Circuit High	Signal voltage > 4.88 V
P023A	Charge Air Cooler Coolant Pump Control Circuit/Open	Signal voltage 4.8 - 5.3 V
P023C	Charge Air Cooler Coolant Pump Control Circuit High	Signal curent > 2.2 - 4.0 A
P025A	Fuel Pump Module Control Circuit/Open	Signal voltage 4.40 - 5.60 V
P025D	Fuel Pump Module Control Circuit High	Signal current > 1.10 A

DTC	Error Message	Malfunction Criteria and Threshold Value
P0246	Turbocharger/Supercharger Wastegate Solenoid A High	Signal current > 2.2 A
P0261	Cylinder 1 Injector Circuit Low	Signal current < 2.10 A
P0262	Cylinder 1 Injector Circuit High	Signal current > 14.70 A
P0264	Cylinder 2 Injector Circuit Low	Signal current < 2.10 A
P0265	Cylinder 2 Injector Circuit High	Signal current > 14.70 A
P0267	Cylinder 3 Injector Circuit Low	Signal current < 2.10 A
P0268	Cylinder 3 Injector Circuit High	Signal current > 14.70 A
P0270	Cylinder 4 Injector Circuit Low	Low side signal current < 2.10 A
P0271	Cylinder 4 Injector Circuit High	Signal current > 14.70 A
P0299	Turbo/Super Charger Underboost	Difference of set boost pressure vs actual boost pressure value > 150 hPa
P2088	“A” Camshaft Position Actuator Control Circuit Low (Bank 1)	Signal voltage 0.0 - 3.25 V
P2089	“A” Camshaft Position Actuator Control Circuit High (Bank 1)	Signal current > 2.20 A
P2090	B Camshaft Position Actuator Control Circuit (Bank1) Low	Signal voltage 0.0 - 3.25 V
P2091	B Camshaft Position Actuator Control Circuit (Bank1) High	Signal current > 2.20 A
P2096	Post Catalyst Fuel Trim System (Bank 1) Too Lean	I-portion of 2nd lambda control loop < -0.030
P2097	Post Catalyst Fuel Trim System (Bank 1) Too Rich	I-portion of 2nd lambda control loop > 0.030
P3081	Engine Temperature Too Low	Difference reference model temperature vs. ECT > 10.5 K

Ignition System

DTC	Error Message	Malfunction Criteria and Threshold Value
P0300	Random Misfire Detected	• Emission threshold misfire rate (MR) > 2.5% • Catalyst damage misfire rate (MR) > 5.75 - 22.25%

DTC	Error Message	Malfunction Criteria and Threshold Value
P0301	Cylinder 1 Misfire Detected	• Emission threshold misfire rate (MR) > 2.5% • Catalyst damage misfire rate (MR) > 5.75 - 22.25%
P0302	Cylinder 2 Misfire Detected	• Emission threshold misfire rate (MR) > 2.5% • Catalyst damage misfire rate (MR) > 5.75 - 22.25%
P0303	Cylinder 3 Misfire Detected	• Emission threshold misfire rate (MR) > 2.5% • Catalyst damage misfire rate (MR) > 5.75 - 22.25%
P0304	Cylinder 4 Misfire Detected	• Emission threshold misfire rate (MR) > 2.5% • Catalyst damage misfire rate (MR) > 5.75 - 22.25%
P0321	Engine Speed Input Circuit Performance	• Comparison of counted teeth vs reference = incorrect • Monitoring reference gap failure
P0322	Engine Speed Input Circuit No Signal	• Camshaft signal > 3.00 • Engine speed, no signal
P0324	Knock Control System Error	• Signal fault counter (combustion) > 24 or • Signal fault counter (measuring window) > 2.00
P0327	Knock Sensor 1 Circuit Low Input	• Lower threshold < -70 V or for signal range check • > 0 - 1.60 V
P0328	Knock Sensor 1 Circuit High Input	• Upper threshold > 1.00 V or for signal range check • > 15 - 115.9 V
P0340	Camshaft Position Sensor 1 Circuit	Cam adaption values out of range • > 20° KW • < -20° KW • Difference of adapted and actual values > 9° KW
P0341	Camshaft Position Sensor Circuit Range/Performance	• Signal pattern incorrect

DTC	Error Message	Malfunction Criteria and Threshold Value
P0342	Camshaft Position Sensor Circuit 1 Low Input	• Signal voltage permanently low • Crankshaft signals = 8
P0343	Camshaft Position Sensor Circuit High Input	• Signal voltage permanently high • Crankshaft signals = 8
P0351	Ignition Coil 1 Primary/ Secondary Circuit	• Signal current 0.25 to -2.0 mA • Internal check failed
P0352	Ignition Coil 2 Primary/ Secondary Circuit	• Signal current 0.25 to -2.0 mA • Internal check failed
P0353	Ignition Coil 3 Primary/ Secondary Circuit	• Signal current 0.25 to -2.0 mA • Internal check failed
P0354	Ignition Coil 4 Primary/ Secondary Circuit	• Signal current 0.25 to -2.0 mA • Internal check failed
P0366	Cam Position Sensor 2 Circuit Performance	Signal pattern incorrect and defect counter = 12
P0367	Cam Position Sensor 2 Circuit Low	Signal voltage permanently low and crankshaft signals = 12
P0368	Cam Position Sensor 2 Circuit High	Signal voltage permanently high and crankshaft signals = 12

Additional Exhaust Regulation

DTC	Error Message	Malfunction Criteria and Threshold Value
P0410	Secondary Air Injection System Fault	Difference in ambient pressure vs. AIR pressure measured with AIR pressure sensor > 0.50 kPa
P0413	Secondary Air Injection System Switching Valve Open	Signal voltage 4.70 - 5.40 V
P0414	Secondary Air Switching Valve Shorted	Signal voltage 0.00 to 3.25 V or Signal current > 2.20 A
P0418	Secondary Air System Relay Circuit Open	Signal voltage 4.70 - 5.40 V

DTC	Error Message	Malfunction Criteria and Threshold Value
P0420	Catalyst System Efficiency Below Threshold	Front: • Oxygen storage capacity (OSC) vs OSC of borderline catalyst < 0.40 • Front catalyst< 1.00 • Main catalyst < 1.20 Main: • Oxygen storage capacity (OSC) vs OSC of borderline catalyst < 0.40 • Front catalyst < .90 • While value for front catalyst < 2.00
P043E	EVAP Leak Detection Reference Orifice Low Flow	EVAP pump current during reference measurement > 40 mA
P043F	EVAP Leak Detection Reference Orifice High Flow	EVAP pump current during reference measurement < 15 mA
P0441	Evaporative Emission System Incorrect Purge Flow	Drop of EVAP pump current within time < 0.75 to 1.20 mA within 5 Sec.
P0442	Evaporative Emission System Leak Detected Small Leak	Time for pressure drop < 1.6 - 1.85 Sec.
P0444	Evaporativ Emission System Purge Control Valve Circuit Open	Signal voltage > 4.70 - 5.40 V
P0447	Evaporative Emission System Vent Control Circuit Open	Signal voltage 4.7 - 5.4 V
P0448	Evaporative Emission System Vent Control Circuit Shorted	Signal voltage < 2.74 to 3.26 V or signal current > 2.2 to .0 A
P0449	Evaporativ Emission System Vent Valve Circuit	Signal voltage 2.8 to 3.2 V or 4.5 to 5.3 V or signal current 220 to 980 µA
P0450	EVAP System Pressure Sensor Fault	EVAP system vapor pressure after tank ventilation > 2 kPa
P0451	Evaporative Emission System Pressure Sensor Performance	Difference between max. and min. evaporative system vapor pressure < 0.05 kPa within 300 Sec.
P0452	EVAP Emission Control Sysytem Pressure Sensor Low	Signal voltage < 0.20 V

DTC	Error Message	Malfunction Criteria and Threshold Value
P0453	EVAP Emission System Pressure Sensor High	Signal voltage > 4.80 V
P0455	Evaporative Emission System Leak Detected	Time for pressure drop < 1 Sec.
P0456	Evaporative Emission System Leak Detected Very Small Leak	Time for pressure drop, < 4.5 - 6.0 Sec.
P0458	Evaporative Emission System Purge Control Valve Circuit Low	Signal voltage 0.0 - 3.25 V
P0459	Evaporative Emission System Purge Control Valve Circuit High	Signal current > 2.20 A
P0491	Secondary Air System Low Flow	Average pressure difference between absolute value and filtered value < 0.15 to 0.90 kPa and relative AIR pressure measured > 0.50 kPa
P0496	EVAP System High Purge Flow	Actual pump current difference between reference measurement to idle divided by pump current difference from the last leak detection phase during engine off > 1.40
P04B5	Fuel Fill Door Stuck Open	Accumulative fuel consumption since refuel > 144.0
P04DB	Crankcase Ventilation System Disconnected	Signal voltage > 2.5 V
P04ED	EVAP System Large Leak Detected Fresh Air Side	Modeled pressure from pump current < 0.90 kPa
P04EF	EVAP System Very Small Leak Detected Fresh Air Side	EVAP leakage area calculated from pump current curve > 0.12 mm2
P04F0	Evaporative Emission System Purge Line Performance	• Drop of EVAP pump current < 0.70...1.10 • Within time 2.5 Sec.

Speed and Idle Control

DTC	Error Message	Malfunction Criteria and Threshold Value
P0501	Vehicle Speed Sensor Range/ Performance	VSS signal < 6 km/h

DTC	Error Message	Malfunction Criteria and Threshold Value
P0502	Vehicle Speed Sensor Circuit Low	Failure
P0503	Vehicle Speed Sensor Intermittent/Erratic/High	Vehicle speed > 290 km/h
P0506	Idle Control System RPM Lower than Expected	• Idle speed Deviation > 80 RPM and RPM controller torque value ≤ calculated min. value or • Integrated deviation of engine speed low and engine speed high > 2000 RPM
P0507	Idle Control System RPM Higher than Expected	• Idle speed Deviation < -80 RPM and RPM controller torque value ≥ calculated max. value • Integrated deviation of engine speed low and engine speed high > 2000 RPM
P050A	Cold Start Idle Air Control System Performance	Out of range low • Engine speed deviation < -80 RPM Out of range high • Engine speed deviation > 80 RPM
P050B	Timing Adjustment Malfunction During Cold Start at Idle	Difference between commanded spark timing vs. actual value 20 to 50%
P052A	Cold Start Intake Camshaft Position Timing Over-Advanced	Difference between target vs. actual position > 12 to 40 °CRK
P053f	Cold Start Fuel Pressure Performance	Difference between target vs. actual pressure < -1.50 or > 1.50 MPa
P054A	Cold Start Exhaust Camshaft Position Timing Over-Advanced	Difference between target vs. actual position > 12 to 40 °CRK
P0555	Brake Booster Pressure Sensor Circuit	Sensor voltage > 4.90 V

DTC	Error Message	Malfunction Criteria and Threshold Value
P0556	Brake Booster Pressure Sensor Circuit Range/ Performance	Difference between brake booster pressure vs. ambient pressure > 10 kPa or gradient brake booster pressure > 1.5 kPa
P0557	Brake Booster Pressure Sensor Circuit Low	Sensor voltage < 0.19 V
P056E	Cold Start Turbocharger Boost Control Performance	Difference between target and actual position < -12 or > 12%
P0571	Cruise/Brake Switch (A) Circuit Malfunction	CAN Message
P057B	Brake Pedal Position Sensor	• Duty cycle > 92% to < 8% • Time > 5 ms to < 4 ms • No position sensor signal • Offset adaption value > 92% to < 60%

Control Module and Output Signals

DTC	Error Message	Malfunction Criteria and Threshold Value
P0606	ECM Processor Fault	ECM internal check failure
P062B	Internal ECM Driver for Fuel Injector Control, Performance	Internal logic failure
P0634	ECM Internal Temperature Too High	Power stage temperature > 170° C
P0638	Throttle Actuator Control Range/Performance	• Time to close to reference point > 0.6 Sec. and • Reference point 2.88% • TPS 1 signal voltage NOT 0.40 to 0.80 V • TPS 2 signal voltage NOT 4.20 to 4.60 V • TPS 1 + TPS 2 NOT 4.82 to 5.18 V
P0641	Sensor Reference Voltage A Circuit Open	Signal voltage deviation > ± 0.3 V
P0651	Sensor Reference Voltage B Circuit Open	Signal voltage deviation > ± 0.3 V
P0657	Actuator Supply Voltage Circuit Open	Signal voltage, > 4.4 - 5.6 V

DTC	Error Message	Malfunction Criteria and Threshold Value
P0658	Actuator Supply Voltage Circuit Low	Signal voltage, < 2.15 - 3.25 V
P0659	Actuator Supply Voltage Circuit High	Signal current > 1.1 A
P0697	Sensor Reference Voltage C Circuit Open	Signal voltage deviation > ± 0.3 V
P0703	Torque Converter/Brake Switch B Circuit Malfunction	Signal voltage >2430 mV to < 10 mV
P0A93	Inverter “A” Cooling System Performance	Gradient of inverter temperature > 14 to 30 K/min
U0001	High Speed CAN Communication Bus	Bus Off failure or CAN message = no feedback
U0002	High Speed CAN Communication Bus Performance	Global Time Out failure or receiving no messages
U0028	Vehicle Communication Bus A	CAN message, no feedback
U0029	Vehicle Communication Bus A Performance	Global time out receiving no message
U0100	Lost Communication with ECM/PCM “A”	CAN communication with Engine Control Module time out
U0101	Lost Communication with TCM	Time Out failure. No message received by ECM
U0110	Lost Communication with Drive Motor Control Module “A”	CAN communication with Drive Motor Control Module time out
U0112	Lost Communication with Battery Energy Control Module “B”	CAN communication with Battery Energy Control Module time out
U0121	Lost Communication with Anti-Lock Brake System (ABS) Control Module	CAN communication with ABS Time Out.
U0122	Lost Communication with Vehicle Dynamics Control Module	
U0146	Lost Communication with Gateway A	CAN communication with gateway Time Out
U0155	Lost Communication With Instrument Panel Cluster (IPC) Control Module	No IPC CAN messages received
U0302	Software Incompatibility with Transmission Control Module	AT vehicle ECM coded as MT vehicle

DTC	Error Message	Malfunction Criteria and Threshold Value
U0401	Invalid Data Received From ECM/PCM “A”	Received data implausible message
U0402	Invalid Data Received From Transmission Control Module	Transmission Data Length Code incorrect
U0411	CAN: DMCM (Drive Motor Control Module)	Received data implausible message
U0412	Invalid Data Received From Battery Energy Control Module “A”	Received data implausible message
U0413	Invalid Data Received From Battery Energy Control Module “B”	Received data implausibe message
U0415	Invalid Data Received From Anti-Lock Brake System Control Module	• Speed sensor initialization failed • Speed sensor low voltage error failed • Speed sensor error failed • Implausible message
U0416	Invalid Data Received From Vehicle Dynamics Control Module	Received data implausible message
U0422	Invalid Data Received From Body Control Module (Cluster)	Ambient temperature value initialization failure.
U0423	Invalid Data Received From Instrument Panel Cluster Control Module	• Received CAN message, implausible message • Ambient temperatur value (initialization) 00h
U0447	Lost Communication With Gateway	CAN message incorrect or implausible
U1103	Vehicle In Production Mode	Production mode active
U1106	Vehicle In Service Mode	HEV service mode active

Fuel and Air Ratios Control Module

DTC	Error Message	Malfunction Criteria and Threshold Value
P12A1	Fuel Rail Pressure Sensor Inappropriately Low	• Pressure control activity > 0.20 mPa and • Fuel trim activity < 0.80 • Difference between target pressure vs. actual pressure -16.00 - 16.38 mPa

DTC	Error Message	Malfunction Criteria and Threshold Value
P12A2	Fuel Rail Pressure Sensor Inappropriately High	• Pressure control activity < -0.06 MPa • Fuel trim activity > 1.65 • Difference between target pressure vs. actual pressure -16.00 - 16.38 mPa
P12A4	Fuel Rail Pump Control Valve Stuck Closed	• Fuel trim activity .90 to 1.15 • Pressure control activity < -6 MPa • System Deviation < 16.38 MPa
P1388	ECM Internal Fault	Operation mode incorrect
P13EA	Timing Adjustment Malfunction During Cold Start	Difference between commanded spark timing vs. actual value > 40%
P1427	Brake Vacuum Pump Activation Circuit Short To Voltage	Signal current > 2.2 A
P1428	Brake Vacuum Pump Activation Circuit Short To Ground	Signal voltage < 2.15 V
P1429	Brake Vacuum Pump Activation Circuit Open	Signal voltage 4.4 - 5.6 V
P150A	Engine Off Timer Performance	Difference between engine off time and ECM after run time < -12 Sec. or > 12 Sec.
P169A	Transport Mode Active	Transport mode active
P2088	A Camshaft Position Actuator Control Circuit Low	Signal voltage 0 to 3.25 V
P2089	A Camshaft Position Actuator Control Circuit High Bank 1	Signal current > 2.2 A
P2090	Exhaust Camshaft Position Actuator Control Circuit Low	Signal voltage 0 to 3.25 V
P2091	Exhaust Camshaft Position Actuator Control Circuit High	Signal current 2.20 A
P2096	Post Catalyst Fuel Trim System Too Lean	Deviation lambda control < -0.04
P2097	Post Catalyst Fuel Trim System Too Rich	Integral part of lambda control > 0.04%

DTC	Error Message	Malfunction Criteria and Threshold Value
P2101	Throttle Actuator Control Motor Circuit Range/ Performance	• Duty cycle >80% • Deviation throttle valve angles vs. calculated value 4.0 - 50.0% • ECM power stage, no failure
P2106	Throttle Actuator Control System Forced Limited Power	• Internal check failed
P2122	Accelerator Pedal Position Sensor D Circuit Low Input	Signal voltage < 0.61 V
P2123	Accelerator Pedal Position Sensor D Circuit High Input	Signal voltage > 4.79 V
P2127	Accelerator Pedal Position Sensor E Circuit Low Input	Signal voltage < 0.27 V
P2128	Accelerator Pedal Position Sensor E Circuit High Input	Signal voltage > 2.43 V
P2138	Accelerator Pedal Position Sensor D/E Voltage Correlation	Signal voltage: Difference between signal APP1 and APP2 > 0.17 - 0.70 V
P2146	Fuel Injector Group A Supply Voltage Circuit Open	• Signal current > 14.90 A or • Signal current < 2.60 A
P2149	Fuel Injector Group B Supply Voltage Circuit Open	• Signal current > 14.90 A or • Signal current < 2.60 A
P2177	System Too Lean Off Idle,	• Adaptive value > 28%
P2178	System Too Rich Off Idle, Bank 1	• Adaptive value < -21%
P2181	Cooling System Performance	Cooling system temperature too low after a sufficient mass air flow integral 74 - 84° C
P2184	Engine Coolant Temperature Sensor 2 Circuit Low	ECT outlet > 141° C
P2185	Engine Coolant Temperature Sensor 2 Circuit High	ECT outlet < -43° C
P2187	System Too Lean at Idle	• Adaptive value > 5.02%
P2188	System Too Rch at Idle	• Adaptive value < -6.19%
P2195	O2 Sensor Signal Biased/ Stuck Lean Bank 1, Sensor 1	Delta lambda of 2nd lambda control loop > 0.06
P2196	O2 Sensor Signal Biased/ Stuck Rich Bank 1, Sensor 1	Delta lambda of 2nd lambda control loop < -0.07

DTC	Error Message	Malfunction Criteria and Threshold Value
P219C	Cylinder 1 Air-Fuel Ratio Imbalance	Individual cylinder fuel correction based on measured enleanment for dedicated engine roughness increase > 0.89
P219D	Cylinder 2 Air-Fuel Ratio Imbalance	Individual cylinder fuel correction based on measured enleanment for dedicated engine roughness increase > 0.89
P219E	Cylinder 3 Air-Fuel Ratio Imbalance	Individual cylinder fuel correction based on measured enleanment for dedicated engine roughness increase > 0.89
P219F	Cylinder 4 Air-Fuel Ratio Imbalance	Individual cylinder fuel correction based on measured enleanment for dedicated engine roughness increase > 0.89
P2237	O2 Sensor Positive Current Control Circuit Open Bank 1, Sensor 1	• O2S voltage signal front 1.493 - 1.507 or • O2S signal front < 1.7002 V • Fuel cutoff < 3 sec. or • O2S signal front 1.50 - 1.51 V • Delta lambda controller > 0.10
P2243	O2 Sensor Reference Voltage Circuit Bank 1, Sensor 1	• O2S signal front < 0.30 V and Internal resistance > 1000 Ohm • O2S signal front > 4.70 V and Internal resistance > 1000 Ohm
P2251	O2 Sensor Negative Current Control Circuit Bank 1 Sensor 1 Open	• O2S voltage signal front 1.47 to 1.53 V • Internal resistance > 1000 Ohms
P2257	Secondary Air Injection System Circuit Low	Signal voltage 0.00 - 3.26 V
P2258	Secondary Air Injection System Circuit High	Signal current 0.60 - 2.40 A
P2263	Turbocharger Boost System Performance	Signal voltage > 4500 mV

DTC	Error Message	Malfunction Criteria and Threshold Value
P2270	O2 Sensor Signal Stuck Lean Bank 1 Sensor 2	O2S signal rear < 0.63 V
P2271	O2 Sensor Signal Stuck Rich (Bank 1, Sensor 2)	• Sensor voltage of ≥ 0.15 V • After oxygen mass flow > 2800 to 4000 mg • Number of checks ≥ 1
P2274	O2 Sensor Signal Stuck Lean Bank 1 Sensor 3	-
P2275	O2 Sensor Signal Stuck Rich Bank 1 Sensor 3	-
P2279	Intake Air System Leak	Threshold to detect a defective system > 1.33 - 1.60
P2293	Fuel Pressure Regulator 2 Performance	• Difference between target pressure vs. actual pressure > 1.50 mPa or • < - 1.50 mPa
P2294	Fuel Pressure Regulator 2 Control Circuit	• Signal voltage 1.40 - 3.20 V or • Signal pattern incorrect
P2295	Fuel Pressure Regulator 2 Control Circuit Low	Signal voltage < 1.40 - 3.20 V
P2296	Fuel Pressure Regulator 2 Control Circuit High	Signal voltage > 3.20 V

Ignition System

DTC	Error Message	Malfunction Criteria and Threshold Value
P2300	Ignition Coil A Primary Control Circuit Low	Signal current > 24.0 mA
P2301	Ignition Coil A Primary Control Circuit High	Signal current > 5.1 - 7.0 mA
P2303	Ignition Coil B Primary Control Circuit Low	Signal current > 24.0 mA
P2304	Ignition Coil B Primary Control Circuit High	Signal current > 5.1 - 7.0 mA
P2306	Ignition Coil C Primary Control Circuit Low	Signal current > 24.0 mA
P2307	Ignition Coil C Primary Control Circuit High	Signal voltage > 5.1 - 7.0 mA

DTC	Error Message	Malfunction Criteria and Threshold Value
P2309	Ignition Coil D Primary Control Circuit Low	Signal current > 24.0 mA
P2310	Ignition Coil D Primary Control Circuit High	Signal voltage > 5.1 - 7.0 mA

Additional Emissions Regulations

DTC	Error Message	Malfunction Criteria and Threshold Value
P240A	EVAP Leak Detection Pump Heater Circuit High	Signal voltage > 4.7 - 5.4 V
P240B	EVAP Leak Detection Pump Heater Circuit Low	Signal voltage > 2.74 - 3.26 V
P240C	EVAP Leak Detection Pump Heater Circuit High	Signal current > 2.2 - 4.0 A
P2400	Evaporative Emission System Leak Detection Pump Control Circuit Open	Signal voltage > 4.4 - 5.6 V
P2401	Evaporative Emission System Leak Detection Pump Control Circuit Low	Signal voltage < 2.15 to 3.25 V
P2402	Evaporative Emission System Leak Detection Pump Control Circuit High	Signal current > 3 A
P2407	Evaporative Emission System Leak Detection Pump Sense Circuit Intermittent	Fluctuation of EVAP pump current during reference measurement > 3 mA or drop of pump current during pump phase > 6 mA for ≥ 3 Sec.
P2414	02 Sensor Exhaust Sample Error Bank 1 Sensor 1	• Threshold 1 • Signal voltage 3.1 - 4.81 V • O2S signal 2.5 - 3.2 V • Threshold 2 • Signal voltage 2.5 V • O2S signal 2.5 - 3.1 V
P2421	Evaporative Emission System Vent Valve Stuck Open	Change of EVAP pump current ≤ 2 mA within time ≥ 5.0 Sec.
P2422	EVAP System Vent Valve Stuck Closed	Change of EVAP pump current > 2 mA within ≥ 5 Sec.
P2431	Secondary Air System Pressure Sensor Circuit Performance	Difference between AIR pressure and ambient pressure < -6.00; > 6.00 kPa

DTC	Error Message	Malfunction Criteria and Threshold Value
P2432	Secondary Air System Pressure Sensor Circuit Low	Signal voltage < 0.50 V
P2433	Secondary Air System Pressure Sensor Circuit High	Signal voltage > 4.50 V
P2440	Secondary Air Pump Stuck On	Blockage relative AIR pressure sensor vs. modeled leakage ≥ 0.59 kPa
P2450	EVAP Switching Valve Performance/Stuck Open	EVAP pump current difference between reference measurement to idle ≥ 3.0 mA
P254F	Engine Hood Switch Circuit	Engine hood switch failure. Engine hood open.
P2562	Turbocharger Boost Control Position Sensor Circuit	Signal voltage > 4745 mV
P2563	Turbocharger Boost Control Position Sensor Circuit Performance	Signal voltage > 4500 mV
P2564	Turbocharger Boost Control Position Sensor Circuit Low	Signal voltage < 255 mV
P2600	Coolant Pump Control Circuit Open	Signal voltage < 4.8 - 5.3 V
P2602	Coolant Pump Control Circuit Low	Signal voltage < 2.8 - 3.2 V
P2603	Coolant Pump Control Circuit High	Signal current > 5.5 - 10.0 A
P261A	Coolant Pump B Control Circuit/Open	Signal voltage 4.8 - 5.3 V
P261C	Coolant Pump B Control Circuit Low	Signal voltage < 2.8 - 3.2 V
P261D	Coolant Pump B Control Circuit High	Signal current < 2.2 - 4.0 A
P2626	O2 Sensor Pumping Current Trim Circuit/Open Bank 1, Sensor 1	O2S signal front > 4.81 V
P2705	ECM: Electronic Throttle Control Module	Decoupler status incorrect

DTC	Error Message	Malfunction Criteria and Threshold Value
P30A2	Brake Pedal Range Sensor or Brake Light Switch Implausible Signal	• Brake light switch not active and brake pedal position > 25.00% or • Brake light switch active and brake pedal position < 1%
P30DC	Pressure Release for Refueling Gas Tank Not Possible	EVAP system vapor pressure ≥ 3.8 kPa and time after refueling request ≥ 30 Sec.
P3043	Fuel Pump Mechanical Malfunction - Locked Pump	Phase current > 17 A
P3045	Fuel Pump Electronics Faulty	Internal check failed
P308D	Fuel Pump Engine Speed Too Low	Phase current > 23 A
P308E	Fuel Pump Electronics Excess Temperature	Internal check failed
P3081	Engine Temperature Too Low	Difference between ECT and modeled ECT > 10 Kelvin
P309D	Clutch Disengagement Actuator Insufficient Slip With Disengaged Clutch	Engine speed is detected while electronic clutch is open: > 0 RPM
P309F	Clutch Disengagement Actuator Slip When Clutch Engaged	Difference between combustion engine speed and drive motor speed (full torque) > 50 - 300 RPM

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